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# A COMPARISON OF AUDIO COMMENTS AND WRITTEN COMMENTS: STUDENT AND INSTRUCTOR PREFERENCES AND INSTRUCTOR FEEDBACK PATTERNS

By

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ABSTRACT

A COMPARISON OF AUDIO COMMENTS AND WRITTEN COMMENTS:

STUDENT AND INSTRUCTOR PREFERENCES

AND INSTRUCTOR FEEDBACK PATTERNS

Andrew J. Cavanaugh

Providing feedback to students on their writing represents one of the most important features of an online writing course. Two methods of providing feedback to student writing—written commentary and audio commentary—have emerged in the literature. However, most studies examining these two methods have been conducted in face-to-face classes, where students can approach the instructor for clarification about the commentary. The limited studies that have been conducted on written and audio commentary in online classes have often featured non-writing classes in which revision of work was not a part of the course design and in which the commentary was given to various tasks in the class, not to student papers. This study examined the use of written and audio feedback in five 100-level online composition classes. Through instructor surveys and interviews, student surveys and interviews, and quantitative analysis of the comments themselves, the study examined how commenting patterns change between written and audio commentary, whether the provision of audio commentary represents a scalable option for instructors, what form of commentary students preferred for comments on different aspects of their papers, whether instructors found one method to result in more student improvement in writing over the other method, and whether students found one method to result

in improvement in their writing over the other method. The findings indicated that significantly more words were used for audio commentary than for written commentary but that an interaction effect occurs across instructors in their commenting patterns between the use of written and audio commentary. The findings also show that student comprehension on global- and middle-level issues in papers is improved through the use of audio over written commentary. The findings were not conclusive on whether one medium results in more improvement in student writing over the other medium. Instructors do find the use of audio commentary a scalable option when compared to the use of written commentary, with audio delivering more words than written commentary but with roughly the same time investment. In combining audio and written commentary, audio may be more effective for global- and middle-level concerns and written for micro-level concerns.

TABLE OF CONTENTS

LIST OF TABLES ..... x
LIST OF FIGURES ..... xiv
CHAPTER I. INTRODUCTION ..... 1
Statement of the Problem ..... 3
Purpose of the Research ..... 4
Significance of Study ..... 4
Research Design ..... 5
Research Questions ..... 6
Limitations and Assumptions ..... 6
Definition of Terms ..... 8
CHAPTER II. LITERATURE REVIEW ..... 11
Theoretical Framework ..... 11
Cognitive Load Theory ..... 11
Teacher Response Theory in Writing Composition Research ..... 14
Literature on Commenting on Student Writing ..... 15
Pedagogical Significance of Commenting on Student Papers ..... 15
Types of Comments Instructors Provide for Students ..... 16
Previous Studies on Patterns of Comments to Student Writing ..... 18
Characteristics of Written Comments ..... 18
Student Perceptions of Written Comments ..... 21
Characteristics of Audio Comments ..... 27
Student Perceptions of Audio Comments ..... 32
Conclusion ..... 35
CHAPTER III. METHODOLOGY ..... 40
Rationale for a Mixed-Methods Approach ..... 40
Research Context ..... 43
Participants ..... 43
Writing Assignments ..... 45
Writing Assignment #1 ..... 45
Writing Assignment #2 ..... 46
Consistency in Technology Use ..... 49
Consistency in Feedback Content ..... 49
Accounting for Differences in the Two Assignments and Five Instructors ..... 51
Data Collection ..... 51
Surveys from Students and from Instructors ..... 51
Interviews of Instructors and Students ..... 52
Comments on Drafts ..... 53
Templates from Instructors ..... 53

Data Analysis .....55
Qualitative Data .....55
Quantitative Data .....57
Analysis of Qualitative Data .....58
Analysis of Quantitative Data .....60
Pilot Study and Results .....60
CHAPTER IV. FINDINGS .....64
Findings of Research Question #1: Characteristics of Written and Audio Comments .....64
Comparing Number of Words .....67
Number of Words – Global Level .....67
Number of Words – Middle Level .....72
Number of Words – Micro Level .....76
Number of Words – Other .....79
Comparing Number of Items Commented On .....83
Number of Items Commented On – Global Level .....83
Number of Items Commented On – Middle Level .....87
Number of Items Commented On – Micro Level .....91
Means and Confidence Intervals for Audio and Written Comments .....95
Adjustment for Filler Words from Teacher #4 .....101
Testing for Order Effects .....106
Corroboration of These Findings with Teacher Surveys and Interviews 106
Findings of Research Question #2: Teachers' Perceptions of Scalability of Audio Comments .....111
Quantitative Data from Surveys .....111
Qualitative Data from Interviews and Open-Ended Answers .....115
Findings of Research Question #3: Students' Perceptions of Their Ability to Understand .....116
Qualitative Data from Student Interviews .....117
Comprehension of Comments .....117
Navigability of Comments .....122
Tone of Comments .....126
Overall Findings from Qualitative Analysis of Student Interviews .....128
Quantitative Analysis of Student Survey Results .....129
Global-Level Issues in Student Survey Results .....133
Middle-Level Issues in Student Survey Results .....137
Micro-Level Issues in Student Survey Results .....143
Conclusion from Inferential Statistical Analysis .....147
Conclusion from Qualitative and Quantitative Analysis .....148
Findings of Research Question #4: Teachers' Perceptions of Student Improvement .....148
Global-Level Data from the Feedback Templates .....149
Introduction and Thesis .....149
Conclusion to the Essay .....151
Development, Flow, and Wording .....151
Middle-Level Data from the Feedback Templates .....152

Coherence and Organization ..... 152
Support and Development ..... 153
Micro-Level Data from the Feedback Templates ..... 154
Sentence Level ..... 154
Word Level ..... 155
Punctuation and Formatting ..... 156
General Comments on the Micro Level ..... 156
Conclusion ..... 157
Findings of Research Question #5: Students' Perceptions of Their Ability to Improve ..... 159
Student Survey Results ..... 159
Global-Level Issues in Student Survey Results ..... 163
Middle-Level Issues in Student Survey Results ..... 168
Micro-Level Issues in Student Survey Results ..... 172
Overall Quantitative Results ..... 176
Student Interviews ..... 177
Conclusion ..... 181
CHAPTER V. DISCUSSION ..... 182
Discussion of Findings for Research Question #1 ..... 185
Number of Words Used ..... 186
Number of Items Commented On ..... 189
Significance of the Findings ..... 192
Implications for Administration and Training ..... 194
Implications for Further Research ..... 196
Discussion of Findings for Research Question #2 ..... 196
Significance of the Findings ..... 200
Implications for Further Administrative Practice ..... 200
Discussion of Findings for Research Question #3 ..... 201
Significance of the Findings ..... 205
Implications for Further Research and Practice ..... 206
Discussion of Findings for Research Question #4 ..... 208
Significance and Implications for Further Research and Practice ..... 210
Discussion of Findings for Research Question #5 ..... 211
Implications for Further Research ..... 215
Discussion of the Findings on Personable Nature and Tone of Comments ..... 216
Significance of the Findings ..... 217
Implications for Further Research ..... 218
Summary of the Study ..... 219
Appendixes ..... 222
Appendix A – Writing Assignment #1 ..... 222
Appendix B – Writing Assignment #2 ..... 223
Appendix C – Feedback Template for Final Drafts ..... 224
Appendix D – Sample Paragraph ..... 225
Appendix E – Guidelines to Instructors on Feedback ..... 226
Appendix F – Student Survey on Feedback to Drafts of Writing Assignments ..... 228

Appendix G – Instructor Survey .....236
Appendix H – Codes Gathered from Student Interviews .....240
Appendix I – Codes Gathered from Instructor Interviews.....261
Appendix J – IRB from Institution #1 .....276
Appendix K – IRB from Institution #2 .....281
References .....282
Curriculum Vitae .....296

LIST OF TABLES

Table 1: Data on the Five Teachers and Their Students .....48

Table 2: Number of Students in Each of the Nine Sections Who Completed Surveys .....48

Table 3: Data Used to Answer Each Research Question .....54

Table 4: Data Collected to Answer Research Question #1 .....65

Table 5: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words for Global-Level Comments in Audio and Written Forms by Teacher .....68

Table 6: Test of Within-Subjects Contrasts .....69

Table 7: Test of Between-Subjects Effects .....69

Table 8: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words for Middle-Level Comments in Audio and Written Forms by Teacher .....73

Table 9: Test of Within-Subjects Contrasts .....74

Table 10: Test of Between-Subjects Effects .....74

Table 11: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words for Micro-Level Comments in Audio and Written Forms by Teacher .....77

Table 12: Test of Within-Subjects Contrasts .....78

Table 13: Test of Between-Subjects Effects .....78

Table 14: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words for Comments Labeled as “Other” in Audio and Written Forms by Teacher .....80

Table 15: Test of Within-Subjects Contrasts .....81

Table 16: Test of Between-Subjects Effects .....82

Table 17: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Global Level in Audio and Written Forms by Teacher .....84

Table 18: Test of Within-Subjects Contrasts .....85

Table 19: Test of Between-Subjects Effects .....85

Table 20: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Middle Level in Audio and Written Forms by Teacher .....88

Table 21: Test of Within-Subjects Contrasts .....89

Table 22: Test of Between-Subjects Effects .....89

Table 23: Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Micro Level in Audio and Written Forms by Teacher .....92

Table 24: Test of Within-Subjects Contrasts .....93

Table 25: Test of Between-Subjects Effects .....93

Table 26: Results for Question #3 on Survey for Instructors .....112

Table 27: Results for Question #4 on Survey for Instructors .....114

Table 28: Frequencies of Responses and Percentages of Answers in Student Surveys ..131

Table 29: Percentage Responses from Students on Comments on Global-Level.....134

Table 30: McNemar's Test and Marginal Homogeneity Test – Organization of the Paper.....135

Table 31: McNemar's Test and Marginal Homogeneity Test – Topic of the Paper.....136

Table 32: McNemar's Test and Marginal Homogeneity Test – Thesis Statement.....136

Table 33: Percentage Responses from Students on Comments on Middle-Level Issues 138

Table 34: McNemar's Test and Marginal Homogeneity Test – Overal Paragraph-Level Issues.....139

Table 35: McNemar's Test and Marginal Homogeneity Test – Us of Topic

Sentences in Paragraphs.....140

Table 36: McNemar's Test and Marginal Homogeneity Test – Quality of Specific Arguments or Claims in Paragraphs.....140

Table 37: McNemar's Test and Marginal Homogeneity Test – Support or Evidence for Claims in Paragraphs.....141

Table 38: Percentage Responses from Students on Comments on Micro-Level.....144

Table 39: McNemar's Test and Marginal Homogeneity Test – Word Choice or Phrasing.....145

Table 40: McNemar's Test and Marginal Homogeneity Test – Grammar and Punctuation.....146

Table 41: McNemar's Test and Marginal Homogeneity Test – Formatting, References, and Citation.....147

Table 42: Frequencies and Percentages of Answers in Student Surveys.....161

Table 43: Ability to Improve Writing: Percentage Responses from Students -- Global-Level Issues.....164

Table 44: McNemar's Test and Marginal Homogeneity Test--Organization of the Paper.....165

Table 45: McNemar's Test and Marginal Homogeneity Test – Topic of the Paper.....166

Table 46: McNemar's Test and Marginal Homogeneity Test – Thesis Statement.....167

Table 47: Ability to Improve Writing: Percentage Responses from Students – Middle-Level Issues.....168

Table 48: McNemar's Test and Marginal Homogeneity Test – Overall Paragraph-Level Issues.....169

Table 49: McNemar's Test and Marginal Homogeneity Test – Topic Sentences in Paragraphs.....170

Table 50: McNemar's Test and Marginal Homogeneity Test – Quality of Specific Arguments or Claims in Paragraphs.....171

Table 51: McNemar's Test and Marginal Homogeneity Test – Support or Evidence For the Claims in Paragraphs .....172

Table 52: Ability to Improve Writing: Percentage Responses from Students – Micro-Level Issues.....173

Table 53: McNemar's Test and Marginal Homogeneity Test –Word Choice or Phrasing.....174

Table 54: McNemar's Test and Marginal Homogeneity Test – Grammar and Punctuation .....175

Table 55: McNemar's Test and Marginal Homogeneity Test – Formatting, References, and Citation .....176

Table 56: Students and Media Order of Comments.....178

LIST OF FIGURES

Figure 1: Number of Words for Each Instructor for Global-Level Comments .....71

Figure 2: Number of Words for Each Instructor for Middle-Level Comments.....75

Figure 3: Number of Words for Each Instructor for Micro-Level Comments .....79

Figure 4: Number of Words for Each Instructor for "Other" Comments.....82

Figure 5: Number of Items Commented On for Each Instructor for Global-Level Comments .....86

Figure 6: Number of Items Commented On for Each Instructor for Middle-Level Comments .....90

Figure 7: Number of Items Commented for Each Instructor for Micro-Level Comments .....94

Figure 8: Means and Confidence Intervals for Audio and Written Comments for Teacher 1 .....93

Figure 9: Means and Confidence Intervals for Audio and Written Comments for Teacher 2 .....97

Figure 10: Means and Confidence Intervals for Audio and Written Comments for Teacher 3 .....98

Figure 11: Means and Confidence Intervals for Audio and Written Comments for Teacher 4 .....99

Figure 12: Means and Confidence Intervals for Audio and Written Comments for Teacher 5 .....100

Figure 13: Adjustment for Filler Words for Global-Level Comments .....102

Figure 14: Adjustment for Filler Words for Middle-Level Comments .....103

Figure 15: Adjustment for Filler Words for Micro-Level Comments .....104

Figure 16: Adjustment for Filler Words for Comments Labeled as "Other" .....105

# CHAPTER I. INTRODUCTION

Perhaps the most important aspect of a composition class is the feedback instructors give to students on their writing. Traditionally, instructors have tended to write comments by handwriting on students' papers when giving them formative and summative feedback on their assignments. As word processing applications became more affordable and ubiquitous among students and instructors, comments in typed form became more common. When composition classes have been taught in face-to-face classrooms, these two methods—handwriting comments and typing comments—have been the typical methods through which instructors gave their feedback to students. Students often have the opportunity to inquire about clarification on the written in the classroom. Occasionally, instructors experimented with giving audio comments to students using cassette tapes. The instructor would record his or her comments on a cassette tape and give the cassette tape to the student in class. (Anson, 1997; Clark, 1985; Cryer & Nakumba, 1987; Huang, 2000; Hunt, 1989; Johansen, 1989; Kates, 1998; Klammer, 1973; Lappia & Kirkland, 1989; Logan, Logan, Fuller & Denehy, 1976; Moore, 1978; Moxley, 1989; Olsen, 1982; Pearce & Ackley, 1995; Price & Holman; Sommers, 1989; Syncox, 2003).

This pattern has been disrupted with the emergence of online education in the last 15 years. The advantage an online writing class presents is that drafts of papers are submitted asynchronously to the instructor and feedback is provided asynchronously by the instructor. This arrangement has created an environment in which drafts of papers can be submitted, commented upon, returned, and resubmitted without the student ever meeting the instructor. However, this same dynamic can often result in disadvantages when teaching online. The face-to-face instructor can provide written feedback to a student on a paper and know that he or she will

always be able to dialogue with the student about the paper in class eventually if necessary. On the other hand, the online instructor has little or no opportunity for such meetings (Gallien & Oomen-Early, 2008; Wolsey, 2008). Moreover, while certain synchronous communication tools, such as live chat, Wimba, or other applications, have become available, little is known about their use among online instructors (Skylar, 2009). Wolsey (2008) reported that "online education currently privileges text-based communication. Further, the Internet affords immediacy for some types of communication; however, feedback rarely occurs in real time" in online classes (p. 312). Trends and statistics indicate that the applications that an online instructor uses in providing feedback to a student's essay usually involve *asynchronous* electronic means of providing feedback (NCES, 2008; Professors' Use of Technology in Teaching, 2010).

Online writing classes typically feature feedback to students in text form (Gallien & Oomen-Early, 2008; Wolsey, 2008). However, with the emergence of more multimedia capabilities online, digital technology has provided the means through which an instructor can provide audio comments to a student in an online class. Technology to create audio .mp3 files and other forms of embedded audio comments is now available for use by instructors, some of whom have begun taking advantage of such strategies work (Bauer, 2011; Dagen, Mader, Rinehart, & Ice, 2008; Ice, Curtis, Phillips, & Wells, 2007; Ice, Swan, Diaz, Kupczynski, & Swan-Dagen, 2010; Kim, 2004; Lunt & Curran, 2010; McCullagh, 2010; Merry & Orsmond, 2007; Olesova, Richardson, Weasenforth, & Meloni, 2011; Oomen-Early, Bold, Gallien, Wiginton, & Anderson 2008; Roberts, 2008; Sipple, 2007; Still, 2006; Wood, Moskovitz, & Valiga, 2011). Online instructors can now post audio comments to their students through the use of digital audio files in the same way that face-to-face instructors gave audio comments to their

students with a cassette tape in the past. This development has added another dimension to the conversation on the content and method of providing students feedback on their work. However, little research has been conducted in this area, especially regarding the characteristics and differences of various types of comments on students' writing. This study was designed to compare the use of audio comments to written comments on student compositions in online writing classes. The purpose of the study was to investigate the characteristics of written comments and audio comments and students' and instructors' perceptions of both forms of commentary. In addition, the study examined the effect of those two types of comments on students' writing.

## Statement of the Problem

Enrollments in online freshman composition classes are growing significantly. Composition represents a skill that requires formative feedback from the instructor and drafts and revisions of assignments from the student. However, online instruction does not favor verbal synchronous feedback. Thus, when composition classes are taught online, two possibly conflicting patterns emerge: Composition requires clear feedback, but online formats lend themselves to text-based asynchronous feedback, which often may not be clear to students. The potential for offering audio feedback in online freshman composition represents a possibly more effective medium in providing feedback to student writing than written feedback offers. Nonetheless, audio feedback may be more effective for some problems and errors in students' papers than it is for other problems and errors in students' papers. For example, it might be more effective when pointing out the need for more development in a paragraph, while it may not be as effective in pointing out a spelling error. Thus, while the potential of offering audio feedback

represents a promising addition to or alternative to text-based feedback, it may not be the most effective medium for providing feedback for all types of issues in a student's paper.

Moreover, whether providing audio feedback is a scalable option for instructors is as significant of a question as whether or not audio feedback is a clearer form of feedback for students. In other words, while it may be pedagogically sound, it may not be instructionally feasible for teachers to use on a large scale of students.

Overall, clarity of feedback is pivotal in an online course. The use of written and audio feedback is an area that warrants further inquiry. More research is needed in the use of stand-alone audio formative feedback compared to written formative feedback on student writing in online freshman composition courses in order to determine whether audio feedback is more effective in certain areas of student writing and if audio feedback is scalable for instructors for an entire class of students when teaching online.

## Purpose of Research

The purpose of this research was to determine whether and how instructor commentary changes from audio feedback to written feedback, how students compare audio feedback to written feedback in their ability to understand the instructor's comments and in their ability to improve their writing, whether instructors find one medium improves student writing more than another, and whether instructors find audio feedback scalable in terms of its time investment and efficiency compared to written commentary.

## Significance of Study

This research will help determine if the practice of providing standalone audio feedback in .mp3 file form to student writing represents a pedagogically comparable or perhaps an improved method of providing commentary when compared to the practice of providing written

feedback in an online freshman composition class. In addition, it will help determine if some areas of student writing are more suited for audio feedback than written feedback and if some areas of student writing are more suited for written feedback than audio feedback. It will also help answer the question of whether instructors find providing audio feedback to a whole class of students on the first drafts of their essays to be a scalable option to written feedback.

## Research Design

This research study adopted a mixed method design of quantitative and qualitative analysis. The study was conducted on ten 100-level online composition classes at a large university on the East coast that offers its classes mostly in the online format. The study examined instructor commentary on the first two essays assigned in the class. Among the five instructors who completed the study, some provided audio feedback to the first essay and written feedback to the second essay, while others provided written feedback to the first essay and audio feedback to the second essay.

Comments were collected on the drafts. Audio commentary was transcribed so that it could be analyzed quantitatively through descriptive and inferential statistical methods.

Moreover, students were given the opportunity to take a survey online on their experiences with receiving audio and written feedback. In addition, students who took the survey were given the opportunity to be interviewed. Those who volunteered for the interview were asked questions on their experiences in receiving audio and written feedback. Finally, instructors took a survey, participated in an interview, and posted a feedback template on students' second drafts. Survey answers were analyzed using descriptive and inferential statistical analysis, interviews were analyzed using qualitative analysis, and feedback templates

were analyzed using qualitative analysis. Institutional Review Board approval was granted by both Towson University and the University of Maryland University College.

## Research Questions

Five research questions guided the study:

1. What are the characteristics of written comments and of audio comments on students' writing assignments? Specifically, do teachers' comments change in content and in length when they provide written comments compared to when they provide audio comments? If so, how?
2. What are teachers' perceptions of the scalability of providing written compared to audio comments?
3. What are students' perceptions of the ability to understand teachers' meaning in written comments compared to audio comments?
4. What are teachers' perceptions of how written comments help students improve their writing compared to how audio comments help students improve their writing?
5. What are students' perceptions of how written comments help them improve their writing compared to how audio comments help them improve their writing?

## Limitations and Assumptions

The research design required all instructors to assign the same writing assignment instructions for both essays, to use the same rubric for both essays, to use the same hardware through which to create .mp3 files, and to use TrackChanges for written comments. The study acknowledges the following limitations:

- The two writing assignments may not have featured the same level of difficulty for all students. Some students might have found that the second writing

assignment, which was a comparison-contrast essay, was more difficult than the first writing assignment, which was a narrative essay. Some students might have found that the first writing assignment was more challenging than the second one. Overall, the difficulty levels of the two writing assignments for particular students may have influenced their preference for the medium in which they received comments on their first drafts.

- Instructors have different commenting styles, even when they are using one medium of commenting. Therefore, if students preferred a particular medium in commenting, their preference may have been due to instructor's use of that medium more than the medium itself.
- A time lag may have affected students' recollection of commenting patterns. Students took a survey on their experiences in receiving written and audio comments. The amount of time from receiving comments on their first writing assignment, receiving comments on their second writing assignment, and taking their survey could have been as many as four weeks in some cases. For this reason, their recollection of their experience in receiving the first set of comments may have been influenced by the amount of time that had lapsed between having received comments initially and having taken the survey.
- The context is specific to nontraditional undergraduate students in a 100-level freshman composition class in one university in the Mid-Atlantic region of the United States. The average age among the student body at the institution at which the study was conducted is 32. Therefore, a limitation of the study is that the

results may or may not fully apply to students from other contexts and class levels.

## Definition of Terms

**Global-level comments** – comments on a student's paper for issues regarding overall organization of the paper, the topic of the paper, how well the paper is introduced in the introductory paragraph, how well the thesis statement is developed, and how well the paper is concluded in the concluding paragraph. The global level can also refer to the point of view used throughout the paper.

**Middle-level comments** – comments on a student's paper for issues regarding how well a thesis statement is defended in the body paragraphs, how well the body paragraphs are developed, how effectively topic sentences are used in paragraphs, and how well support or evidence of claims are integrated within body paragraphs.

**Micro-level comments** – comments on a student's paper for issues regarding grammar, punctuation, word choice, phrasing, formatting, references, and citations.

**Navigability –** a term used in website design to refer to the ease with which a user "can find his or her way around a website" (Collins, 2013). In this study, *navigability* is defined as the ease with which a student is able to locate the area or issue in the paper to which the instructor is referring when the instructor makes a comment on a specific area of the student's paper.

**"Other" comments** – comments on a student's paper for issues regarding any issues that do not relate to the text of the paper. Examples include an instructor saying "hello" to the student, providing instructions on how to submit a next draft of the paper, and telling the student to open up the paper in order to be able to see it while listening to audio comments.

**Scalability** – a term used to refer to whether a particular practice can be implemented on a large number of students. In this study, one issue that was analyzed was whether providing audio comments represented a scalable option for instructors in a class of twenty-plus students.

*Scalability* refers to whether a particular practice can be implemented on a large number of students. Lemon, Pynadath, Taylor, and Wray (2012) define *scalability* in the field of computer architecture: "An architecture is considered to be scalable if, unchanged, it can handle increasingly complex problems that demand a greater amount of knowledge. Often scaling yields problems such as with efficiency" (Dictionary of Terminology section, para.1).

Scalability is a concept that is also often analyzed in online education with regard to faculty time and student learning. Lewis and Abdul-Hamid (2006) note, "Scalability issues of class size and faculty time are ever present in discussing the effective implementation of online teaching practices. Additional research which examines optimal class size, as well as how much instructor time it takes to create student-centered courses, would contribute practical knowledge for administrators of online programs" (p. 96). Panda and Bramble (2008) identify "scalability, flexibility, and reusability" as pivotal issues driving distance education (p. 199). In listing potential questions for evaluating online distance education programs, Rovai (2003) points out "bandwidth and scalability problems" as issues to consider when evaluating instructor needs, ratings and satisfaction (p. 120). Overall, the issue of scalability, or whether a particular practice can be implemented on a large number of students, has often been a topic of study in analyses of online learning.

Therefore, a working definition of scalability for this research study would be that *scalability* is a description of a teaching practice that is time-efficient when applied to a full class of students. If a practice is time-efficient when it is performed on one student but is not time-

efficient when it is performed on an entire class of students, then the practice is not scalable. However, if a practice that is time-efficient when it is performed on one student and is also time-efficient when it is performed on an entire class of students, then the practice is scalable.

**Narrative essay** – an essay in which the student is asked to describe an event or tell a story.

**Comparison-contrast essay** – refers to an essay in which the student is asked to show similarities and differences between two items, concepts, or ideas.

**First draft** – the first attempt at writing an essay. In this study, the first drafts of the essays were not graded. Rather they were commented on by the instructor, and the student was asked to provide a second draft.

**Final draft** – the final attempt at writing an essay. In this study, the final drafts of the essays were written in response to comments on the first draft from the instructor.

**Rubric** – a systematic method of evaluating an essay. In this study, an analytic rubric was used, which is a rubric in which points are assigned to different aspects of the essay.

# CHAPTER II. LITERATURE REVIEW

## Theoretical Framework

This study was informed by cognitive load theory and by current theory on teacher response to student writing. Cognitive load theory informs the study in addressing how students receive commentary on drafts of their writing assignments. Theory on teacher response to student writing informs the study in demonstrating the need for formative feedback before students receive summative feedback on their writing.

### Cognitive Load Theory

Cognitive load theory involves an analysis of human cognitive architecture. The theory maintains that consciousness is represented in *working memory*. "Humans are conscious of and can monitor only the contents of working memory. All other cognitive functioning is hidden from view unless it can be brought into working memory" (Sweller et al.,1998, p. 252). In addition, because humans organize material through working memory, humans are limited in their ability to handle a number of items simultaneously in their working memory. The more organization that one's working memory has to coordinate, the more limited one's working memory may become. "Any interactions between elements held in working memory themselves require working memory capacity," thus limiting the number of interactions one can process at once (Sweller et al., p. 252). The more items one handles in one's working memory, the more capacity is being taken up in one's working memory.

Furthermore, humans have *long-term memory*, and "knowledge is stored in long-term memory in the form of schemas" (Sweller et al., p. 255). To understand schemas, we might consider, for example, what happens when one sees a tree. When a person observes a tree, the person knows the item is a tree. Although every tree is different from every other tree, humans

understand a tree when they see one because they have placed all plants that look like trees into a *schema*. This schema allows them to process all interactions with trees without needing to carefully consider each tree they encounter. In the same way, we can consider the act of reading. While no two sentences are identical, humans can read sentences because the marks and letters in those sentences have been categorized into a schema. "Schemas provide the elements of knowledge. According to schema theory, it is through the building of increasing numbers of ever more complex schemas by combining elements consisting of lower level schemas into higher level schemas that skilled performance develops." (Sweller et al., p. 255) As one develops a sophisticated schema, one can process more information. For example, a young child reads by processing each letter, while a typical adult reads without the need to process each letter. The adult has developed a more sophisticated schema than the child has, thus allowing him or her to process more information. Schemas allow us to process greater amounts of complex information and keep that information distinct from the information in our working memory.

The relationship of cognitive load theory to this research proposal involves the possibility that working memory capacity might be improved through the use of audio comments on a student's paper over the use of text comments on a student's paper. Mousavi et al. (1995) noted that some evidence suggests that working memory involves separate channels for auditory and visual information. Mousavi et al. argued that a *split-attention effect* can be experienced in some learning situations in which the learner has to divide his or her attention between two sources of information. However, they surmised that "…working memory capacity may be enlarged by using multiple channels. If so, cognitive load associated with split attention may be reduced by presenting information with a dual rather than a unitary mode." (p. 319). In instructional

materials, if information is presented to a student using dual modes (e.g., text and audio or text and video), then the student may have a greater capacity for working memory. The dual mode can enhance the student's ability to process the information. Wells (1994) noted:

> For it is when participants move back and forth between text and talk, using each mode to contextualize the other, and both modes as tools to make sense of the activity in which they are engaged, that we see the most important form of complementarity between them (p. 28).

Brick and Holmes (2007) have argued this possibility with regard to the use of video and audio technology in giving feedback to students. In their pilot study in which two groups of learners were given short video files with feedback in addition to written comments, students responded positively to the video comments, leading the authors to conclude that "multimodal feedback can be both more effective and more acceptable to students" (p. 339).

This phenomenon may inform how a student takes in comments on a paper. When an instructor provides a student feedback to an essay, a split attention effect may be occurring. It is possible that because an instructor types text comments onto a student's paper, the student must split his or her attention between the two pieces of text (his or her own writing along with his or her instructor's writing) and will experience a greater possibility of cognitive overload. The student has to process two sources of text. However, if an instructor posts an audio file for a student to listen to while the student looks over his or her paper, it is reasonable to consider the possibility that the student's working memory capacity will be increased as the student is able to engage two independent processors of memory—one for text and one for audio—as the student considers the comments and the possibility of revising the paper.

**Teacher Response Theory in Writing Composition Research**

Research in writing feedback has argued for two key strategies: First, instructors should provide feedback to students' writing *and ask that students revise the paper on which they provided the feedback*. Second, when commenting on students' drafts, instructors should not point out every error or needed correction in a student's paper. Instead, writing theorists note that the student is served effectively if the instructor focuses on three of four issues or errors the student should address in the subsequent draft.

On the first point, it has been shown that, if teachers comment on students' papers without asking students to revise the papers on which they are commenting, the comments do little to help the students improve their writing (Dohrer, 1991; Knoblauch and Brannon, 1981; Ziv, 1982). Sommers (1982) pointed out that "we comment on student writing because we believe that it is necessary for us to offer assistance to student writers when they are in the process of composing a text, rather than after it has been completed." (p. 149) Moxley (1989) wrote, "According to over thirty years of research, students benefit from our responses to their writing only when we respond to several drafts." (p. 3) Stern and Solomon (2006) observed that instructors should 'build writing assignments that require students to revise their papers." (p. 27) MacDonald (1991) argued, "We must shake loose from the assumption that grading students' work and commenting on it necessarily occur at the same time," thus making the case that comments on the work should be given before a grade is eventually posted. (p. 37)

In addition, writing research has shown that feedback should be given to students in manageable quantities. Stern and Solomon (2006) maintained that instructor should "…provide feedback only on a few select areas that are deemed important for that particular writing assignment—those tied to the learning goals for that particular assignment." (p. 26) Moxley

echoed this strategy, advising that instructors "avoid overburdening students with advice by identifying only one or two patterns of error at a time." (p. 3) Straub (2000) suggested to instructors, "Instead of dealing with every instance of every concern you take up in a paper, concentrate on only two or three places where these issues arise." (p. 257) Beach (2006) maintained, "…too many comments can overwhelm students, suggesting the need for teachers to prioritize their comments…" (p. 227). Overall, this study assumed the value of formative feedback to student writing, supports the pedagogy of focusing comments on a three areas (global level, middle level, and micro level), and acknowledged the possibility that cognitive load theory may influence students' responses to commentary in that the media one uses to respond to student writing may affect students' comprehension of the comments.

Providing comments to students on their writing assignments represents perhaps the most important role for a writing instructor in a composition class. Feedback from the instructor on a writing assignment informs the student on his or her progress on the specific assignment and helps the student understand what is expected from the instructor in subsequent drafts of the assignment. The following is a review of the literature on the issues instructors and students face when giving and receiving comments, on the various methods instructors can use in providing comments, and on patterns and tendencies instructors have demonstrated in their commenting styles.

## Literature on Commenting on Student Writing

### The Pedagogical Significance of Commenting on Student Papers

When composition instructors teach writing classes, one of the most significant issues they face is how to provide feedback to their students on essays and other writing assignments. The process of taking the student through a series of drafts through commenting on their writing

and requiring revisions serves an important role in providing formative assessment in the composition class. Offering feedback on student papers is perhaps the most valuable teaching activity of a composition instructor (Knoblauch & Brannon, 1981). Researchers have noted that feedback on student writing represents important formative assessment information, especially when students revise drafts based on the comments given (Bardine, 1999; Mulcahy, 1993; Stern & Solomon, 2006). As a result of this formative assessment and revision, students become questioning writers, coming to a better understanding of their responsibilities to write reader-based, rather than writer-based, prose (Dohrer, 1991; Sommers, 1982).

However, giving comments to students on their papers is probably the most time-consuming task of a writing instructor (Bardine et al., 2000; Grant-Davie & Shapiro, 1987; Sommers, 1982; Straub, 2000; Winter et al., 1996). Thus, the task of commenting on essays represents a significant time investment and at the same time the most pivotal feedback task for instructors. Straub (2000) maintained that it is the most difficult and yet most important function of the composition teacher's job, for, he notes, "Here on the pages of your students' writing you find the most telling signs of what they are getting from the course." (pp. 1-2) Because providing feedback to student writing represents the most pivotal responsibility of the writing instructor, it has become necessary to evaluate the nature of feedback given to students.

**Types of Comments Instructors Provide for Students**

The *method* of giving feedback has been a topic of discussion among writing instructors because different strategies and techniques in providing feedback have shown to result in different levels of understanding among students. Traditionally, instructors have marked papers with a colored pen, noting questions in the margins or circling words and phrases and inquiring about the meaning of the prose. As an alternative to this method, a few teachers in the 1980s and 1990s experimented with recording comments onto cassette tapes and giving the cassette tapes to

students to listen to and to use as a basis for the subsequent drafts of papers (Anson, 1997; Clark, 1985; Cryer, 1987; Huang, 2000; Hunt, 1989; Johansen, 1989; Kates, 1998; Klammer, 1973; Lappia & Kirkland, 1989; Logan, Logan, Fuller & Denehy, 1976; Moore, 1978; Moxley, 1989; Olsen, 1982; Pearce & Ackley, 1995; Price & Holman; Sommers, 1989; Syncox, 2003).

With the advent of word processing, instructors began to use computer-based text methods to give comments to student papers, with Microsoft Word's TrackChanges and Comment features being the most popular and having received high pedagogical recommendations (Yohon & Zimmerman, 2004). However, in all of these cases, if a class was taught face-to-face, no matter how the instructor provided feedback to the student on a paper, he or she always had the possibility of conversing with the student in class about specific or complex issues in the paper that warranted more face-to-face (f2f) dialogue with the student to provide clarification on the comments.

However, with the emergence of the Internet and of online education, the use of audio commenting through digital technology has emerged as a focus of study (Bauer, 2011; Brearley & Cullen, 2013; Dagen, Mader, Rinehart, & Ice, 2008; Ice, Curtis, Phillips, & Wells, 2007; Ice, Swan, Diaz, Kupczynski, & Swan-Dagen, 2010; Kim, 2004; Lunt & Curran, 2010; McCullagh, 2010; Merry & Orsmond, 2007; Olesova, Richardson, Weasenforth, & Meloni, 2011; Oomen-Early, Bold, Gallien, Wiginton, & Anderson (2008); Roberts, 2008; Silva, 2012; Sipple, 2007; Still, 2006; Wood, Moskovitz, & Valiga, 2011). Technology to create audio .mp3 files and other forms of embedded audio comments is now available for use by instructors, some of whom have begun taking advantage of such strategies With the ability for online instructors to post audio comments to their students through the use of digital audio files in the same way that f2f

instructors gave audio comments to their students with a cassette tape in the past, research has emerged on student and faculty perceptions to this new application of digital audio.

Moreover, in addition to the *method* of feedback, the *type* of feedback has been a focus of study in the literature. In one study, Stern and Solomon (2006) developed a classification system for understanding teacher comments to student writing. They gathered 30 student portfolios from across various disciplines that had been submitted by students. They eventually collected 598 papers and coded the faculty comments on the papers into 23 categories. These 23 categories were subsumed into four overarching categories of comments: *global level*, *middle-level*, *micro-level*, and *other*. Understanding these categories of comments to student writing provides a foundation for comprehending the literature on this task.

**Previous Studies on Patterns of Teacher Comments to Student Writing**

**Characteristics of Written Comments.** In the past decades, researchers have examined in an extensive manner the practice of commenting on student papers. Several landmark studies have illustrated the challenges instructor experience when providing written comments. Sommers' (1982) seminal study on 35 teachers at two universities found that teachers often provided both grammatical-level suggestions to students in the same paragraph that they provided paragraph-level revision suggestions to students. "…students are given contradictory messages; they are commanded to edit a sentence…and then told…that the particular paragraph needs to be more specific or developed more" (p. 150). Sommers' overall conclusions were that teachers tended to encourage the student to view their writing "as a series of parts—words, sentences, paragraphs—and not as a whole discourse" (p. 151). Connors and Lundsford (1988) followed up on Sommers' work with two landmark studies. The first, in 1988, focused on error frequency. After collecting 21,500 papers from 300 different instructors, they randomly

gathered 3000 of the papers and examined the micro-level, or grammatical and mechanical, errors. They concluded that instructors marked about 43 percent of the errors in a paper. They also found that instructors marked errors sometimes because of what they might perceive as important and relevant to the lesson at hand and possibly because the errors were easy to mark. "Sentence fragment, comma splices, and wrong tenses, to name three classic 'serious' errors, are all marked less often than possessive apostrophes. This is, we think, not due to teachers' perception that apostrophe errors are worse than sentence-boundary or tense problems, but to their quickness and ease of indication" (p. 404). Connors and Lunsford conducted a follow-up study in 1993, this time on *global* commentary on student papers. Their objective was to find out "What were teachers saying in response to the content of the paper, or to the specifically rhetorical aspects of its organization, sentence structure, etc.? What kinds of teacher-student relationships did the comments reflect?" (p. 205).

They collected a random sample of 300 papers from the same set of papers they had gathered from the 1988 study and analyzed the comments on "rhetoric, structure, general success, longitudinal writing development, mastery of conventional generic knowledge, and other large-scale issues" (p. 206). Overall, of the papers that had comments, only 9 percent of the papers featured only positive comments, 11 percent of the papers were characterized by critical commentary that transitioned to positive commentary, and 23 percent were comprised of entirely negative comments. Moreover, the length of comments proved to be a distinctive finding in the study, with 24 percent of the global comments involving ten words or fewer. (p. 211). "The rarity of longer comments seemed…to indicate not so much that teachers had nothing to say and that they had little time or energy to say it and little faith that what they had to say would be heard" (p. 211). Connors and Lunsford's conclusions were less than promising:

"The teachers whose comments we studied seem often to have been trained to judge student writing by rhetorical formulae that are almost as restricting as mechanical formulae" (p. 218).

Straub (1996) maintained, in following up on Sommers' study, that the level of control instructors may take over a student's writing can often be measured by the number and mode of comments to their papers. He conducted a study on 172 freshman and 20 instructors in a writing program, asking the students to complete a 40-item questionnaire designed to elicit their preferences on a range of teacher comments to their papers. His conclusions were that students indicated the same level of preference for global comments as they did for local comments (i.e., comments on grammatical and punctuation issues). However, students did not react favorably to global comments on their *ideas* in their papers. In addition, students responded favorably to comments that were specific to the issue that needed to be improved, while they "did not respond favorably to any comment that they saw as unclear, vague, or difficult to understand" (p. 100). Finally, students rated highly comments that gave explanations that also offered a *suggestion for a specific change*, rather than simply an explanation of how the paper could be clearer. Overall, students "…consistently pointed to the clarity and validity of the comment. They balked at vague or generic comments" (p. 115).

The role of the instructor and the role of the student in the commenting process have been issues of dispute in the literature. Zellermayer (1989) maintained that studies on student processing of teacher comments suggested that written feedback was "not sufficient for writing instruction. Such feedback must be part of a student-teacher interaction" (p. 150). Moreover, Murphy (2000) argued that previous research has placed too little emphasis on the student's perspective when analyzing the role of instructor comments. Overall, these analyses have

suggested that the nature of the comments and the strategies that instructors use when commenting can play pivotal roles in students' responses to comments.

Overall, studies that have examined the characteristics of written comments have concluded that instructor commentary is often short and formulaic and possibly demonstrates the exhaustion and fatigue of the instructor. While students prefer specific comments that offer suggestions for improvement, often instructors provide short, sometimes vague comments that may be influenced by the time demands of commenting on many papers in a class.

**Students' Perceptions of Written Comments.** Research shows that written feedback on papers in composition classes is often unclear and confusing to students. Wiltse (2001) argued that students, when receiving written comments, "may be confused and not understand the feedback" and that "overeager students may misinterpret the comments and make new errors on second drafts" in response to written comments (p. 3). Other researchers have noted that students do not act on the advice given in written comments (Niven & Meyer, 2007; Norton & Norton, 2001; Ziv, 1982), that written comments are often "undecipherable" to students (LaFontana, 1996, p. 71), that their importance is often unknown by students (Bardine, 1999), and that students have an "uncanny *persistence*" in misunderstanding written responses on their compositions (Sperling, 1987, p. 1). Johanson (1999) wrote that "teacher-student conferences would reveal a major gap of understanding between what I thought I was saying in my [written] comments and how they were perceived by my students" (p. 4). In a study on the effects of analytic corrections through written feedback to student writing, Boyden-Knudsen (2001) affirmed this diagnosis, indicating that "students wrote about their concerns of not completely understanding all their errors "… when receiving written feedback on their compositions (p. 5).

Furthermore, in many cases, written comments contain jargon that is unfamiliar or unclear to the student, and the student is left to determine what the teacher means by the comment. For example, Bardine, Bardine, and Deegan (2000) noticed that "if I asked a student for a 'clearer thesis,' I found that some student were still not sure what a thesis statement was" (p. 97). He continued: "I mistakenly thought they understood such things as circling words and above them writing 'w.c.' for word choice, 'sp' for spelling, 'awk' for awkward, or even using squibbly lines under sentences that need to be revised" (p. 99). Glover and Brown (2006) asked, "When comments like 'Take care with apostrophes' are written on assignments, do the students have any idea what is meant?" (p. 13). Lackey et al. (1997) observed that instructors' comments on student papers reflected "task-ambiguous" suggestions, often indicating to the student that he/she had made his/her point clear and then suggesting to the student some ways to make the argument clearer, or indicating to the student that he/she should expand on a thought but not suggesting to the student how the student should expand (p. 64). Anson (1997) noted, "The marginal label 'Awk' (for 'awkward') identifies a place where you stumbled over the student's badly crafted language, but the label tells the student nothing about why the passage seems awkward or about how to rethink its wording" (p. 110). Anecdotal evidence of this is sometimes humorous: Straub (1997) reported that in his study an instructor wrote the phrase "tighten up" in the advice to the student, to which the student responded: "What the hell does 'tightened up' mean? The comment is a good one, but it is very unclear and helpless" (p. 103).

The difficulty that instructors have in clearly explaining certain problems in students' essays also influences whether or not some errors get marked at all. Connors and Lunsford (1988), in their landmark study of 3000 composition papers, concluded that teachers might not mark every error in a paper, not necessarily because they didn't find the error significant enough

to note, but because the error would be difficult to explain. "…ease of indication" is often a criterion teachers used to determine whether to mark an error or not (p. 404).

This level of ambiguity that can characterize written comments affects struggling students most. Researchers have observed that it is the low-achieving students who often have the most difficult time with interpreting such comments (Winter, Neal, & Waner, 1996; Sipple, 2007). In other words, a level of irony is seen in that the very students who perhaps need teacher commentary the most are the ones who often understand it the least.

As a result, students often ignore written comments, pay little attention to written comments, or delete the text to which the written comments refer (Ziv, 1987). Still (2006) noticed that "many students receiving only written feedback either ignored it, did not understand it, or sometimes felt overwhelmed by it" (p. 462). A study by McCune (2004) on student response to written feedback given to students in first-year composition courses showed that "a few of the students mentioned that they had some problems in reading or interpreting the feedback," although they found the feedback reasonable (p. 257). In addition, interviews showed that the students "were able to describe what feedback was written on their essays, but were unable to discuss this in detail and generally gave the impression that they had not paid much attention to it" (p. 268). Thus, echoing Still's observation, McClune found that because of its unclear nature to some students, written feedback is sometimes simply ignored by students. Bardine et al. (2000), in interviews with students, found that "in almost all cases, [students] may spend only a moment or two" reading the comments their teachers had written on their papers and did not see written comments as a tool for improving their writing but rather for improving their grades (p. 96). Other research has shown that when an instructor writes comments to a

particular sentence or phrase in a paper, the student will sometimes simply delete that sentence or phrase rather than correct or refine it (Wiltse, 2001, 2002; Ziv, 1982).

Knoblauch and Brannon (1981) summarized the problem succinctly:

> (1) students often do not comprehend teacher responses to their writing; (2) even when they do, they do not always use those responses and my not know how to use them; (3) when they use them, they do not necessarily write more effectively as a result (p. 1).

However, McCune (2004) found that tutors' "individual interactions with their students seemed to provoke important changes in the students' conceptions, or ideas about understanding" (p. 278). Quible (1997) and Bardine et al. (2000) also noted that conferences with students offered the opportunity for more and clearer feedback. This trend seems to reinforce the notion that a meeting with the instructor or tutor, because of the dialogue that this arrangement affords, enhances the feedback process. Research on assessment feedback shows that students often do not act upon comments given to them on their papers because the process of communication has not been carried out in a dialogic manner. The feedback method of the instructor's writing comments on a paper and handing the paper back to the student represents a one-way method of communication. This method assumes a mutual understanding of assessment criteria and jargon by the instructor and the student. Such a mutual understanding often does not exist—the instructor understands what he/she wrote, but the student often does not. As a result, the student is left in a state of frustration (Higgins, Hartley, & Skelton, 2001). Again, because face-to-face meetings that allow the student to engage in dialogue with the instructor or tutor are not possible in an online class, further investigation is needed in providing effective commentary to students on their assignments in online writing classes and in bridging the gap of distance, and of dialogue, that the online environment creates.

Students often find the number and appearance of written comments on a paper to be daunting, intimidating, and discouraging. As a result, research shows, students respond selectively to comments on their papers, often tackling the most comprehensible and mechanical issues first. Consequently, students often ignore global comments and focus on editorial and grammatical ones. Dohrer (1991) noted that with written comments students paid close attention to word-level comments or comments on grammatical correctness but paid little if any attention to comments on "macrostructural changes" (p. 8). Other students may show a more random pattern of revision, as one student in Dohrer's study "demonstrated his frustration by arbitrarily skipping from one comment to another, with no apparent pattern or reason, and he ended the session swearing" (p. 8).

In fact, instructors who rely on written comments often default to this pattern of editing, as LaFontana (1996) maintained: "…written comments can quickly degenerate into proofreader marks. They foster a 'search and destroy' mentality that focuses almost exclusively on errors" (p. 72). Matsumura et al. (2002), in a study of third-grade students in lower- and higher-achieving urban schools, found that "teachers provided their student writers with almost four times as much feedback on errors and language use than on their ideas and the skill with which they conveyed those ideas" (p. 13). Huang (2000), in her study of English as a Foreign Language (EFL) learners, also noted that instructors who used just written commentary tended to "correct language mistakes without telling the students what was wrong" (p. 217). Thus, the research indicates that extensive written commentary tends to default toward word- and sentence-level issues and punctuation errors.

Student response can be affected by such extensive, and corrective, written comments. Grant-Davie and Shapiro (1987) lament the attitude of students when seeing extensive written

commentary on their papers: "What I meant as a careful, helpful diagnosis, they will see as a messy autopsy, another essay torn apart, confirming the stereotype of the English teacher as choleric coroner" (p. 5). Matsumura et al. (2002) found that students in low-achieving schools receive more comments on "surface edits" than do students in high-achieving schools (p. 13). Researchers have therefore noted, once again, an irony. Problematic writers with many mistakes on their papers receive the most written comments, which can in turn make them feel all the more uneasy about writing (Wiltse, 2002). Thus, the practice of providing extensive written commentary may shortchange the process of writing improvement for the very students who need writing improvement the most.

Finally, students' potential lack of understanding of an instructor's comment can be exacerbated by the observation that, often, written comments inherently tend to come across as negative, terse, and cryptic. These patterns increase rather than decrease students' anxiety about writing. Wiltse (2001) contended that written comments "not only cause apprehension in students, but may paralyze their efforts to improve their writing in the future" (p. 7). Lackey, Miller, and Flanigan (1997) maintained that students could improve their writing from the feedback they received provided that they understood that "attending to the feedback will move them from their current state to their desired stated (that is, attending to the feedback generates high self-efficacy)…[M]uch of the written feedback students receive from their composition teachers fails to provide this information" (pp. 15-16). Straub (1997) indicated that in his study students reported that occasionally comments sounded "helpful and encouraging, while other comments sounded harsh and critical…some comments made the teacher come across as thoughtful and caring and others…judgmental or sarcastic" (p. 100). Quible (1997) found that an instructor's practice of inserting only negative comments into a student's paper has a negative

impact on future revisions and on the student's desire to improve. Sommers (1982) leveled perhaps the harshest criticism of the tone of instructor feedback from her seminal study in which computer-generated feedback was compared with written commentary from teachers: "…the calm, reasonable language of the computer provided quite a contrast to the hostility and mean-spiritedness of most of the teachers' comments" (p. 149).

Overall, students have sometimes found written commentary to be unclear, unhelpful in pointing them toward improving the paper, and marked by jargon with which they are unfamiliar. Students, therefore, tend to respond to comments they understand, a practice that can lead to arbitrarily addressing some problem but skipping over others. Students also tend to respond to micro-level editing issues such as grammar problems rather than respond to more global-level comments that may ask them to develop areas of the paper that may need more support. Moreover, instructors in some studies have demonstrated a pattern of commenting mostly on micro-level concerns, perhaps reinforcing this tendency among students. Furthermore, the short, somewhat terse, nature of written comments has rendered them unfriendly in the eyes of some students.

