

STUDENTS' PERCEIVED PREFERENCE FOR VISUAL AND AUDITORY ASSESSMENT WITH E-HANDWRITTEN FEEDBACK

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Undergraduate business communication students were surveyed to determine their perceived most effective method of assessment on writing assignments. The results indicated students' preference for a process that incorporates visual, auditory, and e-handwritten presentation via a tablet PC. Students also identified this assessment process would improve their writing by helping them understand the types of errors they were making and why these errors were incorrect. Students also indicated this type of assessment would help build a relationship with the instructor and help them be successful in the class.

Keywords: *assessment; evaluation; business communication*

PROVIDING RICH, MEANINGFUL feedback through appropriate assessment to augment and reinforce the learning process has been a challenge for educators. Meaningful assessment may be provided in both formative and summative formats to meet the pedagogical needs of the course. With rich, meaningful assessment, value-added learning will occur. Engaging students and providing such assessment are key factors in enhancing students' experiences.

The effectiveness of assessment can be amplified when the assessment process incorporates visual, auditory, and e-handwritten presentation. A multisensory approach “not only reinforces learning, it personalizes the assessment process, engages students and helps ensure the learning and assessment respond to multiple student learning styles” (Wilkinson, Crews, & Kinley, 2008). The research described in this article allowed postsecondary business communication students to provide their input as to their perceived most effective method of assessment to help them be successful in a business communication course.

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LITERATURE REVIEW

Postsecondary business communication educators have witnessed what seems to be a decline in the writing skills of their students. Why does it seem writing skills are on the decline when Jameson (2007) found “the proportion of students with solid writing and reading abilities has held fairly steady but remained small during the past 25 years” (p. 17)? The answer lies in the fact that “the proportion of high school graduates who enroll in higher education has soared. Thus, more students with weak verbal abilities are entering college” (Jameson, 2007, p. 17).

Pittenger, Miller, and Allison (2006) raise an important point: “One wonders if an instructor can teach students to write better in a single course” (p. 257). Business communication courses are common at the university level to assist students in becoming more effective writers. Speech and English courses are also typically implemented in universities’ general education requirements to enhance students’ communication skills (oral and written). Pittenger et al. also provide recommendations to improve students’ writing. One recommendation in particular pertains specifically to this research: “Discuss thoroughly with students the feedback on their written responses” (Pittenger et al., 2006, p. 262). Written communication skills need to be emphasized in the classroom, and students should be provided multiple opportunities to improve such skills. However, as instructors accept electronic submissions of students’ work and/or teach in an online environment, it is essential for educators to review how feedback and assessment can enhance writing skills.

Deans (2009) notes that faculty who assess students’ writing many times become editors and become consumed with making edits through the use of the Track Changes feature, and students simply accept all changes. This does not enhance the learning process. Providing meaningful feedback to students in a way that encourages them to be more responsible for their own edits and writing improvement is the goal. The goal is not to do the work for the students or simply tell students what to fix, but to help students learn what they are doing incorrectly and why and to help them learn how to fix their mistakes. Therefore, meaningful assessment is essential.

The University of Southern California’s Center for Excellence in Teaching (2007) website notes,

To assess derives from the Latin verb “assidere,” *to sit by* (originally, as an assistant-judge in the context of taxes). Hence, in “assessment of learning” we “*sit with* the learner,” and that implies that it is something that we *do with* and *for* our students rather than *to* them. (para. 1)

In an essay by Parini (2008), he stated he tries to “. . . emulate . . . sitting beside my students in my office, ‘correcting’ their work,” (p. 3). The research process described in this manuscript models the “sit with the learner” assessment method as the researchers are investigating the benefits of various assessments to improve student learning, writing skills, and success in business communication courses. This type of assessment provides for a more engaging and student-centered learning experience.

Huba and Freed (2000) defined assessment as,

The process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences; the process culminates when assessment results are used to improve subsequent learning. (p. 8)

They further noted eight characteristics indicative of learner-centered teaching. Four, in particular, reference the goals of this research for assessment or feedback: (a) learners are actively involved and receive feedback; (b) learners become increasingly sophisticated learners and knowers; (c) professors coach and facilitate, intertwining teaching and assessing; and (d) learning is interpersonal, and all learners—students and professors—are respected and valued (Huba & Freed, 2000). Using technology as a tool may be the way to virtually assess learning as we “sit with the learner” to improve writing skills (University of Southern California, 2007, p. 1).