**Characteristics of Audio Comments.** The use of audio feedback on student writing has been experimented with by teachers for the last two or three decades. In the 1980s and 1990s, cassette tapes and cassette recorders were used in such efforts. In writing about its use in the English as a Second Language (ESL) writing classroom, Johanson (1999) argued that "unfortunately, a lamentable dearth of research exists in the second language writing research literature on this potentially useful pedagogical tool" (p. 3). Huang (2000), in writing about the use of audio feedback through the use of cassette tapes in the English as a Foreign Language (EFL) classroom, maintained the same position: "…there has been little empirical research on

the commentary provided in this way…there is need to compare it with traditional written feedback" (p. 200). Sipple (2007), in writing about the use of audio feedback in developmental writing courses, noted the same trend: "Future studies on the use of handwritten and audio commentary in developmental writing classes must be conducted to examine the veracity of speculative claims regarding the ways feedback method might influence student performance" (p. 30). Kim (2004), in writing about the research on the use of digital audio in asynchronous learning network (ALN) environments in general, maintained, "There are few studies of the problems and potentials of the addition of digital audio communication among ALN students to the primarily text-based communication that has characterized ALN up to the present" (pp. 4-5).

The limited research that has been conducted on audio comments in the composition classroom has shown that audio comments can be more extensive, more thorough, and more helpful in the content delivered to students than written comments are. Johanson (1999) maintained: "Before using audio-feedback, I found it both time-consuming and frustrating to craft comments that were detailed enough to be understood and yet succinct enough to fit in the margins," but with audio comments, "students can 'hear' my difficulty understanding their motives in 'real time'" (p. 6). Sipple (2007) explained the phenomenon of oral commentary in its ability to make issues clear to students:

> In little more than the time it would take to conceive of and write that comment, an instructor can say so much more: one can quickly explain the problem with the undeveloped paragraph, explain why more examples would strengthen it, offer a short suggestion about the kind of example a writer might provide to develop the point, and comment on what already works well in that paragraph (p. 28).

Overall, audio commentary to student papers can result in clearer, longer, and more extensive commentary than written commentary affords. As a result, students may have a better understanding of the meaning of audio comments to papers than they do of written comments to papers. When a teacher speaks to the student about a paper, the teacher can not only go into greater detail about a particular grammatical concern or global issue, but the teacher can give examples or illustrations much more easily and effectively in a spoken context. Johanson (p. 33) wrote that with spoken comments, "Instead of being forced to condense my comments in one digestible sentence in the margin, I could 'speak' to each student as though he or she were in a face-to-face conference."

With regard to tone, audio comments often allow the instructor to soften his or her tone and articulate his/her suggestions in a positive manner. Sipple (2007) mentioned that, in her study, audio comments strengthened the "bond with the professor, whereas handwritten commentary sometimes damaged the bond" (p. 24). Johanson (1999) pointed out that the role of the instructor adjusts from that of a judge to that of a "…coach" when transitioning from text-based to audio feedback (p. 5), while Ice et al. (2007), Merry and Orsmond (2007), and Oomen-Early et al. (2008) found that students felt an enhanced nuance and sense of caring when receiving audio comments as compared to written. Huang (2000) found that students felt their relationship with their teacher was better when the teacher used audio-taped feedback than when the teacher used written feedback. Anson (1997) reflected on his own use of audiotaped commentary: "I felt a social dimension to my commentary that had been less present in my short, often corrective written remarks. My comments had a narrative quality, and were framed with personal remarks" (p. 106). He found himself moving from "correcting and judging" when he

used written comments to "coaching and advising" as he transitioned to audio comments" (p. 106).

In terms of time invested in providing comments, some instructors who have experimented with the use of audio comments agree that providing audio comments to student papers saves time over providing written comments to student papers. Johansen (1999) argued the process "…actually saves me *and* my students a lot of time in the long run…Because I am able to make more comprehensive comments, I do not have to explain and re-explain my ideas to each student after class and in office hours" (p. 4). LaFontana (1996) noted that taped comments allow her to respond to student papers "in about one third the time it used to take just to circle every error" (p. 73). Moreover, a study by Pearce and Ackley (1995) indicated that "On average, it took 2.6 minutes to tape and 3.1 minutes to write comments per page after having read a paper one time" (p. 229). Still (2006) in a study of students in his own technical writing course, noted, "I can provide more assistance with 3 or 4 minutes of voice comments than I can with a few lines of written comments here and there…" (p. 463). Anson (1997) wrote that he was "astonished to see how much more help" he was providing his students by using taped comments than he had been by writing in the margins of their papers. "In just a few minutes, I would offer advice or give readerly response that would have taken me hours to write out by hand" (p. 106).

Sommers (2002) argued:

> I have found that a teacher speaking at a conversational pace for two minutes produces one page of double-spaced text if transcribed. In all, I spoke to the student on the tapes five times for a total of twenty minutes; the resulting transcripts of the tapes added up to ten pages of writing, each 250 words in length…It is hard to conceive that anyone could compose and type or write 175 words in two minutes. (p. 175)

Huang (2000), in a study of EFL composition classes, analyzed papers that received written feedback, audio-taped feedback, and a combination of both methods. She found that the average number of words given by an instructor using only audio feedback was 2335 words in 38.4 minutes, or an average of 60.8 words per minute. The average number of words given by an instructor using only written feedback was 24 words in 31.4 minutes, or an average of 6.5 words per minute. Her study, therefore, showed that the number of words given by the teacher in response to student writing through the use of an audio method was far more efficient in terms of words per minute than that for the use of the written method.

A number of studies have been conducted analyzing audio and written feedback to student work in non-composition courses as well, with similar results. Dagen et al. (2008) conducted a study comparing audio and written feedback in a 600-level curriculum and instruction course in which they found that the mean number of words for audio feedback was 331.39, while the mean number of words for written feedback was 129.75. It should be noted that the mean number of minutes for an instructor to prepare the audio feedback was 13.43, while for written feedback it was 3.81. Thus, instructors in this study found preparing and delivering audio comments to be more time consuming than preparing and delivering text-based comments. Moreover, Merry and Orsmond (2007), in a study of the use of audio and written feedback in a human biology class, found that the *type* of feedback given was different with audio commentary from that given with written commentary. While the authors of the study did not count the number of words given in feedback to students, they did find that when tutors gave written feedback, they gave a statistically significant higher number of comments *identifying errors* on student papers, while when they gave written feedback, they gave a statistically significant higher number of comments “demonstrating correct practice” in student papers (p. 6). This

finding may be explained by the fact that one can identify an error without expounding on the explanation for that error, while one cannot demonstrate a correction without explaining the needed concept using extensive description. Finally, in another non-composition class, Kirschner, van den Brink, and Meester (1991) found in a study of written and audio feedback to papers in a graduate photochemistry class taught at the Open University of the Netherlands (OuN) that the combined average number of words given through audiotape was 502, while the combined average for written feedback was 280. However, it should be noted that their study saw no significant difference between the *time* instructors spent giving audio comments to the time instructors spent giving written comments.

Overall, the limited studies on audio commentary have shown them to be often more thorough and possibly clearer to students. In terms of tone, instructors have noted their ability to project them more as a coach than a judge and to use less terse and caustic communication patterns than written comments may exhibit. Finally, while studies show different results in the amount of time it takes an instructor to deliver audio versus written commentary, all studies show a significant increase in the number of words given in feedback to students when instructors opt for audio feedback instead of written feedback. Thus, the amount of feedback and the clarity of feedback may be increased if audio comments are used by instructors in a writing program in a systematic fashion.

**Students' Perceptions of Audio Comments.** Although research on audio comments has been limited, studies on their use indicate that students may find audio comments clearer and more helpful than written comments, although some studies have shown that navigating audio comments to the text of the paper can be challenging for students. Kirschner, van den Brink, and Meester (1991), in their study of the Open University of the Netherlands (OuN), maintained that

students who received written feedback labeled the feedback as “adequate” or “useful” (p. 192). However, subjects who received audiotape feedback noted advantages, including the impression that the intonation of the instructor was more appealing, the ability to hear the comments while reading the essay more attractive, and the feedback itself was clearer (p. 192). However, Olesova et al. (2011) found that English as a Second Language (ESL) and English as a Foreign Language (EFL) students both felt that written feedback was more effective than audio feedback in providing feedback because of the visual nature of written comments in pointing out problems in their papers. Nonetheless, the ESL/EFL students in the study found audio comments “made them more involved in the course than written comments did” (p. 39). Wood et al. (2011) conducted a study of 48 students in two sections of online nursing classes. In the study, 70 percent of the students felt they understood the instructor’s audio commentary more effectively than the instructor’s written commentary, 67 percent “felt more involved with the course” with audio comments than with written comments, and 80 percent found audio comments to present a more personal tone in feedback than written comments did (p. 541). They also found, as did Olesova et al., that visual learners found audio comments to “make it harder to match particular comments with the text” (p. 542). Brearley and Cullen (2013), in an undergraduate land use and conservation class, compared the level of improvement in student grades for students who posted drafts of their papers and received audio comments to students who did not post drafts of their papers but merely posted final drafts. They found that grades were significantly improved among the students who had posted first drafts, received audio comments, and then posted revisions. However, Brearley and Cullen found, corroborating with the findings of Olesova et al. and Wood et al., that students found challenges with the audio feedback in “mapping comments in their audio feedback to specific sections of their work” (p. 30). Sweeney (1999) found that

students receiving oral commentary on their compositions through an inductive method of feedback received their highest scores on their revised essays, while the same students who received written feedback with an inductive approach on the subsequent paper received lower scores on their revised essays.

Moreover, Ice et al. (2007) found that the number of strategies that students used and the level of thinking and problem-solving skills used in revising their papers were significantly higher when students received audio comments compared to when students received written comments. This may indicate that students understood the comments more effectively when they were given in audio form. This is reinforced by the study by Merry and Orsmond (2007), who found that students perceived audio feedback to be of greater quality, to the point at which thirteen of the fifteen students studied "were unconcerned by the absence of written comments" because they found the audio comments to be so clear (p. 4).

Finally, Ice et al. (2010) conducted a study in which 196 graduate students in the field of education were surveyed to investigate their perceptions of the relevance of the three types of feedback that Stern and Solomon (2006) had outlined (global, middle, and micro) and the preferred modality (audio or written) of the feedback. Their survey results showed that "student felt stand-alone written feedback was more effective than stand-alone audio feedback, and that the combination of written and audio feedback was the most effective of all" (p. 122). Specifically, the study showed a student preference for audio feedback for global comments but written feedback for micro-level comments. In addition,

> …the results clearly suggest an inverse relationship between the utility of written feedback and the feedback level; that is, the perceived efficacy of written feedback was greater for mid-level feedback than for global level feedback, and greater still for micro-

> level feedback than for mid-level feedback. On the other hand, both audio feedback alone and combined audio and written feedback were seen as much more effective at the global level and mid-levels than at the micro feedback level. (p. 124)

Thus, Ice et al.'s study indicates a tendency for students to prefer audio comments for global and possibly micro-level issues but written feedback for micro-level issues. The authors note, however, "Qualitative analysis may also be especially helpful in understanding the higher prevalence of preference for written feedback at the micro level…qualitative work could be beneficial in reinforcing or modifying this explanation" (p. 127).

Much has been written about teachers' experiences with written and spoken comments, and much has been recorded about student perceptions of feedback in general. However, empirical research on the effects of spoken comments on student satisfaction with writing courses compared to the effects of written comments on student satisfaction with writing courses has not been extensive. In addition, studies of students in composition courses tend to compare the use of audio feedback to written feedback in face-to-face courses. Few studies have been done evaluating the use of audio and written commentary in *online* writing courses.

Thus, while audio commentary may provide a promising alternative to or addition to written commentary, more research is needed on the use of standalone audio commentary in online courses in which students use the audio feedback to revise their work. The different contexts and arrangements in which audio comments have been implemented in the studies mentioned above warrant further research on the use of audio commentary in comparison to written commentary specifically in online writing classes.

**Conclusion**

Overall, while studies of instructor use of and student response to audio commentary has been infrequent and has lacked the robust data that have been generated regarding written

commentary, the limited number of studies conducted may indicate that audio commentary provides a promising alternative to instructors. It is possibly a time-saving option to traditional written comments, it offers the possibility of an improved medium for students in their understanding of instructors' comments, and it represents potentially a seismic shift in writing commentary pedagogy.

The studies conducted on the use of audio comments to student writing have been limited in a number of ways. First, many have analyzed the use of cassette tapes, not digital audio files, in responding to students (Anson, 1997; Clark, 1985; Cryer, 1987; Huang, 2000; Hunt, 1989; Johansen, 1989; Kates, 1998; Klammer, 1973; Lappia & Kirkland, 1989; Logan, Logan, Fuller & Denehy, 1976; Moore, 1978; Moxley, 1989; Olsen, 1982; Pearce & Ackley, 1995; Price & Holman; Sommers, 1989; Syncox, 2003). Second, many have involved small, action research studies in which instructors provide audio comments to their own students and gather data on the results (Bauer, 2011; Sipple, 2007; Still, 2006). Third, many have been conducted in face-to-face classes, not online classes (Huang, 2000; Pearce & Ackley, 1995; Sipple, 2007; Still, 2006; Sommers, 1989). These are situations in which students can eventually approach their instructors for clarification and help after having received comments on their papers. More research is needed on the use of audio comments in online classes, classes which represent a mode of delivery in which the student is unable to have physical contact with the instructor for clarification.

Additional research is also needed on the possible time-saving features that audio commenting may afford. As noted above, studies have shown mixed results with regard to the question of whether audio comments take more or less time for instructors to prepare (Anson, 1997; Ice et al., 2007; Kirschner, van den Brink, and Meester, 1991; LaFontana, 1996;

McCullagh, 2010; Merry and Orsmond, 2008; Oomen-Early et al., 2008; Pearce & Ackley, 1995; Sommers, 2002; Still, 2006; Merry and Orsmond, 2008; Wood et al., 2011). Moreover, again, many of these studies that analyzed instructors' time investment involved the use of cassette tapes, not digital technology, in producing the audio files (Anson, 1997; Kirschner, van den Brink, and Meester, 1991; LaFontana, 1996; Pearce & Ackley, 1995; Sommers, 2002; Anson, 1997).

In addition, additional research is needed on whether students write more improved final drafts of papers after having gotten audio feedback over final drafts of papers after having gotten written feedback. The studies mentioned above generally investigated students' perceptions, but the studies did not ask students to write another draft of the paper using the different forms of commentary, audio and written (Dagen et al., 2008; Ice et al., 2007; Ice et al. 2010; Merry & Orsmond, 2008; Olesova et al., 2011; Oomen-Early et al., 2008; Sipple, 2007; Wood et al., 2011).

Overall, we must note that studies of audio commentary *using .mp3 files in online composition classes* are infrequent and lacking. Many of the studies noted above that were conducted in composition courses involved face-to-face formats (Huang, 2000; Pearce & Ackley, 1995; Sipple, 2007, Still, 2006). Kirschner, van den Brink, and Meester (1991) studied a distance course, but it was one that used cassette tapes, and it was not a composition course. Merry and Orsmond (2007) analyzed the use of only audio in .mp3 format, but their study involved students in a human biology course, not a composition course. Ice et al. (2007) studied online courses using digital technology, but their studies were on non-composition courses as well and involved the use of both .mp3 files and embedded audio files into Adobe Acrobat Pro documents. Oomen-Early et al. (2008) conducted a study comparing audio to written

commentary in online courses among 156 undergraduate and graduate students. Their study involved students in reading, health education, and family studies courses, not composition courses. In addition, it also evaluated the use of both .mp3 and embedded voice commentary into Adobe Acrobat Pro documents. The recent analyses of Ice et al., Merry and Orsmond, and Oomen-Early et al. have rendered invaluable contributions to the research on the use of audio in giving feedback to students in online environments. However, there is a lack of studies examined in this literature review that have analyzed the use of audio feedback in an *online* writing class through the use of only .mp3 files.

The problem in the field is how to best provide comments to students on their writing compositions in order to allow students to improve as writers. The literature shows that often students do not fully understand the comments given to them by their instructors on their writing assignments. Moreover, the literature shows that, with the two methods of written and audio commentary that have emerged, little research has been conducted on how well students perform between one method compared to the other, whether certain types of errors are best addressed by one method over the other, whether students' perceptions differ from one method to the other, whether instructors' perceptions differ from one method to the other, whether one method has advantages over the other specifically in online classes, and whether instructors would find the audio method a scalable option for them when providing comments to an entire class of students. Overall, in the pursuit of optimal methods for providing students with formative feedback on their writing, the problem remains as to whether one method—written or audio commentary—is a more effective method under certain circumstances and under certain conditions.

For this reason, more investigation is needed on the comparison of asynchronous audio commentary on student writing in an online composition class to asynchronous written

commentary on student writing in an online composition class. The literature shows that further analysis is needed on this comparison not only in online courses but also in composition courses specifically. In addition, the literature shows a need for more research on the use of just .mp3 technology in providing the audio comments. Furthermore, the literature indicates that an analysis of how well students perform with subsequent drafts after receiving both methods of commentary is needed in the field of instructional technology and composition research. This type of an analysis will help us determine, among many possible outcomes, whether audio comments help students in certain ways more effectively than written comments do, whether written comments help students in certain ways more effectively than audio comments do, and whether instructor preferences for one mode over another affect student perceptions of one mode over another. This dissertation research study was designed to provide more data in addressing the problem of how to provide effective formative feedback to students on their writing.

# CHAPTER 3: METHODOLOGY

In order to gain a better understanding of how written comments compare to audio comments from both an instructor and a student perspective, this mixed-method quantitative and qualitative study was conducted in five different online sections of a 100-level composition class. The class was taught during a 12-week summer semester. The study involved an analysis of the commenting patterns for the first two writing assignments in this 100-level composition course.

Five research questions guided the study:

1. What are the characteristics of written comments and of audio comments on students' writing assignments? Specifically, do teachers' comments change in content and in length when they provide written comments compared to when they provide audio comments? If so, how?
2. What are teachers' perceptions of the scalability of providing written compared to audio comments?
3. What are students' perceptions of the ability to understand teachers' meaning in written comments compared to audio comments?
4. What are teachers' perceptions of how written comments help students improve their writing compared to how audio comments help students improve their writing?
5. What are students' perceptions of how written comments help them improve their writing compared to how audio comments help them improve their writing?

## Rationale for a Mixed-Methods Approach

This study incorporated a mixed-methods approach in its methodology. This approach was used because the research questions lent themselves to a mixed-method paradigm.

Mixed-method approaches have become more popular in the scholarly literature in the last two decades. Ross and Onwuegbuzie (2010) argued, "In many other social and behavioral science fields, the call for methodological pluralism has been answered by an increasing number of researchers combining qualitative and quantitative approaches within the same study, most commonly known as mixed methods research" (p. 234). Hanson et al. (2005) concluded, "Despite numerous challenges and obstacles, it [mixed methods research] has emerged as a viable alternative to purely quantitative or qualitative methods and designs" (p. 233). The emergence of mixed methods as a viable method and design could be observed in the writing of scholars two decades ago, as Lancy (1993) noted, "…we should consider the possibility of qualitative and quantitative researchers working in parallel" (p. 12). He offered a scenario that is very similar to the one used in this study: "There are two researchers who are interested in a similar issue, how do students interpret and respond to feedback in class on their academic performance (e.g., teacher's comments, graded tests, papers)" (p. 13). He explained that, while a quantitative researcher might administer an attribution assessment in various schools and run the data through a statistical package, a qualitative researcher might "interview several of the key informants at length on the subject" and hold a focus group. Lancy concluded: "I make no claim that the information the qualitative researcher obtains is any more true, valid or generalizable than the quantitative researcher's data, just that the conclusions the two will draw from their research may be quite different…" (p. 14). Therefore, a mixed methods approach offers promise of closing gaps and answering questions that either a quantitative or qualitative approach might have left unanswered or open. Williams (2007) summed up the application of the mixed methods approach: "Researchers typically select the quantitative data approach to respond to research questions requiring numerical data, the qualitative approach for research

questions requiring textural data, and the mixed methods approach for research questions requiring both numerical and textural data" (p. 65). Among the five research questions in this study, some required extensive quantitative data along with some qualitative analysis of text, and some required extensive qualitative data with some descriptive statistics. The nature of this study is one that allowed for certain data to be revealed quantitatively and other data to be examined qualitatively.

Johnson and Onwuegbuzie (2004) pointed out the intricacies of the mixed-method approach: "Philosophically, mixed research makes use of the pragmatic method and system of philosophy. Its logic of inquiry includes the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best set of explanations for understanding one's results)" (p. 17). This study was enhanced by all three forms of logical inquiry—induction, deduction, and abduction.

This study would best be described as one that falls under Creswell's label of *pragmatism* (pp. 22-23). The study was designed to contribute to the research on how to best provide formative assessment on student writing and what factors influence the various methods of providing such feedback. Studies that fall under this category of pragmatism, according to Creswell, have often used both quantitative and qualitative data to support their conclusions (p. 23). This study echoed the following observation from Creswell:

> We use qualitative research to follow up on quantitative research and help explain the mechanisms or linkages in causal theories or models. These theories provide a general picture of trends, associations, and relationships, but they do not tell us about why people

> responded as they did, the context in which they responded, and their deeper thoughts and behaviors that governed their responses. (p. 40).

In this study, the different "mechanisms or linkages" that influence different commenting styles, both written and audio, and the different "mechanisms or linkages" that influence both instructor use of and student response to them were examined through quantitative and qualitative inquiry.

## Research Context

**Participants.** Twelve instructors who had been assigned to teach online sections of a 100-level composition course at a large accredited university on the east coast of the United States were invited to participate in the study. One declined, and eleven volunteered to participate.

Of the eleven instructors who volunteered to participate, two of the instructors did not follow steps in the research protocol. One instructor provided both audio and written commentary to the first draft of the first essay and only written commentary to the first draft of the second essay. The other instructor did not post the writing assignment instructions for the comparison-contrast essay as he had been directed. For this reason, the data from both of these instructors' sections, including any student data from their sections, were eliminated from the study.

In terms of experience in teaching writing online, the remaining nine instructors each had taught at least three online writing classes before participating in the study. Seven of the nine instructors had taught 30 or more online writing classes in previous semesters.

Of the remaining nine instructors, four of the instructors did not provide a feedback template to their students after the students had posted their second drafts. For this reason, the data from these four instructors' surveys and comments were not included in the final analysis. However, the student surveys were from these sections were included when answering the research questions. The student survey responses were still valid from these students because the students had had the experience of receiving written and audio comments and of revising their papers after having received the comments.

The remaining five instructors followed all steps in the research study correctly. For this reason, students in only these five sections had their interviews coded for qualitative analysis in answering research questions 3 and 5. In addition, all five instructors' comments, both in written and audio form, were analyzed quantitatively for research question 1. Moreover, all five instructors' interviews were analyzed for research question 4. In terms of their experience in teaching writing online, all five instructors had taught at least 12 sections of online writing courses before the semester in which they participated in the study.

Each section in the study had 22 students, with the exception of one section that had 21 students. Therefore, in the nine sections from which data were gathered and analyzed, a total of 197 students were enrolled.

The student body at the institution at which the study was conducted has an average age of 32. Most students are employed full-time while taking classes at the institution. For this reason, students at the institution are quite different in background and professional experience from students in a traditional 100-level writing class. Furthermore, prior to registering for the class, all students had taken the ACCUPLACER English exam and, when averaging their scores

for the *sentence skills* and *reading comprehension* parts of the exam, had scores of 90 or above. I.R.B. approval was obtained for the study from both institutions.

**Writing Assignments.** The class in which the study was being conducted required four writing assignments from students. This study was conducted on the first two assignments. The first assignment (writing assignment #1) in this particular 100-level composition class was a narrative essay. In order to ensure consistency across sections, the writing assignment instructions were given to the instructor to assign to the class (appendix A).

The second assignment (writing assignment #2) was a comparison-contrast essay. Again, in order to ensure consistency across sections, the writing assignment instructions were given to the instructor to assign to the class (appendix B).

In addition, both writing assignment #1 and writing assignment #2 were equal in percentage worth across all sections. Arranging for each instructor to make the first and second assignments the same value ensured consistency in the percentage weight of the assignments across all sections.

***Writing Assignment #1.*** Students submitted a draft of writing assignment #1. Among the five instructors, the style of response to the first paper differed as follows:

Two of the instructors commented on the first draft using only written comments. The written comments were posted in the document itself. The document with the embedded written comments was posted to the student in the online class platform.

The other three instructors commented on the first draft using only audio comments in .mp3 file form. The instructor created an .mp3 file in which he or she talked to the student about the paper. The audio comment file was posted to the student in the online class platform.

All of the students across all five sections then wrote a final draft of writing assignment #1. The final draft was posted into a designated folder in the online class platform. The instructor then provided feedback to the student on how well the student had improved from the first draft to the final draft of the paper. The feedback was given using a template (appendix C).

***Writing Assignment #2.*** Students submitted a draft of writing assignment #2. Again, among the participating instructors, the style of response to the first paper differed.

The two instructors who had commented on writing assignment #1 using only written comments commented on writing assignment #2 using only audio comments. The audio comment file was posted to the student in the online class platform.

The other three instructors who had commented on writing assignment #1 using only audio comments commented on writing assignment #2 using only written comments. The document with the embedded text comments was posted to the student in the online class platform.

All students across the five sections then wrote a final draft of writing assignment #2. The final draft was posted into a designated folder in the online class platform. The instructor again provided feedback to the student on how well the student had improved from the first draft to the final draft of the paper. The feedback was given using the same template as had been used for the feedback for writing assignment #1 (appendix C).

Table 1 shows the number of students in each of the five sections who completed the two essays, completed the survey, and were interviewed. The data for only these sections were used to answer research question 1. In addition, the feedback templates from these sections were used to answer research question #4.

Table 1

*Data on the Five Teachers and Their Students*

| Faculty member | Comments given to writing assignment #1 | Comments given to writing assignment #2 | Number of students who completed both essays | Total number of students interviewed | Number of students who completed the survey | Codes for students who completed the survey and who were interviewed |
|---|---|---|---|---|---|---|
| **T1** | Audio | Written | 14 | 3 | 7 | S1, S2, S3 |
| **T2** | Written | Audio | 15 | 2 | 4 | S4, S5 |
| **T3** | Audio | Written | 18 | 2 | 8 | S6, S7 |
| **T4** | Audio | Written | 14 | 2 | 3 | S8, S9 |
| **T5** | Written | Audio | 15 | 1 | 3 | S10 |

Table 2 shows the number of students in each of the nine sections who completed the two essays and completed the survey. The student survey data from these sections were gathered in answering research questions #3 and #5.

Table 2

*Number of Students in Each of the Nine Sections Who Completed Surveys*

| Faculty member | Comments given to writing assignment #1 | Comments given to writing assignment #2 | Posted feedback template | Number of students who completed the survey |
|---|---|---|---|---|
| **T1** | Audio | Written | Yes | 7 |
| **T2** | Written | Audio | Yes | 4 |
| **T3** | Audio | Written | Yes | 8 |
| **T4** | Audio | Written | Yes | 3 |
| **T5** | Written | Audio | Yes | 3 |
| **T6** | Audio | Written | No | 4 |
| **T7** | Written | Audio | No | 4 |
| **T8** | Written | Audio | No | 9 |
| **T9** | Written | Audio | No | 7 |
| **Total** | | | | 49 |

**Consistency in Technology Use.**

Two steps were taken to ensure consistency in technology use among instructors in providing feedback to their students. First, when instructors gave written feedback, all five instructors used MicrosoftWord TrackChanges. Second, before the semester, the five faculty members were given a Sony digital voice recorder. In addition, before the study began, they were sent a sample paragraph (appendix D) and were required to produce a short .mp3 file of their voice commenting on the paragraph. The faculty member then sent the .mp3 file to the researcher. In this way, each instructor developed a level of familiarity with the creation of an .mp3 audio file with the digital voice recorder. This step reduced the chance that low levels of comfort with the technology among the faculty members would affect the results gathered in the study.

**Consistency in Feedback Content.**

In order to ensure that all instructors provided comparable types of feedback in both written and audio form, and in order to ensure that a level of consistency in commenting was maintained across all five instructors, guidelines were provided for them on the types of issues on which to comment (appendix E).

As stated previously in discussing the theoretical framework for the study, the study used Stern and Solomon's (2006) categorization of comments into *micro-level, middle-level, global-level*, and *other* issues. This classification system was used because Stern and Solomon, after having examined 598 papers from 30 different portfolios within the university, found these four areas to be representative of the full range of individual instructor comments on student papers. They collected papers from students, not from instructor, thus preventing bias and allowing them to collect a random sampling of teacher commentary on writing. They found that these four

categories represented the different levels of evaluation into which the comments in their collection of papers could be classified. Furthermore, Ice et al. (2010) used the same classification scheme for their study, noting the soundness of the feedback hierarchy presented by Stern and Solomon.

Following this pattern, each instructor was asked to provide commentary on at least one global-level issue, one middle-level issue, and two micro-level issues. This arrangement did not mean that instructors were allowed to give only four comments to the paper. It meant that they were directed to comment on at least one global-level issue (e.g., selection of topic, strength of thesis statement, etc.), at least one middle-level issue (e.g., paragraph unity, paragraph coherence, details and support given to arguments, etc.), and at least two micro-level issues (e.g., subject-verb agreement, pronoun-antecedent agreement, parallel structure problems, run-on sentences, sentence fragments, etc.). In commenting on these issues, they could choose to comment on more than one *instance* of an issue. For example, they might have chosen to comment on more than one sentence fragment, more than one paragraph that lacks unity, etc.

This strategy enhanced the study in two ways. First, it is consistent with writing feedback theory, as indicated in the theoretical framework section of this proposal. Writing feedback theory suggests that instructors best serve students when they provide feedback on a few areas that the student can improve upon in subsequent drafts (Beach, 2006; Stern & Solomon, 2006; Straub, 2000). Second, it helped ensure that comments to a particular draft were not dominated by, for example, only grammatical issues and that other global- or middle-level problems were not addressed. Conversely, it helped ensure that comments were not exclusively at the global and middle level and that no micro-level issues on grammar and mechanics were addressed.

## Accounting for Differences in the Two Assignments and Five Instructors

The study was designed for participation among five instructors. Three instructors were to give audio comments to their students for the first writing assignment and then give written comments to the students for the second writing assignment. For the other two instructors, the situation was to be reversed.

This arrangement of having some instructors give written comments to writing assignment #1 and audio comments to writing assignment #2 and of having the other instructors give audio comments to writing assignment #1 and written comments to writing assignment #2 helped control for variables like the difficulty levels of the writing assignments. If students perform more effectively with audio comments, this pattern should be evident whether they receive them for writing assignment #1 or writing assignment #2. By the same analysis, if students perform more effectively with written comments, this pattern should be evident whether they receive them for writing assignment #1 or writing assignment #2. The level of difficulty for writing assignment #1 and #2 was to some extent controlled by having the different instructors use a different order of commenting.

## Data Collection

**Surveys from Students and from Instructors.** First, an online survey was posted by each instructor into the classroom (appendix F). Taking the survey was a voluntary action by each student. In the survey, each student was given the option of providing his or her email address so that he or she could be contacted for a potential follow-up interview. Each student had the option of taking the survey but not providing an email address to be contacted for a follow-up interview. In all, 49 students completed the survey.

In addition, faculty members were given a survey asking them Likert-style questions about their experiences with both styles of commenting (appendix F). The questions asked them about issues such as how well they were able to explain their concepts regarding global-, middle-, and micro-level areas in writing. Moreover, the survey asked them how long it had taken them to produce the comments and how long it had taken them to upload the comments to the classroom interface. The instructor surveys were distributed and collected by email. In all, 11 instructors completed the survey. Of these 11, five of the surveys were analyzed for data in the study because the instructors who had taken these five surveys had completed all of the procedures for the study.

**Interviews of Instructors and Students.** After each instructor had submitted the survey, the researcher arranged a phone interview with each instructor. In the interview, the researcher reviewed the answers given in the survey and offered the opportunity for the instructor to expand on his or her answers. The interviews were recorded with permission from the instructors, and the recordings were then transcribed. Open coding was conducted on the transcribed interviews for codes, categories, and themes.

In addition, after each student had completed the survey, if the student noted on the survey that he or she could be contacted for an interview, the researcher contacted that particular student. In all, 19 student interviews were conducted. Each interview was recorded with permission from each student, and the recordings were then transcribed.

In the data analysis, 10 student interviews were analyzed. The 10 student interviews that were analyzed represented the students who were in the classes of the five instructors whose comments were analyzed. Therefore, the 10 students were self-selected. Open coding was conducted on the 10 interviews for codes, categories, and themes.

**Comments on Drafts.** After the semester had ended, written comments and audio comments were collected by the researcher. The audio comments from the five instructors who completed all steps of the study were transcribed. For these five instructors, both the written and the audio comments were then analyzed for word count and for frequency of global-, middle-, and micro-level comments.

**Templates from Instructors.** Moreover, faculty members were given a template (appendix C) that they used to provide their assessment of how well the student had improved from the first draft to the final draft of both essays. This template was used for both the student essays on which they had given written comments and the student essays on which they had given audio comments. Therefore, each faculty member filled out this template two times for each student. Each template was analyzed, and codes and categories were identified for the sets of templates representing essays to which written comments had been given and to for the sets of templates representing essays to which audio comments had been given.

Table 3 illustrates what types of data were collected to answer each research question.

Table 3

*Data Used to Answer Each Research Question*

| Research Question | Quantitative analysis of comments in both written and audio form | Teachers' template of comments to students on the final drafts | Student surveys | Student interviews | Teacher surveys | Teacher interviews |
|---|---|---|---|---|---|---|
| What are the characteristics of written comments and of audio comments? Specifically, do teachers' comments change in type and in length when they provide written comments compared to when they provide audio comments? If so, how? | **X** | | | | **X** | **X** |
| What are teachers' perceptions of the scalability of providing written compared to audio comments? | | | | | **X** | **X** |
| What are students' perceptions of the ability to understand teachers' meaning in written comments compared to audio comments? | | | **X** | **X** | | |
| What are teachers' perceptions of how written comments help students improve their writing compared to how audio comment help students improve their writing? | | **X** | | | **X** | |
| What are students' perceptions of how written comments help them improve their writing compared to how audio comments help them improve their writing? | | | **X** | **X** | | |

## Data Analysis

As stated earlier, this study is a mixed-methods analysis combining both quantitative and qualitative data. All five research questions involved some quantitative analysis, with research question #1 involving inferential statistical analysis. In addition, all five research questions involved some qualitative analysis, with research questions 3, 4, and 5 involving open coding and the gathering of codes, categories, and themes.

**Qualitative Data.** Qualitative research involves *inductive* reasoning (Conrad & Serlin, 2006; Creswell, 2007). Creswell stated, "The procedures of qualitative research, or its methodology, are characterized as inductive, emerging, and shaped by the researcher's experience in collecting and analyzing the data. The logic…is inductive, from the ground up…" (p. 19). This study employed methods of qualitative analysis in the form of inductive analysis through *open coding a priori*.

Open coding is associated with various methods of qualitative research. Kettley (2010) noted, "The object of coding is synthesis across the objectivist-subjectivist divide to provide truly social explanations" (p. 105). In other words, open coding represents an inductive method of gathering data from field research. However, *open coding a priori* involves identifying codes before data are actually collected. Stake (1995) maintained, "Major efforts to develop understanding from coded data usually will require early identification of relevant variables and situations in which the variables are observable…" (p. 29). He continued: "For most important data, it will be useful to use preestablished codes but to go through the data separately looking for new ones" (p. 79). Thus, some research studies are best designed with pre-identified codes before conducting open coding. Ryan and Bernard (2003) pointed out that, while a totally inductive approach would involve generating themes only from the data, an a priori approach

involves generating themes "from the investigator's prior understanding of the phenomenon under study…" (p. 88). Therefore, not only codes might be predetermined, but themes into which codes might fall can be predetermined as well.

The labels that this study applied were *codes*, *categories*, and *themes*. Strauss and Corbin (1998) maintained, "…to uncover, name, and develop concepts, we must open up the text and expose the thoughts, ideas, and meanings contained therein….[D]uring open coding, data are broken down into discrete parts, closely examined, and compared for similarities and differences" (p. 102). In this study, the thoughts, ideas, and meanings contained in interviews and surveys were examined and coded through an open-coding process in order to bring out the similarities and differences among students and among instructors. Strauss and Corbin explained that, in the open-coding process, the "events, happenings, objects, and actions/interactions that are found to be conceptually similar in nature or related in meaning are grouped under more abstract concepts termed 'categories.'" Therefore, open coding involves gathering the data and placing it into categories. Pandit (1996) wrote that in open coding, "the product of labeling and categorizing are concepts…" (Data Analysis Phase section, para.4). He noted that "The process of grouping concepts at a higher, more abstract, level is termed *categorizing*" (para. 5). Westbrook (1994) affirmed that this pattern is then applied to the development of themes: "Essential to coding units of data are the term *category*…The term *theme* then refers to clusters of categories that share come commonality such as reference to a single issue" (p. 246). Ryan and Bernard (2003) explained that "You know you have found a theme when you can answer the question, What is this expression an example of?" (p. 87). Overall, while qualitative research is characterized by various labels when open coding is applied, this study uses the terms codes, categories, and themes in grouping its data.

Interviews were used in the study to gather qualitative data from both students and instructors. Interviews represented the most effective means of gathering qualitative data for a study of this nature, with students and instructors both at a distance and unable to come together for a focus group. Thorkildsen (2005) noted that "Interviews are perhaps the most commonly used interactive techniques…" as they "have the potential to elicit greater depth of answers than would be possible in noninteractive methods….this method continues to be a strong means of directly discovering what respondents know, like, believe, and so forth." (p. 358). Overall, while asking students and instructors to answer questions on a survey provided useful data, interviews helped expand on and explain the data from the surveys.

**Quantitative Data.** For the quantitative aspect of the study in analyzing the nature of both audio and written comments, all audio and written comment files were collected from all participating instructors' classes at the end of the semester. In this way, the comment files were existing data from the class. First, all .mp3 files that had been posted by each participating instructor were collected and organized. This process meant collecting the comments that had been posted to writing assignment #1 in the classes taught by the instructors who had been asked to post audio comments to writing assignment #1 and then collecting the comments that had been posted to writing assignment #2 in the classes taught by the instructors who had been asked to post audio comments to writing assignment #2.

Second, all written comment files that had been posted by each participating instructor were collected and organized by instructor. This process meant collecting the comments that had been posted to writing assignment #1 in the classes taught by the instructors who had been asked to post written comments to writing assignment #1 and then collecting the comments that had been posted to writing assignment #2 in the classes taught by the instructors who had been asked

to post written comments to writing assignment #2. Following this step, the audio comments were transcribed. The transcriptions were completed using Dragon Naturally Speaking software. For research question #2, instructors' survey responses to question #3 on their survey were analyzed through descriptive statistics.

**Analysis of Qualitative Data.** Qualitative analysis was conducted at some level in answering all five research questions. For research question #1, instructors' interview responses were analyzed in order to help explain differences between and among instructors in their patterns of commenting in both audio and written forms. In addition, when appropriate, open-ended survey answers were analyzed for further explanation of any differences between and among instructors.

For research question #2, instructors' interview responses were analyzed as they expanded on their answers about the amount of time audio comments involved and the amount of time written comments involved. In addition, when appropriate, open-ended survey answers were analyzed for further explanation of the time investment in producing comments in both media.

For research question #3, students' interviews and open-ended survey responses were coded through an open coding process. Codes, categories, and themes were gathered from the data in determining student responses to audio and written commentary. First, interviews were recorded and then transcribed. Following this step, columns were created, and codes were written in the columns next to the text. Then, codes were placed into a priori categories of *global*, *middle*, and *micro*, reflecting the pre-determined categories set by Stern and Solomon (2004). Within each of these three categories, categories were inductively gathered from the data. For example, if a student was answering a question about comments on global-level

problems in his paper and mentioned the issue of figuring out where in the paper the audio comment was referring to, then this code was placed into the category of *navigability* within the *global-level* area. If a student was answering a question about comments on micro-level problems in his paper and mentioned the issue of figuring out where in the paper the audio comment was referring to, then this code was placed into the category of *navigability* within the *micro-level* area. Thus, codes sometimes came up in more than one area among the *global*, *middle*, and *micro* areas. In addition, sometimes codes were unique to one of the three areas. Following this analysis, themes were gathered from the categories that had been inductively determined from the codes.

For research question #4, the feedback templates from the instructors were coded through an open coding process. Codes, categories, and themes were gathered from the data in determining whether audio or written commentary produced more improved student writing. The codes, categories, and themes were gathered in much the same as as the manner in which they were gathered for question #3. The feedback templates for papers for which written comments had been posted for the first draft were analyzed, and codes were written down for each template. When all the codes had been gathered, codes were categorized. In addition, the feedback templates for papers for which audio comments had been posted for the first draft were analyzed, and codes were written down for each template. Again, when all the codes had been gathered, the codes were categorized. Therefore, for both types of papers—those for which written comments had been posted for the first draft and those for which audio comments had been posted for the first draft—codes and categories were developed inductively. Following this process, themes were developed based on the categories.

For research question #5, student interviews were analyzed through an open coding process. Specifically, students' answers to one particular question in the interviews were analyzed for qualitative data that contributed to the answer for research question #5.

**Analysis of Quantitative Data.** Different research questions in this study involved different levels of quantitative analysis. For research question #1, a repeated measures analysis of variance (ANOVA) was conducted on both the audio comments and the written comments for each instructor. This ANOVA was conducted in order to determine whether there was a significant difference in the number of words used between both media for all four levels of commentary (global, middle, micro, and other) and if the number of items commented on was significantly different between both media for global-, middle-, and micro-levels. In addition, means and confidence intervals were plotted in order to provide a visual illustrate differences for each instructor in patterns of audio and written commentary.

For research question #2, descriptive statistical analysis was conducted from the instructors' survey answers. For research questions #3 and #5, descriptive statistical analysis was conducted on the students' survey answers. In addition, inferential quantitative analysis was conducted on the survey answers. Both McNemar's test and the Test of marginal homogeneity were conducted to determine whether student responses were significantly different in rating written comments and in rating audio comments.

## Pilot Study and Results

The researcher conducted a pilot study in fall 2008 on this same topic. In the pilot study, four instructors agreed to participate. All four were teaching a 200-level composition course, one that involved the assigning of three papers. In the study, students were selected beforehand and sent an email message asking them if they would like to participate in the study. In the end,

there were seven students who had agreed to participate and who had finished the necessary work to complete the study.

In the pilot study, the instructors gave audio comments in .mp3 form to the student or students who had agreed to participate in the study from their section. However, the instructors were given the latitude to choose which writing assignment for which they would like to provide audio comments on the first draft of the student's submission. In addition, they were not given a digital voice recorder through which to produce the .mp3 file. They were allowed to use whatever means they chose to produce the audio file. Finally, the instructors had not been given parameters or suggestions on what areas of the paper to comment on. While in the study for which this doctoral dissertation is being written instructors were asked to provide global-level, middle-level, and micro-level comments to students on their papers, for the pilot study, instructors had not been given such direction.

In the pilot study, instructors took a survey, but they were not interviewed to follow up on the survey. In addition, students took a survey and were followed up with an interview. Content analysis was conducted on the interview data, and descriptive analysis was conducted on the quantitative data from the surveys.

The study brought out five major themes in its results. First, some instructors had technological challenges in producing the .mp3 files, while students had no challenges in listening to the files. Second, the media had had an impact on the comments given. The audio feedback tended to gravitate to global-level issues, while the written feedback tended to gravitate to micro-level issues. Third, the instructors' preferences and the students' preferences were different. Instructors tended to be reticent toward audio comments, with three out of the four

instructors indicating that they did not prefer to use audio commentary. However, four out of the seven students in the study preferred the audio commentary. In fact, in several cases, instructors who did preferred giving written comments to giving audio comments actually had students who stated that they preferred their instructors' audio comments to their instructors' written comments. Only one section of the study featured the instructor and the student both preferring audio commentary. Fourth, according to students, the tone of the instructor was found to be more favorable with audio comments than it had been for written comments. Finally, on one occasion, the student's preference for written commentary over audio commentary may have been a reflection of her reason for wanting to receive feedback on her drafts. She indicated that with written comments she would make her correction, delete the comment, and move on. She could not engage in this process when receiving audio comments and had to play the audio file over and over to glean the issues her instructor was pointing out.

Overall, the pilot study showed that instructors may not be comfortable with the technological skills involved in giving audio comments. Providing instructors with a digital voice recorder and giving them some training on the use of the recorder offered a possible enhancement to a study of this nature. In addition, the pilot study showed that instructors might benefit from using common assignment instructions and being provided common parameters in giving comments to student drafts. Finally, the pilot study showed that interviews can provide rich data to follow up on survey data. Overall, the study on which this dissertation is being written attempted to include these characteristics and improvements in order to allow the collection of richer data over that collected in the pilot study. In this study, instructors were given digital voice recorders, were given practice in using them, were given common assignments and rubrics to follow, and were given instructions on following a balance of global-,

middle-, and micro-level commentary to the first drafts. Therefore, in the study on which this dissertation has been written, the weaknesses and challenges that had been demonstrated in the pilot study were corrected and improved upon.

# CHAPTER IV. FINDINGS

The purpose of the study was to compare the use of audio comments to written comments on student compositions in online writing classes. The study analyzed the characteristics of written comments and audio comments and examine how they differ across different faculty members. In addition, the study analyzed students' perceptions of how well they understood both written and audio commentary in order to compare the effectiveness of both media from the students' perspectives. It also analyzed students' perceptions of how well they were able to improve their writing as a result of receiving written commentary and as a result of receiving audio commentary, again, in order to compare the effectiveness of both media in helping student improve their writing from the students' perspectives. Moreover, the study analyzed instructors' perceptions of how scalable audio commentary was to provide to students in comparison to written commentary and, from instructors' perspectives, how much students' writing had improved as a result of receiving written commentary and as a result of receiving audio commentary.

## Findings for Research Question 1: Characteristics of Written and Audio Comments

This section presents the results for Research Question 1: What are the characteristics of written comments and of audio comments on students' writing assignments? Specifically, do teachers' comments change in content and in length when they provide written comments compared to when they provide audio comments? If so, how?

In asking this question, *content* is defined as the level or area of writing the comment addresses. This study classifies comments into four levels or areas: *global*, *middle*, *micro*, and *other*. The global level refers to the thesis statement of the paper, the overall topic of the paper, the organization, and the creativity. The middle level refers to the paragraphs, including how

well they defend the thesis and whether they are unified, supported, and coherent. The micro level refers to grammar, word-level issues, punctuation, and formatting. *Other* refers to any comments that could not be classified under the previous three categories. Such comments included salutations to begin the comments to the student, words of encouragement to the student, and instructions on how to post the next draft for the student.

In addition, *length* is defined as the number of words used for each level or area. The number of words used for each comment for global, middle, micro, and other comments was tallied for the analysis.

Data used to answer this question came from the quantitative data gathered from the transcripts of the audio comments given by the five instructors, quantitative data gathered from the written comments given by the five instructors, and data gathered from the interview questions answered by the five instructors. Table 4 shows how research question #1 was answered.

Table 4

*Data Collected to Answer Research Question #1*

| | | | | |
|---|---|---|---|---|
| 1. Quantitative data from transcripts of audio comments | *Global level* | *Middle level* | *Micro level* | *Other* |
| 2. Quantitative data from written comments | *Global level* | *Middle level* | *Micro level* | *Other* |
| 3. Qualitative data from interviews with and surveys from instructors | | | | |

The comments provided by the instructors in both audio and written form were categorized into *global-level*, *middle-level*, *micro-level*, and *other*. The number of words for

each level was counted for both the comments given in audio form and the comments given in written form.

To answer this research question, a repeated measures analysis of variance (ANOVA) was conducted to determine if the number of words was significantly different between audio and written for all four levels (global, middle, micro, and other) and, if so, in what direction the difference would point. In addition, the number of items commented on by each instructor for each of the four categories (*global*, *middle*, *micro*, and *other*) was counted for both the audio comments and the written comments. An ANOVA was conducted to determine if the number of items commented on was significantly different between audio and written for each of these four levels and, if so, in what direction the difference would point. Furthermore, in analyzing the number of words used, means and confidence intervals were plotted in order to provide a visual illustration of overlaps or the lack of overlaps in the confidence intervals for each instructor for each of the four levels. Finally, interviews taken with and surveys taken by instructors were analyzed to examine corroboration with the quantitative analysis.

Therefore, the following findings represent the results of three outcomes: 1) the number of words for each level, 2) the number of items commented on for each level, and 3) the means and confidence intervals for each teacher at each level in order to check for overlap. In addition, the findings represent an analysis of the interviews with the instructors and the surveys taken by the instructors.

Overall, the findings show two main effects and one interaction effect. The *first main effect* is that the media used (audio versus written) among all teachers produces a statistically significant effect. The use of audio results in a higher number of words than the use of written

text when averaged among all five teachers. The *second main effect* is that the teacher giving the comments, whether audio or written, produces a statistically significant effect. Some teachers provided significantly more comments than others, both in audio and in written form. The *interaction effect* is between the media and the teacher. There was a statistically significant interaction effect between the media, or whether audio or written comments were provided, and which teacher provided them. In other words, the question of whether certain teachers used more words in their global-level, middle-level, micro-level, or other comments than other teachers used depended on the type of media (audio or written) each teacher used. And the question of whether one type of media (audio or written) resulted in more words in the comments for all four levels depended on the teacher giving the comments. Simply knowing which teacher is giving comments is not sufficient information in predicting how many words are used in the comments at the global, middle, and micro levels. Similarly, simply knowing which media is being used for the comments is not sufficient in predicting how many words are used in the comments at each level. One has to know which teacher is providing the comments and which media he or she is using in order to predict how many words will be used in the comments at each level.

**Comparing Number of Words.** This section presents the results of the quantitative analysis on the number of words each instructor provided when commenting on student papers in written form and in audio form. The analysis is divided into the number of words used when commenting on global-level concerns, on middle-level concerns, on micro-level concerns, and on "other" issues.

***Number of Words -- Global Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of words used in

commenting on global-level issues when giving written comments and the number of words used in commenting on global-level issues when giving audio comments. The ANOVA showed a significant difference in the number of words between audio and written form for the global level of comments for all teachers combined. The data showed a significantly higher number of words in audio form than in written form, Audio M = 359.4, SD = 292.4; Written M = 106.1 SD = 102.7; $F(1,69) = 100.07$; $p < 0.001$.

Table 5
*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words Used for Global-Level Comments in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 208.5 | 114.4 | 54.07 | 100.67 | 316.41 | 211.0 | 167.4 | 24.78 | 161.57 | 260.43 |
| 2 (n=15) | 139.1 | 128.7 | 50.34 | 38.72 | 239.56 | 71.6 | 78.9 | 23.07 | 25.58 | 117.61 |
| 3 (n=17) | 209.4 | 95.3 | 209.41 | 115.09 | 303.74 | 58.9 | 38.2 | 21.67 | 15.66 | 102.11 |
| 4 (n=14) | 565.1 | 284.4 | 47.28 | 461.13 | 669.01 | 77.1 | 72.9 | 23.88 | 29.44 | 124.70 |
| 5 (n=15) | 688.2 | 272.1 | 52.10 | 587.78 | 788.62 | 130.1 | 49.8 | 23.07 | 84.05 | 176.08 |
| Total (n=74) | 359.4 | 292.4 | 33.00 | 291.66 | 427.14 | 106.1 | 102.7 | 11.94 | 82.30 | 129.90 |

Note: n = number of students in each section

In an analysis of each teacher, teacher 1 showed more words for written comments than for audio comments at the global level. However, the other four teachers showed more comments for audio comments than for written comments at the global level. As seen in Table 5, teachers used between two and seven times as many words in audio comments as they did in written comments.

The ANOVA also showed that there was a *teacher effect*. In other words, the average number of words used from teacher to teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 21.91$, $p < 0.001$.

Furthermore, the ANOVA showed that there was an *interaction* effect. In other words, the difference between the number of words used for audio comments and the number of words used for written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 19.865$, $p < 0.001$). Table 6 and Table 7 show the results of the tests of within-subject contrasts and of between-subjects effects for global-level comments.

Table 6

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 2337642.08 | 1 | 2337642.08 | 100.07*** |
| Audio vs. written * teacher | 1856299.26 | 4 | 464074.816 | 19.865*** |

***$p < .001$

Table 7

*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 8171256.999 | 1 | 8171256.999 | 361.15*** |
| Teacher | 1982843.748 | 4 | 495710.937 | 21.91*** |
| Error | 1561187.171 | 69 | 22625.901 | |

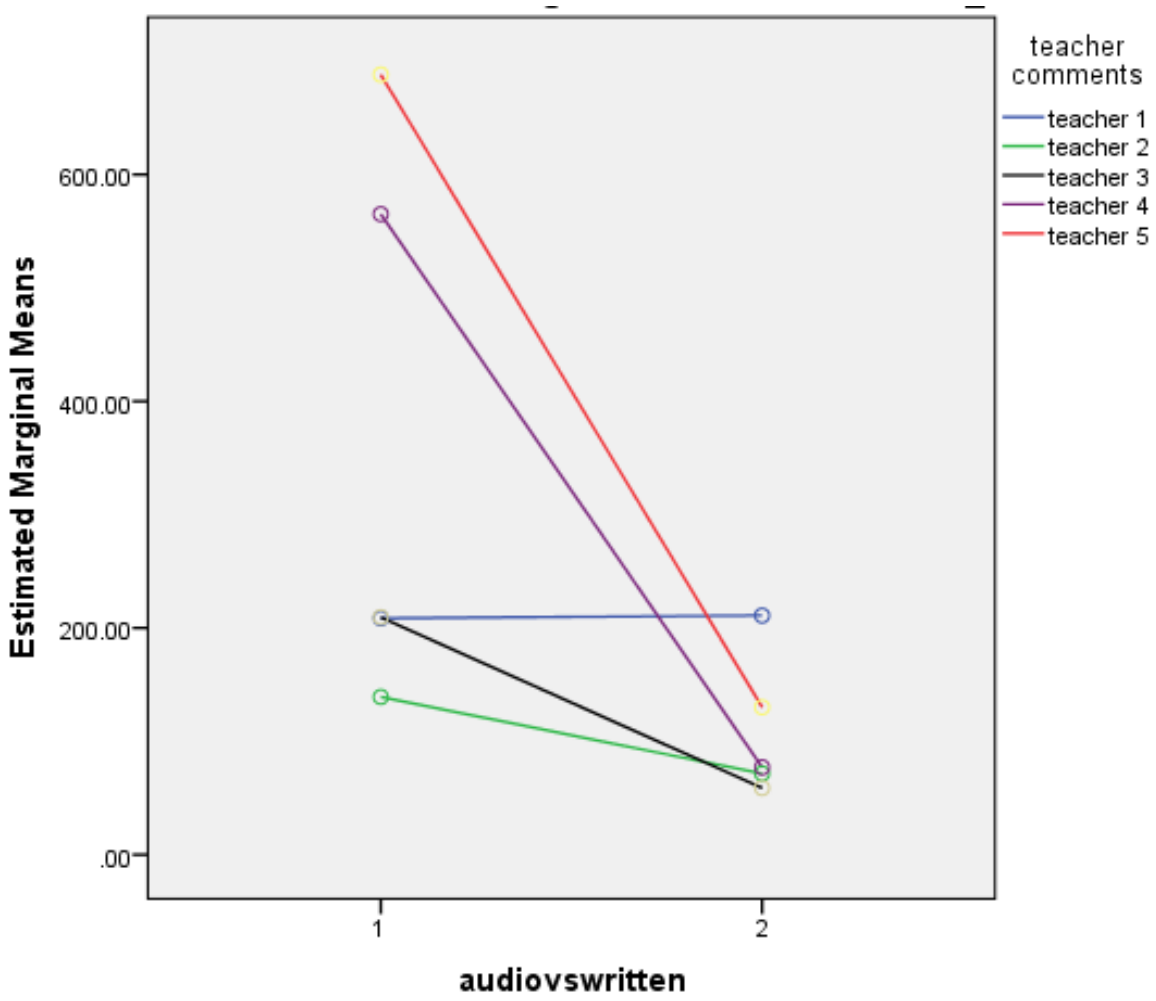
***$p < .001$

As stated earlier in this analysis, at the global level, the findings showed two main effects and one interaction effect. The *first main effect* was that the media used (audio versus written) among all teachers produces a statistically significant effect. The use of audio results in a higher number of words than the use of written text when averaged among all five teachers. The *second main effect* was that the teacher giving the comments, whether audio or written, produces a statistically significant effect. Some teachers provided significantly more comments than others, both in audio and in written form. The *interaction effect* was between the media and the teacher. There was a statistically significant interaction effect between the media, or whether audio or written comments were provided, and which teacher provided them.

Figure 1 shows a visual illustration of the relationship among all five instructors for audio and written comments when given to the global-level areas in students' papers. With one exception, teachers used more words when giving comments in audio form than they did when giving comments in written form.

Figure 1

*Number of Words for Each Instructor for Global-Level Comments*



***Number of Words -- Middle Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of words used in commenting on middle-level issues when giving written comments and the number of words used in commenting on middle-level issues when giving audio comments. The ANOVA showed a significant difference in the number of words between audio and written form for the middle level of comments. The differences among the teachers were statistically significant at the 0.05 level, $F(1,69) = 86.10$; $p < 0.001$. The data showed a significantly higher number of words in audio form than in written form, Audio $M = 496.6$, $SD = 458.8$; Written $M = 118.0$, $SD = 152.0$; $F(1,69) = 86.10$; $p < 0.001$.

All instructors used more words on average for audio comments than for written comments when commenting on middle-level items in their students' papers. Overall, the test of level showed a significant difference between the number of words given for audio comments and the number of words given for written comments when teachers gave comments to the middle-level issues in student papers. Table 8 illustrates the data.

Table 8
*Mean, Standard Error, and Upper and Lower Bounds for Number of Words Used for Middle-Level Comments in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 357.1 | 235.6 | 93.2 | 171.0 | 543.1 | 203.2 | 147.8 | 40.3 | 122.9 | 283.6 |
| 2 (n=15) | 153.6 | 150.4 | 86.8 | -19.6 | 326.8 | 71.4 | 59.6 | 37.5 | -3.4 | 146.2 |
| 3 (n=17) | 247.9 | 175.3 | 81.5 | 85.2 | 410.6 | 49.6 | 25.7 | 35.2 | -20.7 | 119.8 |
| 4 (n=14) | 750.1 | 347.4 | 89.9 | 570.9 | 929.4 | 128.5 | 67.7 | 38.8 | 51.0 | 205.9 |
| 5 (n=15) | 986.2 | 583.0 | 86.8 | 813 | 1159.4 | 158.4 | 276.8 | 158.5 | 83.7 | 233.3 |
| Total | 492.6 | 458.8 | 53.33 | 386.46 | 509.72 | 118.0 | 152.0 | 17.67 | 82.84 | 153.16 |

All five teachers provided more words when giving audio comments than for when giving written comments at the middle level. Of these five teachers, three of them used five times or more words on average when providing audio comments as when providing written comments. As seen in Table 2, teacher 1 used more words for audio comments (M = 357, SD = 235.6) than for written comments (M = 203, SD = 147.8), teacher 2 used more than two times as many words for audio (M = 153.6, SD = 150.4 ) as for written (M = 71), teacher 3 used more than five times as many words for audio (M = 247) as for written (M = 50), teacher 4 used more than five times as many words for audio (M = 750) as for written (M = 129), and teacher 5 used more than six times as many words for audio (M = 986) as for written (M = 158).

The ANOVA also showed that there was a *teacher effect* for the number of words given to middle-level issues. In other words, the average number of words used from teacher to

teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 15.64$, $p < 0.001$.

Furthermore, the ANOVA showed that there was an *interaction* effect at the middle level. In other words, the difference between the number of words used for audio comments and the number of words used for written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 13.17$, $p < 0.001$). Table 9 and Table 10 show the results of the tests of within-subject contrasts and of between-subjects effects for middle-level comments.

Table 9

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 2337642.08 | 1 | 2337642.08 | 192.41*** |
| Audio vs. written * teacher | 5210749.821 | 4 | 5210749.821 | 13.17*** |

***$p < .001$

Table 10

*Tests of Between-Subjects Effects*

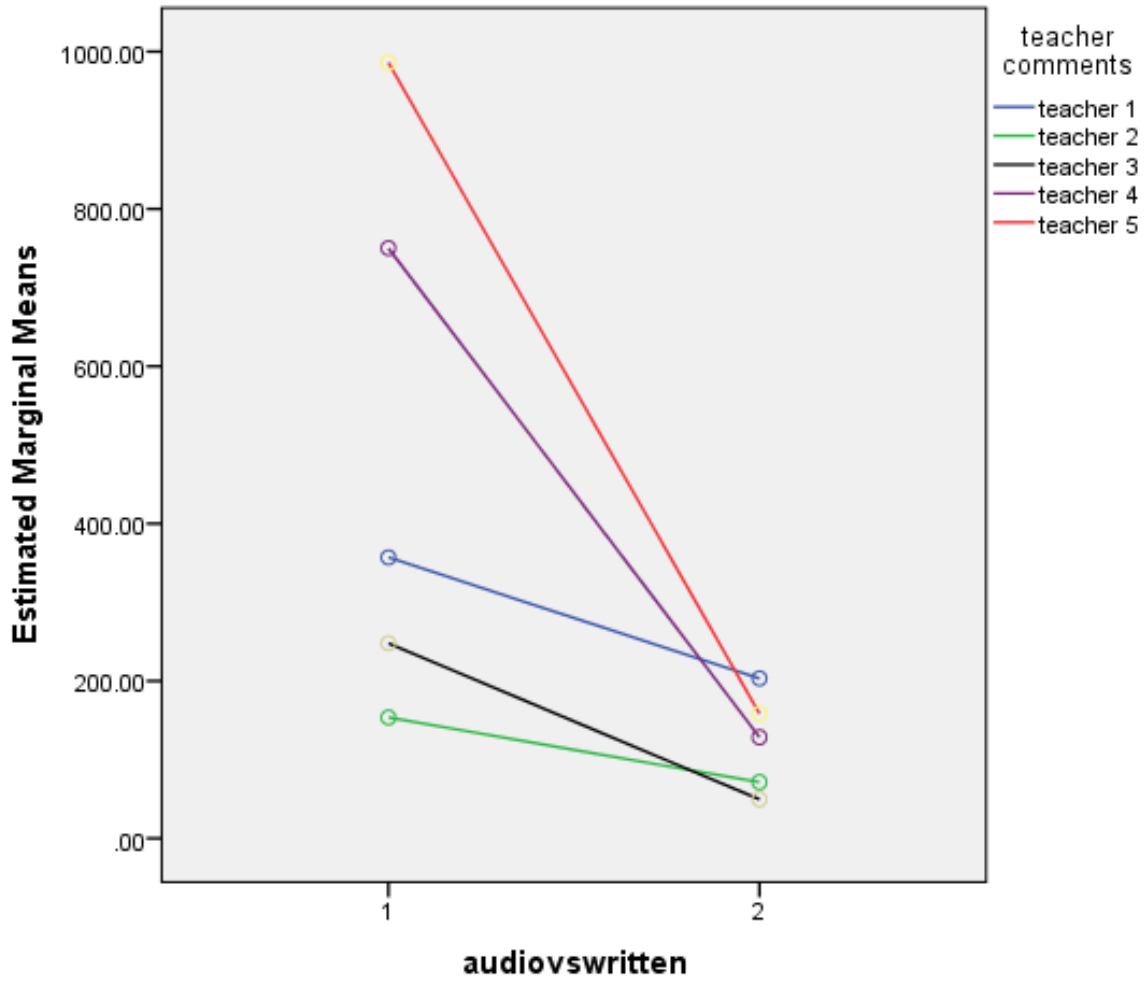
| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 14167262.43 | 1 | 14167262.43 | 192.411*** |
| Teacher | 4606840.656 | 4 | 1151710.164 | 15.642*** |
| Error | 5080496.776 | 69 | 73630.388 | |

***$p < .001$

Figure 2 illustrates the differences and effects from teacher to teacher.

Figure 2

*Number of Words for Each Instructor for Middle-Level Comments*



***Number of Words -- Micro Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of words used in commenting on micro-level issues when giving written comments and the number of words used in commenting on micro-level issues when giving audio comments. The ANOVA showed a significant difference in the number of words between audio and written form for micro level comments. The differences among the teachers were statistically significant at the 0.05 level, $F(1,69) = 78.47$; $p < 0.001$. The data showed a significantly higher number of words in audio form than in written form, Audio $M = 440.77$, $SD = 371.46$; Written $M = 94.85$, $SD = 64.55$.

All instructors used more words on average for written comments than for audio comments when commenting on micro-level items in their students' papers. Overall, the test of level showed a significant difference between the number of words given for audio comments and the number of words given for written comments for the micro-level.

Table 11

*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words Used for Micro-Level Comments in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 399.2 | 216.6 | 90.2 | 219.1 | 579.2 | 116.8 | 78.2 | 16.4 | 84.0 | 149.6 |
| 2 (n=15) | 287.0 | 188.0 | 84.0 | 119.3 | 454.6 | 111.1 | 66.4 | 15.3 | 80.5 | 141.6 |
| 3 (n=17) | 515.7 | 296.4 | 78.9 | 358.2 | 673.2 | 53.9 | 26.0 | 14.4 | 25.3 | 82.6 |
| 4 (n=14) | 780.4 | 518.9 | 87 | 606.9 | 954 | 129.3 | 78.1 | 15.8 | 97.7 | 160.9 |
| 5 (n=15) | 228.7 | 310.1 | 84.0 | 61.0 | 396.3 | 73.8 | 34.9 | 15.3 | 43.3 | 104.3 |
| Total (n=74) | 440.8 | 371.5 | 43.19 | 353.44 | 528.16 | 94.9 | 64.6 | 7.49 | 79.99 | 109.81 |

All teachers provided more words in audio comments than for written comments at micro level. While some teachers used two to three times as many words when commenting on micro-level issues with audio comments as when commenting on micro-level issues with written comments, others used six to nine times as many words with audio as with written. As seen in Table 3, teacher 1 used more than three times as many words for audio comments (M = 399.2, SD = 216.6) as for written comments (M = 116.8, SD = 78.2), teacher 2 used more than two times as many words for audio (M = 287, SD = 188) as for written (M = 111.1, SD = 66.4), teacher 3 used more than nine times as many words for audio (M = 515, SD = 84) as for written (M = 53.9, SD = 26), teacher 4 used more than six times as many words for audio (M = 780.4, SD = 518.9) as for written (M = 129.3, SD = 78.1), and teacher 5 used more than three times as many words for audio (M = 228.7, SD = 310.1) as for written (M = 73.8, SD = 34.9).

The ANOVA showed that there was a *teacher effect* at the micro level. In other words, the average number of words used from teacher to teacher on micro-level issues, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 7.18$, $p < 0.001$).

Furthermore, the ANOVA showed that there was an *interaction* effect at the micro level as well. In other words, the difference between the number of words used for audio comments and the number of words used for written comments on micro-level issues varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(1, 69) = 5.75$, $p < 0.001$). Table 12 and Table 13 show the results of the tests of within-subject contrasts and of between-subjects effects for micro-level comments.

Table 12

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 4374528.924 | 1 | 4374528.924 | 78.47*** |
| Audio vs. written * teacher | 1282975.652 | 4 | 320743.913 | 5.75*** |

***$p < .001$

Table 13

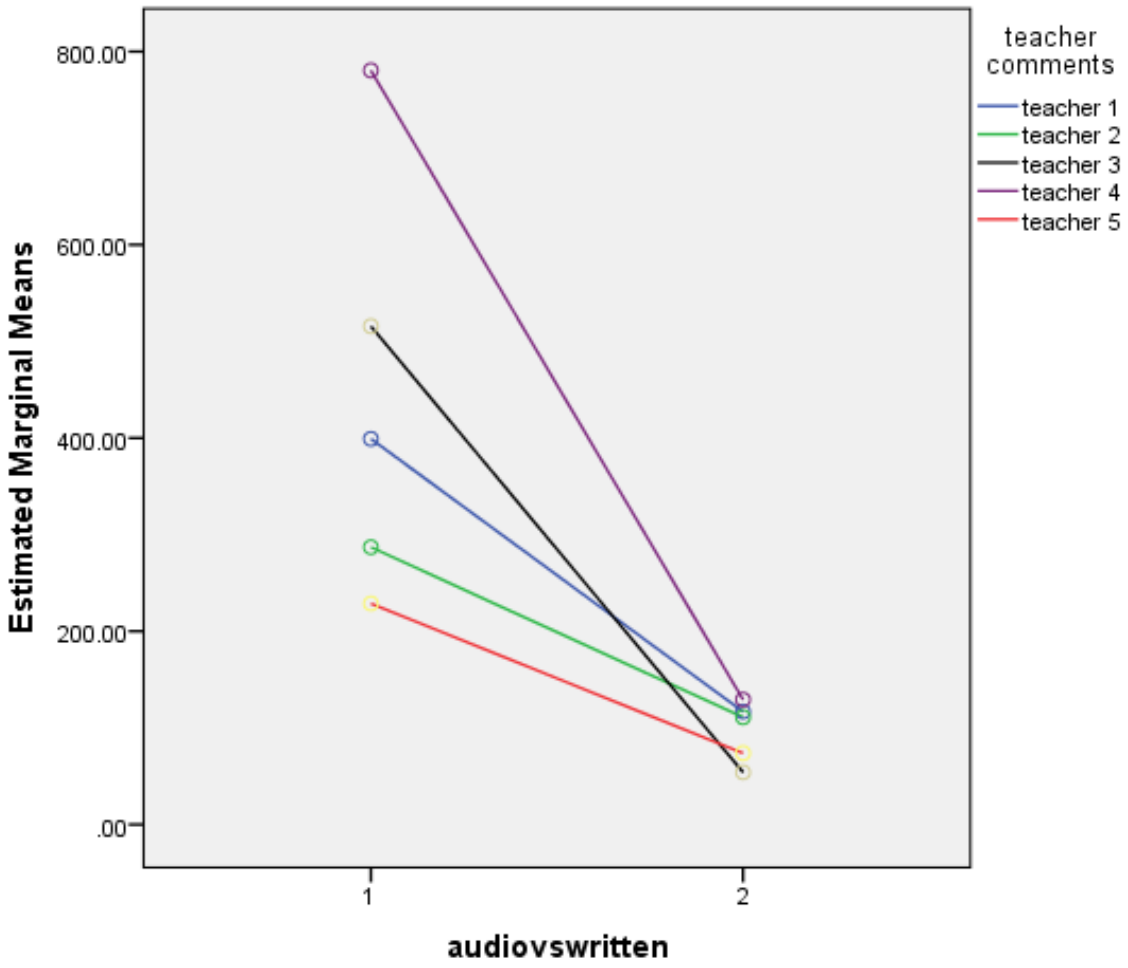
*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 10672050.59 | 1 | 10672050.59 | 198.71*** |
| Teacher | 1541580.000 | 4 | 385395.000 | 7.18*** |
| Error | 3705662.703 | 69 | 53705.257 | |

***$p < .001$

Figure 3

*Number of Words for Each Instructor for Micro-Level Comments*




***Number of Words – Other.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of words used in commenting on *other* issues when giving written comments and the number of words used in commenting on *other* issues when giving audio comments. The ANOVA showed a significant difference in the number of words between audio and written form for "other" comments for all teachers combined. The data shows a significantly higher number of words in audio form than in written

form, Audio M = 106.31, SD = 59.48; Written M = 15.18, SD = 19.22; $F(1,69) = 267.70$; ($p < 0.001$). All instructors used more words on average for written comments than for audio comments when giving comments on other issues in their students' papers. Overall, the test of level showed a significant difference between the number of words given for audio comments and the number of words given for written comments.

Table 14

*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Words Used for Comments Labeled as "Other" in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 128.6 | 47.9 | 12.6 | 103.4 | 153.8 | 38.4 | 22.2 | 3.8 | 30.8 | 46 |
| 2 (n=15) | 114.7 | 36.7 | 11.8 | 91.3 | 138.2 | 9.7 | 6.2 | 3.5 | 2.7 | 16.8 |
| 3 (n=17) | 44.9 | 24.9 | 11.0 | 22.9 | 67 | 2.5 | 5.9 | 3.3 | 0 | 9.1 |
| 4 (n=14) | 94.5 | 26.9 | 12.2 | 70.2 | 118.8 | 3.2 | 7.3 | 3.8 | 0 | 10.5 |
| 5 (n=15) | 159.1 | 74.3 | 11.8 | 135.7 | 182.6 | 26.1 | 19.5 | 3.5 | 19 | 33.1 |
| Total (n=74) | 106.3 | 58.5 | 6.8 | 92.77 | 119.83 | 15.2 | 19.2 | 2.23 | 10.76 | 19.64 |

All teachers provided more words in audio comments than for written comments for *other* comments. While some teachers used two to six times as many words when commenting on *other* issues with audio comments as when commenting on *other* issues with written comments, others used 17 to 29 times as many words with audio as with written. As seen in Table 4, teacher 1 used more than two times as many words for audio comments (M = 128.6, SD

= 47.9) as for written comments (M = 38.4, SD = 22.2), teacher 2 used more than 11 times as many words for audio (M = 114.7, SD = 36.7) as for written (M = 9.7, SD = 6.2), teacher 3 used more than 17 times as many words for audio (M = 44.9, SD = 24.9) as for written (M = 2.5, SD = 5.9), teacher 4 used more than 29 times as many words for audio (M = 94.5, SD = 26.9) as for written (M = 3.2, SD = 7.3), and teacher 5 used more than six times as many words for audio (M = 159.1, SD = 74.3) as for written (M = 26.1, SD = 19.5).

For comments on "other" issues, the ANOVA showed that there was a *teacher effect*. In other words, the average number of words used from teacher to teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 21.72$, $p < 0.001$).

Finally, the ANOVA showed that there was an *interaction* effect. In other words, the difference between the number of words used for audio comments and the number of words used for written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 7.42$, $p < 0.001$). Table 15 and Table 16 show the results of the tests of within-subject contrasts and of between-subjects effects for *other* comments.

Table 15

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 313492.395 | 1 | 313492.395 | 267.70*** |
| Audio vs. written * teacher | 34764.158 | 4 | 8691039 | 7.42*** |

***$p < .001$

Table 16

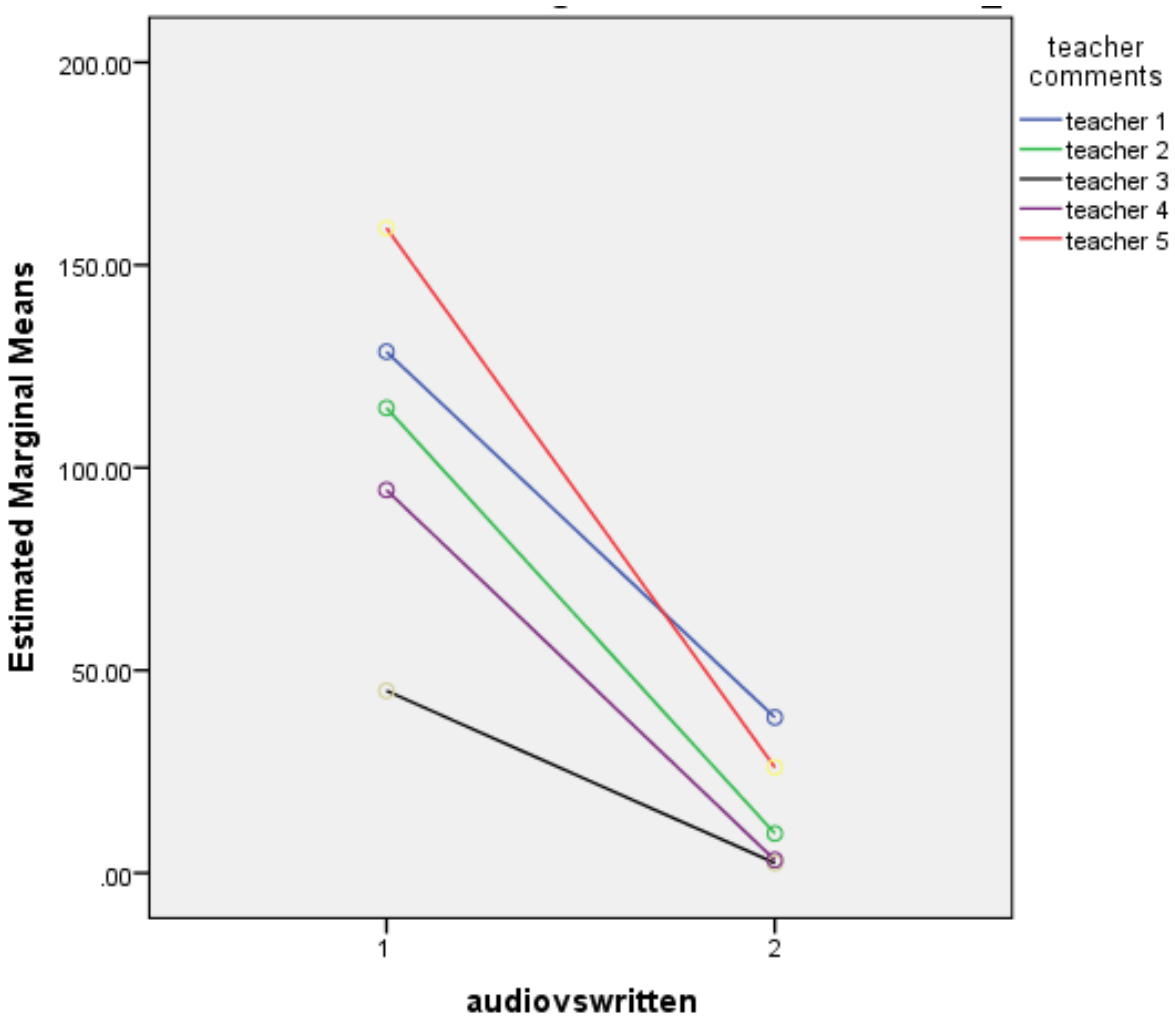
*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 567718.824 | 1 | 567718.824 | 521.43*** |
| Teacher | 94572.689 | 4 | 23643.172 | 21.72*** |
| Error | 75124.554 | 69 | 1088.762 | |

***$p < .001$

Figure 4

*Number of Words for Each Instructor for "Other" Comments*



**Comparing Number of Items Commented On.** This section presents the results of the quantitative analysis on the number of items each instructor provided when commenting on student papers in written form and in audio form. The analysis is divided into the number of items commented on when commenting on global-level concerns, on middle-level concerns, and on micro-level concerns.

***Number of Items Commented On -- Global Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of items commented on for global-level issues when giving written comments and the number of items commented on for global-level issues when giving audio comments. The ANOVA showed a significant difference in the number of items commented on when using audio comments and the number of items commented on when using written comments for the global level for all teachers combined. The data showed a significantly higher number of items commented on in audio form than in written form, Audio $M = 3.84$, $SD = 2.24$; Written $M = 2.74$ $SD = 1.30$; $F(1,69) = 20.12$; $p < 0.001$.

However, the results in this case were mixed. Teacher #3, teacher #4, and teacher #5 all commented on more items on the global area in audio form than they did on the global area in written form. Teacher #1 and teacher #2 both commented on more items in the global area in written form than in audio form. Overall, the test of level showed a significant difference between the number of items commented on for audio comments and the number of items commented on for written comments.

Table 17

*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Global Level in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 3.6 | 1.1 | .48 | 2.65 | 4.58 | 3.8 | 1.3 | .34 | 3.17 | 4.52 |
| 2 (n=15) | 1.7 | 1.0 | .45 | .83 | 2.63 | 2.7 | 1.3 | .32 | 2.04 | 3.30 |
| 3 (n=17) | 3.1 | 1.2 | .42 | 2.21 | 3.90 | 2.3 | .8 | .30 | 1.70 | 2.89 |
| 4 (n=14) | 5.5 | 2.3 | .47 | 4.57 | 6.43 | 2.6 | 1.4 | .33 | 1.99 | 3.30 |
| 5 (n=15) | 5.5 | 2.5 | .45 | 4.57 | 6.37 | 2.5 | 1.2 | .32 | 1.84 | 3.10 |
| Total (n=74) | 3.8 | 2.2 | .26 | 3.29 | 4.31 | 2.7 | 1.3 | .15 | 2.40 | 3.00 |

The ANOVA indicated that there was a *teacher effect* at the global level for the number of items commented on. The average number of items commented on from teacher to teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 8.89$, $p < 0.001$.

Furthermore, the ANOVA showed that there was an *interaction* effect. In other words, the difference between the number of global-level items commented on when giving audio comments and the number of middle-level items commented on when giving written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 10.60$, $p < 0.001$.

The data on global-level comments showed that the teachers exhibited different styles and perhaps preferences when commenting in audio form and when commenting in written form. We can see that instructor preference influenced the number of comments made more than it influenced the number of words used.

Table 18

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 43.74 | 1 | 43.74 | 20.12*** |
| Audio vs. written * teacher | 92.162 | 4 | 23.04 | 10.60*** |

***$p < .001$

Table 19

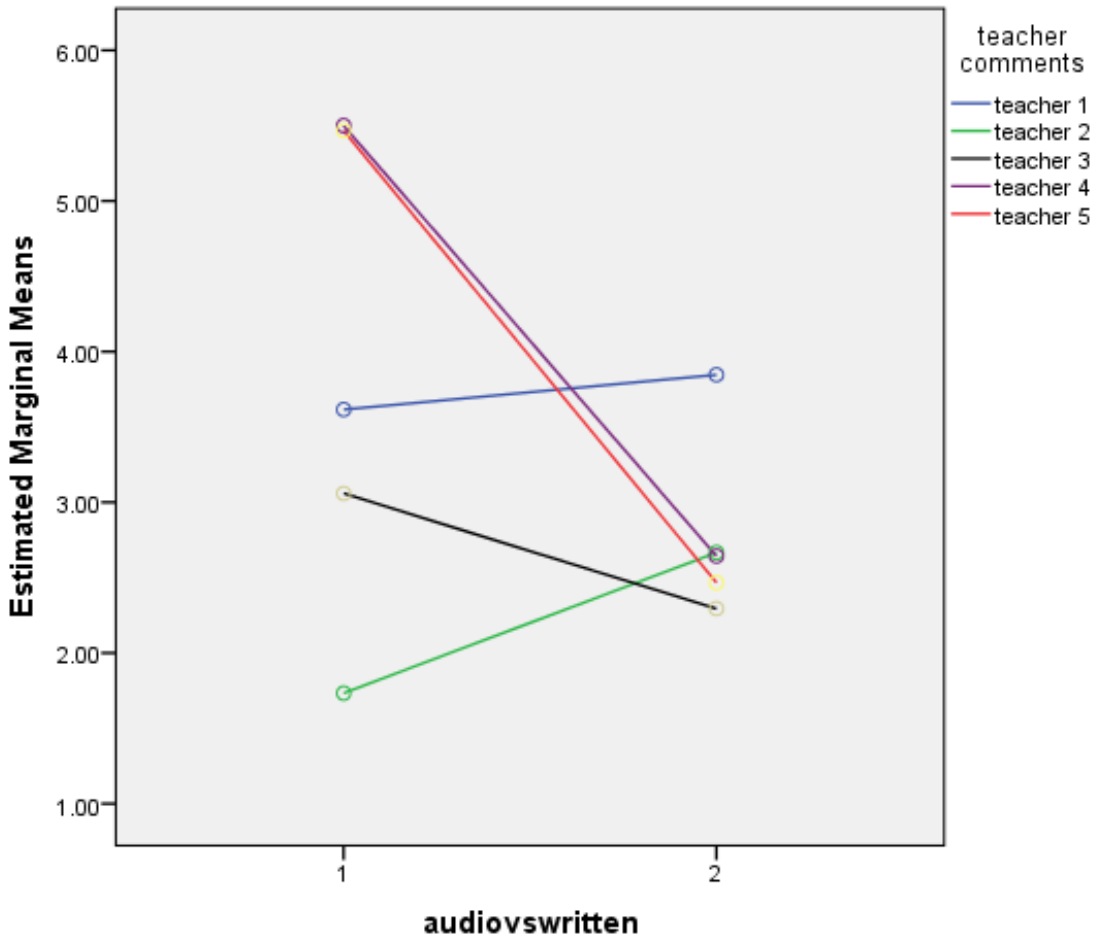
*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 1672.373 | 1 | 1672.373 | 686.02*** |
| Teacher | 84.326 | 4 | 21.082 | 8.89*** |
| Error | 163.680 | 69 | 2.372 | |

***$p < .001$

Figure 5

*Number of Items Commented On for Each Instructor for Global-Level Comments*



***Number of Items Commented On -- Middle Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of items commented on for middle-level issues when giving written comments and the number of items commented on for middle-level issues when giving audio comments. The ANOVA showed a significant difference in the number of items commented on when using audio comments and the number of items commented on when using written comments for the middle level for all teachers combined. The data shows a significantly higher number of items commented on in audio form than in written form, Audio $M = 5.03$, $SD = 4.12$; Written $M = 3.68$ $SD = 2.21$; $F(1,69) = 8.24$; $p < 0.005$.

The results for middle-level comments were also mixed. Teacher #2, teacher #3, teacher #4, and teacher #5 all commented on more items on the global area in audio form than they did on the global area in written form. Teacher #1 commented on more items in the global area in written form than in audio form. Overall, the test of level showed a significant difference between the number of items commented on for audio comments and the number of items commented on for written comments.

Table 20

*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Middle Level in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 5.4 | 3.9 | .90 | 3.60 | 7.17 | 4.7 | 2.5 | .56 | 3.58 | 5.80 |
| 2 (n=15) | 1.2 | .86 | .84 | -.47 | 2.87 | 2.9 | 1.1 | .52 | 1.83 | 3.90 |
| 3 (n=17) | 3.4 | 2.0 | .78 | 1.79 | 4.92 | 3.1 | 1.0 | .48 | 2.09 | 4.03 |
| 4 (n=14) | 6.9 | 3.6 | .86 | 5.20 | 8.65 | 5.3 | 2.7 | .54 | 4.21 | 6.36 |
| 5 (n=15) | 8.7 | 4.6 | .84 | 7.00 | 10.33 | 2.8 | 2.4 | .52 | 1.76 | 3.84 |
| Total (n=74) | 5.0 | 4.1 | .48 | 4.05 | 5.95 | 3.7 | 2.2 | 2.56 | 3.19 | 4.21 |

The ANOVA indicated that there was a *teacher effect* at the middle level for the number of items commented on. The average number of items commented on from teacher to teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 14.61$, $p < 0.001$.

Furthermore, the ANOVA showed that there was an *interaction* effect. In other words, the difference between the number of middle-level items commented on when giving audio comments and the number of middle-level items commented on when giving written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 7.04$, $p < 0.001$.

The data on middle-level comments, as with the data for global-level comments, showed that the teachers exhibited different styles and perhaps preferences when commenting in audio form and when commenting in written form. Instructor preference influenced the number of comments made more than it influenced the number of words used.

Table 21

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 68.48 | 1 | 68.48 | 8.24** |
| Audio vs. written * teacher | 234.14 | 4 | 234.14 | 7.04*** |

**$p < .01$
***$p < .001$

Table 22

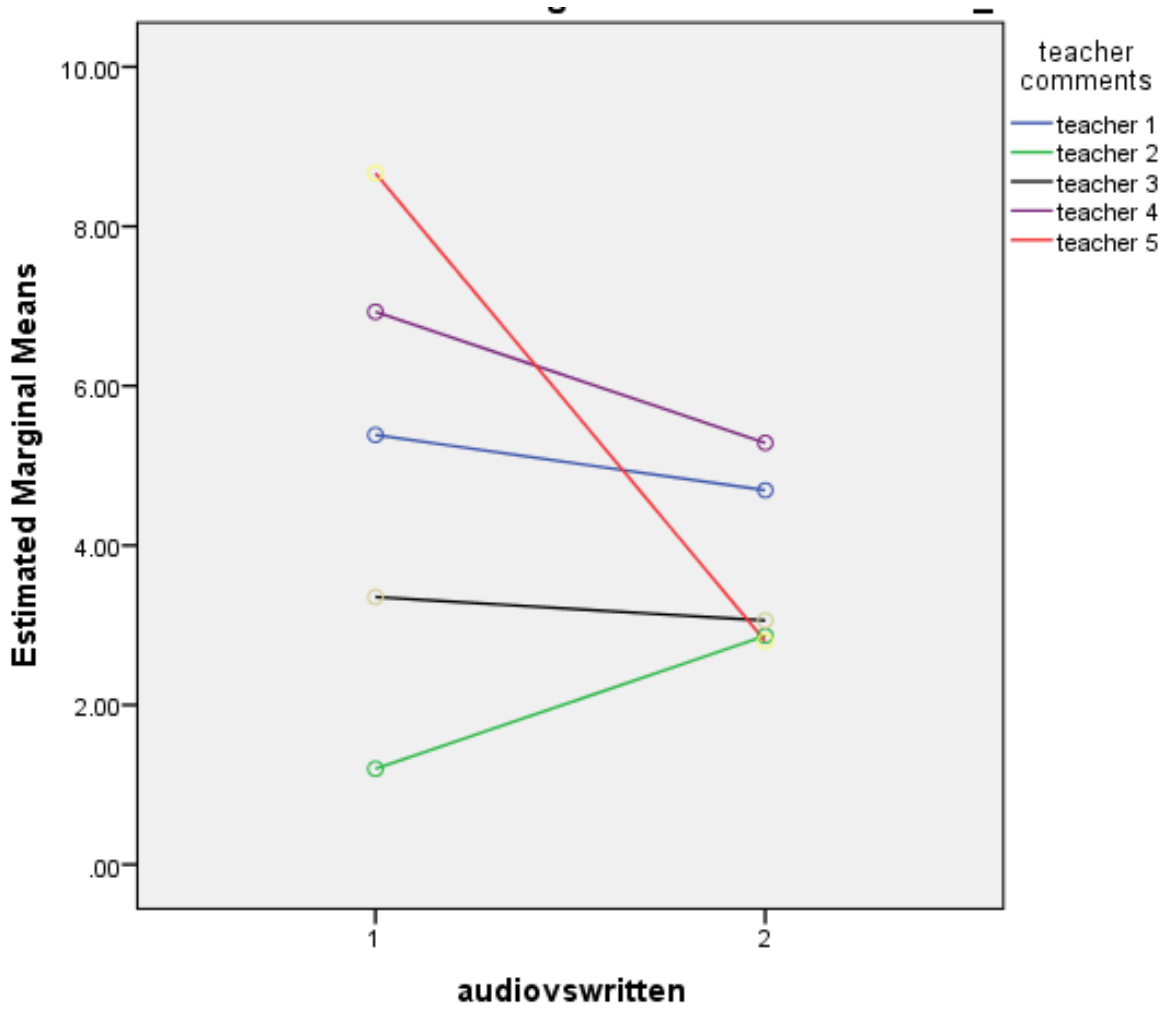
*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 2873.424 | 1 | 2873.424 | 464.29*** |
| Teacher | 361.70 | 4 | 90.424 | 14.61*** |
| Error | 427.03 | 69 | 6.19 | |

***$p < .001$

Figure 6

*Number of Items Commented On for Each Instructor for Middle-Level Comments*



***Number of Items Commented On -- Micro Level.*** In conducting this analysis, a repeated-measures ANOVA was conducted across all five instructors on all the number of items commented on for micro-level issues when giving written comments and the number of items commented on for micro-level issues when giving audio comments. The data showed a significantly higher number of items commented on in written form than in audio form, Audio M = 4.91, SD = 3.92; Written M = 7.45 SD = 7.68; $F(1,69) = 13.68$; $p < 0.001$.

The ANOVA showed a significant difference in the number of words between audio and written form for the number of items commented on at the micro level. However, the data showed a reverse trend for the micro-level than the data showed for the global- and middle-level areas. The data for the micro-level area for the number of items commented on showed a significantly higher number of comments in written form than in audio form.

The results for the micro-level were mixed. Teacher #1 and teacher #3 commented on more items on the micro-level in audio form than they did on the micro-level area in written form. Teacher #2, teacher #4, and teacher #5 all commented on more items in the micro-level area in written form than in audio form. Overall, the test of level showed a significant difference between the number of items commented on for audio comments and the number of items commented on for written comments.

Table 23

*Mean, Standard Deviation, Lower Bound, and Upper Bound for Mean Number of Items Commented on at the Micro Level in Audio and Written Forms by Teacher*

| | Audio | | | | | Written | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | M | SD | Std. Error | Lower Bound | Upper Bound | M | SD | Std. Error | Lower Bound | Upper Bound |
| 1 (n=13) | 7.5 | 4.0 | .93 | 5.60 | 9.33 | 7.7 | 5.8 | 1.4 | 4.91 | 10.48 |
| 2 (n=15) | 2.5 | 1.2 | .87 | .80 | 4.27 | 2.9 | .88 | 1.3 | .34 | 5.53 |
| 3 (n=17) | 4.8 | 2.1 | .82 | 3.14 | 6.39 | 3.6 | .94 | 1.2 | 1.15 | 6.03 |
| 4 (n=14) | 7.6 | 4.8 | .90 | 5.78 | 9.37 | 19.1 | 9.4 | 1.35 | 16.46 | 21.83 |
| 5 (n=15) | 2.7 | 3.8 | .87 | 1.00 | 4.47 | 5.2 | 3.4 | 1.3 | 2.61 | 7.79 |
| Total (n=74) | 4.9 | 3.9 | .44 | 4.02 | 5.78 | 7.4 | 7.7 | .90 | 5.62 | 9.18 |

The ANOVA indicated that there was a *teacher effect* at the micro level for the number of items commented on. The average number of items commented on from teacher to teacher, collapsing across audio and written comments, differed, and this difference was statistically significant at the 0.05 level, $F(4, 69) = 31.09$, $p < 0.001$.

Furthermore, the ANOVA showed that there was an *interaction* effect. In other words, the difference between the number of items commented on when giving audio comments and the number of items commented on when giving written comments varied from teacher to teacher, and the difference was statistically significant at the 0.05 level, $F(4, 69) = 9.69$, $p < 0.001$.

The data on micro-level, as with that of global- and middle-level comments, showed that the teachers exhibited different styles and perhaps preferences when commenting in audio form and when commenting in written form. Instructor preference, again, influenced the number of comments made more than it influenced the number of words used.

Table 24

*Tests of Within-Subjects Contrasts*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Audio vs. written | 267.31 | 1 | 267.31 | 13.68*** |
| Audio vs. written * teacher | 757.42 | 4 | 189.35 | 9.69*** |

***$p < .001$

Table 25

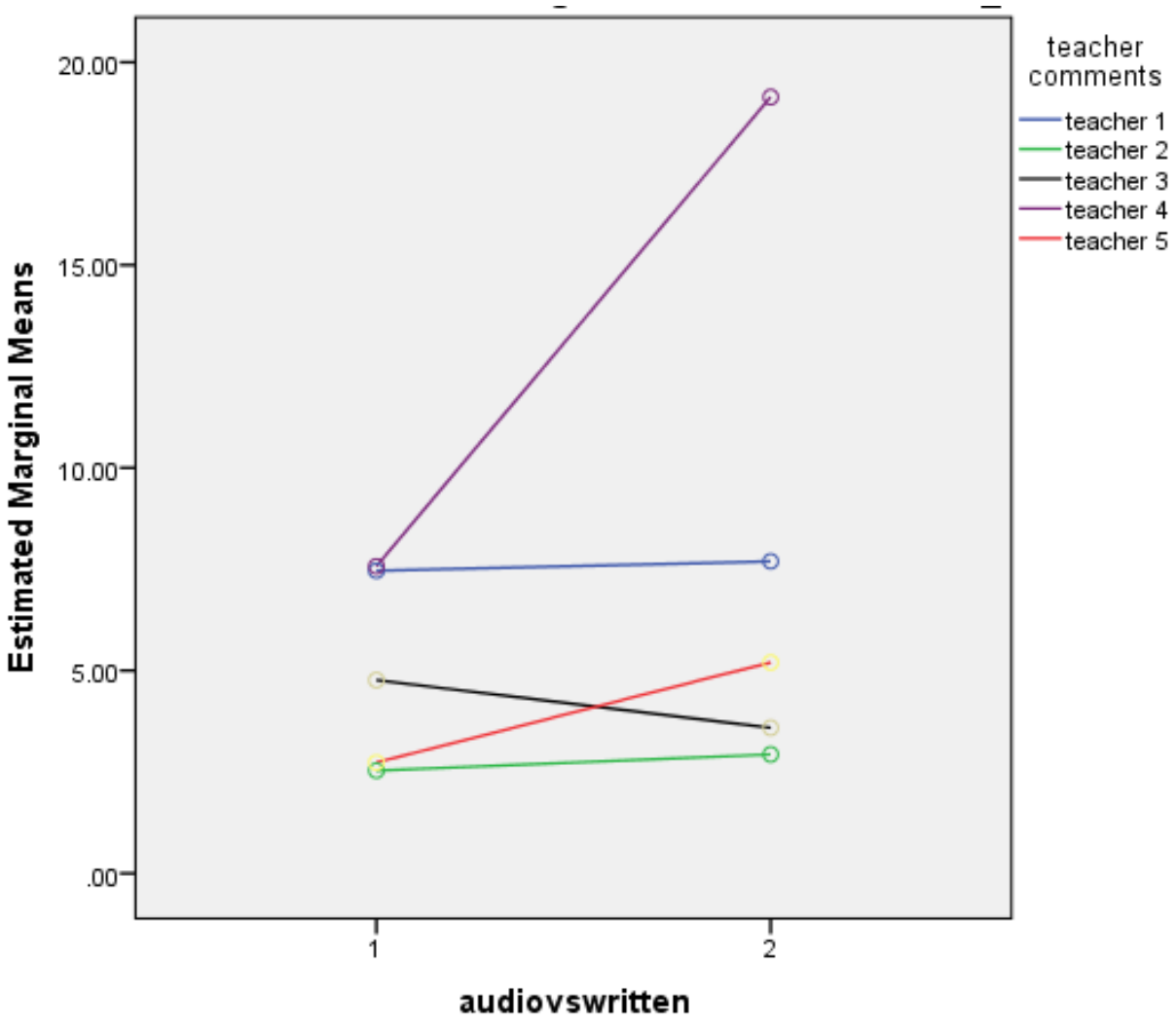
*Tests of Between-Subjects Effects*

| | Type III Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|
| Intercept | 5943.524 | 1 | 5943.524 | 346.50*** |
| Teacher | 2132.88 | 4 | 533.22 | 31.09*** |
| Error | 1183.55 | 69 | 17.153 | |

***$p < .001$

Figure 7

*Number of Items Commented On for Each Instructor for Micro-Level Comments*



**Means and Confidence Intervals for Audio and Written Comments.** Means and confidence intervals were plotted for each instructor for global, middle, micro, and other comments for written commentary and audio commentary. Data on means and confidence intervals for audio and written comments showed that teacher 1 had much overlap for the global level, some overlap for the middle level, and no overlap for the micro level or the *other* level. Teacher 2 exhibited the same patterns as teacher 1. However, teachers 3, 4, and 5 showed very different overlapping areas from those of teachers 1 and 2.

Figure 8

*Means and Confidence Intervals for Audio and Written Comments for Teacher 1*

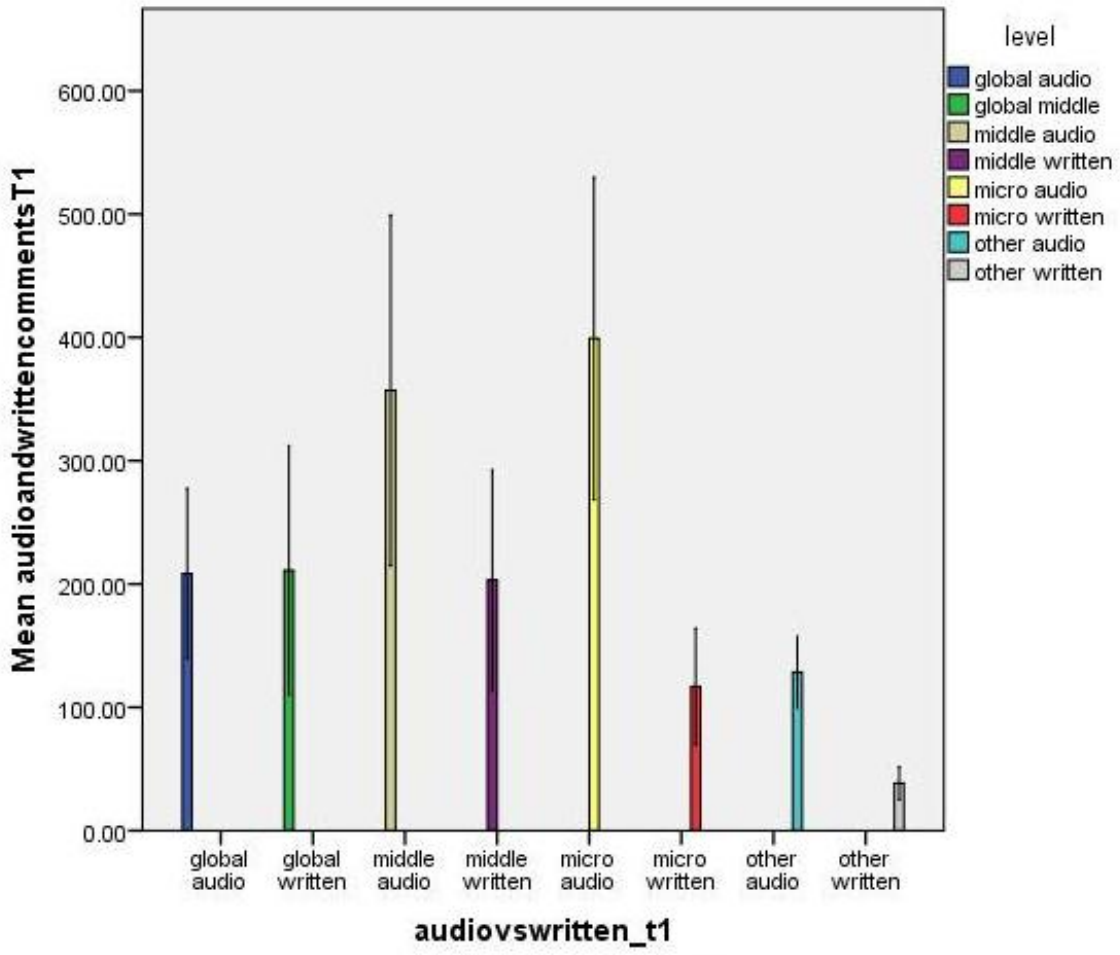


Figure 9

*Means and Confidence Intervals for Audio and Written Comments for Teacher 2*

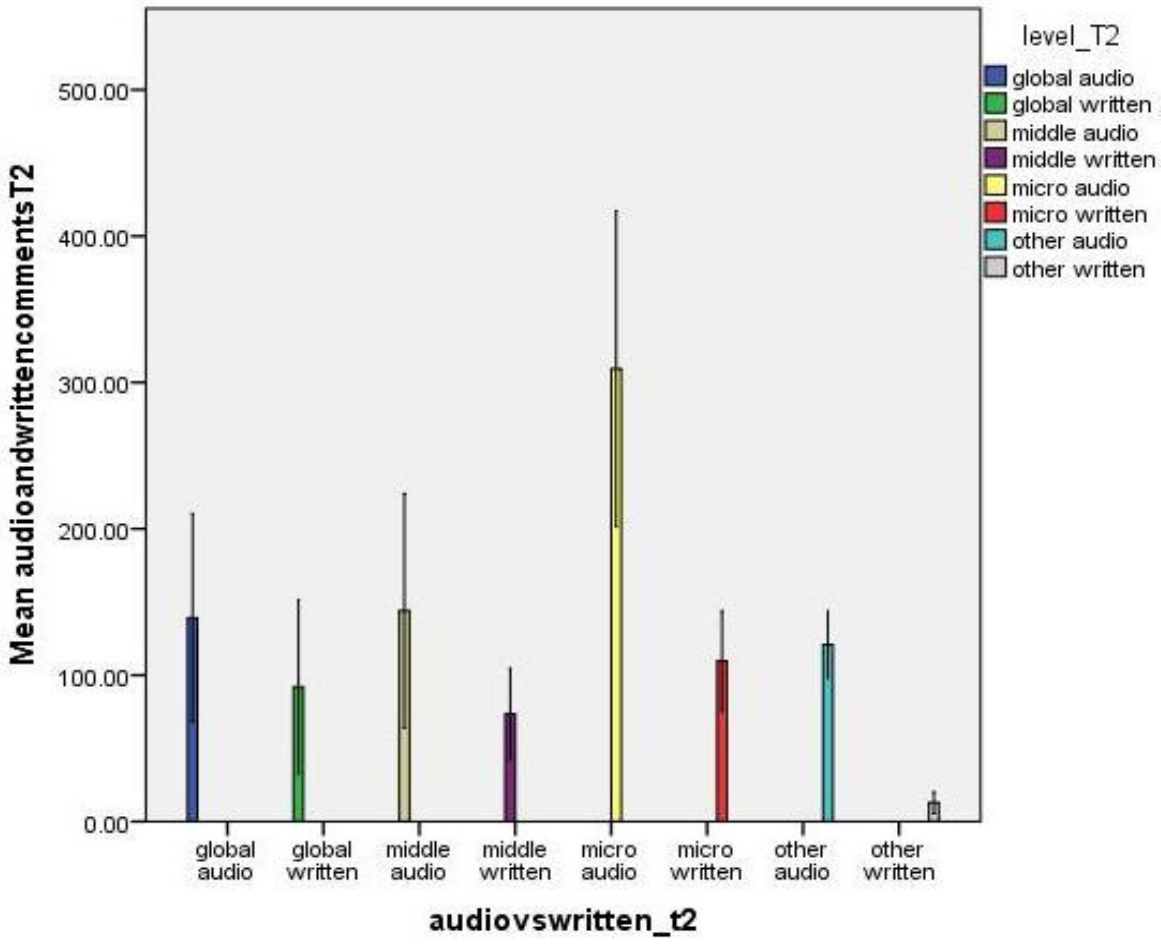


Figure 10

*Means and Confidence Intervals for Audio and Written Comments for Teacher 3*

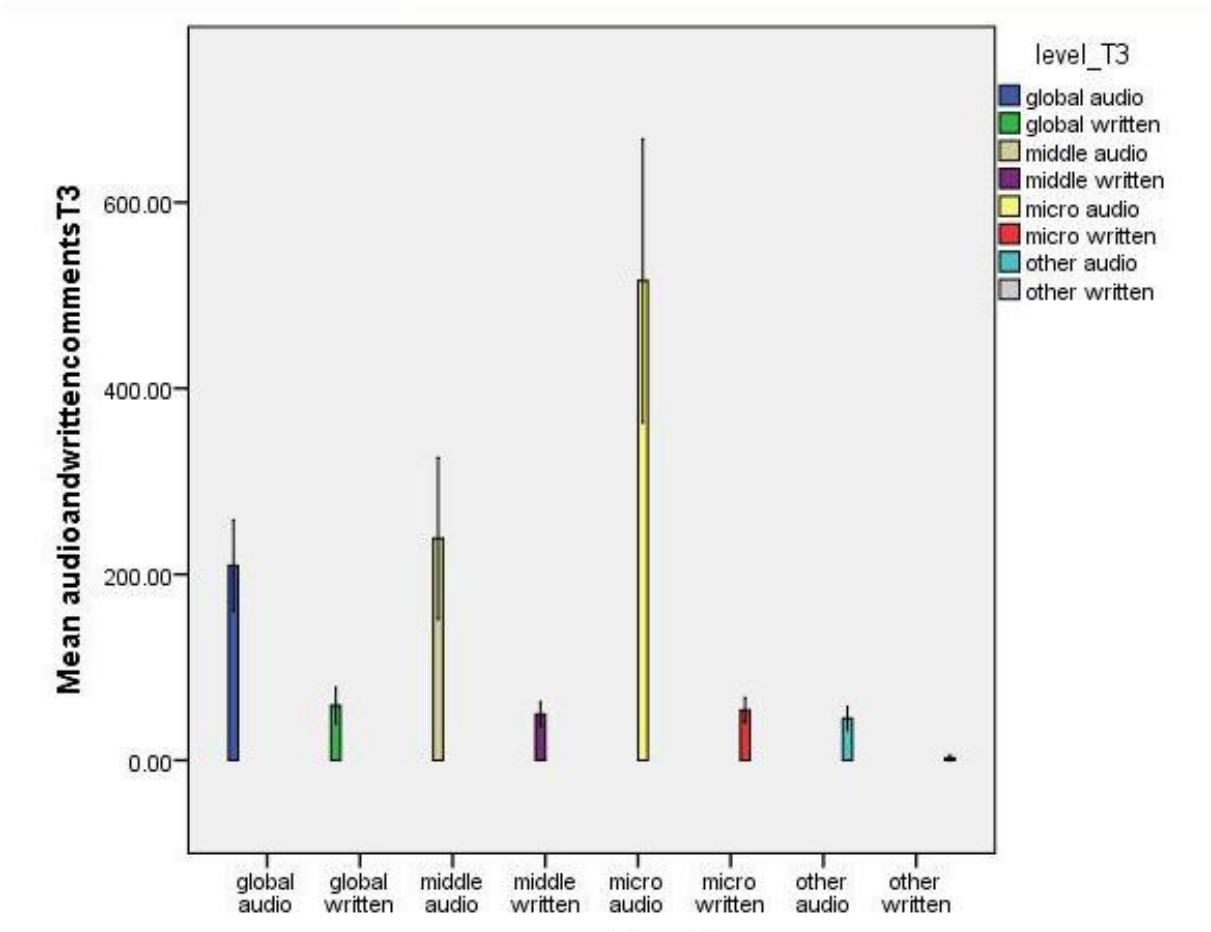


Figure 11

*Means and Confidence Intervals for Audio and Written Comments for Teacher 4*

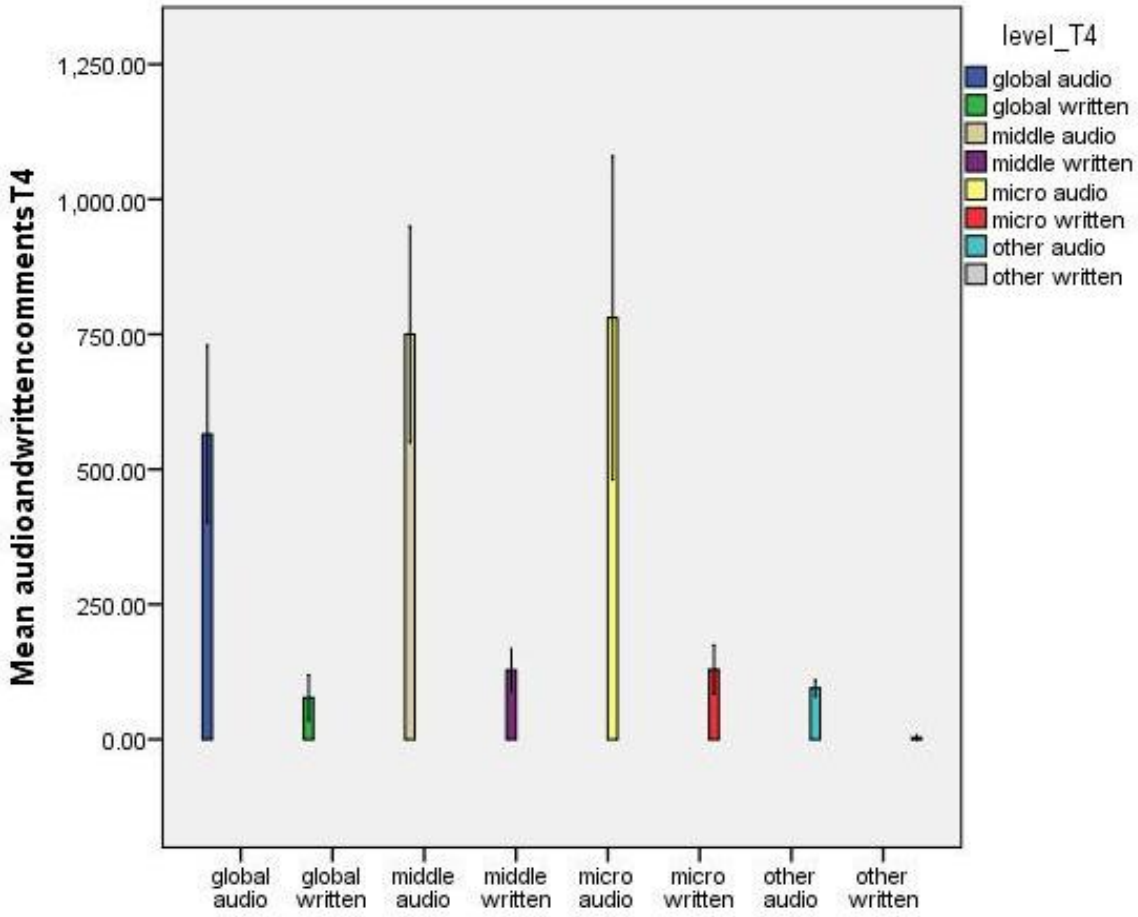
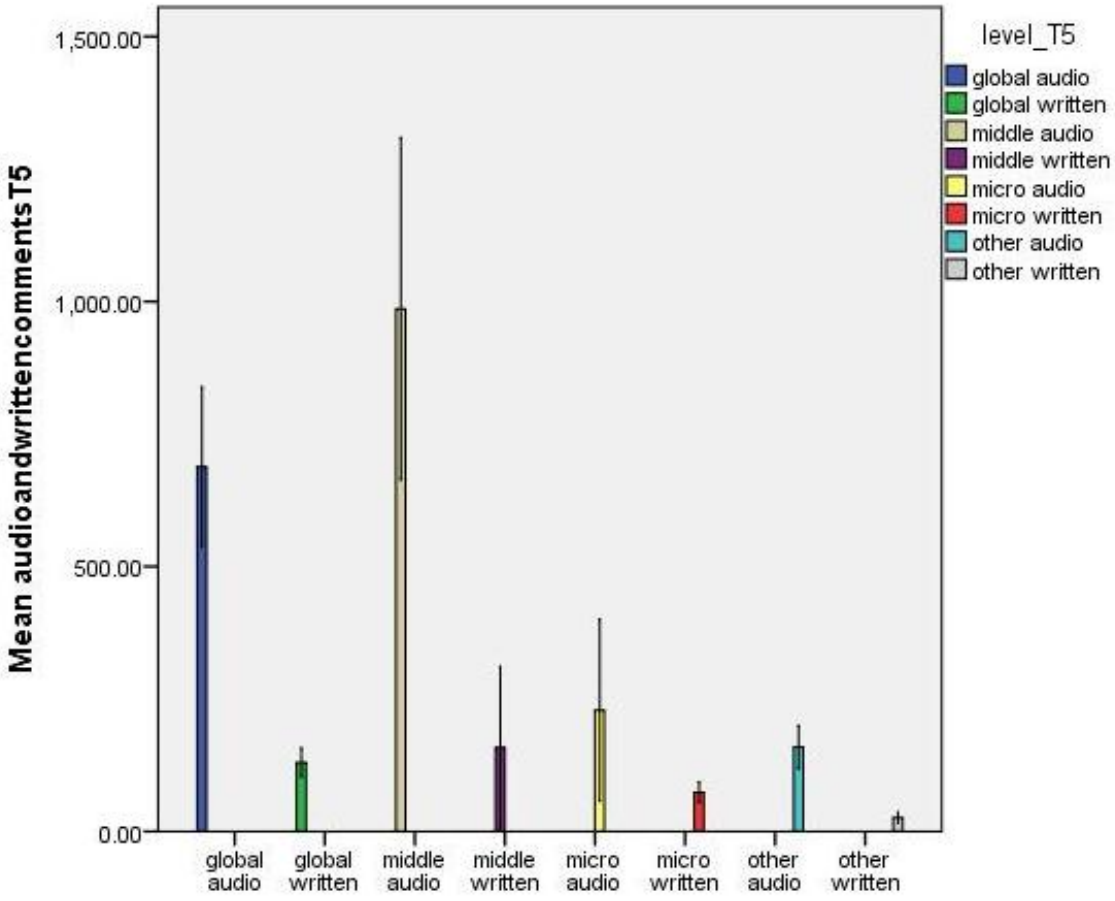


Figure 12

*Means and Confidence Intervals for Audio and Written Comments for Teacher 5*



**Adjustment for filler words from Teacher# 4.** It was recognized during the stage in which the audio comments were analyzed that teacher 4 used the expression “you know” frequently when giving her audio comments. The analysis above features her audio comments with this filler expression “you know” left into the word count.

In order to determine whether the filler phrase “you know” had a significant impact on the patterns indicated above when analyzing the commenting patterns of all five teachers, a separate analysis was conducted in which teacher 4’s use of “you know” was eliminated from her tallies for global, middle, micro, and other comments.

First, a *t* test for paired samples was conducted comparing the number of words she used when including the phrase “you know” for each level with the number of words she used when eliminating the phrase “you know” for each level. The *t* test showed a statistically significant difference in the number of words at each level.

However, what is of more importance is whether her graphical depictions change when graphed in juxtaposition with the other four instructors. To analyze this possibility, a separate ANOVA among all five instructors was run, this time using the number of words without the phrase “you know” for teacher 4.

The graphs from this analysis show a similar pattern to the pattern they showed when the filler phrase “you know” was left in. Figure 14 illustrates the graphs without the filler phrase “you know” included in the tallies for teacher 4.

Figure 13

*Adjustment for Filler Words for Global-Level Comments*

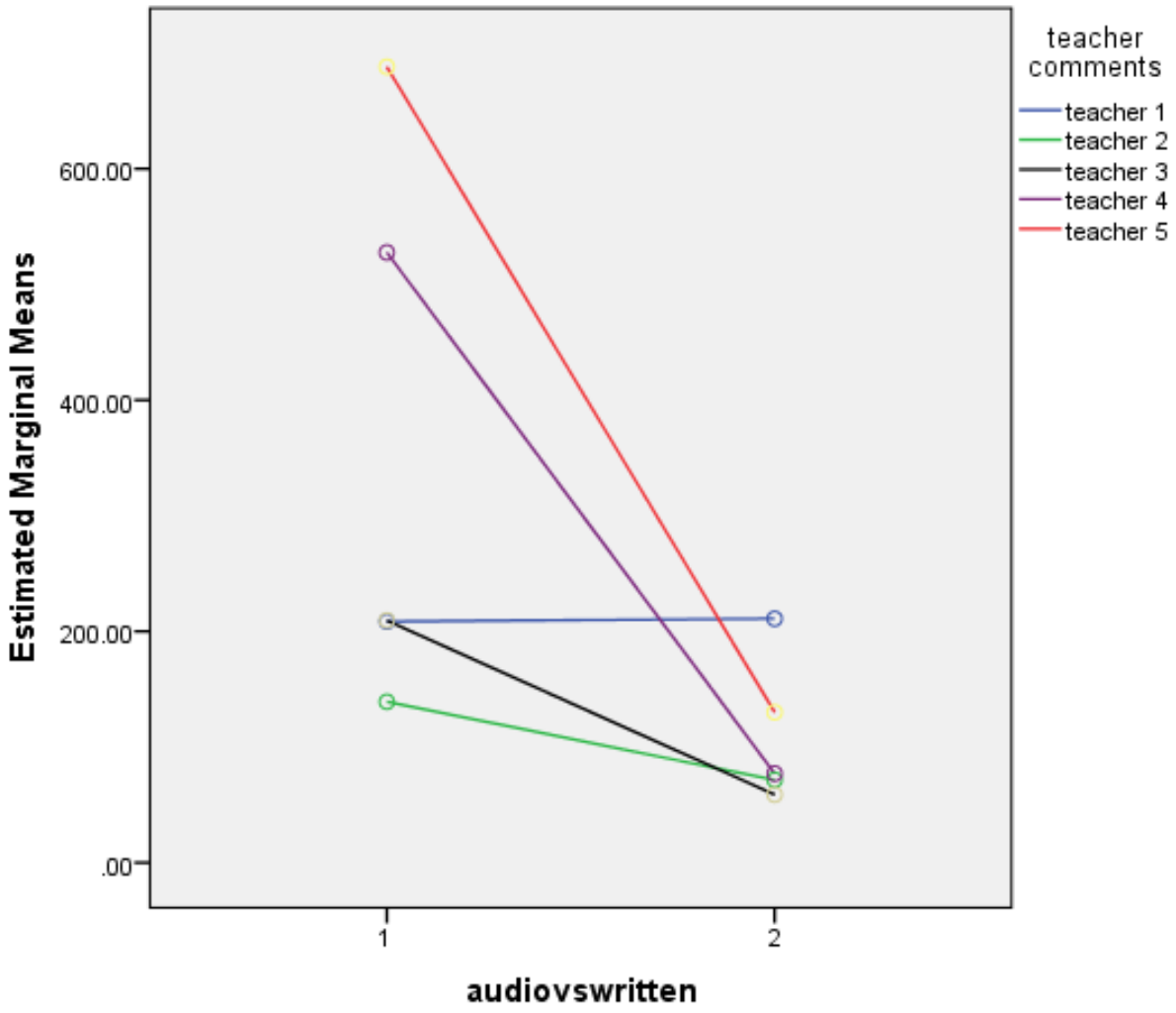


Figure 14

*Adjustment for Filler Words for Middle-Level Comments*

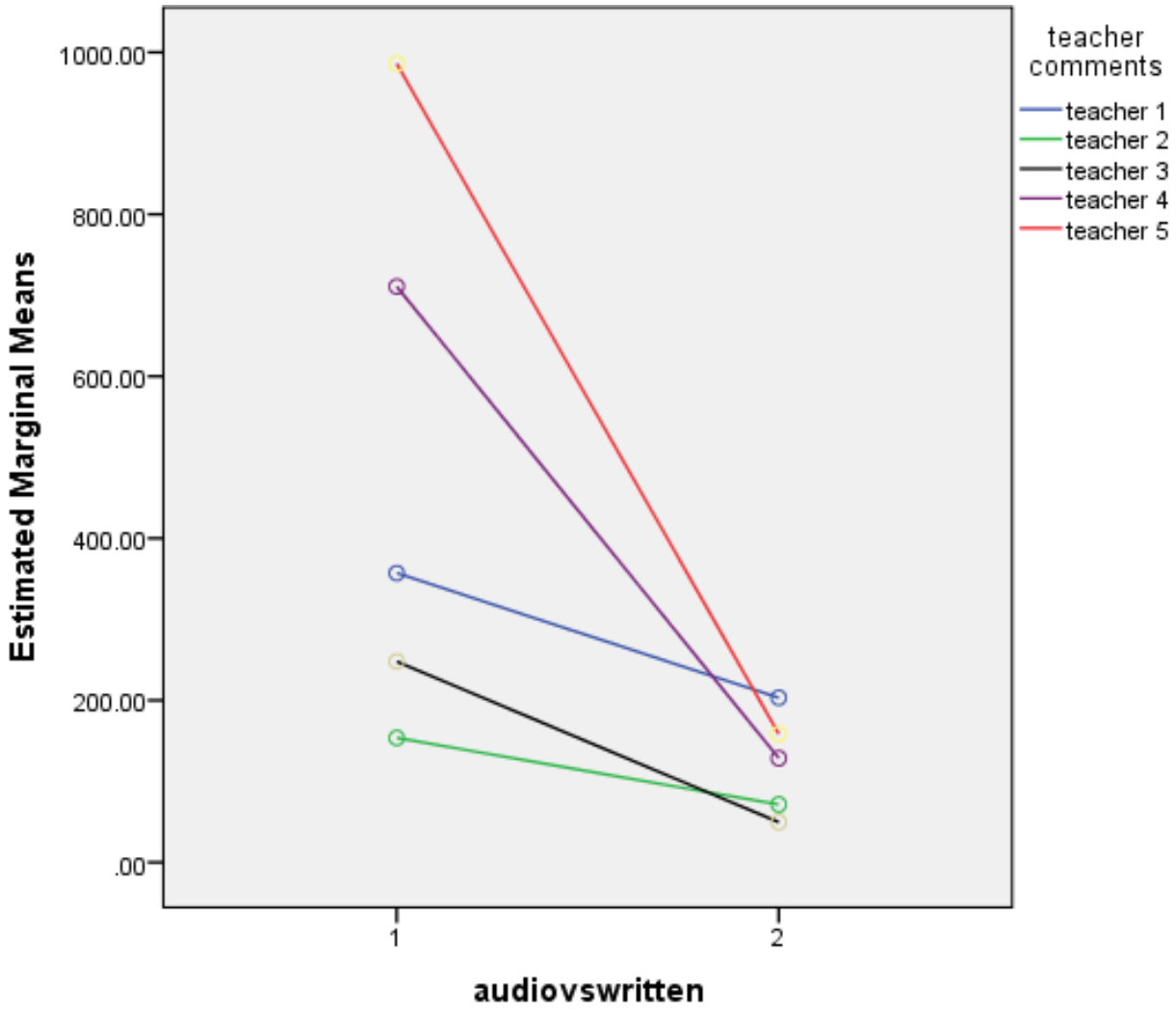


Figure 15

*Adjustment for Filler Words for Micro-Level Comments*

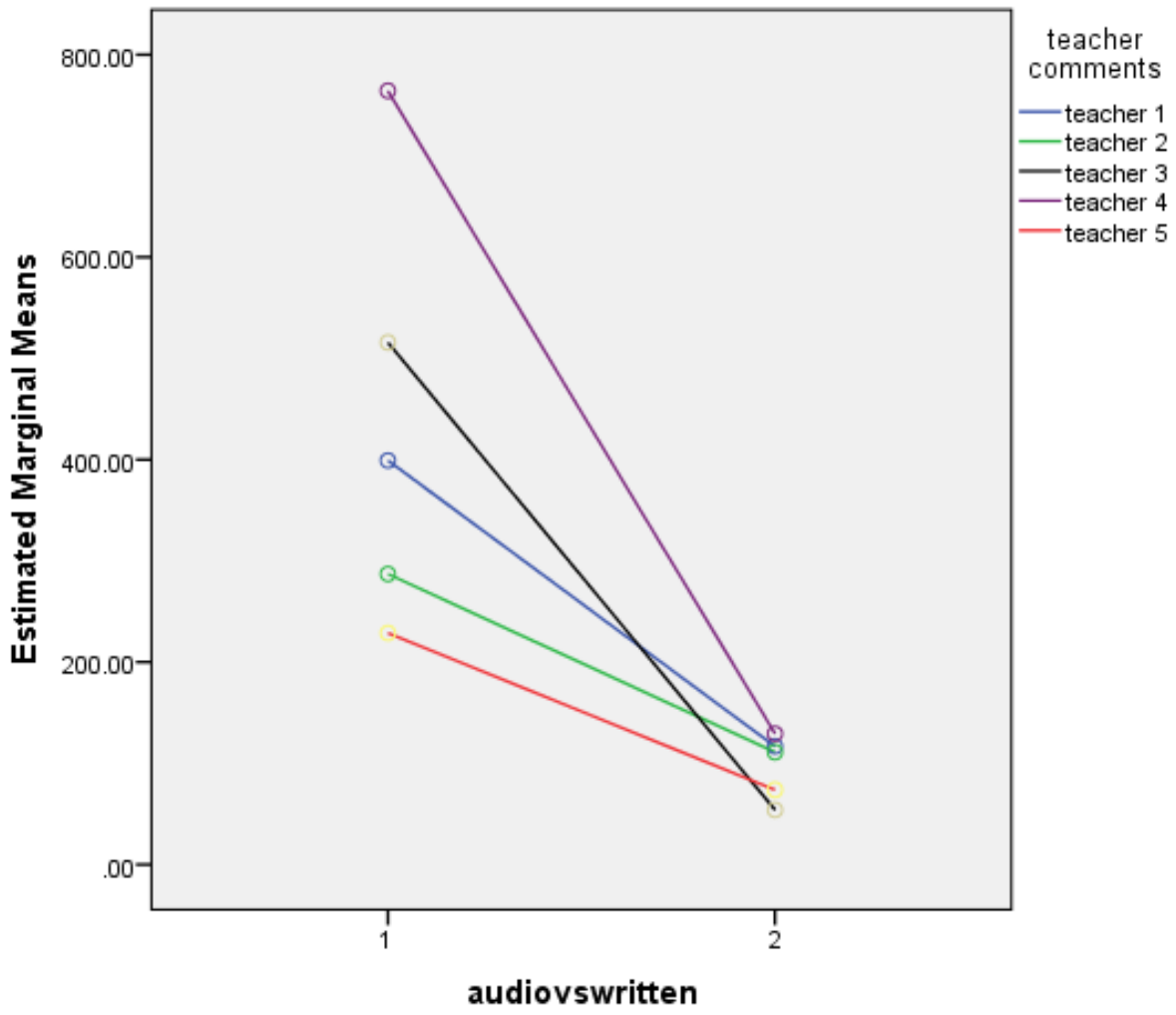
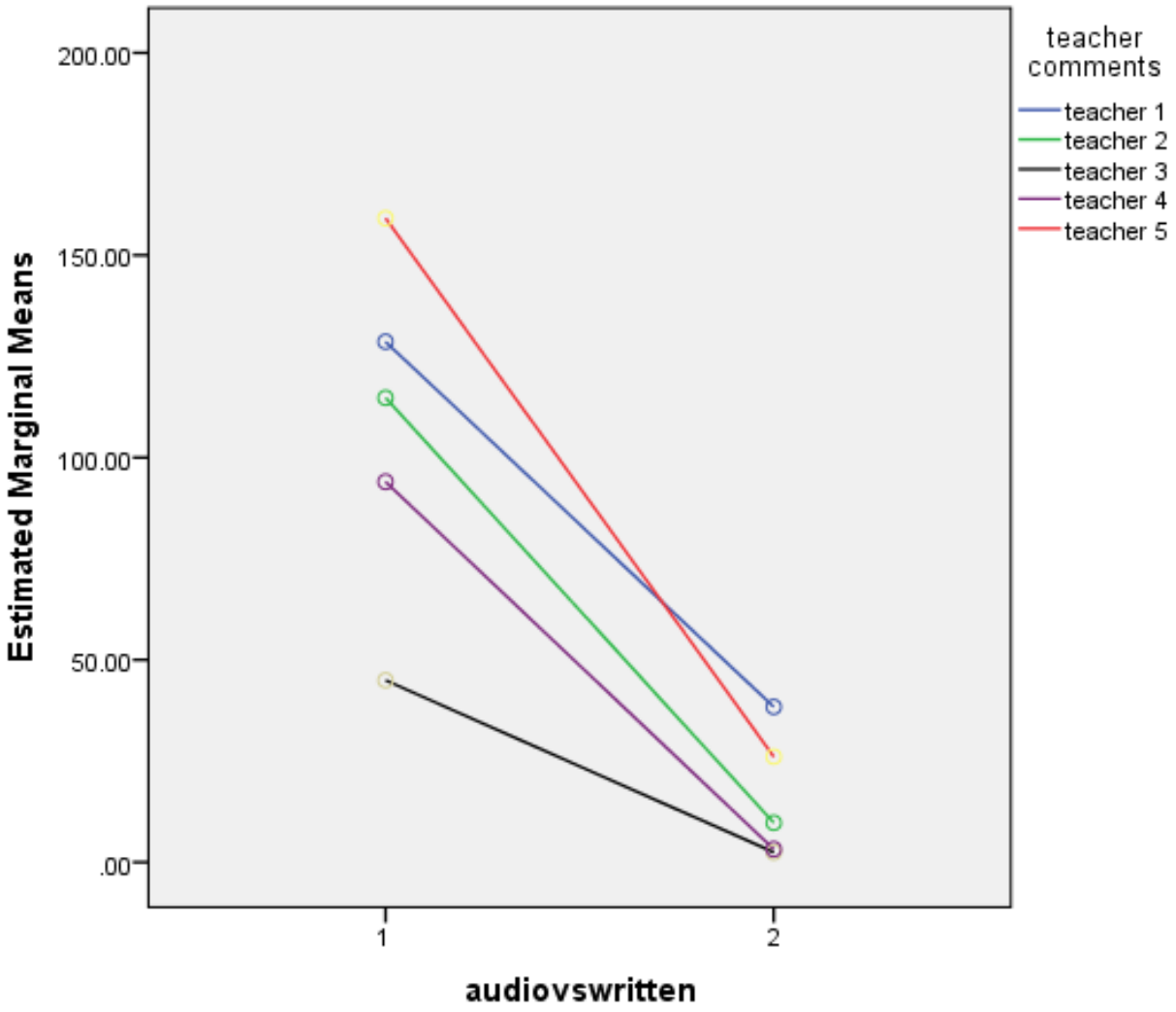


Figure 16

*Adjustment for Filler Words for Comments Labeled as "Other"*



**Testing for Order Effects.** A test for order effects was conducted to see if there was a statistically significant effect between giving audio comments on the first paper and then giving written comments on the second paper versus giving written comments on the first paper and then giving audio comments on the second paper. The test showed that at the global and middle levels, the differences were not statistically significant. However, at the micro and *other* levels, the differences were statistically significant. At the micro level, $F(1,69) = 13.74$; $p < 0.001$. For *other* comments, $F(1,69) = 14.74$; $p < 0.001$ The possible reasons for the statistically significant differences at the micro and *other* levels are discussed in the **Discussion** section.

**Corroboration of These Results with Teacher Surveys and Interviews.** The interaction effect was borne out from comments the instructors made on their surveys and in their interviews. As stated above, there was an interaction effect between media and teacher. There was a statistically significant interaction effect between the two types of media (written and audio) and which teacher provided the two types of media. As stated above, simply knowing which teacher is giving written or audio comments is not sufficient information in predicting how many words are used in the comments at the global, middle, and micro levels. Similarly, simply knowing which media is being used (written or audio) for the comments is not sufficient in predicting how many words are used in the comments at each level. One has to know which teacher is providing the comments and which media he or she is using in order to predict how many words will be used in the comments at each level.

At all levels, all instructors used more words for audio than for written—except for teacher 1 at the global level. At the global level, teacher 1 showed a higher word count for written comments than for audio comments ($M= 208.5$, $SD = 114.4$ for audio; $M = 211.0$, $SD = 167.4$ for written). In her interview, teacher 1 stated the following:

> …I do have what I sort of think of is almost like cheat sheets. You know, I say what I think of like particular for what is succinct or brilliant or whatever [laughter] statements like, oh, I better keep that one. So I have a whole series of the statements inside my own little textbook at all plug those in. In fact, when I do the written I do this, you know, global middle, micro and I find that almost all students need the certain comments on thesis statements, so I've got was written out so you know, I save a certain amount of time doing that. I'm not saying that each one is totally original.

Teacher 1 used predesigned "cheat sheets" for her written comments. These are templates of comments that she has prewritten. She copied and pasted these comments into the paper when she desired to point out a specific item for students to work on in the second draft of the paper. She mentioned in her quote above that she often used these templates for her comments on thesis statements. Thesis statements represented a global-level area. This pattern of pasting prewritten comments into students' papers may explain why the number of words she used at the global level for written comments was higher than the number of words she used at the global level for audio comments.

In addition, this dynamic further explains why this interaction effect was significant in the study. Teacher 1's use of written comments, especially for the global level, features a different method and pattern than all other teachers' use of written comments. Simply knowing which media is being used (written or audio) for the comments is not sufficient in predicting how many words are used in the comments at each level. One has to know which teacher is providing the comments and which media he or she is using in order to predict how many words will be used in the comments at each level.

Teachers 2 and 3 used the lowest number of words in both audio and written form than all other instructors did. The graphs depicted above show the green and red lines, especially for audio comments, with the lowest numbers of words. In her interview, teacher 2 mentioned that she had made a conscious effort not to post lengthy audio files to her students:

> And I try to be more conservative without overwhelming students with the audio comments. I wouldn't consider myself a blatherer, you know, I don't I don't go on and on with my comments and you even in my conversations in normal life. So I really just choose as you suggested specific things to talk about.

Therefore, we can see that her philosophy in providing audio comments is borne out in the quantitative data showing the number of words she used.

Teacher 3 did not indicate any particular philosophy of providing audio comments, but he did note a reason why his written comments tended to feature a relatively low number of words:

> It takes more effort to writing extensive in-text comments. I generally don't put too much at the end of an essay and to write in text comments right next the issue takes a lot of time and more thought than to just describe the situation in audio format.

Thus, while teacher 2 uses fewer words to save students from exhaustion, teacher 3 uses fewer words to save himself time. In both cases, their interviews pointed out possible reasons for their comments exhibiting the lowest numbers of words for the audio comments and nearly the lowest number of words for the written comments.

Teachers 4 and 5 used the highest number of words in audio form among all instructors. In her survey, teacher 4 explains this phenomenon:

> I think that, for me, the length has everything to do with personality and style of the instructor. It is my style to be thorough and detailed (professionally) and garrulous

> (personally). I also found that I was likely to go into more detail about what was strong about the essay and this also added to the length of the file. In the audio file, I can tell the student that the thesis is good and then say *why* that thesis is well crafted (whereas in a written file, I might just write "Thesis is effective.").

She elaborated on this trend in her interview:

> …what I'm doing when I'm giving the comments orally, I tend to expound more on my points. So for example, if in the written file, I might just say this thesis is appealing or you know, thesis is strong. And then in the audio file. I may go into a little bit more detail about *why* I feel the thesis is effective.

She continued in her survey response in explaining this dynamic for the micro level:

> I think I was more effective this semester in giving comments on sentence-level issues. Reading aloud a sentence that contains a dropped word or awkward phrasing enables the student to hear the omission or awkward diction. If there is a fused run-on, I can read aloud the sentences running together rather than saying "You've got a fused run-on in par. 2; a period is needed after x." I'm still working on trying not to point out every error in syntax that occurs…pointing out a few areas of concern and giving the students examples of revision (and references in *The Bedford Handbook*) should be sufficient.

Teacher 5 explained a similar phenomenon when she provided audio comments at the global level:

> Because I was like addressing, for instance, maybe I was addressing a problem with the thesis. Then I would try to give some examples. You know, I just felt inclined to say more. And again, I felt going into this that I would spend less time on the audio

comments. But I ended up spending more time and I just thought that if I you know gave them more examples that that would be helpful.

Overall, the comments gleaned from the instructors' surveys and their interviews corroborates with the quantitative data in showing that an interaction effect occurs from teacher to teacher and from media to media. Just knowing which teacher is giving written or comments is not sufficient information in predicting how many words are used in the comments at the global, middle, and micro levels. Similarly, just knowing which media is being used (written or audio) for the comments is not sufficient in predicting how many words are used in the comments at each level. One has to know which teacher is providing the comments and which media he or she is using in order to predict how many words will be used in the comments at each level. Teacher 1 noted her use of predesigned templates for written comments at the global level. The fact that her total number of words for written comments at the global level is higher than that for audio comments at the global level can at least in part be explained by this use of templates. Teacher 2 noted that she did not want to be a "blatherer" in her audio comments. The total number of words she used in comparison to that of all four other instructors shows that she did, indeed avoid this reputation. Teacher 3, while he did not note any particular phenomenon to his audio commenting, noted his desire to save time by typing less in his written commentary. Both teachers 2 and 3 showed the lowest numbers of words for these media, corroborating patterns that they mentioned in their interviews and surveys about their commenting styles. Teachers 4 showed opposite tendencies to those of teachers 2 and 3, explaining that she sees her personality as "garrulous" and that her tendency to use many words in audio form can be partially explained by this personality characteristic. Both teachers 4 and 5 noted their tendencies to provide examples and explanations in audio form more so than they tended to in

written form. The graphs corroborate these responses, as teachers 4 and 5 exhibited very high numbers of words in audio form.

**Findings for Research Question 2: Teachers' Perceptions of Scalability of Audio Comments**

This section presents the results of Research Question 2: What are teachers' perceptions of the scalability of providing written comments compared to audio comments? Data used to answer this question came from the answers instructors gave on their surveys as well as answers they gave in their interviews.

In this case, the practice that was being analyzed was whether providing audio comments represented a scalable option in terms of time commitment for instructors in a class of twenty-plus students. The survey data as well as the interview data showed that providing audio comments was relatively scalable for instructors in comparison to the written comments. While the data from the surveys was mixed, the information from the follow-up interviews showed that instructors found providing audio comments to be scalable in their preparation, production, and uploading to the class when compared to providing written comments and taking into account their preparation, production, and uploading to the class.

**Quantitative Data from Surveys.** Table 26 shows the results for question #3 on the survey for instructors:

Table 26

*Results for Question #3 on Survey for Instructors*

Please consider your experience commenting on the *first draft of each of the two assignments that pertain to this study.* How much time did you spend on average in commenting on the first drafts? Please include the time you spent reading the paper and the time you spent giving comments to the paper. **Please *do not include* any time spent uploading the comments to the online class.**

| | **0-15 minutes** | **16-30 minutes** | **31-45 minutes** | **46 – 60 minutes** | **Over 60 minutes** |
|---|---|---|---|---|---|
| ***For my students to whom I gave audio comments*** | **T4 (10 files)** | **T1**<br>**T2**<br>**T3**<br>**T4 (7 files)**<br>**T5** | | | |
| ***For my students to whom I gave written comments*** | **T4**<br>**T5** | **T3** | **T1**<br>**T2** | | |

T1 – teacher #1
T2 – teacher #2
T3 – teacher #3
T4 – teacher #4
T5 – teacher #5

The answers to question 3 on the survey showed that neither medium, written or audio, took more than 45 minutes per student. In addition, no instructor spent more than 30 minutes per student on audio comments. These data showed that providing audio comments is scalable when compared to providing written comments in terms of the time invested by the instructor. Instructors took either slightly less time providing audio comments, the same amount of time providing audio comments, or slightly more time providing audio comments. But in all five cases, no instructor spent more than 30 minutes per student in giving audio comments, while in

two out of the five cases, the instructor spent up to 45 minutes in providing written comments. Overall, for no instructors did the practice of providing audio comments represent a practice that was not scalable practice compared with providing written comments. The practice of providing written comments and the practice of providing audio comments both represent tasks that an instructor could perform for a whole class and for which the time commitment involved would be scalable for the instructor.

In addition, in question 5 in the survey, instructors were asked, "How would you compare the use of audio comments with the use of written comments in your ability to accomplish the following tasks?" The third item listed under this question was *save time in commenting on papers*. All five instructors marked "I prefer giving audio comments" for this item. This data reinforce the findings from the quantitative data from question 3 in the survey. Instructors found that providing audio comments to all students was a scalable option in terms of the time commitment involved.

Question 4 in the instructor survey asked about the instructors' experience in *uploading* the comments to the class learning management system. Table 27 shows the results for question #4. Instructors were advised that each cell represented the number of minutes *per student paper*.

Table 27

*Results for Question #4 in Survey for Instructors*

How much time did you spend *on average* in uploading the comments to a student paper in this class?

| | **0-30 seconds** | **31-60 seconds** | **1-2 minutes** | **2-3 minutes** | **over 3 minutes** |
|---|---|---|---|---|---|
| ***For my students to whom I gave audio comments*** | **T2** | **T3** | **T1**<br>**T5** | **T4** | |
| ***For my students to whom I gave written comments*** | **T2**<br>**T3**<br>**T4** | | **T1**<br>**T5** | | |

T1 – teacher #1
T2 – teacher #2
T3 – teacher #3
T4 – teacher #4
T5 – teacher #5

The answers to question 4 on the survey show no instructor took more than 2-3 minutes to upload an audio file. In addition, four out of five instructors took no more than 2 minutes to upload their audio files. Furthermore, one instructor, T2, rated the uploading time that was required for audio to be the same as the uploading time that was required for written. Overall, the data from instructors' answers show that uploading audio comments to each student in the class is a scalable practice in terms of the time invested for each student. In all, the quantitative

data from the instructor surveys indicated that providing audio comments was relatively scalable in comparison to providing written comments.

**Qualitative Data from Interviews and Open-Ended Answers on Surveys.** In analyzing the data from interviews with instructors and from the open-ended answers that instructors gave on their surveys, one theme emerged: *The medium that an instructor uses to comment on a student draft impacts the way the instructor comments and, therefore, affects the amount of time each teacher spends on a particular medium*. The data from the instructor interviews as well as from the open-ended questions from the instructor surveys showed that, when an instructor comments on a student in audio form, he or she often changes his or her pattern of thinking. T4 and T5 mentioned that they think up more examples when giving audio comments, thus resulting in audio comments taking more time. However, T2 said that she did not want to be seen as a "blatherer" in her audio comments, thus resulting in her audio comments taking less time. T3 noted that he has given both audio and written commentary to students in the past. As a result, for him, using just audio saved time. T1 pointed out that she tends to think before she writes but that she speaks off the top of her head when she verbalizes, thus resulting in written comments taking more time. Overall, the medium used affects the thinking and commenting patterns, thus affecting the time spent on the commenting. Nonetheless, T2 and T4 said that audio would probably save time in the long run, while T5 explained that she "didn't see a marked difference in time spent between the two."

Overall, the quantitative data and the qualitative data showed that providing audio comments represents a scalable option for instructors when providing feedback to student papers. Some instructors invested more time into producing audio comments than they did in produsing written comments, some instructors invested the same amount of time for both audio and written

comments, and some instructors invested more time into producing written comments than they did in producing audio comments. No individual instructor spent more time on one medium than another by a factor of more than 15 minutes per file. In addition, only one instructor spent more time uploading one type of file over the other by a factor or more than three minutes, and this instructor noted that providing audio comments saved her time overall. The fact that all five instructors noted in their surveys that they preferred audio comment over written comments for saving time indicates that they all found the use of audio comments to be a scalable option when providing feedback to students.

The research question was as follows: What are teachers' perceptions of the scalability of providing written comments compared to audio comments? The data indicate that teachers' perceptions are that providing audio comments is comparatively scalable to providing written comments.

**Findings from Research Question 3: Students' Perceptions of Their Ability to Understand**

This section presents the results for Research Question 3: What are students' perceptions of the ability to understand teachers' meanings in written comments compared to audio comments? Data used to answer this question came from the qualitative findings gathered from the interviews with students and the quantitative findings gathered from the surveys the students completed. In all, ten student interviews were analyzed for the study. The interviews were transcribed and analyzed through open coding and constant comparison methods. Codes, categories, and themes were developed through the data from the surveys. In addition, descriptive quantitative analysis was conducted on the data from the 49 student surveys. The students answered 20 Likert-style questions on their perceptions of their ability to understand their teachers' meaning in the teachers' written and audio comments to the two papers for which

they received written and audio comments. The frequencies of each answer for these Likert-style questions were calculated. Finally, inferential quantitative analysis was conducted on the responses to the 49 student surveys. Both McNemar's test and the test of marginal homogeneity were conducted to determine whether student responses were significantly different in rating written comments and in rating audio comments.

**Qualitative Data from the Student Interviews.** The overall findings were that the students found audio comments to be more understandable than written comments for the global level and middle levels because of both the nature of explanation given in audio comments and the tone communicated in audio comments. Students found both audio and written comments navigable and reasonably easy to follow for the global level and middle levels, but they indicated a slight preference for written comments for navigability at the micro level.

In coding the interviews, the following themes emerged when students described their experiences in receiving written comments and audio comments from their instructors: *comprehension of comments*, *navigability of comments*, and *tone of comments*.

***Comprehension of Comments.*** Overall, students' perceptions are that their ability to understand teachers' meanings on global-level and middle-level items is higher when they receive audio comments than when they receive written comments. However, the analysis indicates that students' perceptions are mixed with regard to their ability to understand teachers' meaning on micro-level items. Some students preferred audio comments for micro-level items, while others preferred written comments for micro-level items.

Nine out of ten students talked about their ability to comprehend the written comments on *global-level* areas, while one of the ten students did not comment on comprehensibility at the

global area. Of the nine students, two students, S1 and S2, were neutral with regard to written and audio comments and their ability to understand them. They did not have a preference for one medium over the other and did not elaborate on the qualities of either medium.

Of the remaining seven students, three students (S5, S8, and S9) had positive points about written comments and positive points about audio. In other words, they also did not express a preference, but they did elaborate more on the positive aspects of both types of comments. S5 appreciated both media when receiving comments at the global level. For the written comments, he said that they "left me without any question, whether it was a positive or negative comment." For the audio comments, he said that "the examples that were provided to me were very clear…There was no scratching my head like, 'Huh?'" S8 pointed out that, for written comments, her instructor "would do comments and mark up the paper, and put the comments in the margins and stuff. You could always understand where she was going with it…" For audio comments, she said, "…it's the same thing." However, she did note that audio comments were "a little bit more thorough" when the instructor comments on the topic of her paper. However, she preferred written comments when her instructor commented on her thesis statement "because I'm a visual person." S9 mentioned that "I liked the written one…the instructor will have the boxes where you need to make changes or where they recommend that you make changes." For audio comments, S9 said, "…it was pretty much on point, kind of like the written….They kind of pointed out where in the paper you needed to make changes and what they thought you did well."

Of the remaining four students, all of them (S3, S4, S6, and S7) expressed a preference for audio comments in helping them understand issues in their papers at the global level. Two of these four students mentioned the tone of the comments helping them understand the instructor's

meaning. S3 noted that "in the audio you definitely understand the implied tone and whether or not you're actually doing a good job of what you are trying to express." S7 said:

> I like the verbal because you actually got to hear the comment of a positive note, I guess. So it's kind of like, you know, I mean, he made a statement on like, what you were writing about, he appreciated it or like he understands the reason for it. So I felt like he was interested in what I said. So it made it more personable than writing down versus the written, where he didn't start off writing, "Well, I'm glad I wrote this and let's talk about what happened throughout." So the verbal was more personable.

The other two students, S4 and S6, commented on different aspects of audio. S6 noted that online classes have much reading already, so the audio feedback provided a different way of receiving input: "…if you go to a regular college, you take in a lecture...so you hear it, and you're not necessarily reading it…I mean this was, I loved it. I loved that it was offered. I wish every class did it." S4 mentioned that, with audio, he could pick up where the instructor was emphasizing and that audio was simply easier to understand: "I just find it easier to understand when somebody explains it to me…I could pick up where she was emphasizing what needed fixed, what was good, what needed work."

Six out of the ten students (S2, S5, S7, S8, S9, and S10) mentioned their ability to understand comments at the *middle* level. The other four students (S1, S3, S4, and S6) did not mention their ability to understand their instructors' comments when they answered questions on the middle level.

Three out of the six commented positively on the use of audio comments for the middle-level areas, indicating that they preferred audio comments to written comments for

comprehensibility in this area. S2 mentioned that she was "able to understand more of the feel of the paper from what the professor said on the paper from the audience's point of view" with audio comments. She continued, "But for the written it doesn't really tell me the professor's interpretation of it….You know she got to express more…with audio." She also mentioned that there was one incident in which she received an audio comment that related to the organization of one of her paragraphs that "was a little bit hard to understand, but for the most part she's pretty clear with her feedback, so that's the only thing I can think of." S8 also noted that the "audio is a little more thorough than what she had written back to me." S9 mentioned, "I kind of like the…audio version of that because like, you know, the professor would start off reading…what you wrote and then she would suggest you know which way you should go…It was easy to listen to what he said to put me in the right direction."

One out of the six (S7) said that the written comments were easier to understand because with audio she "kind of tried to figure out what he was asking about." S7 said that she liked both written and audio comments, but she noted this ambiguity when receiving audio comments.

The other two students (S5 and S10) out of the six who commented on this area did not indicate a preference. "They were both good" and "pretty good" were general comments made about audio and written comments by two students. S5 simply noted various issues in his paper that were pointed out in audio form and in written form, all of which he seemed to be able to address. In all, neither of the two noted a preference for either medium.

Eight out of ten students (S1, S2, S4, S5, S7, S8, S9, and S10) talked about their ability to comprehend the written comments on *micro-level* areas. The other two students, S3 and S6, did not comment on this aspect of comments on micro-level areas.

Of the eight students, two students, S1 and S5, said that they had no preference. They explained how both audio and written worked for them, and neither indicated preference for one medium over the other.

Of the other six students, three indicated a preference for audio comments. S4 mentioned that he could hear run-on sentences more effectively. "I heard it better than I seen it written." S6 mentioned that he "respond[s] better to the audio" than the written. S8 mentioned one instance in which "when she responded through the audio, she was able to be a little bit more clear." S8 continued: "I think when you're trying to type it out, your mind kind of gets, you know, ahead of you. When she was actually speaking, it she was trying to say in the written, it actually worked out a lot better."

However, three students (S7, S9, and S10) indicated a preference for written comments. It should be noted that one of the students who noted a preference for written comments, S10, did so because she did not remember having received audio comments on micro-level issues. However, the other two students mentioned specific reasons why they preferred written comments. S7 said that written comments were "clear-cut and to the point," while audio was less clear. She noted that, when giving audio comments, her instructor "said…just go back and look though this paragraph," while the written comments seemed to indicate more specifically certain micro-level issues that the student needed to address. However, it should be pointed out that S7 also said that if her instructor posted a written comment *outside* of a paragraph, she was not as clear about his meaning as when he posted a comment *within* a paragraph. She needed the comment to be next to the problematic sentence in order to fully understand his meaning. She said, "But on the outside, if he wrote it on, or in the middle, if you just wrote 'run-on'…I don't

know which one is a run-on." S9 said that he would give written comments "the upper hand" over audio because "it's right there."

Overall, while four students noted preferences for audio comments at the global level and three students indicated preferences for audio comments at the middle level, no students indicated preferences for written comments at the global level, and one student indicated preferences for written comments at the middle level. Nonetheless, at the micro level, three students noted that written comments were preferred, while three noted that audio comments were preferred. The data from the interviews among the 10 students show that audio comments were preferred over written comments for the global level and the middle level but that the results were mixed for the micro level.

***Navigability of Comments.*** The qualitative data on *global-level* items show that students found navigability of comments more challenging when they were given audio comments than when they were given written comments. Five out of ten students mentioned their ability to navigate and follow along with the commentary from the teacher when given audio comments and when given written comments on global-level issues. The other five did not mention this issue when discussing the global level.

Of the five who did mention the ability to navigate the comments with the paper, three students (S1, S5, and S8) showed no preference for one medium over the other. S1 said, "The comments both oral and written flowed with the paper." S8 said that with written comments, "she would do comments and mark up the paper and put comments in the margins and stuff, you could always understand…" while "with the audio it's the same thing. She kind of walks you

through exactly where she is." S5 noted that the written comments "linked to the area that she was commenting on" while with the audio comments "I'm connecting…what she is saying."

Of the two remaining students (S3 and S9) both preferred written comments for ease of navigation. S3 pointed out that with written comments "it's pretty easily laid out" while with audio, "it's a little more challenging." He gave an example: "Okay, this is good feedback, but in this case she is actually talking about the thesis, right?" S9 noted that with written comments "you…have your paper displayed…the instructor will have boxes where you need to make changes…" He did not mention the navigability of audio comments. While he specifically mentioned the ease of navigation of written comments, he did not specify any related ease of navigation of audio comments.

Overall, in analyzing the student responses to the interviews, for the global level, more students commented negatively about the navigability of audio comments than for written comments. Students found their ability to map the comments to the area on which the instructor was commenting more difficult when given audio comments than they did when given written comments.

Two out of ten students mentioned their ability to navigate and follow along with the commentary from the teacher when given written comments on *middle-level* issues. The other eight students did not mention this issue during the interview when discussing middle-level comments. The two students, S2 and S7, both found written comments to be accessible and easy to follow, noting that the comments were "literal" and "pretty good" in directing them to areas that needed to be addressed. One of them mentioned that audio comments were at times

problematic to follow and navigate. The audio "bounced around," she said, while the other noted that she "didn't know where to focus" if the comment was in a long paragraph.

Six (S2, S3, S4, S6, S7, and S9) out of ten students mentioned their ability to navigate and follow along with the commentary from the teacher when given comments on *micro-level* issues. The other four students did not mention this issue for the micro level.

Four of the six students (S2, S3, S7, and S9) found written comments to be easier to navigate than audio comments were. Three of the four students were very clear on their preference for written. S2 said, "Written is better because you have the physical paper in front of you," while with audio, "there is no physical example to help you with the correction." S3 pointed out that with written comments "you highlight and call out the error," while in audio "you almost have to try to correlate yourself exactly what part she is speaking about." S9, as noted above, mentioned that, with written comments, "it's right there." The fourth student, S7, was less clear on her preference for written comments for navigability. As stated earlier, for both audio and written comments, she seemed to prefer that the comment refer specifically to the sentence that had a problem. For example, as noted earlier, she liked written comments if they were commenting on an error inside a paragraph and next to the sentence that had an error. For her, audio was easier to navigate when it commented on an error that was *within* the paragraph. The student indicated that if the comment was made *outside* of the paragraph, then it was more difficult to determine the focus of the comment.

One student out of the six, S6, preferred audio comments for navigability. "I guess maybe I respond better to the audio you know because he was saying you know, third paragraph, second sentence, you know, that needs some work or you don't run-on or that." Another student

out of the six, S4, who preferred audio comments overall, said that, with written commentary, "It does show you where the mistake is." He also, however, stated a positive aspect about audio comments in terms of their navigability:

> I can follow right along as I am listening. I don't have to be following along scrolling up and down the screen to find out where you're talking about the issue is. I just find it [audio comments] to be much easier for me.

Overall, according to the responses in the interviews, if students had a preference for one medium over the other for navigability, the preference was usually for written comments.

S3 mentioned navigability in general, not referring to a specific level (global, middle, or micro) of the comments. He said that he preferred written comments for navigability:

> …when you have written feedback in the paper, it works much better for those types of issues because you immediately see what she's talking about and you look when you scan the paper you see everything. Whereas on the audio I mean, it may be mentioned in the review but they just left go back and figure out okay, where exactly in this sentence is she talking about that because there's no way of actually connecting this portion of the audio comment to the actual written paper.

Overall, students had positive feedback on the navigability of written comments because of their precise location on the page next to the error or issue that needed to be addressed, while some students had negative feedback on the navigability of audio comments because the audio comments were not tied to a particular part of the paper and, therefore, necessitated that the student understand where in the paper the audio comment as referring to. On the other hand, S4 and S6 seemed to find the navigability of audio comments easier than that for written comments.

It is worth noting that several students, S1, S5, S8, and S10, were entirely neutral on the issue of navigability. For example, S1 stated, "I thought in both [written and audio comments] because it flowed with the paper. The comments both written and oral flowed with the paper."

***Tone of Comments.*** Students overall found audio comments more personable than written comments and felt that audio comments delivered a better tone than written comments did. In addition, some students commented on the tone of the instructor's audio comments and connected it to their understanding of the comments.

Three of the ten students commented on tone with regard to comments at the *global level*. All three found audio comments to exhibit a clearer tone, allowing them to understand the instructor's meaning more effectively than the written comments did. S4 elaborated on how tone affects comprehensibility:

> I find it just much easier to understand when somebody explains it to me. Rather than, you know trying to read what somebody has written to me, and sometimes that's hard to figure out. You don't get a tone of voice included with it. You don't get facial expressions. At least with the audio you can hear the tone of the voice and go ummm. Professor ____. I could pick up where she was emphasizing what needed fixed, what was good, what needed work.

S3 mentioned that with audio "you definitely understand the implied tone and whether or not you're actually doing a good job of which are trying to express." S7, as quoted earlier, pointed out that with audio comments the level of appreciation the instructor had for the paper was communicated, while this was not the case with written comments.

The issue of tone did not come up when students spoke about middle-level or micro-level issues. When student discussed different levels of commentary they received, no comments on tone emerged when discussing comments on middle-level items or comments on micro-level items.

However, all students were asked at the end of the interviews whether one medium of commenting was more personable than the other overall. Nine out of ten students said that the audio comments were more personable than the written comments were. The only student who did not rate audio comments as more personable than written comments was S9.

Of the other nine students, four of the nine students made visual references to conversations with the instructor when describing the audio comments, even though the audio comments did not involve video at all. For example, S1 said, “She presented herself as if you know I guess she visualized the student in front of her as she was talking through the comments. So when you listened to it you were able to visualize her sitting in front of you talking through the comments.” S4 said, “You don't get a tone of voice included with it [written]. You don't get facial expressions.” S2 mentioned that receiving audio comments was like having a conversation with the instructor. She mentioned “sitting down with the instructor” in describing her feeling in getting audio comments. S8 was surprised by her preference for audio in engendering a personal touch. When asked about which media was more personable, she responded, “Oddly enough, the audio. It’s almost like having a conversation with her.”

Two students noted that they felt an emotional connection when they received audio comments. S7 pointed out the following:

> …it felt like he was actually reading my paper versus like I'm an actual student. I'm just not just looking at a piece of paper. When he was talking about why paper, it felt…he was actually reading it, and you know he's like, '*[student's name]* you did this you did that and you use my name several times so he's actually reading my paper as a person, not just a piece of paper with writing on it.

S3 referred to an "emotional buy-in in that she is trying to help you" when receiving audio comments. S6 said that audio "allows kind of a touchstone to the professor. Whereas everything the rest my professors, it's just logos, it's just the written word. And it just seems impersonable compared the audio."

The other two students had various other reasons for noting that audio was more personable. S5 said that simply hearing the instructor's voice engendered a personal touch "because you simply don't get to actually ever hear or see your professor." S10 simply acknowledged that audio comments are more personable than written comments are.

Overall, students overwhelmingly felt that audio was more personable than written comments were and that audio comments enhanced the tone of the comments on their papers.

***Overall Findings from Qualitative Analysis of Student Interviews.*** The qualitative analysis yielded the following findings: Students' perceptions are that their ability to understand teachers' meanings on global-level and middle-level items is higher when they receive audio comments than when they receive written comments. However, the analysis indicates that students' perceptions are mixed with regard to their ability to understand teachers' meaning on micro-level items. Some students preferred audio comments for micro-level items, while others preferred written comments for micro-level items. Furthermore, the qualitative analysis showed that

students found written and audio comments different in their ease of navigation. Students generally preferred written comments for ease of navigability, and this preference was strongest for the micro level. Finally, the qualitative data showed that students found the *tone* of audio comments to be superior to and the *personable nature* of audio comments to be higher than that of written comments. The tone and personable nature contributed to their ability to comprehend the comments more effectively with audio than with written.

With regard to comments on micro-level areas, whether audio or written comments are preferred depends to a large degree on instructor commenting style. Some instructors may have used audio more effectively in pointing out grammatical issues or reading problematic sentences to students than other instructors did.

**Quantitative Analysis of Student Survey Results.** Survey data were gathered from all 49 students who took the survey from the nine sections. Questions 3 through 12 of the survey asked about their ability to understand their instructor's written comments. Questions 13 through 22 of the survey asked about their ability to understand their instructor's audio comments. For all 10 questions (questions 3-12 for written comments and questions 13-22 for audio comments), the questions were identical. The first three questions asked about global-level issues, the next four questions asked about middle-level issues, and the final three questions asked about micro-level issues.

Descriptive statistical analysis was conducted on the survey results. The frequencies and percentages of responses for each possible answer were calculated. In addition, inferential statistical analysis was conducted on the survey results. The survey results were analyzed by conducting McNemar's test and the test of marginal homogeneity for all pairs of questions. For

example, for students' responses to question 3 (written comments on the organization of the paper) and for students' responses to question 13 (audio comments on the organization of the paper), both the McNemar's test and the test of marginal homogeneity were conducted. In other words, McNemar's test and the test of marginal homogeneity were conducted for the students' responses to the survey questions for all pairs of questions for all student responses to questions.

McNemar's test is a standard chi-square test for a within-subject design. "When making comparisons with dichotomized data from matched pairs, McNemar's test statistic is used instead of the Pearson $X^2$-statistic" (Rabinowitz & Betensky, 2000). It is used when individuals are surveyed twice or matched on a variable in some fashion. McNemar's test assumes two values: *success* and *failure*. For this reason, in this analysis, *excellent* was rated as *success* and anything below excellent was rated as *failure*. Setting up the analysis in this manner allowed for the analysis of two values and, thus, allowed McNemar's test to be conducted.

The test of marginal homogeneity is similar to McNemar's test except it does not require two values. As is the case with McNemar's test, the test of marginal homogeneity is conducted for dichotomous variables. However, it analyzes the distribution of values across several categories. In this case, the test of marginal homogeneity tested whether the distribution along the response categories of *poor, fair, average, good*, and *excellent* is the same under both conditions—written and audio.

The overall quantitative analysis of the results from the student surveys is shown in Table 28:

Table 28

*Frequencies of Responses and Percentages of Answers in Student Surveys*

*Global-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Organization** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *Less than Excellent* | 23 | 13 | 47 | 26.5 |
| *Excellent* | 26 | 36 | 53.1 | 73.5 |
| **Topic** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *Less than Excellent* | 24 | 12 | 49 | 24.4 |
| *Excellent* | 25 | 37 | 51 | 75.5 |
| **Thesis** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *Less than Excellent* | 19 | 13 | 38.7 | 26.5 |
| *Excellent* | 30 | 36 | 61.2 | 73.5 |

*Middle-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Overall paragraph-level issues** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 1 | 2 | 2 |
| *Less than Excellent* | 19 | 11 | 38.7 | 22.5 |
| *Excellent* | 29 | 37 | 59.2 | 75.5 |
| **Topic sentences** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 1 | 2 | 2 |
| *Less than Excellent* | 23 | 12 | 46.9 | 24.5 |
| *Excellent* | 25 | 36 | 51 | 73.5 |
| **Quality of arguments or claims** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 2 | 2 | 4.1 |
| *Less than Excellent* | 22 | 12 | 44.8 | 24.4 |
| *Excellent* | 26 | 35 | 53.1 | 71.4 |
| **Support or evidence** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 2 | 3 | 4.1 | 6.1 |
| *Less than Excellent* | 22 | 10 | 44.9 | 20.4 |
| *Excellent* | 25 | 36 | 51 | 73.5 |

(continued)

*Micro-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Word choice and phrasing** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 2 | 2 | 4.1 |
| *Less than Excellent* | 24 | 12 | 49 | 24.5 |
| *Excellent* | 24 | 35 | 49 | 71.4 |
| **Grammar and punctuation** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 2 | 2 | 4.1 |
| *Less than Excellent* | 20 | 14 | 40.8 | 28.5 |
| *Excellent* | 28 | 33 | 57.1 | 67.3 |
| **Formatting, references, and citations** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 4 | 6 | 8.2 | 12.2 |
| *Less than Excellent* | 17 | 9 | 34.7 | 18.4 |
| *Excellent* | 28 | 34 | 57.1 | 69.4 |

The descriptive data from the student surveys indicates that the survey responses corroborated with the qualitative data from the interviews in terms of students' abilities to understand their instructors' comments. Students in their surveys indicated a preference for audio comments (global, middle, and micro) over written comments (global, middle, and micro). However, their preference for audio comments was not as strong in the micro-level area. Consistent with the qualitative findings, in the quantitative results from the surveys, one can note that one area in the micro level category, *grammar and punctuation*, saw the least percentage difference in the *excellent* rating between audio and written comments. The percentage difference for this area was only 10.2 percent, with 67.3 percent of students, or 33 students in all, rating audio comments *excellent* for grammar and punctuation and 57.1 percent of students, or 28 students in all, rating written comments *excellent* for grammar and punctuation. Two statistical procedures—McNemar's Test and the test of marginal homogeneity—were conducted to determine whether the preferences for audio comments were statistically significant.

It should be noted that all students found comments on their drafts helpful. No student marked *poor* for either written comments or audio comments for any area. In addition, very few students rated either written or audio comments *fair*. For the global level, all students rated the comments *average*, *good*, or *excellent*. For the middle level, all students rated them *average*, *good*, or *excellent* except for one area, "quality of arguments or claims," in which one student rated written comments *fair*. For the micro level, most students rated their comments *average*, *good*, or *excellent* except for two areas, "word choice and phrasing" and "grammar and punctuation," in which several students rated both written and audio comments *fair*.

The inferential statistical analysis also shows that the responses to student surveys corroborated with the student interview data. The following analysis is given for comments on global-. middle-, and micro-level areas.

***Global-level Issues in the Student Survey Results.*** Students were asked about three items in their comments on global-level areas—*organization of the paper*, *topic of the paper*, and *thesis statement*. Students preferred audio comments over written comments for all three items. Table 29 illustrates the percentages for each answer.

Table 29

*Percentage Responses from Students on Comments on Global-Level Issues*

| **Organization** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA** | 0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 4.1 | 2 |
| *Good* | 42.9 | 24.5 |
| *Excellent* | 53.1 | 73.5 |
| **Topic** | ***Written*** | ***Audio*** |
| *NA** | 0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 4.1 | 2 |
| *Good* | 44.9 | 22.4 |
| *Excellent* | 51 | 75.5 |
| **Thesis** | ***Written*** | ***Audio*** |
| *NA** | 0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 2 | 4.1 |
| *Good* | 36.7 | 22.4 |
| *Excellent* | 61.2 | 73.5 |

**Instructor did not comment on this area.*

For two areas—*organization of the paper* and *topic of the paper*—students rated audio comments higher by more than 20 percentage points. The percentage of students who rated written comments *excellent* for *organization of the paper* was 53.1, while the percentage of students who rated audio comments *excellent* for *organization of the paper* was 73.5. In addition, percentage of students who rated written comments *excellent* for *topic of the paper* was 51, while percentage of students who rated audio comments *excellent* for *topic of the paper* was 75.5.

Table 30 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*. The tests were conducted on the frequency of responses of *excellent* and the frequency of responses for *less than excellent* for each of the survey questions. The null hypothesis for all of the global-level areas is that there is no significant difference between the number of ratings of *excellent* for audio comments and the number of ratings of *excellent* for written comments.

Table 30

*McNemar's Test and Marginal Homogeneity Test—Organization of the paper*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .021 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .016 | Reject the null hypothesis |

Note: Significance level is .05

The results for *organization of the paper* show that students' impressions of their ability to understand their instructors' comments in written form were significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was rejected.

Table 31 shows the results of McNemar's test and the test of marginal homogeneity for *topic of the paper*.

Table 31

*McNemar's Test and Marginal Homogeneity Test— Topic of the Paper*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .004 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .003 | Reject the null hypothesis |

Note: Significance level is .05

The results for *topic of the paper* show that students' impressions of their ability to understand their instructors' comments in written form were significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was rejected.

Table 32 shows the results of McNemar's test and the test of marginal homogeneity for *thesis statement*.

Table 32

*McNemar's Test and Marginal Homogeneity Test –Thesis Statement*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .210 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .275 | Retain the null hypothesis |

Note: Significance level is .05

The results for *thesis statement* show that students' impressions of their ability to understand their instructors' comments in written form were not significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was retained.

Overall, these findings corroborate with the findings in the qualitative analysis for the global level. Students commented in their interviews that they found audio comments to be more understandable than written comments at the global level, much like the survey responses indicate. In the survey responses, for two out of the three areas that represent the global level, students' ratings of audio comments were significantly higher than their ratings of written comments.

***Middle-level Issues in the Student Survey Results.*** Students were asked about four items in their comments on middle-level areas—*overall paragraph-level issues*, *topic sentences*, *quality of arguments or claims*, and *support or evidence.* Students preferred audio comments over written comments for all four items. Table 33 illustrates the percentages for each answer.

Table 33

*Percentage Responses from Students on Comments on Middle-Level Issues*

| **Overall paragraph-level issues** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA** | 2.0 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 2 | 4.1 |
| *Good* | 36.7 | 18.4 |
| *Excellent* | 59.2 | 75.5 |
| **Topic sentences** | ***Written*** | ***Audio*** |
| *NA** | 2.0 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 6.1 | 4.1 |
| *Good* | 40.8 | 20.4 |
| *Excellent* | 51.0 | 73.5 |
| **Quality of arguments or claims** | ***Written*** | ***Audio*** |
| *NA** | 2.0 | 4.1 |
| *Poor* | 0 | 0 |
| *Fair* | 2.0 | 0 |
| *Average* | 6.1 | 2.0 |
| *Good* | 36.7 | 22.4 |
| *Excellent* | 53.1 | 71.4 |
| **Support or evidence** | ***Written*** | ***Audio*** |
| *NA** | 4.1 | 6.1 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 10.2 | 2.0 |
| *Good* | 34.7 | 18.4 |
| *Excellent* | 51.0 | 73.5 |

**Instructor did not comment on this area.*

For all four areas, the percentage of students who rated audio comments as excellent was higher by at least 16 percent. For support or evidence, it was higher by 22.5 percent.

The results of McNemar's test and the test of marginal homogeneity and McNemar's test are as follows. Table 34 shows the results of McNemar's test and the test of marginal homogeneity for *overall paragraph-level issues*.

Table 34

*McNemar's Test and Marginal Homogeneity Test—Overall Paragraph-Level Issues*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .057 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .354 | Retain the null hypothesis |

Note: Significance level is .05

The results for *overall paragraph-level issues* show that students' impressions of their ability to understand their instructors' comments in written form were not significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was retained.

Table 35 shows the results of McNemar's test and the test of marginal homogeneity for *use of topic sentences in paragraphs*.

Table 35

*McNemar's Test and Marginal Homogeneity Test—Use of Topic Sentences in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .003 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .003 | Reject the null hypothesis |

Note: Significance level is .05

The results for *topic sentences* show that students' impressions of their ability to understand their instructors' comments in written form were significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was rejected.

Table 36 shows the results of McNemar's test and the test of marginal homogeneity for *quality of specific arguments or claims in paragraphs*.

Table 36

*McNemar's Test and Marginal Homogeneity Test—Quality of Specific Arguments or Claims in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .022 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The results for *quality of specific arguments or claims* show that students' impressions of their ability to understand their instructors' comments in written form were significantly different from their impressions of their ability to understand their instructors' comments in audio form. For McNemar's test, the results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis was rejected in McNemar's test.

The test of marginal homogeneity was unable to compute conclusions because, for this particular question, one student rated written comments as *fair*, but no student rated audio comments as *fair*. For this reason, the data did not feature values for all criteria. Since the data did not feature values for all criteria for both audio and written, the test was unable to compute results.

Table 37 shows the results of McNemar's test and the test of marginal homogeneity for *support or evidence of claims in paragraphs*.

Table 37

*McNemar's Test and Marginal Homogeneity Test—Support or Evidence for the Claims in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .003 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .071 | Retain the null hypothesis |

Note: Significance level is .05

The results for McNemar's test for *support or evidence for claims* show that students' impressions of their ability to understand their instructors' comments in written form are

significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis was rejected for McNemar's test.

The results for the test of marginal homogeneity for support or evidence for claims show that students' impressions of their ability to understand their instructors' comments in written form were not significantly different from their impressions of their ability to understand their instructors' comments in audio form. The null hypothesis was retained for this test.

The reason for the discrepancy is that the test of marginal homogeneity is analyzing whether the distribution along the response categories of *average*, *good*, and *excellent* is the same under both conditions. The data show that the vast majority of responses are distributed across these three options. However, McNemar's test analyzes whether the proportion of *excellent* responses is the same under both conditions. The data show that 74 percent of students rated audio excellent, while 51 percent of students rated written excellent. McNemar's test found the difference to be statistically significant because it is assuming two values—*excellent* and *less than excellent*. The test of marginal homogeneity did not find the difference to be statistically significant because it is not assuming just two values but, rather, is analyzing the distribution across several categories.

The p-value for the test of marginal homogeneity test is .07. This test is picking up a weaker signal than McNemar's test is picking up because the test of marginal homogeneity is analyzing the data across three categories, while McNemar's Test is analyzing only success or failure.

Overall, the quantitative data corroborate with the qualitative data for the middle level. In three out of four areas that represent the middle level, students' impressions of their ability to understand their instructors' comments were significantly higher when receiving audio comments than when receiving written comments. These findings are consistent with the interview responses, in which students indicated a preference for audio comments than for written comments at the middle level.

***Micro-level Issues in the Student Survey Results.*** Students were asked about three items in their comments on micro-level areas—*word choice or phrasing, grammar and punctuation,* and *formatting, references, and citations*. Students preferred audio comments for all three areas. However, the only item for which the preference was strong was *word choice and phrasing*. In that item, students rated audio comments *excellent* more than written comments by 22.4 percent. For *grammar and punctuation*, more students rated audio comments *excellent* by 10.2 percent. For *formatting, references, and citations*, more students rated audio comments *excellent* by 12.3 percent. Table 38 illustrates the percentages for each answer.

Table 38

*Percentage Responses from Students on Comments on Micro-Level Issues*

| **Word choice and phrasing** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA** | 0 | 4.1 |
| *Poor* | 0 | 0 |
| *Fair* | 2 | 0 |
| *Average* | 8.2 | 8.2 |
| *Good* | 40.8 | 16.3 |
| *Excellent* | 49 | 71.4 |
| **Grammar and punctuation** | ***Written*** | ***Audio*** |
| *NA** | 2.0 | 4.1 |
| *Poor* | 0 | 0 |
| *Fair* | 4.1 | 2.0 |
| *Average* | 6.1 | 12.2 |
| *Good* | 30.6 | 14.3 |
| *Excellent* | 57.1 | 67.3 |
| **Formatting, references, and citations** | ***Written*** | ***Audio*** |
| *NA** | 8.2 | 12.2 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 4.1 | 4.1 |
| *Good* | 30.6 | 14.3 |
| *Excellent* | 57.1 | 69.4 |

**Instructor did not comment on this area.*

The results of McNemar's test and the test of marginal homogeneity and McNemar's test are as follows. Table 39 shows the results of McNemar's test and the test of marginal homogeneity for *word choice or phrasing*.

Table 39

*McNemar's Test and Marginal Homogeneity Test—Word Choice or Phrasing*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .013 | Reject the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The results for *word choice or phrasing* show that students' impressions of their ability to understand their instructors' comments in written form were significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was significantly different from the number of student who rated written comments *excellent*. The null hypothesis was rejected in McNemar's test.

The test of marginal homogeneity was unable to compute conclusions because, for this particular question, one student rated written comments as *fair*, but no student rated audio comments as *fair*. Since the data did not feature values for all criteria for both audio and written, the test was unable to compute results.

Table 40 shows the results of McNemar's test and the test of marginal homogeneity for *grammar and punctuation*.

Table 40

*McNemar's Test and Marginal Homogeneity Test—Grammar and Punctuation*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .267 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | 1.000 | Retain the null hypothesis |

Note: Significance level is .05

The results for *grammar and punctuation* show that students' impressions of their ability to understand their instructors' comments in written form were not significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was retained.

Table 41 shows the results of McNemar's test and the test of marginal homogeneity for *formatting, references, and citations*.

Table 41

*McNemar's Test and Marginal Homogeneity Test—Formatting, References,and Citation*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .180 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .782 | Retain the null hypothesis |

Note: Significance level is .05

The results for formatting, references, and citation show that students' impressions of their ability to understand their instructors' comments in written form were not significantly different from their impressions of their ability to understand their instructors' comments in audio form. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis for both tests was retained.

**Conclusion from Inferential Statistical Analysis.** Overall, the quantitative data corroborate with the qualitative data for the micro level. In two out of three areas that represent the micro level, students' impressions of their ability to understand their instructors' comments were not significantly higher when receiving audio comments than when receiving written comments. The qualitative data noted that, because of navigability issues and because of different instructors' commenting styles, students' impressions of the comprehensibility of audio comments at the micro level compared to that of written comments were mixed. The quantitative data showed that, while a higher percentage of students rated audio comments more comprehensible for all three micro-level areas, the differences were insignificant for two out of the three areas.

**Conclusion from Qualitative and Quantitative Analysis.** The research question was as follows: What are students' perceptions of the ability to understand teachers' meaning in written comments compared to audio comments? The data indicate that students' perceptions are that their ability to understand teachers' meaning on global-level, middle-level, and micro-level items are higher when they receive audio comments than when they receive written comments. However, the data also show that the micro-level represents the weakest preference for one medium over the other. Students' preference for audio comments on micro-level issues was not as strong in the quantitative data as it was for global- and middle-level issues. In addition, for the micro level, students did not show a preference for either medium in their interviews, thus corroborating with the lack of significance indicated in the surveys.

## Findings from Research Question 4: Teachers' Perceptions of Student Improvement

This section presents the results for Research Question 4: What are teachers' perceptions of how written comments help students improve their writing compared to how audio comments help students improve their writing? Data used to answer this question came from the qualitative findings gathered from the feedback templates that instructors provided for students on the final drafts of their essays. The templates that were analyzed were all from the five instructors who were interviewed for the study. The students in their sections whose templates were analyzed comprised the students who had completed the survey and who had identified themselves in their surveys. In all, in the five instructors' sections, nineteen students completed the survey. For this reason, the following templates were analyzed to answer research question 4: nineteen feedback templates for final drafts on essays for which **audio** comments had been provided on the first draft and nineteen feedback templates for final drafts on essays for which **written** comments had been provided on the first draft.

According to the data, it was not clear that one medium produced more effective writing among students than another medium for any of the three areas—global, middle or micro. In addition, the categories on which the comments were given for each level did not vary between media. It is not confirmed from the data that students who were given comments in one particular medium (audio or written) on a first draft of a paper improved more in revising the paper than students who were given comments in the other medium (audio or written) on a first draft of a paper.

In answering the research question, the feedback templates were analyzed, and codes, categories, and themes were developed through the data from the templates for each level: global, middle, and micro.

**Global-Level Data from the Feedback Templates.** For the global level, the data from the feedback templates saw three themes emerge as areas on which instructors provided feedback: *Introduction and Thesis*, *Conclusion to the Essay*, and *Development, Flow and Wording.*

***Introduction and Thesis.*** For the area of *Introduction and Thesis*, for feedback templates on final drafts for papers on which **audio** comments had been given had nine comments showing areas of strength in the essays. Seven comments were made to students about their thesis sentences being strong. Comments used modifiers such as “strong,” “valid,” and “appropriate.” It was not clear, however, whether the instructor was pointing out that the thesis had improved between the first draft and the final draft or if the instructor was simply pointing out that the thesis was strong in the final draft and had been strong in the first draft as well. Furthermore, two comments were given to students on their introductions being strong. One comment noted that the “opening is dazzling,” but there was no indication that the opening had improved from

one draft to the next. The other comment indicated improvement in the introduction, pointing out that the information had been condensed effectively.

For this same area of *Introduction and Thesis*, for feedback templates on final drafts for papers on which **written** comments had been given, 10 comments were made that pointed out strengths in the essay. Nine comments were given on the thesis statements in the papers. Six of the nine comments were made to students about their thesis being improved. Two of the nine comments mentioned a strong thesis, but it was not clear that these comments reflected an improvement on the thesis or if the thesis had been strong in the first draft and simply continued to the final draft. One of the nine comments mentioned that the thesis "remained strong," implying that the thesis was strong in the first draft. Moreover, one comment was given to a student on the introduction, noting that the opening had improved from the first draft to the second.

Overall, it was not clear that one medium produced more effective writing among students than another medium in helping them write introductory paragraphs and thesis statements for their essays. Comments were given on the quality of the thesis statements for essays that had received audio comments and for essays that had received written comments. The templates on essays that had received written comments tended to point out improvements in the thesis statements more often than the templates on essays that had received audio comments. However, as noted above, the templates on essays that had received audio comments may have noted improvements as well. It was simply not clear from the language used by the instructors on the templates. With regard to the introductions of the essays, both templates—those that represented papers on which audio feedback had been given and those that represented papers on

which written feedback had been given—showed improvement in the introductions for two students.

***Conclusion to the Essay.*** For the area of *Conclusion to the Essay*, for feedback templates on final drafts for papers on which **audio** comments had been given, five comments were given to students. All of them indicated that the students had improved on their conclusions in their essays. Statements such as "conclusion was stronger," "you developed a conclusion," and "you made a nice conclusion" characterized the comments on the templates.

For this same area of *Conclusion to the Essay*, for feedback templates on final drafts for papers on which **written** comments had been given, two comments were given to students. Both showed that the students had improved on their conclusions in their essays. Statements such as "you have added your conclusion to reflect" a particular point and "you developed the end of the paper, which was not in the first draft" characterized the comments on the templates.

Again, it was not clear that one medium produced more effective writing among students than another medium in helping students develop their conclusions for their essays. It can be noted that more students received comments on their feedback templates on the improvement of their conclusions for essays on which they had received audio feedback than on essays for which they had received written feedback. However, the difference, five comments versus two, is not one on which we can base a determination that one medium is more effective than the other in helping students improve their writing of a conclusion to their essays.

***Development, Flow, and Wording.*** In the area of *Development, Flow, and Wording*, templates on essays that had received **audio** comments had 14 comments showing areas of improvement and three comments showing areas that needed improvement. The feedback

templates pointed out improvements in verb tense consistency on two occasions and in point-of-view usage on one occasion. Teachers in their templates also noted improvements in tone, enhanced organization, development of points, elimination of extraneous information, and adjustments in paragraph length. The areas that needed improvement, according to the templates, included flow of writing, the use of second-person point of view, and the need to eliminate unnecessary information.

Templates on essays that had received **written** comments had 15 comments showing areas of improvement and three comments showing areas that needed improvement. Teachers in their templates noted improvements in length and readability, clarity, effective comparison, use of point of view, organization, and focus. The areas that needed improvement, according to the templates, included the title of one paper and the use of description in another paper.

Again, it was not clear that one medium produced more effective writing among students than another medium for the area of *Development, Flow, and Wording.* The number of comments showing improvement and the number of comments showing the need for improvement was almost identical for both media. Moreover, the nature of the comments and the areas which they pointed out to the students were very similar.

**Middle-Level Data from the Feedback Templates.** For the middle level, the data from the feedback templates saw two themes emerge: *Coherence and Organization* and *Support and Development*

***Coherence and Organization.*** For the area of *Coherence and Organization,* templates on final drafts for papers on which **audio** comments had been given had five comments showing areas of improvement and three comments showing areas that needed improvement. The feedback templates pointed out improvements in the use of transitions, topic sentences, unity,

coherence, and balance of information. Areas that needed improvement included paragraph length and topic sentences.

Templates on essays that had received **written** comments had 15 comments showing areas of improvement and five comments showing areas that needed improvement. Teachers in their templates noted improvements in topic sentences, coherence, unity, organization of paragraphs, improvement in length of paragraphs, use of transitions, and elimination of unnecessary information. Areas that needed improvement included coherence, order of comparison, the use of transitions, and unity.

In this area, instructors tended to comment more favorably on the final drafts of students to whom they had given written comments. While instructors provided 15 comments on improvement shown on papers on which they had provided written comments, they provided five comments on improvement shown on papers on which they had provided audio comments.

***Support and Development.*** For the area of *Support and Development*, templates on final drafts for papers on which **audio** comments had been given had nine comments showing areas of improvement and three comments showing areas that needed improvement. The feedback templates pointed out improvements in paragraph development, use of examples, use of description, and use of details. Areas that needed improvement included the need for more examples, errors in the use of dialogue, and the need for more descriptive examples.

For the area of *Support and Development*, templates on final drafts for papers on which **written** comments had been given had nine comments showing areas of improvement and five comments showing areas that needed improvement. The feedback templates pointed out improvement in details and the use of dialogue, the addition of supporting details, the use of

sensory description, and the use of the writer's own words in description. Areas that needed improvement included the use of supporting details, the use of examples, and specificity in explanation.

Overall, it was not clear that one medium produced more effective writing among students than another medium in helping students write with more support or development. The number of comments showing improvement and the number of comments showing the need for improvement was almost identical for both media. Moreover, the nature of the comments and the areas which they pointed out to the students were very similar.

**Micro-Level Data from the Feedback Templates.** For the micro level, the data from the feedback templates saw four themes emerge: *Sentence Level*, *Word Level*, *Punctuation and Formatting*, and *General*.

***Sentence Level.*** For the area of *Sentence Level,* templates on final drafts for papers on which **audio** comments had been given had five comments showing areas of improvement and six comments showing areas that needed improvement. The feedback templates pointed out improvements in the use of run-on sentences and clarity of sentences. Areas that needed improvement included run-on sentences and wordy sentences.

Templates on essays that had received **written** comments had one comment showing an area of improvement and six comments showing areas that needed improvement. The one comment indicating improvement mentioned that more concise and fewer wordy sentences had been implemented. Areas that needed improvement included run-on sentences, parallelism, wordy sentences.

It should be noted that in many cases instructors wrote that grammar had been improved but that grammar was also an area that needed much correction still. Therefore, in many cases, instructors both commended students for improvement and exhorted students to work on this area more. When such comments were given, it was not clear whether the instructor was referring to sentence-level grammar issues or other issues related to grammar and punctuation.

Overall, the data for the area of sentence level show that instructors offered more feedback on areas of improvement for papers to which they had given audio comments than to papers to which they had given written comments.

***Word Level.*** For the area of *Word Level*, templates on final drafts for papers on which **audio** comments had been given had five comments showing areas of improvement and nine comments showing areas that needed improvement. The feedback templates pointed out improvements in the use of possessive forms and the use of first-person and second-person pronouns. Areas that needed improvement included typographical errors, possessive forms, spelling errors, pronoun-antecedent agreement, and verb tense shifts.

Templates on essays that had received **written** comments had nine comments showing areas of improvement and seven comments showing areas that needed improvement. The feedback templates pointed out improvement in verb tenses, second-person point of view, pronoun usage, commonly confused words, spelling, and repetition of words. Areas that needed improvement included possessive forms, verb tense shifts, and the use of pronouns.

Again, it should be noted that in many cases instructors wrote that grammar had been improved but that this was an area that needed much correction still. It was not clear whether the instructor was referring to word-level grammar issues or other issues related to grammar and

punctuation. Nonetheless, it can be noted that instructors commented more favorably in the word level area on essays to which they had given written comments.

***Punctuation and Formatting.*** For the area of *Punctuation and Formatting,* templates on final drafts for papers on which **audio** comments had been given had two comments showing areas of improvement and four comments showing areas that needed improvement. The feedback templates pointed out improvements in the indenting of paragraphs, in comma usage, and in punctuation in general. Areas that needed improvement involved the use of commas.

Templates on essays that had received **written** comments had four comments showing an area of improvement and two comments showing areas that needed improvement. The templates noted improvements in the use of commas, in punctuation in general, and in font corrections. Areas that needed improvement included the use of commas and in punctuation in general.

As with other areas in the micro level, in many cases instructors wrote that the micro level had been improved but that this was also an area that needed much correction. It was not clear whether the instructor was referring to punctuation or other issues related to the micro level.

**General Comments at the Micro Level.** Templates on final drafts for papers on which **audio** comments had been given featured many comments that indicated improvement or lack of improvement overall at the micro level but that did not specify what areas had or had not improved. Examples of statements that showed improvement included comments such as “it’s been sufficiently edited,” “improvements in proofreading,” “You have fixed some of the issues,” and “You have fixed other grammatical matters.” Examples of statements that showed areas

that needed more improvement included comments such as “You should concentrate on this” and “…this is an area you need to work on.”

For the templates on final drafts for papers on which **audio** comments had been given, there were three comments of this nature that indicated improvements had been made, and there were four comments of this nature that indicated that more improvement was necessary.

Likewise, templates on final drafts for papers on which **written** comments had been given featured many comments that indicated improvement or lack of improvement overall at the micro level but that did not specify what areas had or had not improved. In these templates, examples of statements that showed improvement included comments such as “You have addressed some issues in proofreading,” “You did well in fixing grammatical errors,” “You fixed errors in this area,” and “You have certainly cleaned up your rough draft in terms of wording and grammar.” Examples of statements that showed areas that needed more improvement included comments such as “the essay is weakest in this area,” “this [grammar] is still the primary area to work on,” “There are still more [errors in this area],” and it [wording and grammar] is still the main area of concern.

For the templates on final drafts for papers on which **written** comments had been given, there were four comments of this nature that indicated improvements had been made, and there were five comments of this nature that indicated that more improvement was necessary.

**Conclusion.** Overall, the feedback templates do not provide conclusive data showing that one medium is more effective in helping students revise their papers than the other medium is. In all, three areas showed a dominance of feedback showing improvement. For the area of *coherence and organization*, instructors provided more feedback on areas of improvement on

essays to which written comments had been provided. For the area of *sentence level*, instructors provided more feedback on improvement on essays to which audio comments had been provided. For the area of *word level*, instructors provided more feedback on improvement on essays to which written comments had been given.

However, there was not an overall pattern that could be determined from the data that showed that students improve on the global-level, middle-level, or micro-level areas more effectively when given comments in one medium over another. The feedback templates showed that written comments and audio comments featured similar patterns of improvement and similar areas that show a need for more improvement. In addition, the ambiguity of some of the comments on the feedback templates renders some of the data inconclusive. For example, in some cases, it was not clear whether the paper had improved in an area or if the final draft simply showed a strength in an area that had demonstrated the same strength in the first draft. In addition, some comments noted that the micro level had both improved and needed improvement. For this reason, there was not a clear level of precision indicating what areas in the micro-level showed improvement, what areas needed improvement, and whether written or audio comments rendered more improvement from one draft to the next.

For future studies, in following this methodology, the procedure could be improved by providing instructors more guidelines on how to fill out their feedback templates. They might be directed to provide more comparative notes on how the student's first draft was compared to the student's second draft. Overall, more comparative data might be generated with more guidance to instructors on filling out the templates.

**Findings from Research Question 5: Students' Perceptions of Their Ability to Improve**

This section presents the results for Research Question 5: What are students' perceptions of how written comments help them improve their writing compared to how audio comments help them improve their writing? Data used to answer this question came from the quantitative findings gathered from the surveys the students took and from the qualitative findings gathered from the interviews with students.

**Student Survey Results.** Survey results were gathered for all 49 students who took the survey from the nine sections. Questions 23 through 32 of the survey asked about their ability to correct/address issues in their writing and improve their writing as a result of their instructor's written comments. Questions 33 through 42 of the survey asked about their ability to correct/address issues in their writing and improve their writing as a result of their instructor's audio comments to understand their instructor's audio comments. For all 10 questions (questions 23-32 for written comments and questions 33-42 for audio comments), the questions were identical. The first three questions asked about global-level issues, the next four questions asked about middle-level issues, and the final three questions asked about micro-level issues.

For this research question, as was the case for research question #3, descriptive quantitative analysis was conducted on the data from the 49 student surveys. The students answered 20 Likert-style questions on their perceptions of their ability to improve their writing using their teachers' written and audio comments to the two papers for which they received written and audio comments. The frequencies and percentages of each answer for these Likert-style questions were calculated. In addition, inferential quantitative analysis was conducted on the responses to the 49 student surveys. Both McNemar's test and the Test of marginal homogeneity were conducted to determine whether student responses were significantly different

in rating written comments and in rating audio comments. For example, for students' responses to question 13 (written comments on the organization of the paper) and for students' responses to question 23 (audio comments on the organization of the paper), both the McNemar's test and the test of marginal homogeneity were conducted. In other words, McNemar's test and the test of marginal homogeneity were conducted for the students' responses to the survey questions for all pairs of questions for all student responses to questions.

Finally, qualitative analysis was conducted on responses students made to their interviews related to how the written and audio comments had helped them improve their essays. All students were asked what paper they felt they had improved on the most. Student responses were analyzed for any possible themes.

The overall quantitative analysis of the results from the student surveys is shown in Table 42:

Table 42

*Frequencies of Responses and Percentages of Answers in Student Surveys*
*Global-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Organization** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 0 | 2 | 0 |
| *Less than Excellent* | 23 | 16 | 46.9 | 32.7 |
| *Excellent* | 25 | 33 | 51 | 67.3 |
| **Topic** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *Less than Excellent* | 23 | 18 | 46.9 | 36.7 |
| *Excellent* | 26 | 31 | 53.1 | 63.3 |
| **Thesis** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *Less than Excellent* | 21 | 17 | 42.8 | 34.7 |
| *Excellent* | 28 | 32 | 57.1 | 65.3 |

*Middle-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Overall paragraph-level issues** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 0 | 1 | 0 | 2 |
| *Less than Excellent* | 24 | 15 | 49 | 30.6 |
| *Excellent* | 25 | 33 | 51 | 67.3 |
| **Topic sentences** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 2 | 1 | 4.1 | 2 |
| *Less than Excellent* | 22 | 16 | 44.9 | 32.6 |
| *Excellent* | 25 | 32 | 51 | 65.3 |
| **Quality of arguments or claims** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 1 | 0 | 2 | 0 |
| *Less than Excellent* | 23 | 18 | 47 | 36.7 |
| *Excellent* | 25 | 31 | 51 | 63.3 |
| **Support or evidence** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 2 | 1 | 4.1 | 2 |
| *Less than Excellent* | 21 | 16 | 42.9 | 32.7 |
| *Excellent* | 26 | 32 | 53.1 | 65.3 |

(continued)

*Micro-Level Issues*

| | ***Frequency of Responses*** | | ***Percentages*** | |
|---|---|---|---|---|
| **Word choice and phrasing** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 0 | 1 | 0 | 2 |
| *Less than Excellent* | 25 | 18 | 51 | 36.6 |
| *Excellent* | 24 | 30 | 49 | 61.2 |
| **Grammar and punctuation** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 0 | 2 | 0 | 4.1 |
| *Less than Excellent* | 25 | 21 | 51 | 42.9 |
| *Excellent* | 24 | 26 | 49 | 53.1 |
| **Formatting, references, and citations** | ***Written*** | ***Audio*** | ***Written*** | ***Audio*** |
| *NA* | 7 | 7 | 14.3 | 14.3 |
| *Less than Excellent* | 20 | 16 | 40.8 | 32.6 |
| *Excellent* | 22 | 26 | 44.9 | 53.1 |

The descriptive data from the student surveys indicates that students demonstrated a preference for audio comments over written comments in all three areas—global, middle, and micro. However, as was the case for the data for research question 3, their preference for audio comments was not as strong in the micro-level area. In the quantitative results from the surveys, one can note that one area in the micro level category, *grammar and punctuation*, saw the least percentage difference in the *excellent* rating between audio and written comments. The percentage difference for this area was only 4.4 percent, with 53.1 percent of students, or 26 students in all, rating audio comments *excellent* for grammar and punctuation and 49.1 percent of students, or 24 students in all, rating written comments *excellent* for grammar and punctuation.

Again, it should be noted that all students found comments helpful in facilitating their improvement of their writing. No student marked *poor* for either written comments or audio comments for any area. In addition, very few students rated either written or audio comments *fair*. For the global level and the middle level, all students rated the comments *average*, *good*, or

*excellent*. For the micro level, all students rated their comments *average*, *good*, or *excellent* except for one areas, "word choice and phrasing," in which one student rated audio comments *fair*.

The inferential statistical analysis on the student survey responses shows that there was not a significant difference between students' impressions of their abilities to correct or address their writing problems and improve their writing when receiving audio comments and when receiving written comments. The null hypothesis for all of the global-level, middle-level, and micro-level areas is that there is no significant difference between the number of ratings of *excellent* for audio comments and the number of ratings of *excellent* for written comments. For all three levels, the null hypothesis was retained.

The following analysis is given for comments on global-, middle-, and micro-level areas.

***Global-level Issues in the Student Survey Results.*** Students were asked about three items in their comments on global-level areas—*organization of the paper*, *topic of the paper*, and *thesis statement*. Students preferred audio comments over written comments for all three items. Table 43 illustrates the percentages for each answer.

Table 43

*Ability to Improve Writing: Percentage Responses from Students—Global-Level Issues*

| **Organization** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA* | 2.0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 10.2 | 8.2 |
| *Good* | 36.7 | 24.5 |
| *Excellent* | 51.0 | 67.3 |
| **Topic** | ***Written*** | ***Audio*** |
| *NA* | 0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 6.1 | 6.1 |
| *Good* | 40.8 | 30.6 |
| *Excellent* | 53.1 | 63.3 |
| **Thesis** | ***Written*** | ***Audio*** |
| *NA* | 0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 12.2 | 6.1 |
| *Good* | 30.6 | 28.6 |
| *Excellent* | 57.1 | 65.3 |

Students rated audio comments *excellent* more often than they rated written comments *excellent*. In addition, it is worth noting that all students found both types of comments helpful. No student rated either audio or written comments *fair* or *poor* for any category.

Table 44 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 44

*McNemar's Test and Marginal Homogeneity Test – Organization of the Paper*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .096 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve the organization of their papers when receiving audio comments were not significantly higher than their impressions of their ability to improve the organization of their papers when receiving written comments. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in McNemar's test.

The test of marginal homogeneity was unable to compute a result because, for this particular question, one ranking of *NA* was given for written comments, while no ranking of *NA* was given for audio comments. The test of marginal homogeneity is computed only when each variable features a value.

Table 45 shows the results of McNemar's test and the test of marginal homogeneity for *topic of the paper*.

Table 45

*McNemar's Test and Marginal Homogeneity Test – Topic of the Paper*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .359 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .353 | Retain the null hypothesis |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to their ability to improve their writing when receiving when receiving audio comments on the topic of their papers were not significantly higher than their impressions of their ability to their ability to improve their writing when receiving written comments on the topic of their papers. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in both tests.

Table 46 shows the results of McNemar's test and the test of marginal homogeneity for *thesis statement*.

Table 46

*McNemar's Test and Marginal Homogeneity Test – Thesis Statement*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .454 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .178 | Retain the null hypothesis |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on the thesis statements in their papers were not significantly higher than their impressions of their ability to improve their writing when receiving when receiving written comments on their thesis statements. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in both tests.

The results indicate that, for comments on global-level issues, students' impressions of their abilities to improve their writing as a result of receiving written comments and their abilities to improve their writing as a result of receiving audio comments were not significantly different.

***Middle-level Issues in the Student Survey Results.*** Students were asked about four items in their comments on middle-level areas—*overall paragraph-level issues*, *topic sentences*, *quality of arguments or claims*, and *support or evidence.* Students preferred audio comments over written comments for all four items. Table 47 illustrates the percentages for each answer.

Table 47

*Ability to Improve Writing: Percentage Responses from Students—Middle-Level Issues*

| **Overall paragraph-level issues** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA* | 0 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 14.3 | 6.1 |
| *Good* | 34.7 | 24.5 |
| *Excellent* | 51.0 | 67.3 |
| **Topic sentences** | ***Written*** | ***Audio*** |
| *NA* | 4.1 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 8.2 | 10.2 |
| *Good* | 36.7 | 22.4 |
| *Excellent* | 51.0 | 65.3 |
| **Quality of arguments or claims** | ***Written*** | ***Audio*** |
| *NA* | 2.0 | 0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 8.2 | 8.2 |
| *Good* | 38.8 | 28.6 |
| *Excellent* | 51.0 | 63.3 |
| **Support or evidence** | ***Written*** | ***Audio*** |
| *NA* | 4.1 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 4.1 | 8.2 |
| *Good* | 38.8 | 24.5 |
| *Excellent* | 53.1 | 65.3 |

Overall, students gave audio comments a rating of *excellent* at a higher percentage than they rated written comments with a rating of *excellent* for all four areas. In addition, all students found both types of comments helpful. No student rated either audio or written comments *fair* or *poor* for any category.

Table 48 shows the results of McNemar's test and the test of marginal homogeneity for *overall paragraph-level issues*.

Table 48

*McNemar's Test and Marginal Homogeneity Test – Overall Paragraph-Level Issues*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .096 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on overall paragraph-level issues of unity, coherence, and support were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on overall paragraph-level issues of unity, coherence, and support. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in McNemar's test.

The test of marginal homogeneity was unable to compute a result because, for this particular question, one ranking of *NA* was given for written comments, while no ranking of *NA*

was given for audio comments. Again, the test of marginal homogeneity is computed only when each variable features a value.

Table 49 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 49

*McNemar's Test and Marginal Homogeneity Test – Use of Topic Sentences in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .118 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .166 | Retain the null hypothesis |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on their topic sentences in their paragraphs were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on their topic sentences in their paragraphs. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in both tests.

Table 50 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 50

*McNemar's Test and Marginal Homogeneity Test – Quality of Specific Arguments or Claims in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .210 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on the quality of their arguments were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on the quality of their arguments. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in McNemar's test.

The test of marginal homogeneity was unable to compute a result because, for this particular question, one ranking of *NA* was given for written comments, while no ranking of *NA* was given for audio comments. The test of marginal homogeneity is computed only when each variable features a value.

Table 51 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 51

*McNemar's Test and Marginal Homogeneity Test – Support or Evidence for the Claims in Paragraphs*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .210 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .258 | Retain the null hypothesis |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on their support or evidence for claims in paragraphs were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on their support or evidence for claims in paragraphs. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in both tests.

Overall, the responses to the surveys indicate that, while students rated audio comments excellent more frequently than they rated written comments excellent, the differences between the ratings of excellent for audio and excellent for written were not statistically significant. The null hypotheses were retained for all three middle-level areas.

***Micro-level Issues in the Student Survey Results.*** Students were asked about three items in their comments on micro-level areas—*word choice or phrasing, grammar and punctuation*, and *formatting, references, and citations*.

Students preferred audio comments for all three areas. The item for which the preference was the strongest was *word choice and phrasing*. In that item, students rated audio comments *excellent* more than written comments by 12.2 percent. For *grammar and punctuation*, more students rated audio comments *excellent* by 4.2 percent. For *formatting, references, and citations*, more students rated audio comments *excellent* by 8.2 percent. Table 52 illustrates the percentages for each answer.

Table 52

*Ability to Improve Writing: Percentage Responses from Students—Micro-Level Issues*

| **Word choice and phrasing** | ***Written*** | ***Audio*** |
|---|---|---|
| *NA* | 0 | 2.0 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 2.0 |
| *Average* | 14.3 | 12.2 |
| *Good* | 36.7 | 22.4 |
| *Excellent* | 49 | 61.2 |
| **Grammar and punctuation** | ***Written*** | ***Audio*** |
| *NA* | 0 | 4.1 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 12.2 | 14.3 |
| *Good* | 38.8 | 28.6 |
| *Excellent* | 49.0 | 53.1 |
| **Formatting, references, and citations** | ***Written*** | ***Audio*** |
| *NA* | 14.3 | 14.3 |
| *Poor* | 0 | 0 |
| *Fair* | 0 | 0 |
| *Average* | 18.4 | 12.2 |
| *Good* | 22.4 | 20.4 |
| *Excellent* | 44.9 | 53.1 |

Almost all students found both audio and written comments to be helpful when receiving them on issues concerning their word choice and phrasing. Only 2 percent of the students rated audio comments *fair* for word choice or phrasing, and no students rated audio comments *poor* for

word choice or phrasing. No students rated written comments *fair* or *poor*. In addition, the difference for the rating of *average* was only 2.1 percent.

Moreover, it is again worth noting that almost all students found both types of comments helpful. No student rated either audio or written comments *fair* or *poor* for any category except for *word choice or phrasing*, for which one student rated audio comments *fair*.

Table 53 shows the results of McNemar's test and the test of marginal homogeneity:

Table 53

*McNemar's Test and Marginal Homogeneity Test – Word Choice or Phrasing*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .210 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on word choice and phrasing were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on word choice and phrasing. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in McNemar's test.

The test of marginal homogeneity was unable to compute a result because, for this particular question, one ranking of *fair* was given for audio comments, while no ranking of *fair*

was given for written comments. As stated earlier, the test of marginal homogeneity is computed only when each variable features a value.

Table 54 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 54

*McNemar's Test and Marginal Homogeneity Test – Grammar and Punctuation*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .815 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | NA | Unable to compute |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on grammar and punctuation were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on grammar and punctuation. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in McNemar's test.

The test of marginal homogeneity was unable to compute a result because, for this particular question, two rankings of *NA* were given for audio comments, while no ranking of *NA* was given for written comments. The test of marginal homogeneity is computed only when each variable features a value.

Table 55 shows the results of McNemar's test and the test of marginal homogeneity for *organization of the paper*.

Table 55

*McNemar's Test and Marginal Homogeneity Test – Formatting, References, and Citation*

| | | |
|---|---|---|
| Related-Samples McNemar Test | .388 | Retain the null hypothesis |
| Related-Samples Marginal Homogeneity Test | .370 | Retain the null hypothesis |

Note: Significance level is .05

The analysis shows that students' impressions of their ability to improve their writing when receiving audio comments on formatting, references, and citations were not significantly higher than their impressions of their ability to improve their writing when receiving written comments on the formatting, references, or citations. The results show that the number of students who rated audio comments *excellent* was not significantly different from the number of student who rated written comments *excellent*. The null hypothesis was retained in both tests.

For micro-level issues, the results of the student surveys show that, while students gave more ratings of excellent to audio comments than they did for written comments, the differences were no statistically significant.

***Overall quantitative results.*** The results indicate that students' impressions of their ability to correct or address the issues as a result of receiving written comments and as a result of receiving audio comments were not significantly different. While the frequency of ratings for

*excellent* was higher for audio comments than that for written comments, the differences were not statistically significant for any of the issues for the global level, middle level, or micro level.

**Student Interviews.** In their interviews, all students were asked the following question: *Overall, from the first draft to the second draft, did you feel you improved more on the first writing assignment or on the second writing assignment?*

The answers to this question did not result in conclusive evidence that written comments or audio comments led to a more improved second draft of a paper. However, the answers students provided offer insight as to how comments on a first paper of the semester might help set the stage for comments on the second paper of a semester and for the class as a whole.

In analyzing the data that were used to answer this research question, it is necessary to understand which students received audio comments on writing assignment #1 and written comments on writing assignment #2 and which students received written comments on writing assignment #1 and audio comments on writing assignment #2. Table 47 shows the list of all ten students and the order in which they received comments in both media is as follows:

Table 56

*Students and Media Order of Comments*

| **Student** | **Identity** | **Comment order** |
|---|---|---|
| S1 | the first student for teacher #1 | audio for wa #1; written for wa #2 |
| S2 | the second student for teacher #1 | audio for wa #1; written for wa #2 |
| S3 | the third student for teacher #1 | audio for wa #1; written for wa #2 |
| S4 | the first student for teacher #2 | written for wa #1; audio for wa #2 |
| S5 | the second student for teacher #2 | written for wa #1; audio for wa #2 |
| S6 | the first student for teacher #3 | audio for wa #1; written for wa #2 |
| S7 | the second student for teacher #3 | audio for wa #1; written for wa #2 |
| S8 | the first student for teacher #4 | audio for wa #1; written for wa #2 |
| S9 | the second student for teacher #4 | audio for wa #1; written for wa #2 |
| S10 | the first student for teacher #5 | written for wa #1; audio for wa #2 |

With this list in mind, it is interesting to note that five students (S2, S3, S4, S8, and S9) all noted that they had improved on writing assignment #2 more than they had on writing assignment #1. For S2, S3, S8, and S9, they had received audio comments on writing assignment #1 and written comments on writing assignment #2. For S4, he had received written comments on writing assignment #1 and audio comments on writing assignment #2.

One student (S1) saw no difference in his level of improvement for the first writing assignment and the second writing assignment. This particular student had done equally well on both assignments and did not discern a different level of improvement from one to the other.

Four students (S5, S6, S7, and S10) did not have strong feelings about which paper they had improved more on. Some of the reasons that they cited were the fact that their grade had just been posted for the second writing assignment or that the grade had not yet been posted.

However, one theme did emerge from this part of the data. The reason several students gave for their impression that they had improved on writing assignment #2 more than on writing assignment #1 was the comments they had already received on writing assignment #1. In all four students (S2, S7, S8, and S9) all mentioned that the comments they had received on writing assignment #1 had helped them with their level of improvement with writing assignment #2. In addition, S7 mentioned that her receiving audio comments on the first paper helped her comprehend the class more effectively.

All four of these students had received audio comments on writing assignment #1. In other words, four students who received audio comments on writing assignment #1 said that the comments on writing assignment #1 helped them on writing assignment #2. Moreover, one of the four students said that audio comments helped her understand the class as a whole. However, no students who had received written comments on writing assignment #1 said that this phenomenon had occurred for them. In other words, no students who had received written comments on writing assignment #1 said anything about the comments helping them for writing assignment #2.

It should be noted that, among all 10 students, only three received written comments on writing assignment #1. Therefore, the potential of the written comments on the first writing assignment helping the student with the second writing assignment was possible for only three of the ten students in the study.

In observing this phenomenon, it is worth noting that one instructor, T1, commented in her interview that she felt that providing audio comments on the first writing assignment helps the students in "establishing a bond with the teacher." She elaborated on this point:

> And sure enough, I mean, to have the audio first with the sort of the easier paper. The students were all excited about it. I really think I've had fewer students drop out of the course than usual because I think they feel more connected. And now that they know me they know my style. They know what I'm looking for, it's really maybe not necessary to do the audio. I can do the written and do it and give support grilling on the revisions to which is part of the detail stuff that they need a lot of.

Two students, S6 and S3, felt they had improved more on the paper on which they had received written comments. For them, this was writing assignment #2. However, the reason they gave was that they needed more work on writing assignment #2 than they had needed for writing assignment #1. S6 noted, "…the first thing was really strong and I don't think there was a lot of improvement needed. I didn't adjust it much. The second draft I need a lot more work." S3 answered as follows:

> I think probably on the second because on the first one, it was pretty good. It was pretty easy for me. It was just a case of polishing up some grammar. On the second one, it was much more helpful because of when I read the comments I realized just wow, I really need to totally reset how I'm approaching this junk.

Their reasons for rating the level of improvement higher for writing assignment #2 were that they needed more improvement for writing assignment #2.

Finally, another interesting result that came out in the interviews is that students sometimes used grades to determine whether they felt they had improved more on one writing

assignment or another. When asked whether they had felt they had improved more on the first writing assignment or in the second writing assignment, two students referred to their grades when determining their answers. Their perceptions of improvement were not necessarily based on how they felt they had improved on one assignment over another but rather was based on the grade they had received on the assignment over another.

**Conclusion.** Overall, the student survey data showed that students gave audio comments for all three levels—global, middle, and micro—higher ratings than they gave written comments for all three levels for the effect the comments had on their ability to improve their writing. However, the differences were not statistically significant.

In addition, the student interview data were inconclusive in informing whether one medium helped them improve their writing over another medium. It is possible, based on several of the students' answers, that receiving audio comments on the first paper helped students understand and improve on the second paper. That possibility represents an implication for further research.

# CHAPTER V: DISCUSSION

The purpose of this study was to research the use of audio comments using standalone .mp3 files and the use of written comments on student writing in an online freshman composition class. Previous research on the use of audio comments in composition courses has tended to be conducted on face-to-face classes. Previous research that has been conducted on the use of audio comments in online courses has tended to be non-composition courses, in which revising the papers is not a common practice (Kirschner, van den Brink, and Meester, 1991; Dagen et al., 2008; Ice et al., 2007; Ice et al. 2010; Merry & Orsmond, 2008; Olesova et al., 2011; Oomen-Early et al., 2008; Wood et al., 2011). In addition, research on the use of audio comments in general, whether in composition or in non-composition courses, has often involved the use of embedded audio comments through Adobe Acrobat Pro or Microsoft Word functions rather than stand-alone .mp3 files. Thus, the issue of navigating the paper while hearing the audio comments has not been considered in such studies. Finally, previous research on the use of audio comments has not featured quantitative analysis on the pattern of commenting for both audio and written media across several instructors. Quantitative analysis in previous studies in the literature features one or two instructors' commenting patterns, not five instructors, as this study analyzes. Overall, this study was designed to help fill a gap in the literature in providing quantitative analysis on the use of standalone audio comments in .mp3 form in comparison to written comments to student writing in the online format. In addition, this study integrated qualitative analysis through open coding, categorizing, and thematizing of student and instructor interviews.

The findings of this study show that the pattern of commenting that an instructor uses in audio and in written form varied from instructor to instructor. An interaction effect is apparent

between the media and the instructor. One cannot predict the volume or nature of commentary based on the media a teacher is using, nor can one predict the volume or nature of commentary based on the teacher who is providing the commentary. Rather, both the form of media used and the instructor using it interact so that comments change depending on the commenting style of the teacher and the media being used. In addition, the findings show that audio comments are a scalable option for instructors, that they save time for some instructors, and that they have the potential to save time for other instructors with more practice in their use. Moreover, the findings show that students believed that they understood their instructors' comments more when receiving audio commentary at the global and middle levels, but that their preferences were mixed at the micro level. Nonetheless, the findings show that students did not feel that they were able to improve their writing more effectively after receiving audio comments than they could after receiving written comments, even though they had rated both forms of feedback as *excellent*. Thus, they found audio comments to feature an advantage in helping them comprehend their instructors' meanings but not necessarily an advantage in helping them apply the commentary to improving their drafts. Finally, the findings were inconclusive in terms of whether teachers felt that students' writing improved after having received comments in one form or another. The significance of the findings for each research question as well as implications for further research are discussed below.

The limitations of this study should be noted along with the discussion of the findings. First, the two writing assignments—a narration essay and a comparison-contrast essay—may not represent equal levels of rigor for students. For this reason, students' perceptions of audio comments and written comments may have been influenced by the level of difficulty they had with the writing assignment for which they received audio comments and the writing assignment

for which they received written comments. For example, if a student found the narration essay easier than the comparison-contrast essay, and if the student received audio comments on the narration essay and written comments on the comparison-contrast essay, the student may have rated the audio comments more helpful than written comments because he receive the audio comments on an easier paper. On the other hand, the student may have rated written comments more helpful than audio comments because he received written comments on a paper on which he needed more help. In addition, teachers' commenting patterns may have been influenced by the different assignments. For example, teacher #5 noted that she found that students writing a comparison-contrast essay have more problems, particularly in organizing the essay, than students do when they write a narration essay. For this reason, she provided more comments in audio form than she provided in written form, as she commented in audio form on the comparison-contrast essay and in written form on the narration essay. Overall, the medium may not have been the most pivotal issue in determining student preferences in all cases. The writing assignments may have influenced results as well as the medium of commenting.

Second, the student body of this particular institution must be taken into consideration when determining the applicability of the study to other institutions. The institution at which this study was conducted has student body with an average age of 32, with many students working while taking classes. In this study, among the 10 students interviewed, one student noted that she worked for the federal government and was unable to listen to .mp3 files at work. Another student noted that she had not taken a writing class since 1972. Another student indicated that he wrote technical documents at his job. Overall, the professional experience of the students, the busyness of their lives, and the overall non-traditional nature of the student experience means

that the transferability of the results of this study must be considered when applying the results across institutions.

Third, a possible novice effect may be considered. In this study, one instructor, Teacher 5, had never given audio comments before. Three other instructors, Teachers 1, 2, and 4, had provided audio comments for their first time in the semester previous to the one in which the study was conducted. Teacher 3 had provided audio comments to his students in previous semesters. For this reason, it should be noted that with more experience the patterns teachers use in providing audio comments, and the students' experience in receiving them, may be modified from those in this study.

**Discussion of Findings for Research Question #1**

Research question #1 is the following: What are the characteristics of written comments and of audio comments on students' writing assignments? Specifically, do teachers' comments change in content and in length when they provide written comments compared to when they provide audio comments? If so, how?

The results of this study show that instructors use significantly more words when providing audio comments than they do when providing written comments. Moreover, this study demonstrated two main effects and one interaction effect. The *first main effect* is that the media used (audio versus written) among all teachers produces a statistically significant effect. As noted above, the use of audio commentary results in a statistically significant higher number of words than the use of written commentary when averaged among all five teachers. The *second main effect* is that the teacher giving the comments, whether audio or written, produces a statistically significant effect. Some teachers provided significantly more words in their comments than other teachers did, both in audio and in written form. The *interaction effect* the

study demonstrates is between the media and the teacher. There was a statistically significant interaction effect between both media, or whether audio or written comments were provided, and which teacher provided them. In other words, the issue of whether a certain teacher used more words in audio form than in written form was impacted by the media the teacher used. In addition, the issue of whether audio form resulted in more words than written form was impacted by which teacher was giving the comments. The data on both the number of words used and the number of items commented on demonstrated significant findings and issues for further research.

**Number of words used.** In this study, the differences between the number of words given in audio commentary and the number of words given in written commentary were statistically significant. Teachers used significantly more words when providing audio comments than when providing written comments. This trend occurred for the global level, the middle level, the micro level, and the *other* comments. At the global level, four of the five instructors used more words when commenting on items at the global level when using audio commentary than when commenting on items at the global level using written commentary. Only Teacher 1 (T1) provided more words in written than in audio, with a mean of 211 for written and a mean of 208.5 for audio. At the middle, micro, and *other* levels, all teachers provided more words for audio than for written. For *other* comments, the differences were the most pronounced of all four types of comments. For example, T3 gave an average of 2.5 words when giving *other* comments in written form, while he gave an average of 44.9 words when giving "other" comments in audio form. For T4, the ratio between written and audio was 3.2 to 94.5.

In all three out of the four categories (global, middle, and *other*), T1 represented the least difference between the number of words for audio and the number of words for written. This is

one example of the interaction effect that this study revealed. The difference in the mean number of words from audio to written is influenced by the teacher, and that influence by teacher is statistically significant.

The findings on the number of words used corroborate with those of other studies. Dagen, Mader, Rinehart, and Ice (2008) in their study found that the word count "was double, triple, or greater when comparing the means between audio and text-based feedback" (p. 161), with statistically significant differences. Ice, Curtis, Phillips, and Wells (2007) found that written feedback produced a mean word count of 129.75 words, while audio feedback produced a mean word count of 331.39 words. Huang (2000) found that the average number of words per minute using a combination of written and audio comments was 61.4, while the average number of words per minute using only written comments was 6.5. Huang also found that the feedback using the audio-taped method came to an average of 2335 words per essay, while the feedback using written comments came to 24 words per essay. Kirschner, van den Brink, and Meester (1991) found that the average number of words given through feedback by audiotape was 502, while the average number of words given through feedback in text form was 280. However, they noted that the "combined average for audiotape feedback was not significantly greater than that for written feedback…due to the large difference in the length of the feedback between instructors (causing a very large variance and thus depressing the value of *t*)" (p. 192). Thus, they also found, as this study found, that instructor style, in addition to the media the instructor uses, affects the number of words in comments.

This study adds to the literature in that no study that has examined word count has used the classification scheme used in this study: *global-level*, *middle-level*, *micro-level*, and *other* comments. Thus, the current study provides a quantitative analysis of audio and written

comments in these four categories, an analysis that is not available in previous studies. In addition, no study except the one by Ice et al. (2007) examined word count for more than two instructors. However, Ice et al. (2007) did not study commentary to student writing assignments. Rather, they analyzed commentary to students in discussion boards, email messages, and small groups in the online classroom. Their study represented an analysis of the use of audio for a very different purpose from the purpose of commenting on student papers and asking students to revise the papers based on the comments. Thus, the current study also adds to the literature in gathering student data from commentary from nine different instructors and in providing an analysis of the commenting patterns across five different instructors, all of whom assigned the same writing assignments, and all of whom required revisions to the assignments, in order to examine the audio and written commentary patterns across instructors. Conducting a study on a cross-section of five instructors provides a more comprehensive view of how different instructors' commenting patterns change when they provide written comments in comparison to when they provide audio comments. The detailed analysis of five instructors' commenting patterns on drafts of writing assignments affords a broader view of instructor styles in commenting in both media.

Furthermore, related to this characteristic, no other studies have statistically examined for interaction effects among teachers. Huang studied her own use of written and audio comments. Others have examined the commenting patterns of other instructors. However, interaction effects were not examined in the findings. This study adds to the literature in that it analyzes five different instructors' comments in both audio and written form in demonstrating that a significant interaction effect is present. There was a statistically significant interaction effect between both media, or whether audio or written comments were provided, and which teacher

provided them. Whether a certain teacher used more words in audio form than in written form was influenced by the media the teacher used. In addition, whether audio form resulted in more words than written form was influenced by which teacher was giving the comments. For these reasons, the current study corroborates with previous studies on audio and written commentary while adding to the body of literature on the topic. Interaction effects represent a significant finding, as they point out that when an instructor provides audio comments, his or her commenting patterns will not feature a predictable change from the comments he or she might demonstrate when he or she provides written comments. The presence of an interaction effect means that instructor style will affect commenting patterns as well as medium used. The significance of this finding is discussed in more detail below.

**Number of items commented on.** This study showed that there is a significant teacher effect on the number of items commented on when teachers use audio comments and written comments. Instructor preference influences the number of items commented on more than it influences the number of words used when commenting.

At the global level, overall, the data show a significantly higher number of items commented on in audio form than in written form. However, the data for the number of items commented on were mixed. Three instructors commented on more global-level items in audio form than they did in written form, while two instructors commented on more global-level items in written form than they did in audio form. Likewise, at the middle level, overall, the data showed a significantly higher number of items commented on in audio form than in written form. However, not all five instructors commented on more items at the middle level with audio than they did with written commentary. Four instructors commented on more middle-level items in audio form than they did in written form, while one instructor commented on more middle-level

items in written form than she did in audio form. However, at the micro level, the data showed a significantly higher number of items commented on in written form than in audio form. Nonetheless, not all five instructors commented on more items at the micro level with written than they did with audio commentary. Three instructors commented on more micro-level items in written form than they did in audio form, while two instructors commented on more micro-level items in audio form than she did in written form.

The findings differ somewhat from those in other studies, partially because this study examined the commenting patterns of five instructors, while most of the previous studies examined the commenting patterns of two instructors or one instructor. Again, examining the patterns of five instructors allows for a broader view of how instructor commenting patterns might change from instructor to instructor and provides the opportunity to observe possible interaction effects across instructors. In addition, as mentioned earlier, a novice effect may have taken place, with instructors exhibiting different commenting patterns because of different levels of experience with providing audio comments.

While this study found that the number of items commented on at the micro level was significantly different between audio and written modalities, Dagen et al., on the other hand, found that the differences were not statistically significant. They found that the mean instances of feedback per paper for *mechanics, grammar, and style* was 7.05 for written comments and 6.42 for audio comments, findings that regression analysis showed were not statistically significantly different. With audio commentary, students received 30.7 percent more instances of feedback on *Assignment Content/Subject Matter*. With written commentary, students received 48.2 percent more instances of feedback on *Clarity and Flow of Writing*. However, Dagen et al. did not compare the means between the two instructors in their study, as they felt that the "data

analysis using aggregate data would be more informative than if we were to compare means that would lack adequate statistical power" (p. 159). Merry and Orsmond (2008), in a study of 15 students and two tutors using audio and written feedback in a face-to-face human biology course, found that audio feedback resulted in 395 comments while written feedback resulted in 359 comments. However, the differences between the number of comments for audio and for written were not inferentially statistically analyzed for significance in their study.

However, the interaction effect is not revealed in previous studies cited in the literature (Dagen, Mader, Rinehart, & Ice, 2008; Ice, Curtis, Phillips, & Wells, 2007; Huang, 2000; Kirschner, van den Brink, & Meester, 1991). As noted earlier, previous studies have not analyzed this number of instructors, asked them to assign the same two assignments, and analyzed the number of items they comment on when they used with both media. This study, in focusing on the comments from five different instructors, three of whom gave audio comments to the first writing assignment and written comments to the second writing assignment and two of whom gave written comments to the first writing assignment and audio comments to the second writing assignment, found that whether an instructor comments on more items at the global level, at the middle level, and at the micro level depends on the instructor preference and style. This finding, which is discussed in more detail below, means that instructor commenting patterns will not be predictable when switching from written to audio comments.

In addition, the test of order effects showed that there was a statistically significant effect between giving audio comments first and written comments second over giving written comments first and audio comments second for the micro and *other* levels. The reason for the significance in order effects at these levels seems to be that the instructors who provided audio comments first (T1, T3, and T4 ) had no overlap in the confidence intervals for the micro and

*other* levels, while one of the instructors who provided written comments first (T5) did demonstrate overlap in her micro-level commentary. Moreover, both instructors who provided written comments first (T2 and T5) demonstrated less overlap in their confidence intervals at the *other* level than did T1, T3, and T4. T5 specifically noted in her interview that she found that students had more challenges at the global level for writing assignment #2 than they did for writing assignment #1. For this reason, she commented less on micro-level issues for writing assignment #2 than she had for writing assignment #1. She found that students needed global-level feedback at the first-draft stage more for writing assignment #2 than they had for writing assignment #1.

**Significance of the Findings.** The findings for this research question show that the use of audio comments among instructors results in more words given in feedback. This finding implies that the provision of audio comments seems to result in more feedback for students. Consistent with the findings in the literature, this study shows that instructors tend to use more words to explain the problems in the paper that they are commenting on and tend to provide more examples or suggestions for revisions when they give audio comments than they do when they provide written comments. The findings of this study corroborate with those of previous studies in this regard (Anson, 1997; Dagen et al., 2008; Huang, 2000; Johansen,1999; Kirschner, van den Brink, and Meester, 1991; LaFontana, 1996; Merry and Orsmond, 2007; Pearce and Ackley, 1995; Sommers, 2002; Still, 2006).

However, the use of audio feedback does not mean that more items will be commented on. At the global level and middle levels, instructors tended to comment on more items when using audio commentary than when using written commentary. Nonetheless, at the micro level, instructors tended to comment on more items when using written commentary than when using

audio commentary. Thus, the study shows that word count is consistently higher across all instructors when audio commentary is provided, but number of items commented on is not consistently higher across all instructors when audio commentary is provided. This finding is significant in that it demonstrates more clearly the interaction effect among instructors. While the word count increased across the board for all instructors, the items commented on did not. One cannot assume that an instructor providing audio comments will comment on, for example, more run-on sentences than the same instructor providing written comments. It is possible that the instructor will comment on *fewer* run-on sentences when providing audio comments than when providing written comments. Overall, increased word count may reflect more feedback given overall, but it may not mean more feedback given to all areas of a student's paper.

Moreover, the fact that four out of five instructors commented on more items at the micro level when using written commentary may explain why students did not indicate a statistically strong preference for audio commentary at the micro level. Instructors showed less of a tendency to comment on micro-level items when providing audio comments than they did when providing written comments. The study demonstrates that instructors may gravitate to commenting on more micro-level items when providing written comments than they do when providing audio comments. This pattern presents a scenario for future research, as discussed below.

Finally, the fact that the number of words was very consistent across all five instructors for *other* comments helps explain why students found audio comments more personable and made them feel the instructor appreciated their papers more clearly than when they received written comments. *Other* comments refer to comments such as greeting the student at the beginning of the comment file, introducing the comments to the student, asking the student to

make sure the paper is opened up while listening to the comments, and letting the student know that he or she can contact the instructor if they have any questions. Such comments would tend to deliver a more personal tone to a student than written comments, which tended to feature significantly fewer words in comments on *other* items. Therefore, the number of words given for other comments helps explain student preferences for audio commentary in some areas.

Overall, this study confirms what previous studies have shown in that audio commentary results in significantly more words and more feedback (Dagen et al., 2008; Huang, 2000; Johansen,1999; Kirschner, van den Brink, and Meester, 1991; LaFontana, 1996; Merry and Orsmond, 2007; Pearce and Ackley, 1995; Sommers, 2002). However, the study shows that the number of items commented on varied from instructor to instructor and from medium to medium. Moreover, the findings show that micro-level comments are fewer in audio form while *other* comments are more frequent in audio form.

**Implications for Administration and Training.** The findings for this research question have implications for administrative and teacher training applications. In administrative matters, an administrator who is seeking to increase the volume of feedback his or her instructors give on student writing assignments cannot simply ask that the instructors provide audio comments and rest assured that the number of words provided in commentary will increase by a certain percentage. Some instructors will demonstrate a tremendous increase in the number of words they provide, while other instructors will show a modest increase, perhaps even an insignificant increase. In addition, a director who seeks to integrate the use of audio among instructors may find that some instructors who use audio for commenting on papers actually comment on some items less frequently than they do when they use written commentary on papers. Administrators

should understand teacher effects and media effects when initiating change in the use of media in their programs for feedback to students.

In teacher training applications, the findings are significant for understanding instructor preference and style and their impact on commenting patterns. This study shows that, while instructors have a tendency to provide more feedback in audio form, the differences in the number of words used with audio commentary and with written commentary vary from instructor to instructor. In addition, if more instructors use audio feedback, this effort will result in some instructors demonstrating an increase in the number of items commented on, more likely at the global and middle levels. However, this result is not predictable. Some instructors will comment on more items at each level using written commentary than with audio commentary. In addition, some instructors will comment on more items at the micro level in audio form than they will in written form. This study shows that, while instructors have a tendency to provide more feedback in audio form, the differences in the words used with audio commentary and with written commentary vary from instructor to instructor. Moreover, the differences in the number of items commented on for different writing problems in the paper are not predictable between audio commentary and written commentary. The differences in the number of items commented on will vary from instructor to instructor for both modalities.

Overall, it is possible that a writing program embarking upon an effort to use audio comments more systematically among its instructors would best be served by analyzing commenting patterns of the various instructors on student writing in its classes. Such patterns might help the program determine which teachers might benefit from the use of audio comments more than others. This study shows that not all instructors will exhibit the same patterns across both media.

**Implications for Further Research.** Additional research is needed on why instructors tend to comment on fewer micro-level issues when providing audio comments than they do when providing written comments. In this study, four out of five instructors commented on fewer items at the micro level using audio commentary than they did at the micro level using written commentary. Additional research might reveal more data on commenting patterns across instructors when they comment on micro-level concerns in a student's paper in relation to the medium they use. This additional data can inform practices on how to train instructors on the best use of audio for micro-level concerns in a student's paper.

**Discussion of Findings for Research Question #2**

Research question #2 is the following: What are teachers' perceptions of the scalability of providing written compared to audio comments? The focus of this research question was to examine whether instructors would find audio comments to represent a scalable option when commenting on student papers.

The current study helps fill a gap in the literature in that the study asked instructors about the time they spent commenting on student drafts in both written and audio form and about the time they spent uploading the files in both written and audio form. The focus of this particular research question was to determine whether faculty members found providing audio comments to all students in their class to be a scalable option, one that would be transferable to teaching outside of the study and to other instructors.

The findings show that providing audio comments is a scalable option for instructors. It is a practice that can be applied to a class of students. The results show that, for some instructors, the use of audio comments will result in time savings over the use of written comments. For others, the use of audio comments will result in a slightly higher time

investment. In some cases, the use of audio comments will become less and less of a time investment the more the instructor uses them.

All five instructors found that audio did not take a significantly longer period of time to either produce or upload. In fact, only two instructors (T1 and T2) reported that they took 31-45 minutes to produce their comments, and this amount of time for these two instructors was attributed to written comments, not audio comments. Two instructors (T4 and T5) reported that written comments took them less time (0-15 minutes) than audio comments (16-30 minutes). Two instructors (T1 and T2) reported that audio comments took less time (16-30 minutes) than written comments (31-45 minutes). One instructor (T3) reported that audio comments and written comments took the same amount of time (16-30 minutes). One instructor, T4, reported that some audio files took 0-15 minutes while some audio files took 16-30 minutes, meaning that audio commenting took less time for some students than written commenting and took the same amount of time for some students as written commenting.

Previous studies on the time and scalability of providing audio comments show mixed results. The results of this study corroborate with findings of some previous studies, while this study adds to the literature in manifold ways.

The previous studies in the literature show that audio comments often take less time (Anson, 1997; Ice et al., 2007; Kirschner, van den Brink, and Meester, 1991; LaFontana, 1996; Oomen-Early et al., 2008; Pearce & Ackley, 1995; Sommers, 2002; Still, 2006; Wood et al., 2011). However, the literature does not include any studies that analyzed how long digital .mp3 files took to upload to a class. Many of the previous studies that have analyzed the time it takes to comment in audio form versus in written form have been conducted with the use of cassette tapes (Huang, 2000; Kirscher, van den Brink, and Meester, 1991; Mellen & Sommers, Pearce &

Ackley, 1995). Moreover, some studies that have examined the use of digital audio have been conducted in face-to-face classes, where an instructor may be able to take advantage of the university's broadband speed in uploading comments. When instructors teach for an institution that provides primarily online classes, the instructors work from home in most cases. Therefore, we cannot assume that the broadband speed typical of a university or college is available or used by such instructors teaching for online institutions. For this reason, it is important to examine uploading time among online instructors so that we can evaluate whether the production and delivery of audio comments is scalable for instructors teaching online. Thus, this study was designed to fill a gap in the literature in this regard. In this study, all five instructors interviewed were posting their comments from their places of residence.

However, the literature on how long instructors take to provide audio comments in comparison to written comments is mixed. Kirschner, van den Brink, and Meester (1991) found no significant difference between the average amount of time used to prepare feedback in audio form and in written form. Huang noted that it took her 31.7 minutes on average per paper in producing written feedback while it took her 38.4 minutes on average per paper in producing combined written and audio feedback. Sommers (1989), in his analysis of his own commenting patterns to five drafts of one student's work, wrote that it took him on average 16 minutes per draft, while he referred to Nancy Sommers' analysis that written comments take between 20 and 40 minutes per paper. All of the studies noted above involved the use of cassette tapes. Therefore, time spent producing a digital audio file was not analyzed.

In studies that examined the time it took to record and produce digital audio files, the results are somewhat mixed as well. Ice et al. (2007) showed that the mean time for instructors to provide feedback in audio form was 13.42 minutes, while the mean time for text-based

feedback was 3.81 minutes. However, Oomen-Early et al. (2008) found that instructors felt that the use of audio "slightly reduced the time it took to provide commentary, most likely because both audio and text were used rather than just one or the other" (p. 273). Merry and Orsmond (2008) reported that tutors in their study "found that providing audio feedback did not save time, [but] they felt it might with more practice" ("Tutor Comments," para. 1). Similarly, Wood et al. (2011) found that, in the beginning of their study, mean time for providing audio feedback was 55 minutes per paper. However, they noted that the faculty member in this situation read the whole paper first, took notes on it, and then recorded the commentary. As the semester progressed, the time investment in providing audio commentary decreased, partly because student writing became stronger and partly because the instructor began reading the paper online while recording comments. "These efficiencies reduced the mean time-per-paper from 55 to 18 minutes, which in one author's… experience, was less than for written feedback" (p. 542). In McCullagh's (2010) study, instructors combined audio and written feedback, using written feedback mainly for grammar and spelling errors. They found that the "dual 'audio plus written' approach was not necessarily time saving" (p. 4). Brearley and Cullen (2013) found that instructors took approximately 13 minutes to produce audio recordings. Their study, however, did not involve a comparison to the production of written feedback. Thus, studies apparently show that in some cases digital audio feedback takes three to four times the amount of time that written feedback takes, while other studies report some time savings through the use of audio files. Some of the studies mentioned above involved a combination of written and audio comments, and one study involved the analysis of only audio files, not a comparison of both audio and written files ((Huang, 2000; Kirscher, van den Brink, and Meester, 1991; Mellen & Sommers, Pearce & Ackley, 1995). Thus, the findings of previous studies are limited in

comparability to the findings of this study. Overall, the current study demonstrates that, across the five instructors, providing audio comments was a scalable option in comparison to providing written comments.

**Significance of the Findings.** The findings for this research question show that providing audio comments involves a time investment comparable to that of providing written comments. In addition, in juxtaposing these findings with those of research question #1 that audio comments result in more words of feedback, the results of this research question imply that audio commenting may be more efficient than written commentary is. When instructors provide audio commentary, they use approximately the same amount of time per student, with some variation from instructor to instructor, while they provide more words per student in their comments consistently from instructor to instructor. Thus, the findings show that audio commentary presents a promising medium for improving efficiency among instructors when posting commentary to student writing. The data showed that instructors provided more words per file of comment in audio form than in written form with roughly the same amount of time invested.

In addition, the findings indicate that the emergence of broadband internet access the general population has resulted in the ability for instructors to upload audio files with a comparable time investment to that of uploading written files. Thus, the use of audio feedback does not represent a significant time investment over the use of written feedback either in the production or in the uploading of the individual files to students.

**Implications for Further Administrative Practice.** The findings for this research question have implications administratively and pedagogically. In administrative matters, an administrator who is seeking to ask that his or her instructors use more audio feedback to student

writing can demonstrate that such efforts will not necessarily involve more time investment on the part of the faculty member in commenting on student writing. Moreover, an administrator at an institution that teaches mostly online can note that the production and uploading of audio files from one's home will not present a significant increase in time investment. In pedagogical matters, instructors who hesitate to incorporate audio feedback into their classes because of concerns that the time investment will take time away from other elements of their teaching can note that the findings do not bear these fears out. In fact, audio commentary has the potential of saving time, especially in an online class in which typing of text represents the bulk of communication.

The purpose of this research question was to examine whether audio comments, whether effective or not pedagogically, are scalable for a whole class of students when teaching a composition class online. The results indicate that they are scalable and that the time investment is comparable to that of providing written comments on student papers.

**Discussion of Findings for Research Question #3**

Research question #3 is the following: What are students' perceptions of the ability to understand teachers' meaning in written comments compared to audio comments?

The results of this study showed that students indicated a preference for audio for the global and middle levels. However, at the micro level, their preferences were not clear. The quantitative analysis at the micro level showed that they rated audio comments higher than written comments for all three areas that represented the micro level. However, the differences were not statistically significant for two out of the three micro-level areas. In addition, the qualitative analysis provided evidence for why student preferences at the micro level were not as clear.

At the global and middle levels, students, as seen in both the qualitative analysis of their interviews and the quantitative analysis of their answers to the surveys, showed a preference for audio feedback over written feedback. Students mentioned the comprehensibility, the thoroughness, the tone, and the level of appreciation shown by the instructor through audio commentary. At the micro level, however, students did not show, in either the qualitative or quantitative analysis, a preference for either audio or written commentary. While the surveys showed that most students preferred audio for micro-level feedback, that preference was not statistically significant. For only one out of the three areas in the micro-level classification, students' preference for audio over written was statistically significant. In their interviews, some students noted the clarity of audio comments for errors such as run-on sentences, while others noted the navigability of audio comments as presenting a challenge when compared to written comments. Overall, the pattern shown in this study was that students generally preferred audio comments to written comments for global- and middle-level issues, while they did not indicate a strong preference for either medium for micro-level issues. The findings corroborate somewhat with previous studies (Brearley & Cullen, 2013; Ice et al., 2010; Wood, 2011). However, this study adds to the findings in the literature in several ways.

Previous studies in the literature also show that written comments can be more difficult to understand than audio comments. However, the literature is often mixed in this case. This study adds to the literature in that it classifies comments into three categories (global, middle, and micro) when asking students about their experiences in understanding both media, it analyzes only standalone written commentary and standalone audio commentary (not a combination of both), and it asks students about their ability to comprehend their instructors' comments after having been required to revise the paper. This study shows that comprehensibility is enhanced

through audio feedback at the global and middle levels and may or may not be enhanced at the micro level. The micro level is one that warrants further research.

Studies on the use of audio cassettes show that students understand the instructors' comments more effectively from audio comments than they do from written comments (Huang, 2000; Kirschner, 1991; Pearce & Ackley, 1995). Studies on the use of digital audio feedback also indicate that students understand their instructors' audio comments more effectively from audio feedback than they do from written feedback. One study that is most similar to this one is a study conducted by Ice et al. (2010). It reflects a close similarity in that it asked students about the global, middle, and micro levels, as this study does. However, one difference is that the authors surveyed students on their experiences with standalone written commentary, standalone audio commentary, and a combination of written commentary and audio commentary. They found that audio comments on global-level issues were clearer to students than written comments, while written comments were clearer for students on middle-level issues and to an even greater degree on micro-level issues. Their results showed that, overall, a combination of audio and written feedback was preferred over stand-alone audio or stand-alone written feedback, while stand-alone written feedback was preferred over stand-alone audio feedback. However, it is not clear in Ice et al.'s study that students were given comments on drafts of writing assignments and asked to revise the drafts. The study indicates that the commentary was given to graded drafts. For this reason, students did not have the experience of revising their papers in response to the comments on their papers. Thus, Ice et al.'s findings cannot be entirely corroborated with the results of this study.

Other studies have found positive results from the use of digital audio. Ice et al. (2007) found that students understood the nuance of the instructor's comments more effectively through

audio more than through written commentary. Wood et al. showed that, of the 30 students who completed the survey in their study, 70 percent of them preferred audio feedback to written feedback. McCallagh (2010) noted "a high occurrence of elaboration and exemplification in the audio mode" as opposed to brief feedback that characterized written feedback (p. 3). However, in none of the three studies mentioned above were distinctions were made among any different classifications of feedback. In other words, the commentary was not divided into any categories for further analysis. Merry and Osmond (2008) found that, of the 15 students in their study, 13 indicated the desire to receive more audio feedback. Interviews showed that they found the feedback in audio form to be more in depth and that it helped them understand "parts of the feedback as being more important than others" ("Interview Data," para. 4). The authors classified the feedback content into 10 categories, ones that represented a very different scheme than the classification scheme this study applied.

Overall, only one previous study, one by Ice et al. (2010), examined comments at the global, middle, and micro levels. The results of that study corroborate with those of this study in some ways. However, their study, because it analyzed stand-alone written commentary, stand-alone audio commentary, and a combination of written and audio commentary, represents a slightly different model and approach than this one features. In addition, Ice et al.'s study did not feature commentary on drafts and ask for revisions from students. Moreover, the authors surveyed students and statistically analyzed the survey results, but they did not interview students for follow-up data beyond the data gathered from student surveys.

On the issue of navigability, the current study's findings corroborate with those of Brearley and Cullen (2013), Olesova et al. (2011), and Wood et al. (2011), all of whom found that some students had difficulties navigating the audio comments to the section of the paper to

which the comment was directing the student. Brearley and Cullen noted that students found challenges "mapping comments in their audio feedback to specific sections of their work" (p. 30). Students in their study noted that even when audio commentary was quite detailed, it was sometimes difficult to determine which paragraph or section the comment referred to. The authors concluded that this difficulty led some students to remark that they, even when they felt that audio feedback should be provided by all lecturers, wanted written feedback in combination with audio feedback.

Overall, the current study helps to fill a gap in the literature by examining students' comprehension of global, middle, and micro levels of feedback in a fully online course that involves revision of the papers. This study features students' survey data from nine different instructors' classes and ten interviews with students from five of the classes. Overall, it adds to the literature in quantity of student data gathered and in the classification scheme of commentary about which the data were gathered.

**Significance of the Findings.** The findings for this research question are significant for pedagogical and teacher training reasons. First, students clearly indicate a preference for audio comments at the global and middle levels. Instructors in online writing classes may consider the value of enhancing their feedback methods by providing audio commentary for writing concerns at these levels. Moreover, for the micro level, this study shows that the style with which the instructor provides audio feedback at the micro level may influence whether students prefer audio commentary at the micro level. If an instructor is not clear as to what paragraph or what sentence an audio comment is referring to, this lack of clarity will affect student comprehension of the audio comment. If an instructor is providing audio feedback on a paper, the instructor must make sure that the student is clear what page of the paper he or she is commenting on, what

paragraph, and, if appropriate, what sentence. Techniques and strategies in helping students navigate audio comments, especially for micro-level concerns, may affect how students perceive and benefit from audio comments. In addition, the method through which an instructor comments in audio form influences student comprehensibility. For example, if an instructor reads a problematic sentence or word form error out loud to a student, the student may find that the meaning of the comment is clearer. However, if the instructor simply mentions, in audio form, the run-on sentence or word form error, the use of audio may not represent an advantage at all over written commentary. Overall, this study shows that the use of audio comments at the micro level may require teacher training and teacher preparation. As noted earlier, a novice effect may have influenced the findings, with some teachers more experienced than others at providing audio commentary.

Moreover, the findings show that a combination of audio and written commentary may represent the best pedagogical practice for some students. In addition, if an instructor combines audio and written commentary, audio should perhaps be used more for global- and middle-level concerns and written should be considered more for micro-level concerns. However, this consideration is one that warrants further research, as the use of audio for micro-level concerns was preferred by some students in the study.

**Implications for Further Research and Practice.** Cognitive load theory and the split-attention effect may be important in the findings presented for research question #3. As noted in chapter 1, Mousavi et al. (1995) pointed out that working memory involves separate channels for auditory and visual information and that the capacity of working memory may increase if the learner uses multiple channels. In this study, when students received audio comments from their instructors, the students would have been using dual channels to comprehend the information. If

audio comments were more comprehensible at the global and middle levels, it is possible that students were looking at their text and listening to the instructor's audio comments, thus enhancing their capacity for working memory when taking in the comments. Further research would be needed on this possible phenomenon. In addition, audio comments were not found to be more comprehensible at the micro level, partly because of the challenging nature of navigating audio comments with the paper at this level. It is possible that cognitive load became too challenging for students at times as they had to look at their text, determine which point the instructor was referring to, and listen to the audio comment itself. In other words, audio may enhance comprehensibility at the global and middle levels because of the increased capacity for working memory that audio allows. However, audio may challenge comprehensibility at the micro level because of the increased burden it may place on working memory. Additional research would be needed on this area. The findings of research question #3 confirm the comprehensibility of audio comments for global- and middle-level issues but lead to more questions about the clarity of audio comments for micro-level concerns.

In addition, in future studies, the two writing assignments could feature a more balanced approach in genre of writing. This study featured a narration essay and a comparison-contrast essay. If two essays in two different modes are used in future studies, perhaps a comparison-contrast essay and a cause-effect essay might be more appropriate essays to use to compare the use of audio and written commentary on student writing. Designing the study with a narration essay and a comparison-contrast essay may have caused the nature of the writing assignments to influence the results, both with regard to student preferences and with regard to instructor commenting patterns.

Furthermore, another implication for further research is the use of various media and graphic aids in communicating writing problems to students in drafts of assignments. This study investigated audio and written comments. However, in addition to audio and written media, research could be conducted among several instructors on video feedback through screen capture software as well as graphic feedback through the drawing of symbols, lines, and illustrations. With tablet computer technology and its allowance for the ability to draw on a document, research on such feedback modes would add to the scholarly literature on this subject.

**Discussion of Findings for Research Question #4**

Research question #4 is the following: What are teachers' perceptions of how written comments help students improve their writing compared to how audio comments help students improve their writing?

The current study attempts to fill a gap in the literature by not only providing students with audio feedback on one assignment and written feedback on another assignment but also by requiring that they revise the assignment after receiving the feedback and asking the instructor to post a feedback template that surveys the various areas of improvement in the global, middle, and micro levels.

For the global level, the data from the feedback templates were not conclusive. For example, for papers on which audio comments had been given for the first draft, seven comments were made to students noting that thesis statements were strong, while nine comments were made on papers on which written comments had been given noting that the thesis statements were strong. There was not a clear indication that one medium of commenting resulted in students' being able to write more effective thesis statements over another.

For the middle level, the data from the feedback templates were not conclusive. Of the themes that emerged from the templates, one, *coherence and organization*, featured more positive comments written on papers to which written comments had been given. However, the other theme that emerged, *support and development*, featured almost the identical number of comments on areas that showed improvement and areas that needed improvement for audio and written commentary.

For the micro level, the data from the feedback templates were not conclusive. The themes that emerged from the feedback templates did not render one medium as more effective than the other in producing improved student writing. It is interesting to note that, for the theme of *sentence level*, papers to which audio comments had been given had five comments showing areas of improvement while papers to which written comments had been given had one comment showing areas of improvement. However, templates for audio comments showed five areas that needed improvement for *sentence level*, while templates for written comments showed six areas that needed improvement for *sentence level*. Therefore, it was not clear that one medium, either audio or written, resulted in students' improving their sentence level skills more significantly over the other.

As noted in the literature review, relatively few studies that have examined the use of audio or written comments have asked students to revise their papers after having received the comments. Brearley and Cullen (2013) compared the level of improvement in student grades for students who posted drafts of their papers and received audio comments to students who did not post drafts of their papers but merely posted final drafts. They found that grades were significantly improved among the students who had posted first drafts, received audio comments, and then posted revisions. Pearce and Ackley noted that "Grades earned by our business writing

students rose .22 points…from 2.78 before 1990 when we provided only written feedback to 3.00 during the study [in which we provided audio feedback]" (p. 33). However, they note that instructor bias was not controlled for. Sweeney (1999) noted that students receiving oral commentary on their compositions through an inductive method of feedback received their highest scores on their revised essays, while the same students who received written feedback with an inductive approach on the subsequent paper received lower scores on their revised essays. Hurst (1975) maintained that "it is my firm opinion that students write better reports much more quickly using cassettes than without them" (p. 430). However, no study was conducted in her analysis. Kirschner et al., differing from the previous studies mentioned above, found no statistically significant difference in grades from students who had received audio feedback and students who had received written feedback. Overall, previous studies have tended to examine grades given to students, a useful analysis but one that can be influenced by teacher grading patterns.

This study attempted to analyze, from instructors' comments on a feedback template, whether any patterns would emerge showing one medium more effective than another at the three levels, global, middle, and micro. It did not examine students' grades. Rather, it examined teacher comments on final drafts. However, in using this method of analysis, no such patterns emerged. The results of this research question are not conclusive. In looking at the feedback on the templates, neither written commentary nor audio commentary showed a clear advantage in helping students produce more effective final drafts.

**Significance of the Findings and Implications for Further Research.** The findings for this research question show a need for further research. What is needed is an analysis of a collection of students' first drafts, commentary given to first drafts to some students in audio

form and to other students in written form, and an analysis of the students' second drafts. This type of an analysis will render possibly clearer data. In this study, we attempted to analyze teacher comments to students on their second drafts rather than actual student writing from first to second draft. Examining student writing might yield a more complete picture of whether students improved more in their writing from first to second draft from one medium of commentary over another.

**Discussion of Findings for Research Question #5**

Research question #5 is the following: What are students' perceptions of how written comments help them improve their writing compared to how audio comments help them improve their writing?

The current study helps to fill a gap in the literature in that it attempts to determine if students, as a result of having received audio feedback on one assignment and written feedback on another assignment and having been asked to revise both assignments, found that one medium helped them improve their writing over the other. The results for this study showed that students, in their answers to their surveys, did not indicate to a statistically significant level that audio comments helped them improve their writing more than written comments did. Students did rate audio comments higher than written comments in providing them the ability to improve their writing. However, they did not rate audio comments higher than written comments at a statistically significant level.

In juxtaposing the results of this research question with those of research question #3, it seems that students felt that they were able to understand their instructors' comments more effectively through audio feedback than through written feedback. However, they did not feel that they were then, in turn, able to improve the draft of the paper more effectively in response to

audio feedback than they were through written feedback. It is possible that they felt they understood the instructor's meaning but did not have the confidence in applying the feedback to improve the writing at a level they deemed significant.

In addition, in examining the results of this research question in light of those of research question #1, it seems that instructor commenting styles may influence students' ability to improve their writing as much as the medium being used to comment on the paper. In other words, some instructors use more words than other instructors use in audio form, may be more precise with the location and navigability of their comments than other instructors are in audio form, and may be more thorough in pointing out problems in the paper than other instructors are in audio form. Likewise, some instructors demonstrate different commenting styles when providing written comments, with some providing more narrative feedback at the beginning or end of the paper, some providing more in-text commentary throughout the paper, and some using prewritten commentary and pasting it into the paper. Thus, the lack of statistical significance for the preference for audio comments in helping students improve their writing may be a result of instructor patterns in commenting as much as it is a result of the effects of both media. This is an area ripe for further research, as is noted in more detail below.

However, a possible finding that emerged from the interviews with four students and with one instructor was the effect of audio in establishing a clearer understanding of the class and of the instructor's style and expectations. In their interviews, four students noted that they often felt that the feedback on the first draft of the first essay helped them understand the second essay better. Thus, the feedback on the first essay informed their understanding of the teacher's expectations for the second essay. In all four cases, the students had received audio comments on the first draft of the first essay. Moreover, one instructor said in her interview that she felt

that providing audio comments to the first draft of the first paper helped students get to know her, “feel more connected,” and “establish a bond” with her. Thus, it is possible that audio commentary at the beginning of the semester on the first paper in an online class provides a sense of engagement beyond simply commenting on the first paper. The students and instructor mentioned here noted dynamics that are worth pursuing in further studies.

As noted above, the literature does not feature many studies that systematically examine students’ revisions of their drafts in response to audio comments and in response to written comments. Several studies have, however, analyzed whether audio feedback helps students improve their writing more than written feedback does. Syncox (2003) conducted a study of English as a Second Language (ESL) learners in a face-to-face class in which students wrote a first draft of a paper, received audio-taped feedback and written feedback on the first draft, and wrote a second draft of the same paper. Syncox analyzed the changes students made in response to the audio feedback, concluding that students “made the majority of changes to first drafts because of audio-taped feedback” (p. 68). However, he did not analyze whether the changes resulted in improved papers. Syncox instead analyzed whether changes were made in response to the audio-taped feedback. He concluded that audio commenting improved writing because audio commenting causes changes in student drafts and multiple drafts improves writing. His analysis was that, if revisions of drafts improve writing, students should be given a form of commentary that motivates them to revise drafts. His finding that audio commentary motivates students to revise drafts led him to conclude that audio commentary, therefore, improves writing.

Sommers (1989) conducted an analysis of his feedback to one student’s work throughout several drafts. He concluded, “…the instructor comments that Faye received were sufficiently clear, thorough, specific, non-threatening, and encouraging to assist a highly-motivated, effective

writer to develop a series of drafts of her paper until she reached a satisfying final polished version" (p. 71). It should be noted, however, that Sommers did not compare her experience to that of a student who had received just written commentary on drafts of papers. Therefore, his analysis was not a comparison of audio to written commentary.

Sipple (2007) found that developmental writers in a face-to-face class who received audio commentary and handwritten commentary reported that audio commentary "made them work harder at revisions" (p. 24). Students also reported that they were able to "internalize and remember the instructor's advice as they worked on subsequent essays" and that the audio comments featured more detail that "allowed them to revise more fully than they could (or did) on papers on which they received handwritten commentary" (p. 26). Thus, students in Sipple's study reported that audio comments helped them improve their writing from first to second draft more than handwritten commentary did.

Brearley and Cullen (2013) found that the mean final grade on papers for students who had submitted a draft and had received audio comments was significantly higher than the mean final grade on papers for students who did not submit a draft and, therefore, did not receive audio comments. However, their study did not compare audio to written commentary, but rather compared audio commentary to no commentary.

Many studies on the use of audio feedback have been conducted in courses that were not writing courses specifically but, rather, were courses that involved some writing, either in assignments or in online discussions, to help students understand content. Ice et al. (2007) found that the number of strategies that students used and the level of thinking and problem-solving skills used in writing their final projects were significantly higher after students had received audio comments to assignments that were completed prior to the project. In other words, the

researchers did not provide audio feedback on a draft of the project, but they provided audio feedback on assignments leading up to the project. Their conclusion was that "students were fare more likely to apply higher order thinking and problem solving skills…to content for which they had received audio feedback (pp. 17-18). Therefore, the results of this study do not necessarily corroborate with those of other studies. This study shows that students, in their responses to their surveys, did not find audio commentary to help them improve their writing more than written commentary did to a significant degree of difference.

**Implications for Further Research.** The findings show that more research is needed in assessing whether audio commentary helps students improve their writing more than written commentary does. Future studies could examine student papers in their first drafts, the commentary given on the first drafts, and student revisions to the first drafts. A systematic analysis could be conducted on the changes made in the second drafts. In this study, students were asked to rate one form of commentary and the other form of commentary. While audio received higher ratings, the difference was not statistically significant. Thus it is not clear whether audio commentary motivates students more because of its personal touch, as some studies have shown, whether it causes students to correct problems more effectively because of its clarity in explain the problems, as some studies have shown, or whether it actually presents additional challenges to students because of the need to follow along with the audio commentary while looking over the paper, as this study and the study by Brearley and Cullen (2013) have indicated. Overall, more research is needed on precisely how audio and written commentary move students to revise and if one medium motivates revision more effectively for reasons related to clarity or tone.

**Discussion of Findings on the Personable Nature and Tone of Comments**

As noted in the literature review, oftentimes written comments can often come across as terse or unfriendly (Grant-Davie & Shapiro, 1987; Sommers, 1982; Straub, 1997; Wiltse, 2001), while audio comments are found to be more appealing in tone (Anson, 1997; Johanson, 1999; Merry & Orsmond, 2007; Oomen-Early et al., 2008; Sipple, 2007). However, Kim (2004) found that an instructor's voice and approach in the use of audio comments may actually render the tone harsher and less appealing than written comments to some students. In other words, previous studies in the literature show that tone is enhanced in most cases when the instructor uses audio comments but can be diminished if the instructor sounds upset or discouraging. Again, such studies are often conducted in face-to-face environments, in which the tone of the instructor may be softened by his or her face-to-face presence in the classroom. In addition, such studies may not ask students to revise their papers, so student perception of tone as it affects their revision of the paper has not been clear from the literature.

In this study, all students took the courses online, never saw their instructor in a classroom, and were required to revise their papers. Thus, it helps to fill a gap in the literature in that it emphasizes the impact of tone in an online composition class.

The analysis in this study concluded that the personable nature and tone of audio comments was preferred across the board by nine out of 10 students among all five instructors over the tone of written comments. Only one student did not indicate that tone was improved by audio comments, and this particular student felt that both audio and written were appropriate in their tone. He did not, in other words, feel that audio comments demonstrated a negative tone or a less personable approach when receiving comments.

Of the other nine students, four of the nine students made visual references to conversations with the instructor when describing the audio comments, despite the fact that audio comments did not involve visual interaction with the instructor in any way. In this regard, it seems that audio comments personalize an instructor's presence to the point that the students felt that they could see their instructor. In addition, two students said that they felt an emotional connection with the instructor when they received audio comments. One student noted that the instructor read her paper "as a person, not just a piece of paper," while another student noted that she had an "emotional buy-in in that she is trying to help you" when receiving audio comments. Two other students gave general explanations for their feeling that audio comments are more personable than written comments. Overall, students overwhelmingly believed that audio was more personable than written comments were and that audio comments enhanced the tone of the comments on their papers.

**Significance of the Findings.** The finding is significant because of its implications for online learning and student retention. As online classes become more popular, and as enrollments in online freshman composition classes increase, strategies in improving the tone and the personable nature of instructors' communication with students on their writing assignments may become more pivotal. The results of this study have ramifications for administrators of online institutions, directors of writing programs online, and others who oversee online educational initiatives for which feedback to student work carries significance. If students take online classes out of necessity because either they cannot integrate a face-to-face class into their schedules or because the institution in which they are enrolled does not offer the class in face-to-face format, then such students may not necessarily prefer the online class and may not be accustomed to the text-based nature of online classes. If audio commentary enhances

the tone, personable nature, and presence of the instructor, then these findings indicate that initiatives toward audio feedback in online classes may result in higher student evaluation scores for instructors and for classes and possibly higher retention at the institution across semesters.

The findings are also significant because they might explain in part why in research question #3 students noted that they understood comments in audio form more effectively than they did in written form. If audio comments come across as more personable and make a stronger connection with students than written comments do, then this characteristic may be one reason that students find them more understandable. As was noted for research question #3, some students found that they felt their instructor appreciated their paper more when they received audio comments. Others connected tone of voice with facial expressions and the ability to understand what the teacher was emphasizing. The data indicated that such sentiments coming across in audio commentary led to students having a clearer understanding of the comments the instructor was making as well. In other words, more personable commentary often means more comprehensible commentary. The two dynamics can be related for students receiving commentary on their papers. This connection represents a significant finding in that audio comments may help online students not only feel connected with the instructor but also comprehend what the instructor wants to see revised in their papers.

**Implications for Further Research.** It would be interesting to examine the impact of gender on tone in the use of audio commentary. Of the five instructors in this study, one instructor was male, while four were female. Whether instructors of a particular gender demonstrate different patterns of tone and coaching might be an area of further inquiry. As Kim (2004) found that some students "claimed to hear the teacher's negative or apathetic attitude come through in the spoken comments" (p. 325). Several of the comments she cited in her study

were of male instructors. A possible area of future research is whether instructors of a particular gender received higher ratings in certain areas of feedback than instructors of the other gender receive.

**Summary of the Study**

The study showed a significant interaction effect between teacher and media. The results indicated that the use of audio comments resulted in a wider variation of instructor word count than written comments did. More words were used for all three levels, global, middle, micro, and other. However, the percentage increase in the number of words used was not predictable. Moreover, the number of items commented on was mixed among the five instructors at the global, middle, and micro levels. The use of audio did not necessarily result in more items commented on at the various levels.

The interaction effect may explain the different results in time investment from teacher to teacher. Some instructors found that the use of audio comments saved them time, as they were able to think while they spoke, while in writing comments they think before they write. However, some instructors found that that same dynamic caused them to come up with more examples in audio than in written form, resulting in their taking more time with audio commentary. While audio was found to be a scalable option, whether it saved time depended on the instructor's commenting and thinking patterns. Again, an interaction effect occurs between teacher and media used.

Students found that audio was more comprehensible than written, that it featured a more favorable tone, and that they generally understood the instructor's meaning more effectively with audio. However, students also found that navigating the audio commentary to the specific place in the paper on which the instructor was commenting sometimes proved to be challenging. The

challenge of navigating the comments to the problems in the paper were shown to be more acute with comments at the micro level. Nonetheless, the issue of navigability also seemed to depend on the teacher somewhat, as some students explained that their instructor had directed them effectively to the location of the problem through the audio commentary. Student comprehensibility, overall, may be influenced by interaction effect more so than simply the media effect.

Different types of micro-level issues abound in student papers. Thus, further research on which micro-level comments are best responded to in audio and which are best responded to in written form is desired. For example, a run-on sentence may be more effectively commented on in audio form, through which an instructor can read the run-on text so that the student might hear the problem. However, a spelling error might not represent a problem best suited for audio commentary, as the spelling error may no better be illustrated in an audio comment than it is through a written comment. Therefore, further research on which micro-level comments are best pointed out in which medium would add greatly to the literature on this subject.

Neither students nor instructors showed conclusively that one medium resulted in more improved writing than the other form of medium. This study attempted to examine instructor feedback templates to see patterns of improvement. If this methodology is followed, perhaps more instruction to teachers on how to fill out the templates would yield more conclusive data. In addition, the study surveyed students on whether they felt their writing had improved more with one medium over another. While the surveys showed a preference for audio, the preference was not statistically significant. Further research could be conducted in which student papers are examined from one draft to the next after having received comments in audio form compared to written form.

Overall, a combination of audio and written commentary may feature the most promising form of feedback to students on their papers. The findings of this study reveal patterns in which audio commentary might be more helpful to students and patterns in which written commentary might be more helpful to students. Further research should yield additional information on how best to incorporate multi-media in directing students to improving their writing.

# APPENDIXES

## APPENDIX A

### Writing Assignment #1

Your first writing assignment will be a *narration essay* of 750-1000 words.

As your textbook, *The Brief McGraw-Hill Guide*, indicates, throughout your college and professional career, you will need to share experiences in the form of narrative (p. 71). In this assignment, you will write about an experience.

On pages 73-76 of *The Brief McGraw-Hill Guide*, you will see five scenarios described. Each scenario involves either *writing for college* or *writing for life*—two major purposes for writing that the textbook outlines throughout. You are encouraged to use these five scenarios to help you generate ideas for this essay.

In addition, please observe the bulleted points on pages 78-79. Your essay should have the qualities that are listed on these pages.

Your essay should demonstrate the following pattern of organization and style:

- an introduction that uses the approach described in the Writer's Toolbox (Modules 1, 2) and contains a clear thesis
- paragraphs that develop the story using relevant supporting details and dialogue (if appropriate) that clearly support the thesis
- a command of basic writing conventions (paragraph development, transitions between sentences and between paragraphs)
- a command of grammatical structure and accuracy in punctuation
- a conclusion that uses an approach from the Writer's Toolbox (Modules 1, 2)

Overall, the essay should convey a specific purpose and be written with a specific audience in mind.

You will not be graded on this first draft. The instructor will give you comments on the first draft. You will then take the instructor’s comments and use them to write a final draft of the essay.

APPENDIX B

**Writing Assignment #2**

Your second writing assignment will be a *comparison-contrast essay*.

In this assignment, you will write an essay of 1000-1200 words. The essay should have the following elements:

- a relevant and interesting topic
- an engaging introductory paragraph
- an effective and clear thesis statement
- unified, supported, and coherent body paragraphs that use either the block pattern or organization or the alternating pattern or organization
- an effective concluding paragraph

As you prepare for this assignment, you might review the following video tutorial:

http://polaris.umuc.edu/ewc/tutorials/comparisons/

Just to give you some ideas, students in the past have posted essays comparing and contrasting two computer applications, comparing and contrasting two philosophers, comparing and contrasting two types of motorbikes, and comparing and contrasting private sector and government responses to particular situations. You can also draw upon your academic major at UMUC by comparing and contrasting two marketing strategies, two theories in psychology, two works of literature, etc.

Overall, you can choose your own topic. **However, make sure it is relevant and engaging to a general audience. Consider the "so what?" factor—why would an audience be interested in your comparison-contrast analysis?**

You will not be graded on this first draft. The instructor will give you comments on the first draft. You will then take the instructor's comments and use them to write a final draft of the essay.

APPENDIX C

# Feedback Template for Final Drafts

| level | possible areas represented by the level | comments from the instructor on how well the student improved from the first draft to the final draft on this category |
|---|---|---|
| ***Global-level* issues** | • organization of the paper<br>• flow of the writing<br>• overall creativity<br>• thesis statement<br>• the topic of the paper<br>• point of view in the paper (if the paper uses a particular point of view inappropriately throughout)<br>• voice (if the paper uses passive voice or active voice inappropriately throughout) | |
| ***Middle-level* issues** | • overall paragraph-level issues<br>• quality of paragraphs (unity, coherence, support)<br>• use of topic sentences in paragraphs<br>• quality of specific arguments or claims<br>• support or evidence for the claims<br>• clarification of the content used in the paragraphs<br>• paraphrasing and quoting of sources (if sources are used in the paper) | |
| ***Micro-level* issues** | • word choice or phrasing<br>• grammar and punctuation<br>• formatting<br>• references and citations | |

APPENDIX D

# Sample Paragraph

Tom Smith

Definition Essay

Liberal is a very complex word. It has changed and evolved in meaning over the past few centuries. In the eighteenth century, liberalism was a philosophy that reflect a belief in limited government involvement in society, it was a belief that government should not interfere with business or individuals. Today, liberal has a very different connotation, one could even say that it's meaning has changed. While it still often refers to less government involvement in people's individual lives it also means more involvement of the government in business and industry. Why the change in meaning of this word? I am going to explain that in this paper.

APPENDIX E

# Guidelines to Instructors on Feedback

Dear Participant,

I wanted to give you another guideline that is part of the research study. This guideline may reflect how you deal with feedback anyway. It is based on some research on writing feedback.

For feedback to students' first drafts of both essays, the study is dividing feedback into the following areas:

- global-level areas
- middle-level areas
- micro-level areas

This classification of feedback is taken from Stern and Solomon's 2006 article, "Effective Faculty Feedback: The Road Less Traveled." The full citation for this article is given at the end of this message.

The **global level** refers to issues such as organization of the paper, the flow of the writing, the overall creativity, the thesis statement, and the topic of the paper (whether it is too broad or too narrow). It also can include the point of view used in the paper (if the paper uses a particular point of view inappropriately throughout) and the voice in the paper (if the paper uses passive voice or active voice inappropriately throughout).

The **middle level** refers to issues such as the quality of paragraphs (unity, coherence, support), the use of topic sentences in paragraphs, the quality of specific arguments or claims, the support or evidence for the claims, the clarification of the content used in the paragraphs, and the paraphrasing and quoting of sources (if sources are used in the paper).

The **micro level** refers to issues such as word choice or phrasing, grammar and punctuation, formatting, and references and citations (if sources are used in the paper).

The study asks each instructor to give **at least one global-level comment** to each first draft, **at least one middle-level comment** to each first draft, and **at least two micro-level comments** to each first draft.

**This does not mean that you can only give four comments to a first draft of a paper.** The study asks that you give *at least* this number of comments to these three areas. You might comment on the thesis statement and the flow of writing, for example (two global-level comments). You might comment on a paragraph that needs more development and a paragraph that lacks unity (two middle-level comments). You might comment on a run-on sentence, a parallel structure problem in a sentence, and sentence fragment (three micro-level comments). In other words, the guidelines mentioned above are designed as minimal parameters to guide your comments. You can certainly provide students with more than the number of comments

mentioned here. The study requires that you provide *at least* this number of comments on each area.

Second, for the second draft of the paper, the study asks that you give the student feedback on how well he or she improved from the first draft to the second. The feedback given is qualitative feedback.

In a previous email message, I sent the template that will be used for this feedback. I am attaching it again to this message for your ease of reference.

You would write comments in the third column of this template for the student. You would post this template with your comments to the student.

The levels of feedback outlined here are actually consistent with what many consider best practices in writing instruction pedagogy. Many instructors instinctively give global-, middle-, and micro-level feedback to students. The study asks that you specifically give comments to all three levels.

I hope this is helpful and clear. Please let me know if you have any questions at all.

Just to let you know, very soon I will be sending you a sample piece of writing from a student. I am going to ask every participant to send me a sample .mp3 audio file giving feedback to this piece of writing. The purpose of this step is to make sure all instructors know how to produce an .mp3 audio file with their Sony digital voice recorders. The digital voice recorders will be coming to you in the mail very soon.

Thanks,

Andy

References

Stern, L., & Solomon, A. (2006, April). Effective faculty feedback: The road less traveled. *Assessing Writing, 11*(1), 22-41. doi:10.1016/j.asw.2005.12.001

APPENDIX F

# Student Survey on Feedback to Drafts of Writing Assignments

Thank you for your willingness to participate in our study. This survey is designed to study students' perceptions of different types of feedback on their compositions. Participation in this study is voluntary. You must be 18 years or older to participate in this study.

All students who participate in the study will have the chance to win a $25.00 gift card from Amazon.com. A total of 10 gift cards will be given.

By completing and returning the attached survey, you are giving your consent to participate in our research study. It is not necessary to answer every question in the survey, and you may discontinue your participation in the project at any time. Your participation will be completely confidential.

If you have any questions about the project, you may contact Andy Cavanaugh at (240) 684-2836, his faculty advisor, Dr. Liyan Song, at (410) 704-5751, or the Chairperson of Towson University's Institutional Review Board for the Protection of Human Participants, Dr. Debi Gartland, at (410) 704-2236.

Q1. WRTG 101 Section: _____

Q2. Your major: _____

Please rate your **ability to understand** your WRTG 101 instructor's **Written** comments on the areas mentioned below. "NA" means that your instructor did not comment on this particular area. Check the appropriate box for each area.

| **Written Comments** | | | | | | |
|---|---|---|---|---|---|---|
| | Poor | Fair | Average | Good | Excellent | NA |
| | 1 | 2 | 3 | 4 | 5 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q3. Organization of the paper | | | | | | |
| Q4. Topic of the paper | | | | | | |
| Q5. Thesis statement | | | | | | |
| Q6. Overall paragraph-level issues, such as paragraph unity, coherence, and support | | | | | | |
| Q7. Use of topic sentences in paragraphs | | | | | | |
| Q8. Quality of specific arguments or claims in paragraphs | | | | | | |
| Q9. Support or evidence for the claims in paragraphs | | | | | | |
| Q10. Word choice or phrasing | | | | | | |
| Q11. Grammar and punctuation | | | | | | |
| Q12. Formatting, references, and citations | | | | | | |

Please rate your **ability to understand** your WRTG 101 instructor's **Audio** comments on the areas mentioned below. "NA" means that your instructor did not comment on this particular area. Check the appropriate box for each area.

| **Audio Comments** | | | | | | |
|---|---|---|---|---|---|---|
| | Poor | Fair | Average | Good | Excellent | NA |
| | 1 | 2 | 3 | 4 | 5 | |
| Q13. Organization of the paper | | | | | | |
| Q14. Topic of the paper | | | | | | |
| Q15. Thesis statement | | | | | | |
| Q16. Overall paragraph-level issues, such as | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| paragraph unity, coherence, and support | | | | | | |
| Q17. Use of topic sentences in paragraphs | | | | | | |
| Q18. Quality of specific arguments or claims in paragraphs | | | | | | |
| Q19. Support or evidence for the claims in paragraphs | | | | | | |
| Q20. Word choice or phrasing | | | | | | |
| Q21. Grammar and punctuation | | | | | | |
| Q22. Formatting, references, and citations | | | | | | |

Please rate your **ability to correct/address these issues and improve your writing** as a result of your WRTG 101 instructor's **Written** comments on the areas mentioned below. "NA" means that your instructor did not comment on this particular area. Check the appropriate box for each area.

**Written Comments**

| | Poor | Fair | Average | Good | Excellent | NA |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| Q23. Organization of the paper | | | | | | |
| Q24. Topic of the paper | | | | | | |
| Q25. Thesis statement | | | | | | |
| Q26. Overall paragraph-level issues, such as paragraph unity, coherence, and support | | | | | | |
| Q27. Use of topic sentences in paragraphs | | | | | | |
| Q28. Quality of specific arguments or claims in paragraphs | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q29. Support or evidence for the claims in paragraphs | | | | | | |
| Q30. Word choice or phrasing | | | | | | |
| Q31. Grammar and punctuation | | | | | | |
| Q32. Formatting, references, and citations | | | | | | |

Please rate your **ability to correct/address these issues and improve your writing** as a result of your WRTG 101 instructor's **Audio** comments on the areas mentioned below. "NA" means that your instructor did not comment on this particular area. Check the appropriate box for each area.

**Audio Comments**

| | Poor | Fair | Average | Good | Excellent | NA |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| Q33. Organization of the paper | | | | | | |
| Q34. Topic of the paper | | | | | | |
| Q35. Thesis statement | | | | | | |
| Q36. Overall paragraph-level issues, such as paragraph unity, coherence, and support | | | | | | |
| Q37. Use of topic sentences in paragraphs | | | | | | |
| Q38. Quality of specific arguments or claims in paragraphs | | | | | | |
| Q39. Support or evidence for the claims in paragraphs | | | | | | |
| Q40. Word choice or phrasing | | | | | | |
| Q41. Grammar and punctuation | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q42. Formatting, references, and citations | ○ | ○ | ○ | ○ | ○ | ○ |

Please rate how challenging the technology was in obtaining both the audio and the written comments to your papers:

| | I had many technological problems. | I had some technological problems. | I had few technological problems. | I had very few technological problems that were easily resolved. | I had no technological problems. |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Q43. Audio comments | ○ | ○ | ○ | ○ | ○ |
| Q44. Written comments | ○ | ○ | ○ | ○ | ○ |

Q45. Please comment on your overall satisfaction with the *written comments* you received on your writing assignment in this class. Feel free to write freely about any concerns or points you want to raise about this method of commenting.

Q46. Please comment on your overall satisfaction with the *audio comments* you received on your writing assignment in this class. Feel free to write freely about any concerns or points you want to raise about this method of commenting.

Q47. Please mark your age range:

- 18-22
- 23-30
- 31-40
- 40 or above

Q48. Please indicate your gender:

- Male
- Female

Q49. Please write your native language:

Please answer the next three questions about your experiences before taking this class:

Q50. Before this semester, how many courses did you complete toward your degree?

Q51. Before this semester, how many courses did you take online, either at the University of Maryland University College or other institutions?

Q52. Before this semester, did you ever receive audio feedback on a writing assignment?

- Yes (please explain how the feedback was given)
- No

What were your reasons for taking this class? Please rank the following items in order, with "1" being the strongest reason and "4" being the weakest reason. (If a particular reason does not apply to your situation, you can choose not to select that reason.)

Q53. Select Answer The course was required.

Q54. Select Answer I wanted to improve my grammar.

Q55. Select Answer I wanted to improve my writing overall.

Q56. Select Answer I wanted to learn about writing in my major.

Q57. I like websites that have . . .

- Audio channels where I can hear music, radio programs, or interviews
- Interesting design and visual features
- Things I can click on, shift or try
- Interesting written descriptions, lists and explanations[1]

Q58. If you wanted to learn a new program, skill, or game on a computer, you would . . .

- Talk with people who know about the program
- Use the controls or keyboard
- Read the written instructions that came with the program
- Follow the diagrams in the book that came with it[2]

Q59. Suppose you have finished a competition or test and would like some feedback. You would like to have feedback . . .

- From somebody who talks it through with you
- Using examples from what you have done
- Using a written description of your results
- Using graphs showing what you had achieved[3]

Q60. If you would like to enter yourself into a drawing for a chance to win a $25.00 Amazon.com gift card, please enter your contact information here:

Name:

Email:

Submit Survey

APPENDIX G

**Instructor Survey**

**Class _____**
**Section _____**

***You gave two types of comments to students in this study. For one writing assignment, you gave written comments to students. For another writing assignment, you gave audio comments to students.***

***Please answer the following questions. In the questions with tables, you can answer the question by putting an "X" into the cell of your choice.***

1. Before this semester, what prior experience did you have in giving audio comments to students on their papers?

2. Prior to this semester, how many online courses have you taught for UMUC? ____

   For other institutions? ____

3. Please consider your experience commenting on the *first draft of each of the two assignments that pertain to this study*. How much time did you spend on average in commenting on the first drafts? Please include the time you spent reading the paper and the time you spent giving comments to the paper. **Please *do not include* any time spent uploading the comments to the online class.**

| | **0-15 minutes** | **16-30 minutes** | **31-45 minutes** | **46 – 60 minutes** | **Over 60 minutes** |
|---|---|---|---|---|---|
| ***For my students to whom I gave audio comments*** | | | | | |
| ***For my students to whom I gave written comments*** | | | | | |

4. How much time did you spend *on average* in uploading the comments to a student paper in this class?

| | **0-30 seconds** | **31-60 seconds** | **1-2 minutes** | **2-3 minutes** | **over 3 minutes** |
|---|---|---|---|---|---|
| ***For my students to whom I gave audio comments*** | | | | | |
| ***For my students to whom I gave written comments*** | | | | | |

5. How would you compare the use of audio comments with the use of written comments in your ability to accomplish the following tasks?

| | **I prefer giving audio comments** | **I prefer giving written comments** |
|---|---|---|
| **explain your points clearly** | | |
| **be thorough in your comments** | | |
| **save time in commenting on papers** | | |
| **explain global-level issues**<br>• organization of the paper<br>• flow of the writing<br>• overall creativity<br>• thesis statement<br>• the topic of the paper<br>• point of view in the paper (if the paper uses a particular point of view inappropriately throughout)<br>• voice (if the paper uses passive voice or active voice inappropriately throughout | | |
| **explain middle-level issues**<br>• overall paragraph-level issues<br>• quality of paragraphs (unity, coherence, support)<br>• use of topic sentences in paragraphs<br>• quality of specific arguments or claims<br>• support or evidence for the claims<br>• clarification of the content used in the paragraphs<br>• paraphrasing and quoting of sources (if sources are used in the paper) | | |
| **explain micro-level issues**<br>• word choice or phrasing<br>• grammar and punctuation<br>• formatting<br>• references and citations | | |

6. Please comment on your overall experience with the two methods of commenting—written and audio. Feel free to write freely about any concerns or points you want to raise. You may use additional paper in answering this question.

APPENDIX H

**Codes Gathered from Student Interviews**

The following tables show the codes and the actual sentences from the student interviews from which the codes were taken. Each student is identified (e.g., S1 refers to student #1, S2 refers to student #2, and so on), and the line number of the transcript is identified as well (e.g., *S1 - 14* refers to student #1, line #14 of the transcript).

***Written comments***

*Global level*

*Category – comprehension of comments*

| ***Code*** | ***Example*** |
|---|---|
| I got the point | S1 - 14 -- No. I mean, whether it's spoken word or written word. It's still words. So, the point was – I got the point of what was presented. |
| Neutral (on written versus audio). Either/or on that. | S2 - 79 -- I'm kind of neutral on that, I'm pretty either/or on that. |
| Written sometimes hard to figure out | S4 - 24 -- trying to read what somebody has written to me, and sometimes that's hard to figure out. |
| Type very clearly<br><br>Very clear | S5 - 11 -- professor actually on my paper was able to type very clearly with the – I'm not sure what it was that she used to do it, but it linked to the area that she was commenting on and her comments were very clear. They left me without any question – whether it was positive or negative comment. |
| We're reading all the time in online classes | S6 - 13 -- You know, and if you go to a regular college you take in a lecture in your and you know so you hear it, and you're not necessarily reading it. Whereas the rest of my classes at UMUC, it's all reading dependent and you know you're reading all the time and writing. And so it's nice to have that as an alternative |
| Writing not as personable, so more difficult to get the teacher's | S7 - 13 -- For that, I like the verbal because you actually got to hear the comment of a positive note, I guess. So it's kind of like, you know, I mean, he made a statement on like, what you were writing about, he appreciated it or like he understands the reason for it. So I felt like he was interested in |

| | |
|---|---|
| impression | what I said. So it made it more personable than writing down versus the written, where he didn't start off writing, “Well, I'm glad I wrote this and let's talk about what happened throughout.” So the verbal was more personable. |
| Could always understand | S8 - 41 -- When she would do comments and mark up the paper, and put the comments in the margins and stuff, you could always understand where she was going with it and made easy to make corrections based on that. |
| You’re actually given instruction | S9 - 16 -- Well, I liked the written one where you know how you have your paper displayed. But then the instructor will have the boxes where you need to make changes or where they recommend that you make changes?...And I just found that that really helpful instead of just reading the paragraph of everything need to do. You know what I mean? Because it's actually…you know you're actually given instruction. |
| | S10 - NA |

***Written comments***

*Global level*

*Category – Navigability of comments*

| ***Code*** | ***Example*** |
|---|---|
| Flowed with the paper. | S1 - 28 -- No, actually I thought in both because it still flowed with the paper. The comments both written and oral flowed with the paper. |
| Can follow right along | S1 - 30 -- So as long as you had the paper in front of you and the written or the oral comments given, you can follow right along. |
| Easily laid out | S3 - 12 -- …when you're looking at a written response it’s pretty easily laid out and you could see okay here the professor’s commenting on my thesis, here she's commenting on grammar flow issues, and here she's commenting on the overall writing style. |
| Linked to the area | S5 - 11 -- written feedback, and my professor actually on my paper was able to type very clearly with the – I'm not sure what it was that she used to do it, but it linked to the area that she was commenting on and her comments were very clear. They left me without any question… |
| Could always understand where she was going | S8 - 41 – When she would do comments and mark up the paper, and put the comments in the margins and stuff, you could always understand where she was going with it and made easy to make corrections based on that. |
| Have the paper displayed | S9 - 16 -- Well, I liked the written one where you know how you have your paper displayed. But then the instructor will have the boxes where you |

| | |
|---|---|
| Boxes where you need to make changes | need to make changes or where they recommend that you make changes? |
| | S3 – NA<br>S4 – NA<br>S6 – NA<br>S7 – NA<br>S10 -- NA |

***Written comments***

*Middle level*

*Category – comprehension of comments*

| ***Code*** | ***Example*** |
|---|---|
| (written comments don't) really tell me…the interpretation | S2 - 83 -- Well, that one I believe I preferred the audio comments….Just because I was able to understand more of the fill of the paper from what the professor said on the paper from the audience's point of view, more so with the feedback that she's giving. But for the written it doesn't really tell me the professor's interpretation of it. She just comments and says, well, okay, you know, structurize this more. This should be organized this way rather than. You know she got to express more that you got from the paper with audio. |
| With written, I would take my own interpretation (as opposed to audio, which was a little more difficult) | S2 - 16 -- I guess when it was written. I would take my own interpretation with the audio as it was kind of more of I felt like you know more of a face-to-face feedback process and it was a little bit more difficult, although I like both processes – I like the audio feedback and it was my first time receiving that |
| Allowed me to understand | S5 - 56 -- It was the first paper that I did. I had received written feedback on and I received feedback that was informing me that my paragraphs sometimes were a little too long. And also the structure of what I was writing. A paragraph has to be in a certain order and some of my writing was not in the proper order. But again, examples were given and references made to allow me to understand. It didn't need to be that long. |
| Audio more clearcut<br><br>Audio more to the point | S7 - 25 -- I did appreciate the written better because it was more clearcut to the point. I could read it. And I knew exactly what he was saying. |
| I knew exactly what she was saying | S7 - 25 -- that I did appreciate the written better because it was more clearcut to the point. I could read it. And knew exactly what he was saying.<br><br>Now as for when he started to explain verbally. I kind of tried to figure out what he was asking about. |
| Audio more thorough | S8 - 92 -- Pretty much the same as before, where the audio is little bit more thorough than what she had written back to me. So I actually took more from the audio in that area. |

| | |
|---|---|
| Written was effective | S9 - 41 -- Well, it was effective. |
| Both were good (written and audio) | S10 - 36 -- Yes, they were both good. |
| | S1 – NA<br>S3 – NA<br>S4 – NA<br>S6 – NA |

***Written comments***

*Middle level*

*Category – navigability of comments*

| ***Code*** | ***Example*** |
|---|---|
| [not as] difficult to understand | S2 - 23 -- I like written as well.…But for the audio, it was a little bit difficult to understand exactly what she was looking for with the ????, More so than it was for the actual written. For written it was verbatim and pretty literal. But it kind of bounced around with the oral responses. |
| Verbatim | S2 - 24 -- For written it was verbatim and pretty literal. But it kind of bounced around with the oral responses. |

***Written comments***

*Micro level*

*Category – Comprehension of comments*

| ***Code*** | **example** |
|---|---|
| Either one works | S1 - 57 – Either one works for me. |
| Couldn't say one was better | S1 - 59 – I couldn't say one was better than the other |
| Preferred written | S2 - 102 -- For that area. I preferred written better. |
| Heard it better than I seen it written | S4 - … listening, I find that easier. When I heard her read -- like I had a couple of run-on sentences. I heard it better than I seen it written, I guess you could say. To hear her read the sentence it like hit me – oh that's right, that's a run-on sentence. Versus where she tries to – there's nothing wrong with written comments as far as that goes – just hearing it read to me. It kind of hit me. Oh, that's a run-on sentence. You know, I sort of heard that when I read it out loud to myself. |
| | S5 – I was provided excellent examples |
| I was more aware of errors with written comments | S7 - 55 – Personally, I like the written. He basically said flat out there's quite a lot of misspelled words or words that you know spellcheck is not going to fix. Versus the verbal, where he said you know, like, just go back and look through this paragraph, which in the other one. He would write afterwords. Okay, you have more errors here and I was more aware of the errors than I can see on the paper in trying to follow along with him. |
| Written comments got convoluted (for word choice) | S8 - 116 -- In that case, there was at least one instance where we were trying to communicate through the written. I think it was kind a getting convoluted. But when she responded through the audio, she was able to be a little bit more clear.<br><br>I think when you're trying to type it out, your mind kind of gets, you know, ahead of you. When she was actually speaking, it she was trying to say in the written, it actually worked out a lot better. |
| Written gets the upper hand | S9 - 50 -- said with the written I found it. I would give that one the upper hand because you know it's right there. So both of them would they work well with both of them. |
| Written was on | S9 - 46 -- Well, with the written one. Like I said, it was basically on point. Because you know she would put a box or anything or anywhere on the |

| | |
|---|---|
| point | paper where I needed to correct punctuation and you know grammar or anything of that nature. |
| Written better than audio | S10 - 22 -- Well in the written there was I would have to say now thinking back on it, it was probably a little better than … the audio. Because I don't believe I got anything as far as punctuation other than to say go over you, you know, commas and semicolons |
| | S3 – NA<br>S6 -- NA |

***Written comments***

*Micro level*

*Category – Navigability of comments*

| **Code** | **Example** |
|---|---|
| Have the…physical paper in front of you | S2 - 40 -- Written is better because you have the actual physical paper in front of you. The professor has placed side of the paper just to get you going on the types of corrections that you need as far as punctuation, grammar. For audio, whereas for written you actually have the paper in front of you for audio, the professor might tell you okay be careful with comma splices or a specific type of error that you're having in your paper. But there's no physical example to help you with the correction. So that's why I found the written better for that section. |
| You actually highlight and call out the error | S3 - 50 -- You know, the interesting thing is that it's actually easier to comment on grammar and essentially punctuation on a written feedback because you actually highlight and call out the error, which is as in audio you almost have to try to correlate yourself exactly what part she speaking about, which is kind of the that's kind of a challenge. |
| Audio comments show you where the mistake is | S4 - 43 -- Again, the written comments. There's nothing wrong with it. It does show you where the mistake is. |
| | S6 - 62 -- Yeah, I just – I guess maybe I respond better to the audio you know because he was saying you know, third paragraph, second sentence, you know, that needs some work or you don't run-on or that. |
| I was more aware of the | S7 - 55 -- Personally, I like the written. He basically said flat out there's quite a lot of misspelled words or words that you know spellcheck is not |

| | |
|---|---|
| errors that I can see on the paper (with written comments) | going to fix. Versus the verbal, where he said you know, like, just go back and look through this paragraph, which in the other one. He would write afterwords. Okay, you have more errors here and I was more aware of the errors than I can see on the paper. |
| A box where I needed to correct.<br><br>It's right there. | S9 - 46 -- Well, with the written one. Like I said, it was basically on point. Because you know she would put a box or anything or anywhere on the paper where I needed to correct punctuation and you know grammar or anything of that nature.<br><br>S9 - 50 -- I would give that one the upper hand because you know it's right there |

***<u>Written comments</u>***

*Category –*

*Tone and Personable nature of comments(no particular level)*

| | |
|---|---|
| Intent [not as clear] | S6 - 137 -- Tense and intent comes out much better in audio than it does in the written word a lot. |
| Don't get tone of voice included | S4 - 25 -- You don't get a tone of voice included with it. You don't get facial expressions |

***Audio comments***

*Global level*

*Category – comprehension of comments*

| ***Code*** | ***Example*** |
|---|---|
| I got the point | S1 - 14 -- No. I mean, whether it's spoken word or written word. It's still words. So, the point was – I got the point of what was presented. |
| Neutral on whether audio or written are better on global-level issues | S2 - 79 -- Ummm. I'm kind of neutral on that, I'm pretty either/or on that. |
| | S3 - 27 -- Yeah and some of that was just the case of I think in the audio you definitely understand the implied tone and whether or not you're actually doing a good job of which are trying to express. |
| Easier to understand | S4 - 23 -- easier to understand when somebody explains it to me |
| Explains it to me | S4 - 23 -- easier to understand when somebody explains it to me |
| Pick up where emphasizing | S4 - 26 -- could pick up where she was emphasizing, what needed fixed, what was good, what needed work. |
| Pick up what needed fixed | S4 - 26 -- could pick up where she was emphasizing, what needed fixed, what was good, what needed work. |
| Examples were clear<br><br>Reinforced<br><br>No guessing | S5 - 39 -- Well, actually, the audio was – I didn't compare it, but I remember from both of them, because as I was listening to the audio I was thinking back on what it was that was written in a previous paper for commentary. And although the audio didn't have a great deal of commentary on things that I needed to correct, the examples that were provided to me were very clear. And again, they reinforced why I should do something a certain way. So for me that was very important because it allowed me to stop, look at what it was she was telling me in her audio commentary, and then realizing okay well I see what it is. I'm connecting now what it is she is saying. Versus what I did, that was incorrect, and it makes a lot more sense. And it was very clear. There was no me guessing like huh? scratching my head, like whether she talking about. I knew. |
| Students read | S6 - 32 -- It's not my – the reason I think it's more excellent isn't because |

| | |
|---|---|
| text all the time in online courses | of the differences in content. It's more of the differences in format. I just really like both audio and video better than reading just because like I said we get overloaded with that already. |
| | S7 - 13 -- For that, I like the verbal because you actually got to hear the comment of a positive note, I guess. So it's kind of like, you know, I mean, he made a statement on like, what you were writing about, he appreciated it or like he understands the reason for it. So I felt like he was interested in what I said. So it made it more personable than writing down versus the written, where he didn't start off writing, "Well, I'm glad I wrote this and let's talk about what happened throughout." So the verbal was more personable. |
| Could always understand | S8 - 50 -- And with the audio, it's the same thing (in that you could understand the comments) |
| More thorough | S8 - 64 -- Because in my first draft. The very first draft that we did – the very first paper that we did -- the comments, the audio comments were a little bit more thorough in that one. |
| On point. Pointed out where…you needed to make changes | S9 - 25 -- Oh, I thought a different dynamic. But like I said, it was pretty much on point, kind of like the written. Because with the audio, they kind of pointed out where in your paper that you needed to make changes and what they thought you did well. |
| | S10 - NA |

***Audio comments***

*Global level*

*Category – navigability of comments*

| ***Code*** | ***Example*** |
|---|---|
| Flowed with the paper | S1 - 28 -- So as long as you had the paper in front of you and the written or the oral comments given, you can follow right along. |
| Can follow right along | S1 - 30 -- So as long as you had the paper in front of you and the written or the oral comments given, you can follow right along. |
| Audio…more challenging | S3 - 15 -- But at the same time I think when you kind of do an audio review of that paper. It's a little more challenging to hit every one of those points and you may not be necessarily actually I'd say as the student listening, knowing okay well this is good feedback, but in this case she is actually talking about the thesis, right? And from a narrative standpoint, that's going to be kind of difficult, unless you really have I almost say a set script you go off of or at least an outline in how you want to address every single audio review. |
| Connected to what she was saying | S5 - 39 -- …it allowed me to stop, look at what it was she was telling me in her audio commentary, and then realizing okay well I see what it is. I'm connecting now what it is she is saying. Versus what I did, that was incorrect, and it makes a lot more sense. And it was very clear. There was no me guessing like huh? scratching my head, like whether she talking about. I knew. |
| | S7 see on written comments |
| Walks you through<br><br>You know exactly where she is<br><br>Has time to follow along | S8 - 50 -- . And with the audio, it's the same thing. She kind of walks you through exactly where she is. She doesn't seesaw. She has time to really follow along you know, the comments and suggestions that she has. And that was my first time doing audio and I thought it was going to be weird, but it actually worked out. |
| | S9 - – see on written comments |
| | S2 – NA<br>S4 – NA<br>S6 – NA<br>S10 -- NA |

***Audio comments***

*Middle-level*

*Category – comprehensibility of comments*

| ***Code*** | ***Example*** |
|---|---|
| More difficult | S2 - 16 -- I'm trying to recall the – okay for the most part, for the audio. I guess when it was written. I would take my own interpretation with the audio as it was kind of more of I felt like you know more of a face-to-face feedback process and it was a little bit more difficult, although I like both processes – I like the audio feedback and it was my first time receiving that. I like written as well.…But for the audio, it was a little bit difficult to understand exactly what she was looking for with the ????, More so than it was for the actual written. For written it was verbatim and pretty literal. But it kind of bounced around with the oral responses. |
| Able to understand more the feel of the paper<br><br>Teacher expressed more with audio | S2 - 87 -- Just because I was able to understand more of the feel of the paper from what the professor said on the paper from the audience's point of view, more so with the feedback that she's giving. But for the written it doesn't really tell me the professor's interpretation of it. She just comments and says, well, okay, you know, structurize this more. This should be organized this way rather than. You know she got to express more that you got from the paper with audio |
| A little bit hard to understand | S2 - 120 -- There was a comment that I got audio-wise concerning the organization of one of my paragraphs. It was a little bit hard to understand, but for the most part she's pretty clear with her feedback so that's the only thing that I can think of. |
| Explain | S7 - 29 -- Now as for when he started to explain verbally. I kind of tried to figure out what he was asking about. |
| [audio was] pretty good | S3 - 39 -- I think it was pretty good |
| Had things that I did not need in my paragraph, which I removed | S5 - 63 -- In my audio comments that was for my second paper, so I did not have any paragraph issues per se. I had some things that did not need to be in my paragraph, which I removed. |

| | |
|---|---|
| More thorough | S8 - 92 -- where the audio is little bit more thorough than what she had written back to me. So I actually took more from the audio in that area. |
| Easy to listen to what she said and put me in the right direction | S9 - 35 -- Well, I kind of like the…audio version of that because like, you know, the professor would start off reading your what you wrote and then she would suggest you know which way you should go to and you know. It was easy to listen to which he said to put me in the right direction. |
| [audio was] good | S10 - 36 -- Yes, they were both good. |
| | S1 – NA<br>S4 – NA<br>S6 – NA<br>S7 – NA |

***Audio comments***

*Middle level*

*Category – navigability of comments*

| ***Code*** | ***Example*** |
|---|---|
| Bounced around | S2 - 23 -- For written it was verbatim and pretty literal. But it kind of bounced around with the oral responses. |
| I tried to figure out what he was talking about | S7 - 25 -- This is why I was kind of yes and no on both was that I did appreciate the written better because it was more clearcut to the point. I could read it. And I do exactly what he was saying.<br><br>Now as for when he started to explain verbally. I kind of tried to figure out what he was asking about. |
| didn’t know where to focus | S7 - 45 -- Okay, whereas the verbal, it was more of a – I really didn't know where to focus on if it's a very long paragraph. I like them both. |

***Audio comments***

*Micro-level*

*Comprehensibility of comments*

| ***Code*** | ***Example*** |
|---|---|
| Either one works | S1 - 57 -- Either one works for me. |
| Couldn't say one was better | S1 - 59 -- I couldn't say one was better than the other |
| Heard it better…to hear her read it to me… | S4 - 36 -- Again, listening, I find that easier. When I heard her read -- like I had a couple of run-on sentences. I heard it better than I seen it written, I guess you could say. To hear her read the sentence it like hit me – oh that's right, that's a run-on sentence. Versus where she tries to – there's nothing wrong with written comments as far as that goes – just hearing it read to me. It kind of hit me. Oh, that's a run-on sentence. You know, I sort of heard that when I read it out loud to myself. |
| Audio very clear | S5 - 87 -- Yes, she explained it to me and gave me my usage with a – my usage versus the correct way and then explained why it was that. I'm sorry I can't remember exactly what it was. I wrote, but after doing it, it was very clear. |
| I respond better to the audio | S6 - 62 -- I guess maybe I respond better to the audio you know because he was saying you know, third paragraph, second sentence, you know, that needs some work or you don't run-on or that. |
| Written more clearcut and to the point | S7 - 25 -- Yes. And on that one. This is why I was kind of yes and no on both was that I did appreciate the written better because it was more clearcut to the point. I could read it. And I knew exactly what he was saying.<br><br>Now as for when he started to explain verbally. I kind of tried to figure out what he was asking about. |
| (for audio), the teacher said…just go back and look through this paragraph | S7 - 55 -- Personally, I like the written. He basically said flat out there's quite a lot of misspelled words or words that you know spellcheck is not going to fix. Versus the verbal, where he said you know, like, just go back and look through this paragraph, which in the other one. He would write afterwords. Okay, you have more errors here and I was more aware of the errors than I can see on the paper. |
| More clear on word choice<br><br>When she was actually speaking, it worked out | S8 - 116 -- there was at least one instance where we were trying to communicate through the written. I think it was kind a getting convoluted. But when she responded through the audio, she was able to be a little bit more clear.<br><br>I think when you're trying to type it out, your mind kind of gets, you |

| | |
|---|---|
| better. | know, ahead of you. When she was actually speaking, it she was trying to say in the written, it actually worked out a lot better. |
| Written better than audio…because I [did not get] anything as far as punctuation [with audio] | S10 - 22 -- Well in the written there was I would have to say now thinking back on it, it was probably a little better than the…than the audio. Because I don't believe I got anything as far as punctuation other than to say go over you, you know, commas and semicolons |

***Audio comments***

*Micro level*

*Navigability of comments*

| ***Code*** | ***Example*** |
|---|---|
| There's no physical example | S2 - 40 -- Written is better because you have the actual physical paper in front of you. The professor has placed side of the paper just to get you going on the types of corrections that you need as far as punctuation, grammar. For audio, whereas for written you actually have the paper in front of you for audio, the professor might tell you okay be careful with comma splices or a specific type of error that you're having in your paper. But there's no physical example to help you with the correction. So that's why I found the written better for that section. |
| In audio you…have to correlate yourself exactly what part she is speaking about<br><br>Kind of a challenge | S3 - 50 -- You know, the interesting thing is that it's actually easier to comment on grammar and essentially punctuation on a written feedback because you actually highlight and call out the error, which is as in audio you almost have to try to correlate yourself exactly what part she speaking about, which is kind of the that's kind of a challenge. |
| On the audio…go back and figure out where exactly in this sentence is she talking about.<br><br>No way of connecting the audio to the actual written paper | S3 - 68 -- Whereas on the audio I mean, it may be mentioned in the review but they just left go back and figure out okay, where exactly in this sentence is she talking about that because there's no way of actually connecting this portion of the audio comment to the actual written paper. |
| I can follow along as I am listening….I find it much easier | S4 - 72 -- Again, you know, hearing it. I'm able to follow – I can print my paper, I can follow along as I am listening. I don't have to trying to be following along scrolling up and down the screen to find out where you're talking about the issue is. I just find it to be much easier for me. |
| He was saying "third paragraph, second sentence." Didn't have trouble navigating. | S6 - 62 -- Yeah, I just – I guess maybe I respond better to the audio you know because he was saying you know, third paragraph, second sentence, you know, that needs some work or you don't run-on or that. |

| | |
|---|---|
| …if it was inside the paragraph<br>I understood where I went wrong… | S7 - 76 -- And that is why I did like the verbal because of that part. Like if it was inside the paragraph I understood where I went wrong on his verbal. |
| on the outside…don't know.. | S7 - 79 -- But on the outside. If he wrote it on, or in the middle. If you just write run-on you like I don't know which one is a run-on. |
| Audio was good, but written gets the upper hand. | S9 - 46 -- Well, with the written one. Like I said, it was basically on point. Because you know she would put a box or anything or anywhere on the paper where I needed to correct punctuation and you know grammar or anything of that nature.<br><br>With the audio you know she did as well but like I said with the written I found it. I would give that one the upper hand because you know it's right there. So both of them would they work well with both of them. |
| | S1 – either one works for me. A combination would be better<br>S5 – NA on navigability<br>S8 – NA on navigability<br>S10 – NA on navigability |

***Audio comments***

*Tone and Personable nature of comments (no particular level)*

| | |
|---|---|
| …as a person… | S7 - 200 -- …it felt like he was actually reading my paper versus like I'm an actual student. I'm just not just looking at a piece of paper. When he was talking about why paper. It felt lately. He was actually reading it, and you know he's like Jessica you did this you did that and you use my name several times so is actually reading my paper as a person, not just a piece of paper with writing on it. |
| I'm an actual student | S7 - 200 -- …it felt like he was actually reading my paper versus like I'm an actual student. I'm just not just looking at a piece of paper. When he was talking about why paper. It felt lately. He was actually reading it, and you know he's like Jessica you did this you did that and you use my name several times so is actually reading my paper as a person, not just a piece of paper with writing on it. |
| Having a conversation | S8 - 242 -- Oddly enough, the audio. It's almost like having a conversation with her. |
| Don't get to…hear…professor | S5 - 138 -- Being an online class, I would have to say the audio commentary was more personable because you simply don't get to actually ever hear or see your professor. So that's a little bit more personable. |
| Able to visualize her | S1 - 130 -- Because she was – the way that she presented herself. She presented herself as if you know I guess she visualized the student in front of her as she was talking through the comments. So when you listened to it you were able to visualize her sitting in front of you talking through the comments. So it made it more personable and that way, whereas the written – you know, the written is what the written is.<br><br>You can personalize it by using I think second second person by using the word *you*, creating a dialogue on paper. But dialogues on paper in my mind are not as effective as dialogues we're having. So I guess personable? I'd have to say the…audio. |
| More personal | S2 - 139 -- I think audio seems more personal. Like I said before just had it reminds me of actually sitting down with the professor rather than just, you know, pulling it up and reading it. I don't know. It just feels more interactive then written does. |
| Sitting down with | S2 - 139 -- I think audio seems more personal. Like I said before just |

| | |
|---|---|
| the professor | had it reminds me of actually sitting down with the professor rather than just, you know, pulling it up and reading it. I don't know. It just feels more interactive then written does. |
| More personable | S7 - 18 -- So the verbal was more personable. |
| Feels more interactive | S2 - 141 -- It just feels more interactive then written does. |
| Definitely, the audio was [more personable] | S10 - 98 -- Well, definitely. The audio was. |
| Definitely…audio | S6 - 121 -- Oh definitely, you know, video would be number one, audio second, and then writing third. |
| Allows a touchstone with the professor. | S6 - 127 -- It allows kind of a touchstone to the professor. |
| Tense and intent come out much better in audio | S6 - 137 -- Tense and intent comes out much better in audio than it does in the written word a lot. |
| Both were equal… | S9 - 109 -- Like I said they were both were kind of equal on that to me as well. And the audio like I said was great. I mean it was just great.<br><br>Even my written, like I said, I liked them both. I don't even know how I would have made it. This is my first online class. I didn't know what to expect in formal feedback. But it was surprised me. |
| Audio…because it is hard to interpret tone…in written. | S3 - 173 -- without a doubt definitely the audio just because it’s so hard to interpret tone for a person in written. |
| More of an emotional buy-in | S3 - 178 -- Actually hearing her say this is something we need to work on, you have a little more of an emotional buy-in that she’s trying to help you. |

***Audio comments***

*Navigability in general (no particular level)*

| | |
|---|---|
| Can follow along | S4 - 72 -- Again, you know, hearing it. I'm able to follow – I can print my paper, I can follow along as I am listening. I don't have to trying to be following along scrolling up and down the screen to find out where you're talking about the issue is. I just find it to be much easier for me |

APPENDIX I

**Codes Gathered from Instructor Interviews**

The following tables show the codes and the actual sentences from the instructor interviews from which the codes were taken. Each instructor is identified (e.g., T1 refers to teacher #1, T2 refers to teacher #2, and so on), and the line number of the transcript is identified as well.

***Teacher coding – T1***

| *Issue* | | *Code* | *Example* |
|---|---|---|---|
| Time spent | Written | More time-consuming | 5 -- …it did seem to me that pretty much across the board, it was actually more time-consuming to do the written comments |
| | Written | You have to…physically write it down | 10 -- Maybe just that when you write the comments, first, you have to think about what you're going to say and that you have to physically write it down and that usually you have to edit it because I'm sensitive to teachers who use abbreviations and bad sentences at all sorts of stuff. So I try to make what I write you know worthy. |
| | Audio | Doing all at the same time | 15 -- When I'm speaking, I just more or less not off the top of my head, but it seems as though I'm doing all of that at the same time. |
| Explaining points clearly | Audio | Tone of voice…for students who lack confidence | 29 -- I have the advantage of using tone of voice which is always an important part of instruction. And particularly for students who are, who lack confidence, and most of them do, I find that it's actually they absorb this part of it better if I'm sort of talking to them frankly, one-on-one |
| | Audio | Students…absorb…better | 31 -- I find that it's actually they absorb this part of it better if I'm sort of talking to them frankly, one-on-one, and I sense I |

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| | | | can use some skills that I have developed over the years, you know, of making it more palatable and also somehow more sort of an overall approach. I can basically say to them, look here. This is the most important thing that you need to do. |
| | Written | Comments…all look alike | 36 -- Somehow, in the written comments, they all look alike. You don't get that clarity of the emphasis that you're able to do when you're sort of giving them this overall brush part of it. |
| | Written | Cheat sheets | 51 -- I do have I mean I do have what I sort of think of is almost like cheat sheets. You know, I say what I think of like particular for what is succinct or brilliant or whatever [laughter] statements like, oh, I better keep that one. So I have a whole series of the statements inside my own little textbook at all plug those in. In fact, when I do the written I do this, you know, global middle, micro and I find that almost all students need the certain comments on thesis statements, so I've got was written out so you know, I save a certain amount of time doing that. I'm not saying that each one is totally original. |
| | Audio | More original | 58 -- It could be that actually the spoken the oral presentation is the bit more original in the sense that I'm looking at the actual paper, as I'm speaking. And really those are the most valuable thoughts that I have. |
| | Written | [written] comments get shortchanged | 61 -- Somehow in the process of writing down the stuff. It gets somewhat shortchanged. But if I'm speaking aloud, I'm more apt to you know, sort of get right down to what it is I want the you know like this isn't really – you go to take us to the next level kind of thing, which I'm not likely to do have writing it down because I'm afraid it will sound too negative or whatever. |
| | Written | Sound negative | 63 -- …which I'm not likely to do have writing it down because I'm afraid it will |

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| | | | sound too negative or whatever. |
| Global level | Audio | Do a better job explaining | 85 -- …those two bigger categories of the paragraphs and the global issues that I do think you do a better job explaining when I have the option of speaking directly like to the student using my emphasis, diving into paragraphs that I that I'm looking at, but maybe ignoring others so that they see really what needs be done… |
| Middle level | Audio | Fairness and explanation | 86 -- I have the option of speaking directly like to the student using my emphasis, diving into paragraphs that I that I'm looking at, but maybe ignoring others so that they see really what needs be done, as opposed to just sort of a fuzzy general idea in their heads. So both of those things -- fairness and explanation. |
| Micro level | Written | Write it correctly | 101 -- But what I do like to do and it's faster and easier to do it written rather than orally – it just gets a little awkward -- is to basically say you know this sentence is not correct. I write it correctly, you know about all of it, perhaps, but corrected this would be like this so they can actually see what it is and then refer to the error that they need to figure out. Obviously I don't it for every error, because I'm not there to edit their papers but to show them their typical thing. |
| | | Prefer written..for sentence-level errors | <u>from survey</u> -- I prefer the written feedback for getting at the sentence level errors, as it is somewhat difficult to articulate those verbally. |
| | Audio | It's harder to articulate. | 159 -- When I try to do in the oral part, it could be because it feels like a different kind of thing that I'm switching gears, you know, between the overall comments and the patterns I see the their not doing well the processes that are not doing well. The paragraph aren't hanging together the whole paper is sort of lackluster -- and switching to the real nitty-gritty, it's harder to articulate it. And also somewhat cumbersome because you're |

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| | | | saying, you're reading the sentence allowed you're saying the comma goes here and I your thinking well you really need to explain when it's a nonessential phrase you put two commas around it.<br>I just find that it takes more time than what I'm writing it. Now that could just be peculiar to me.<br><br><u>from survey</u> -- I prefer the written feedback for getting at the sentence level errors, as it is somewhat difficult to articulate those verbally. |
| | Audio | Cumbersome | 111 -- And also somewhat cumbersome because you're saying, you're reading the sentence allowed you're saying the comma goes here and I your thinking well you really need to explain when it's a nonessential phrase you put two commas around it.<br>I just find that it takes more time than what I'm writing it. |
| | Audio | Tend to skip over stuff | 121 -- I'll just put bracket and say insert comma right here so I'm putting this to the sentence as I go and I assume that I'm doing the same thing aloud but I tend to skip over more stuff when I do it aloud. |
| | Written | I do more of it | 123 -- I think when I'm doing it in writing. I to do more of it, perhaps. |
| Order of comments | | Audio first…establishing a bond<br><br>A feeling of connection | 142 -- And then they all loved the audio, at least I think so, from what they said to me.<br>So I thought at the time, gee, you know, I really think would be put into the audio first this essay with your establishing a bond with the teacher – I'm your coach. And sure enough, I mean, to have the audio first with the sort of the easier paper. The students were all excited about it. I really think I've had fewer students drop out of the course than usual because I think they feel more connected. And now that they know me they know my style. They know what I'm looking for, it's really maybe not necessary to do the audio. I can do the written and do it |

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| | | | and give support grilling on the revisions to which is part of the detail stuff that they need a lot of. And so it's just I actually got nice package really to do it this way.<br><br>from survey -- What I felt this time around was that the audio is best suited for the initial paper, as it gives the student a feeling of connection with the instructor. |
| Personable | Audio | About as personal as you can make it | 216 -- The audio. The audio feedback did more comments.<br>Just because that your writing itself is very personal putting words of the page. You know, this artificial barrier, there really and so this is especially in an online class. I think anything you know the video helps and all that. But an actual voice and instructor talking to a student about their work about the student's work is about as personal as you can make it without being in the classroom and doing the same thing. |

***Teacher coding – T2***

| *Issue* | | *Code* | *Example* |
|---|---|---|---|
| *Time spent* | Written | More time intensive | 6 -- I was thinking about this today and when I do written comments, it gives me a little bit of an advantage because I have a lot of resources I want to point student out to so I do, after I insert my comments, I do go back and try to type in some websites. And actually I do both. When I do written comments, I write about three paragraphs of at the beginning and then I insert comments. So it is more time intensive. |
| | Audio | Take less time preparing in the long run | from survey -- I think that they [audio comments] can take less time preparing in the long run. |
| *Explain your points/Be Clear* | audio | More specific | 19 -- Well, perhaps I feel like because my voice I can just be more specific. Maybe there isn't…I guess there really isn't between them really. |
| | Written | Go on and on | 38 -- That said, I was saying. And as far as being thorough, you know written comments allows to go on and on about some things which can be a negative thing in the end, but you know in the end. But I provide URLs and I can go on and on about something. |
| | Written | Provide urls | 40 -- But I provide URLs and I can go on and on about something. |
| | Written | Multilayer process | 49 -- Yes, that's definitely because of the written and then writing the page comments and inserting the comments. It's just a multilayer process for the written. |
| | Audio | Don't go on and on | 51 -- And I try to be more conservative without overwhelming students with the audio comments. I wouldn't consider myself a blatherer, you know, I don't I don't go on and on with my comments and you even in my conversations in normal life. So I really just choose as you suggested specific things to talk about. That's why I think it saves time. |
| | Audio | More conservative | 51 -- And I try to be more conservative without overwhelming students with the |

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| | | | audio comments. |
| *Global level* | Audio | Can explain in just a minute | 75 -- But I feel that audio are definitely the best for global level. You can explain it in just a minute. |
| | Written | Difficult to insert | 72 -- …it's difficult to insert the comments for global level issues and usually address the global level issues when I'm writing paragraphs and at the beginning of the very beginning of the paper. |
| | Written | Give examples | 83 -- I would be more apt to give examples in the written. |
| *Middle level* | Audio | Easy to draw their attention… | 91 -- For these issues. I also prefer audio because I ask students to open up their paper when I start the audio commentary and I'm hoping that they're looking at it with me. So I find it really easy to draw their attention to a specific page ask them to look at it with me. |
| | | | 96 -- I suppose there really isn't a difference. Yeah, like I thought before. There are advantages to both. |
| *Micro level* | Written | Easy to model | 105 -- Well for microlevel issues. I really tend to model a lot. So I'll create an example sentence, or I'll have one prepared. You know, obviously I have a paragraph prepared for a run-on sentence. So I do find it really easy to model and with the paper formatting that's much better too -- written. |
| | Written | Have a paragraph prepared | 106 -- So I'll create an example sentence, or I'll have one prepared. You know, obviously I have a paragraph prepared for a run-on sentence. So I do find it really easy to model and with the paper formatting that's much better too -- written. |
| *Personable* | Audio | Audio more personable | 151 -- I guess I find audio more personable. Just adding some warmth and depth to the comments and making sure the students can hear that I'm really invested in and engaged with their paper. I even see some offhand things, you know, that I may not normally insert in the in the written comments, you know, like I really enjoyed this the theme of the paper. I just feel it lends itself to being more personal. |

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| | | Warmth | 151 -- I guess I find audio more personable. Just adding some warmth and depth to the comments |
| | | Depth | 151 -- I guess I find audio more personable. Just adding some warmth and depth to the comments… |
| | | Invested in and engaged in the paper | 152 -- students can hear that I'm really invested in and engaged with their paper. I even see some offhand things, you know, that I may not normally insert in the in the written comments, you know, like I really enjoyed this the theme of the paper. I just feel it lends itself to being more personal. |
| | | Humanity | from survey -- that I am able to add more warmth and humanity in my responses…. I think that many students appreciate the personal touch and what they see as extra effort on an instructor's part. |
| *Number of words and number of comments* | Written | Try to be particular | from survey -- I believe that students will get discouraged if I insert too many comments throughout, so I try to be particular about the suggestions I offer and give a mixture of positive and constructive comments. |
| | Written | [make] the document attractive [when giving written comments] | from survey -- Creating written responses takes me more time because I pay close attention to the formatting—making the document attractive—and ensuring that there is a visual balance of comments. |
| | Audio | Even more particular with audio comments | from survey -- . I am even more particular about the number of comments I provide in audio comments because I don't want to lose the student's attention during the recording. |

***Teacher coding – T3***

| *Issue* | | *Code* | *Example* |
|---|---|---|---|
| *Time spent* | written | More effort to writ[e] in-text comments | 39 -- It takes more effort to writing extensive in-text comments. I generally don't put too much at the end of an essay and to write in text comments right next the |

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| | | | issue takes a lot of time and more thought than to just describe the situation in audio format. |
| | Audio | Audio alone…saved [time] | 20 -- , so if I just did the audio alone, that saved on drafts. |
| *Explain your points/Be Clear* | audio | Not…give students the answer | 58 -- I think [audio is] easier not to give the students the answer. |
| | Audio | Notice issues I may have missed | <u>from the survey</u> – [with audio] I would have the opportunity to notice issues that I may have missed on the first pass, or I would notice that something I thought was significant on first reading was not a big issue. |
| | Written | More cryptic | 58 -- It [written] seems to me more cryptic if I try to write something and say look at this word, is it not correct? |
| *Global level* | Audio | More comfortable to explain | 86 -- Just a similar sort of thing. I found it more comfortable to explain move this paragraph, or look at this issue. The thesis…are you talking about middle level? |
| | Audio | Can describe…with less effort<br>More information with less effort | 91 -- I would just mention the thesis and describe I can describe things really that way with less effort in typing out longer passages.<br>99 -- I was reading somewhere that with audio feedback…audio feedback tended to give more information in less time with less effort. |
| | Written | Typing out longer passages | 91 -- I can describe things really that way with less effort in typing out longer passages. |
| *Middle level* | Audio | | 109 – Quite similar reasons [as for global level] |
| *Micro level* | Audio | | 58 -- I think it's easier not to give the students the answer. It seems to me more cryptic. If I try to write something and say look at this word, is it not correct?<br><br>You know, it seems sometimes in certain situations that it's more cryptic to do that, and if I have a conversation, I feel like I can explain the situation more clearly and … the |

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| | | | correction without giving away too much and on the other hand, without being too cryptic…. And I find the conversation more natural in doing that |
| | Audio | | I was just going to say that I always recommend students read their own essays aloud, especially for things like word choice and run-on's that we just talked about. So I'm sort of engaging in the same process by doing it in audio format. |
| *Personable* | Audio | Conversation more natural | 67 -- I find the conversation more natural in doing that |
| | | Humanizes the course | 129 -- humanizes the course |
| | | Like a f2f course | 139 -- Conversation-wise, it could seem as if we were doing sort of a one-tone conference, and it makes it more personable. |
| | | Express tone better | 147 -- , I think that the audio provides an opportunity to express tone better than but comments. |

***Teacher coding – T4***

| *Issue* | | *Code* | *Example* |
|---|---|---|---|
| *Time spent* | Written | | |
| | Audio | | |
| *Explain your points/Be Clear* | Audio | Can be too thorough | 26 – I just think that I tend one I'm on the audio file to almost be *too* thorough. Although I think students appreciate it. |
| | Audio | | 41 -- But I go into more detail with the audio file, which would make the file a little bit longer. |
| | Audio | Expound more | 63-- when I'm giving the comments orally, I tend to expound more on my points |
| | Written | | |
| *Global level* | Audio | Say why that thesis is well crafted. | <u>from the survey</u> -- I also found that I was likely to go into more detail about what was strong about the essay and this also added to the length of the file. In the audio file, I can tell the student that the thesis is good and then say *why* that thesis is well crafted (whereas in a written file, I might just write "Thesis is effective."). |
| | Audio | More detailed | 65 – in the audio file. I may go into a little bit more detail about *why* I feel the thesis is effective.<br><u>from the survey</u> -- …but my audio comments may be more detailed. Example: Written: Thesis is effective. Audio: Thesis is effective. The use of an explicit thesis works well for this topic and gives the audience a preview of your analysis. |
| | Written | Might just say…<br>Might just write… | 64 -- if in the written file, I might just say this thesis is appealing or you know, thesis is strong.<br><u>from the survey</u> -- In the audio file, I can tell the student that the thesis is good and then say *why* that thesis is well crafted (whereas in a written file, I might just write "Thesis is effective."). |
| | | Written commentary [is] effective.<br>Am thorough in my written commentary | <u>from the survey</u> -- I still find the track/changes written commentary to be an effective medium. Although I am thorough in my written commentary too,… Although I am thorough in my written commentary too, I tend to go into more detail about my |

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| | | | suggestions using the audio medium. In other words, I may identify the same number of areas to address in the written file (that I do in the audio one), but my audio comments may be more detailed. Example: Written: Thesis is effective. Audio: Thesis is effective. The use of an explicit thesis works well for this topic and gives the audience a preview of your analysis. |
| *Middle level* | Audio | Tend to give examples | 84 -- . So if there is a paragraph that lacks unity, you know, I will tend to give some examples of topic sentences. If the paragraph is – if there are ideas that aren't needed or maybe perhaps some of the ideas need to go somewhere else. Or maybe they just need to be deleted – you know, I can point that out. Or I can give examples in the audio file. |
| | Audio | Read them back | 88— If there are you know some rambling going on. I tend to maybe point out a couple of areas and then just read back to them how they might be more concise. |
| | Written | Write…in the margins…and that may be all I write. | 93-- …with written you know, I try to do the same thing, but you know when I do the written files with this, I might tend to just say, you know paragraph lacks unity and I may point out where you know when the readers get to this part of the paragraph, here's where the paragraph lacks unity. And I'll write, you know, in the margins, you know, "Your topic sentence isn't unified this paragraph." And that might be all I write. |
| *Micro level* | Audio | Point out more micro-level issues than I need to | 29 -- I tend to point out probably more microlevel issues than I need to, so I think that that adds to the time of the audio file. |
| | Audio | Could hear the awkwardness<br>Could hear the error<br>Enables student to hear the omission or awkward diction. | 107 -- …for the microlevel issues in the audio file -- and a couple of students actually told me that it helped for them to hear my voice in reading some, you know, if they had awkward phrasing, or if they had, you know, an error in grammar. They could hear that awkwardness or they could hear that error in my voice. So I just think that it was more effective.<br><u>from the survey</u> -- Reading aloud a sentence |

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| | | | that contains a dropped word or awkward phrasing enables the student to hear the omission or awkward diction. If there is a fused run-on, I can read aloud the sentences running together rather than saying "You've got a fused run-on in par. 2; a period is needed after x." |
| | Written | Can effectively point out micro-level issues | 104 -- mean I still can easily and effectively point out microlevel issues in the written medium. |
| *Personable* | Audio | More personable | 152 – the audio [was more personable] |
| | | Style transfers | 172 -- I think that you know I try to be very conversational I try not to -- and that's just my style in the classroom -- so I think that my style of the classroom in terms of … whether it's lecturing or dialogue with students you know seems to transfer pretty seamlessly to the audio files. |

***Teacher coding – T5***

| *Issue* | | *Code* | *Example* |
|---|---|---|---|
| *Time spent* | Written | | |
| *Explain your points/Be Clear* | Audio | Address all areas | 51 – , I felt like when giving the audio comments that it was easier for me to really address all of the areas that needed improvement. And, of course, in the first draft with it being a rough draft, there were many areas for just about every student that needed a lot of improvement. And I also found myself giving more examples in the audio versus what I typically do a giving written comments. |
| | Audio | Give examples | 54 -- … I also found myself giving more examples in the audio versus what I typically do a giving written comments. |
| | Audio | [like] a face-to-face class | 102 -- . It was easier to bring in the examples the same way I would if I was teaching in a face-to-face class |
| *Global level* | Audio | Give examples<br>Say more | 64 -- Because I was like addressing, for instance, maybe I was addressing a problem with the thesis. Then I would try to give |

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| | | | some examples. You know, I just felt inclined to say more. And again, I felt going into this that I would spend less time on the audio comments. But I ended up spending more time and I just thought that if I you know gave them more examples that that would be helpful. |
| | Audio | Easier to tell them what was wrong | 123 -- …I was thinking it was just easier for me to *tell* them what they were doing wrong and I felt that I was able to say it in a way that they would understand you know versus just me writing out those comments. |
| | Written | Versus just me writing out | 125 -- … versus just me writing out those comments. |
| *Global and Middle level* | Audio | More students able to respond | <u>from the survey</u> -- After using the audio comments, I have noticed that more students have been able to respond to my comments/concerns (on global/middle levels) with their drafts. I also think that using the audio comments helps to engage students more in the online classroom. |
| | Audio | Helps to engage students | <u>from the survey</u> -- also think that using the audio comments helps to engage students more in the online classroom. |
| *Micro level* | Audio | Just listening | 135 -- Just listening to me say okay well here is where there's the comma splice in the sentence. I just felt like being able to highlight would be an easier way for them to see it. |
| | Audio | Didn’t get into a lot of grammar [with audio comments] | 155 -- Well, I mean I guess for the most part when I was giving the audio comments. Most of my comments were focused on the global and middle levels because that's really where most of the problems were. And then so I didn't get a lot into the grammar, the mechanics of the paper as I did when I was doing the first draft of the written comments. |
| | | Comparison-contrast essay [features] struggles [with global-level issues] | 177 -- Well, yes and I would say that through my experience, the comparison-and-contrast essay is the one that I have noticed that students struggle with the most. And because all of the drafts basically almost all of them that I received had *major* problems on the global and middle level…So I felt that if I had gone on any |

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| | | | further it was going to turn into probably at least a half-hour MP3 file for them to listen to and I felt like I'm gonna lose them at that point. |
| | Written | Could highlight | 135 -- Well, okay, because I could, I would think that if I'm making comments on their draft then like for instance if I see where they have a lot of comma splices I could highlight that and then send that back to them.<br><br>I'm not sure if it would be a recognize the problem there. Just listening to me say okay well here is where there's the comma splice in the sentence. I just felt like being able to highlight would be an easier way for them to see it. |
| *Personable* | Audio | Friendly tone | 226 – , I felt like again. It was very easy for me to give the comments…I spoke to them, and I think a very friendly manner, if you will, that they could relate to and they could also hear my tone.<br><br>So I thought that I used, you know, a very friendly tone one that was encouraging to them to show how they could make the improvement, that they had the ability to do it. |
| | Written | Tone is hard to pick up | 229 -- Sometimes you don't know when a student is reading your written comments. Do they think I'm yelling? You know, they never know – tone is heard pick up online. Because you reading notes back and forth. |

APPENDIX J

# IRB from Institution #1

**Procedures for Completing the Research Project Notification and Human Subjects Protection Form**

As outlined in UMUC Policy 130.25, Conducting Research Involving Human Subjects, all UMUC students, staff, faculty, and individuals external to UMUC, who wish to conduct research involving human subjects must adhere to this policy before conducting any research.

**All researchers** must complete the Research Project Notification and Human Subjects Protection Form and receive all appropriate signatures before initiating any research. Please fill in each blank and provide copies of any additional documents (i.e. draft questionnaires) as necessary.

If you have any questions about the form, ask your IRB representative.

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**Research Project Notification and Human Subjects Protection Form**

Date: November 30, 2010

Name of Proposer: **Andrew J. Cavanaugh**

Email: acavanaugh@umuc.edu Phone: (240) 684-2836

Fax: (240) 684-2996

Unit Representative: **Dr. Sabrina Marschall**

Email: smarschall@umuc.edu Phone: (240) 684-2890

Fax: (240) 684-2996

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**1. Title of Project:**

**A Comparison of Audio Comments and Written Comments: Student and Instructor Preferences and Instructor Feedback Quality and Quantity**

**2. Purpose of the Project:**

**Doctoral research for Andrew J. Cavanaugh**

**The objective of the study is to examine teachers' use of audio commentary to student writing assignment and teachers' use of written commentary to student writing. The study aims to determine if the content of comments changes, if the length of comments changes, if student perception is affected, and if student performance on final drafts of writing assignments is improved when comparing both modes of commenting.**

**3. Survey Instruments or Data Collection Methodology to be used.**

A. Interview, focus group, questionnaire, or other?

**A survey and interview will be conducted with students who agree to participate. In addition, a survey and interview will be conducted with the faculty members who agree to participate.**

If other, please explain.

B. Online, regular mail, face-to-face, or other ?

**Online**

If other, please explain.

C. Please attach a copy of each instrument if it has been prepared. If not, explain how it will be developed.

**The surveys are attached to this correspondence.**

**4. Research Design including population and sample, if applicable.**

A. UMUC Students, Staff, Faculty, or other?

**UMUC students and faculty members**

If other, please explain.

B. Sample Size_____

**Potentially 96 students. The enrollment cap for WRTG 101 is 24. The study will be conducted on four sections of WRTG 101. Therefore, the potential number of student participants is 96.**

**In addition, 4 instructors of WRTG 101 will participate.**

C. What information will be collected (e.g. any potentially sensitive subjects such as drug use, etc) ?

- **Teachers' comments on the first drafts of two writing assignments**
- **Teachers' comments on the final drafts of two writing assignments**
- **Survey results**
- **Interview results**

**No information collected will be potentially sensitive information.**

D. What data other than the respondents' answers will be sought (e.g. via access to UMUC records)?

**None**

E. How will the privacy and confidentiality of the human subjects be recorded and stored?

**The study will be confidential. The data from this study will be locked and stored. No participants' names will be attached to any data.**

**The principal researcher will assign a unique code to each student and to each instructor. The principal researcher will then construct a list of these codes. The list of codes will be stored in one location in the principal researcher's home.**

F. How will the analysis protect the respondent's right to privacy (e.g., if less than five people are in a table cell, how will their identity remain anonymous)?

**The study will be confidential. The data from this study will be locked and stored. No participants' names will be attached to any data.**

**The principal researcher will assign a unique code to each student and to each instructor. The principal researcher will then construct a list of these codes. The list of codes will be stored in one location in the principal researcher's home.**

**5. Signature Approvals**

**Proposer Verification**

___x__I have read and understand the UMUC Policy 130.25 and the procedures for completing the Research Project Notification and Human Subjects Protection Form. I have completed the Research Project Notification and Human Subjects Protection Form fully and accurately. I agree to comply with UMUC Policy 130.25.

Andrew J. Cavanagh — 12/7/10

Research Proposer — Date

**Course Instructor Approval**

_____I have determined that the proposed research involves minimal risk and is limited to individuals within the proposer's course and is approved.

_____I have determined that there may be a risk to human subjects and will forward the application form to the appropriate IRB representative.

Course Instructor — Date

**Please return form to the Proposer or forward to IRB representative, as appropriate.**

**IRB Representative Approval**

__X__I have determined that the proposed research involves minimal risk and is approved.

_____I have determined that the proposed research involves more than minimal risk and/or is being completed by an individual external to UMUC and must be forwarded to the IRB to complete a full review.

Marie A. Cini — 12/7/10

IRB Representative — Date

**Please return form to the Proposer within 7 working days or forward to full IRB, as appropriate.**

**IRB Full Board Approval**

The IRB has completed a full review. The proposed research has been:

_____ approved. _____ disapproved.

Explanation:

IRB Chairperson — Date

**Appropriate Research Office Approval**

_____I have determined that the proposed research will not denigrate the integrity of UMUC data collection nor will it put an undue burden on UMUC and UMUC data collection and surveying.

_____I have determined that the proposed research should not be undertaken. Please see the attached memo for further explanation of this decision.

Please indicate with an "X" which individual has made the determination and then sign on the line provided below:

_____ Vice President, Accountability and Planning, UMUC-Adelphi
_____ Director, Office of Institutional Research, UMUC-Asia
_____ Director, Office of Institutional Planning, UMUC-Europe

_____ _____
Appropriate Research Staff Date

**Please return form to the Proposer within 7 working days.**

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Abstracts of all proposals will be kept for two years in the UMUC-Adelphi Office of Institutional Accountability, Planning, and Research. All completed research forms, electronic research files, proposals, research reports and data collection instruments must be stored in the UMUC-Adelphi Office of Institutional Accountability, Planning, and Research for two years.

APPENDIX K

# IRB from Institution #2

TOWSON
UNIVERSITY

## EXEMPTION NUMBER: 11-0X71

To: Andrew Cavanaugh

From: Institutional Review Board for the Protection of Human Subjects, Deborah Gartland, Chair

Date: Tuesday, January 04, 2011

RE: Application for Approval of Research Involving the Use of Human Participants

Office of University
Research Services

Towson University
8000 York Road
Towson, MD 21252-0001

t. 410 704-2236
f. 410 704-4494

Thank you for submitting an application for approval of the research titled,

*A Comparison of Audio Comments and Written Comments: Student and Instructor Preferences and Instructor Feedback Quality and Quantity*

to the Institutional Review Board for the Protection of Human Participants (IRB) at Towson University.

Your research is exempt from general Human Participants requirements according to 45 CFR 46.101(b)(2). No further review of this project is required from year to year provided it does not deviate from the submitted research design.

If you substantially change your research project or your survey instrument, please notify the Board immediately.

We wish you every success in your research project.

CC: Dr.Liyan Song
File

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# Andrew J. Cavanaugh

**Educational Background**

- Ed. D., Instructional Technology, Towson University, Towson, Maryland, in August 2013
- MATESOL, Eastern Michigan University, Ypsilanti, Michigan, in April 1991.
- B.A. in History, Michigan State University, East Lansing, Michigan, in June 1984.

**Administrative experience**

**January 2013 – present**
**Director of Writing**
**Communication, Arts, and Humanities,**
**University of Maryland University College**

Responsibilities include overseeing eight courses: EDCP 103, WRTG 101, WRTG 101S, WRTG 291, WRTG 293, WRTG 391, WRTG 393, WRTG 394, and COMM 600. Tasks include curriculum development and revision, determining outcomes and competencies for each course, making textbook selections, observing faculty members, handling student inquiries and complaints, hiring and staffing faculty members, and coordinating assessment projects. The position also involves supervising two full-time support specialists and two full-time writing instructors.

Tasks also include directing and managing discussion forum in Engage, a forum for faculty to discuss writing concerns in classes.

Global involvement includes leading discussions with Directors in UMUC-Europe and

UMUC-Asia on course goals, effective teaching strategies, textbook selection, and curriculum design.

The position involves direct administrative oversight of approximately 200 faculty members.

**August 2008 – January 2013**
**Director of Academic Writing**
**Communication, Arts, and Humanities,**
**University of Maryland University College**

Responsibilities included overseeing five courses: EDCP 103, WRTG 101, WRTG 101S, WRTG 291, WRTG 391, and COMM 600. Tasks included curriculum development and revision, textbook selection, observations of faculty members, handling student inquiries and complaints, hiring and staffing faculty members, and handling assessment projects.

Tasks also included directing and managing the WRTG 000, a forum for faculty to discuss writing concerns in classes. The position has also involved faculty training on technological tools, including Impatica and other tools for using audio in the online classroom.

Global involvement included leading discussions with Directors in UMUC-Europe and

UMUC-Asia on course goals, effective teaching strategies, textbook selection, and curriculum design.

The position involved direct administrative oversight of approximately 130 faculty members.

**July, 2005 – August 2008**
**Director of Writing**
**Communication, Arts, and Humanities,**
**University of Maryland University College**

Responsibilities included overseeing the direction of the Writing Initiative, a charge from the Provost's Office to improve the quality of writing instruction among the faculty and of writing performance among students. The responsibilities of the Initiative included, among other tasks, overseeing writing courses in both the English and the Communication Studies areas, revising course objectives, aligning course objectives of various writing courses, and directing course revision and course development decisions.

Involvement with faculty members included leading monthly meetings with writing instructors, interviewing and hiring adjunct and full-time faculty, staffing faculty for courses, and addressing student concerns about faculty teaching. Also included leading our annual Writing Conference in July, including contributing to proposal decisions, assisting with scheduling, and leading the plenary sessions at which all faculty members are present. Also involved leading discussions and providing direction on assessment, the use of rubrics, and the design of effective writing assignments. Tasks also included directing and managing the WRTG 999, a forum for faculty to discuss writing concerns in classes. The position also involved faculty

training on technological tools, including Impatica and other tools for using audio in the online classroom.

Global involvement included leading discussions with Directors in UMUC-Europe and

UMUC-Asia on course goals, effective teaching strategies, and curriculum design.

Other responsibilities included communicating with testing organizations such as Educational Testing Service and College Board in arranging a self-diagnostic placement test for incoming students.

The position involved direct administrative oversight of approximately 200 faculty members.

**May, 2004 – July, 2005**
**Assistant Academic Director, Department of English**
**Communication, Arts, and Humanities**
**University of Maryland University College**

Responsibilities included staffing faculty for courses, interviewing and hiring adjunct and full-time faculty, observing online classes, addressing student concerns, conducting evaluations of software and web tools for pedagogical effectiveness, training other faculty on technology issues, developing modules for new courses, and teaching at least two courses per year.

The position involved oversight of approximately 90-100 faculty members.

**June, 1998 – June, 2001**
**Vice-President, President, and Past President of Washington Area Speakers of Other Languages (WATESOL)**

- Vice-President, WATESOL, 1998-1999. Duties included coordinating the Spring Conference, “Springing Into the Millennium,” in April 1999 and contributing to planning discussions and policy decisions by the Board.
- President, WATESOL, 1999-2000. Duties included working with Fall Convention team for WATESOL 1999 Convention. Also oversaw a new management system for our database and the development of a new web site for our members.
- Past President, WATESOL, 2000-2001. Duties included assisting as Publicity Coordinator for the Fall Convention, 2000 and chairing the Nominating Committee for next year’s election for the Board and for officers.

WATESOL has between 500-600 members.

**Faculty Training and Management Experience in Instructional Technology**

**Online Writing Tutorial Development**
**University of Maryland University College**
**Fall 2005—August 2006**

Project involved managing and coaching two instructors, coordinating with a Flash programmer, and working with UMUC's Instructional Services and Support unit in creating eight online writing tutorials and interactive exercises. Several of the tutorials are now a permanent part of an advanced composition course.

Samples of three of the tutorials can be seen at the following urls:

http://polaris.umuc.edu/ewc/tutorials/introductions/
http://polaris.umuc.edu/ewc/tutorials/paragraphs/
http://polaris.umuc.edu/ewc/tutorials/active_voice/

**Multimedia Center Training and Scheduling Coordinator**
**Maryland English Institute**
**University of Maryland College Park,**
**May 2001—May 2004**

Responsibilities included training faculty on the ASC Direct networking system as well as the Windows 2000 network, training faculty on the use of various software products for teaching English, scheduling faculty to teach in the lab, and interviewing potential student workers to assist in the lab. The position involved oversight of approximately 12-15 faculty members.

**Teaching Experience**

**2004 – present**

**Collegiate Professor, University of Maryland University College, Adelphi, Maryland**

Responsibilities include teaching at least three credit hours per year in composition, research, and grammar to non-traditional adult students in both online and hybrid formats.

**1991 – 2004**

**Instructor, Maryland English Institute, University of Maryland, College Park**

Responsibilities included teaching 15 contact hours per week in grammar, writing, reading, listening, and oral communication classes to all levels of students, all of whom were nonnative speakers of English. Other responsibilities were as follows:

- Served as Coordinator of various contract programs at MEI. These included the **English for Public Policy and Business Administration Program** for a delegation of twenty-eight officials from Henan Province, P.R.C. from February 6 – March 27, 2001, and the **English for Public Policy Program** for a delegation of thirty-one officials from Beijing, P.R.C. during the summer of 2000. Also included the **Smith Transitions Program**, an orientation program for international students preparing to enter the MBA program at the Robert H. Smith School of Business at UMCP. Both programs involved extensive curriculum development, coordination with other instructors, instruction in WebCT, communication with other academic departments on campus, and materials development. Also coordinated a program for a **Beijing and Wuxi delegation** from the P.R.C. in summer, 1999.

- Served as Head of the Technology Committee from fall 1999 to spring 2001. This involved training faculty on the use of basic computer skills as well as on WebCT skills for pedagogical as well as conferencing use.

- Served on the Executive Council from fall 2000 to spring 2001. This involved meeting with the administration every three weeks to communicate on any issues of importance from the faculty.

- Served on the Search Committee for our Assistant Director position from September 1999 to May 2000 and on the Search Committee for our Administrative Coordinator position in spring 2002. Also served on Strategic Planning Committee and the Testing Committee from 1996-98.

**1991-- 2004**

**Instructor, University of Maryland University College, Adelphi, MD**

Responsibilities included teaching intermediate and advanced writing and grammar courses to both native and non-native speakers of English.

**Distance Education Training and Awards and Administrative Awards**

**Dean's Award, University of Maryland University College**, Spring 2007

The Dean's Award recognized my work in developing writing tutorials, enhancing the writing courses, and providing leadership to the Writing Initiative at UMUC.

**Faculty Innovator recognition by the University of Maryland University College's Faculty Media Lab,** Fall 2004

The Faculty Media Lab recognized my use of multimedia in the online classroom through the use of audio files and Impatica lectures to teach writing and grammar. My interview with the lab representative and samples of my work can be seen and heard at the following url:
http://www.umuc.edu/oiss/cmnt/fml/innovators/cavanaugh.html

**Quality Matters Training,** 2004

The Quality Matters program is administered by Maryland Online (MOL), a statewide consortium of 19 Maryland educational institutions. The project represents a cooperative inter-institutional effort to assure course improvements in online learning. The effort is achieved through the use of a rubric through which to assess online courses. The training involves a one-day seminar introducing the rubric. The training is followed by the invitation to become a part of an assessment team to evaluate a course.

**Web Initiative in Teaching Distance Education Fellow**, 1998-2000

The Web Initiative in Teaching (WIT) Program was an effort to deliver Web-based courses created by teams identified through a proposal process. Training included a week-long intensive training in online theory and pedagogy and monthly meetings with other WIT participants to discuss course design, navigational issues, software and courseware decisions, instructor workload, and technological problems involved in teaching at a distance. The program culminated in each participant's piloting his/her course in the Fall of 1999.

**WebTycho Distance Education Training**, January-February, 1997

University of Maryland University College.

Training included basic instruction in web course design, conferencing, and group interaction. Also included designing a trial module for a possible web class. This training led to my being qualified to teach online for UMUC, which I have done for the last ten years.

**Additional professional activities**

- Co-Chair of Partnership for Assessment of Readiness for College and Careers (PARCC) Higher Education English Working group, Maryland, Fall 2011 – present.
- Webmaster and member of Statewide Standards for College English

Committee, Fall 2008 – present.

- Co-Chair, Washington Area Teachers of English to Speakers of Other Languages (WATESOL) Convention, "Delegates to the World," Fall, 1996.

- Chair, Washington Area Teachers of English to Speakers of Other Languages (WATESOL) Convention, "Teachers as Learners," Fall, 1997

- Listserv Coordinator for WATESOL, September 2000 – June 2003. Duties included sending out job announcements and other pertinent information to the membership. Also included updating the list of members in the listserv.

- Webmaster for WATESOL, June, 2003 – 2008. Duties include updating the main web site at http://www.watesol.org including convention and workshop announcements and general site maintenance. Have updated the site using Flash components.

**Presentations**

- "Expectations for Writing at the College Level," Charles County Public Schools Advanced Placement Teacher Retreat. Raising Expectations: Creating College and Career Ready AP Students, Nanjemoy, MD, September 26, 2012.

- Cavanaugh, A., Gallagher, D., & McCollum, D. "Connecting English Composition and Information Literacy: A Study of What Is and Is Not Significant to Undergraduate Student Performance." The College English Association Middle Atlantic Group Spring Conference, Adelphi, MD, March 3, 2012. (With D. Gallagher, and D. McCollum)

- "The Relationship Between Library Skills and Research Writing among Undergraduates in 100-level Composition and Library Skills Classes: Preliminary Findings from a Study," The Maryland Statewide Standards for College English Committee Composition Conversations VII Writing Conference, Contentious Issues in Composition, Community College of Baltimore County Catonsville, October 21, 2011. (With D. Gallagher, and D. McCollum)

- "A Comparison of Written and Audio Commentary in an Online Composition Class," Society for Information Technology & Teacher Education (SITE) San Diego, CA,May 31, 2010 (with L. Song)
- "Using Audio-Based Methods to Give Feedback to Student Writing," Promoting Student Success: The First Year and Beyond, College of Southern Maryland, La Plata, MD, October 19, 2007.

- "Updates on the UMUC Writing Program," University of Maryland University

College Fourth Annual July Writing Conference, Adelphi, MD, July 27, 2007 (With L. DiDesidero and J. Chapin)

- "Can I Do This Legally? The Digital Millennium Copyright Act and Its Impact on Teaching Writing F2f and Online," University of Maryland University College Fourth Annual July Writing Conference, Adelphi, MD, July 27, 2007.

- "Audio Files in the Online Writing Classroom: Give Yourself, and Your Students, a Break," University of Maryland University College Fourth Annual July Writing Conference, Adelphi, MD, July 27, 2007.

- "The Use of Video In Political Dialogue to Teach If- Clauses," World Conference on Educational Multimedia, Hypermedia & Telecommunications (ED-MEDIA), Vancouver, BC, June 28, 2007.

- "How Do We Evaluate Writing?" University of Maryland University College Writing Conference, Adelphi, MD, July 29, 2006.

- "Audio-Based Comments to Student Writing Assignments," Maryland Distance Learning Association Conference, Linthicum, MD, March 8, 2006.

- "Using COMMENT With The Bedford Handbook," University of Maryland University College Writing Conference, Adelphi, MD, July 29-30, 2005.

- "The Writing Initiative at UMUC," University of Maryland University College Writing Conference, Adelphi, MD, July 30, 2005.

- "Grade Norming Workshop," University of Maryland University College Writing Conference, Adelphi, MD, July 30, 2005.

- "How to Acquire a Polaris Account and What to Do With It," University of Maryland University College Writing Conference, Adelphi, MD, July 30, 2005.

- "Demonstration of Impatica," University of Maryland University College Writing Conference, Adelphi, MD, February 21, 2005

- "Giving Feedback on Writing," University of Maryland University College Writing Conference, Annapolis, MD, July 30-31, 2004

- "Using Audio in the Online Classroom," University of Maryland University College Writing Conference, Annapolis, MD, July 30-31, 2004

- "An Innovation Approach to Introducing New Technology" TESOL Convention, Long Beach, CA, April 3, 2004 (with L. Sahin)

- "Peer Review of ALN Courses: Promise, Problems, and Practice." Asynchronous Learning Networks 2000: Building Sustainable Online Learning Environments, Adelphi, MD, November 3-5, 2000 (With J. Paoletti et al.)

- "Teaching Writing Online: Management of Time, Papers, and Feedback." WATESOL Fall Convention, George Mason University, Fairfax, Virginia. October 14, 2000.

- "Online Intercultural Learning Center: A Collaboration Between Native and Non-native English Speakers." International Association for Language Learning Technology Conference, College Park, MD. June 24, 1999 (With H. Gray et al.)

- "Collaborative Projects for Educators: Learning By Doing." Web Initiative in Teaching Conference, Adelphi, MD. May 1999 (With H. Gray et al.)

- "The Online Intercultural Learning Center." TESOL Convention, New York. March 1999 (With H. Gray and K. Kilday)

**Publications**

- Cavanaugh, A., & Sull, E. C. (2011). A miniguide to the use of audio files in the distance learning class. *Distance Learning, 8*(41), 83-93.

- Cavanaugh, A. & Song, L. (2010). A comparison of written and audio commentary in an online composition class. In D. Gibson & B. Dodge (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2010* (pp. 379-385). Chesapeake, VA: AACE.

- Cavanaugh, A. (2007). The use of video in political dialogue to teach *If*-clauses. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007*(pp. 3859-3864). Chesapeake, VA: AACE.

- Cavanaugh, Andrew. (2006) "Audio comments in the online classroom: Pedagogically sound, ergonomically necessary." DE Oracle @ UMUC. Center for Support of Instruction, University of Maryland. http://deoracle.org/ online-pedagogy/assessment-feedback-rubrics/usingaudio.html

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| **Programs and Applications** | • Dreamweaver<br>• Flash, including the use of some ActionScripts and integration of Flash Video<br>• Camtasia<br>• Engage<br>• Dazzle Video Creator<br>• Sony Voice Editor<br>• Tablet PC functions and applications<br>• Impatica with PowerPoint<br>• Wimba<br>• WebEx |
| **Languages** | Have a basic knowledge of Mandarin Chinese. |