A case study by Denton, Madden, Roberts, and Rowe (2008) found that students who received electronic feedback considered the information more important than students who responded to handwritten feedback on their assignment. Garrison and Arbaugh (2007) note that providing various means of assessment and feedback is a responsibility of the instructor during direct instruction. When providing explanatory feedback there must also be a feeling of instructor immediacy and

social presence (Baker, 2004; Richardson & Swan, 2003). Therefore, students perceive the feedback to be timely and interpersonal.

Garrison (2007) also notes that the instructor's ability to provide timely, focused feedback and to understand students' strengths and weaknesses is essential. Providing timely feedback is essential; however, the feedback must be meaningful and appropriate, so that students will comprehend and use it for future assignments. E-assessment is one way to provide feedback in multiple modalities. E-assessment was defined by Ridgway, McCusker, and Pead (2004) as a flexible method of assessment that uses electronic technologies to determine the level of student learning. WebQuests and e-portfolios are typical e-assessment tools, but we will also describe in this article another form of e-assessment that meets the definition of e-assessment just provided.

Faculty have typically provided students feedback on writing assignments through the use of handwritten comments on the document—marking up the paper. Much past research has shown that marking the paper is not the most effective form of feedback, as students often do not understand the comments, the comments are ineffective in helping the students modify the writing, and the comments may not produce effective writing (Burnham, 1986; Hillocks, 1986; Knoblauch & Brannon, 1984). Sommers (1982) noted that comments written by instructors on students' papers should be geared toward producing more effective writers. However, this cannot be done effectively unless the commenting is connected and reinforced in the classroom. White (1986) noted that the traditional method of marking papers was “unecological, unreliable, pedagogically uncertain or descriptive, and theoretically bankrupt” (p. 123). Therefore, traditional methods of assessment must be analyzed in connection with course outcomes, students learning styles, and multiple modes of feedback.

Hemby, Wilkinson, and Crews (2006) identified a variety of ways to convert assessment of traditional classroom assignments to the e-learning environment. Such techniques were considered during the research process described here. However, as noted by Meyen, Aust, Bui, and Issacson (2002) assessment is not always completed and discussed face-to-face (F2F) in a traditional classroom, but has evolved to a context of building a relationship between the instructor and students. Assessment may be provided in synchronous or asynchronous

environments. There are a variety of methods to provide meaningful feedback to students in either environment.

PURPOSE OF THE STUDY

This study involved undergraduate students in business communication courses. The purpose of the study was to investigate students' perceptions of the most effective method of assessment in order to provide rich, meaningful feedback on writing assignments. The research objective of the study was to identify students' perceived most effective method of assessment for writing assignments. A researcher-designed, Web-based questionnaire, which included examples of assessments, was used to gather data. Example assessments included

- Handwritten comments on the writing assignment (HW)
- Use of Track Changes on the writing assignment (TC)
- Use of audio and video techniques so students could hear the instructor explaining the changes and view changes being made to the writing assignment via the use of a keyboard and desktop computer (AV-Desktop)
- Use of audio and video techniques along with e-handwritten edits so students could hear the instructor explaining the changes and view changes being written on the document using a tablet PC (AV-Tablet) stylus.

A secondary research objective was to identify students' perceived benefits for the most effective assessment method chosen. An open-ended question was also included for each type of assessment: "What benefits do you believe would result from this type of assessment?"

METHOD

Students in an undergraduate business communication course, required for all majors within the college, served as participants in this research study. The researchers intended to survey all students in all six sections of the course. However, during the collection of data during one class period, the Internet was not available. Therefore, data could not be collected for one of the sections, as the assessment examples and survey were online. Consequently, students in five sections of business communication courses participated.

The web-based survey was approved through the university's Institutional Review Board (IRB). The surveys were anonymous as the students completed them online and no identifying information was collected. The total population (n) of this research study was 186 students.

The researchers designed the web-based survey and assessment examples. For consistency in the collection of data, one researcher went to each class session to complete the following: (a) provide students with an IRB letter describing the research and providing them with an option not to participate if they so chose, (b) show assessment examples one at a time to the class as a whole, (c) answer questions participants may have, (d) provide participants with the survey URL and ensure all participants could access the survey, and (d) ask participants to complete and submit the survey. The participants completed the survey before the class period ended and the data were anonymously submitted into a database.

After viewing the example assessment types, participants began completing the survey by first ranking the assessment types from 1 (*most helpful*) to 4 (*least helpful*). For consistency, the same example, a written analysis of a book, was used for each assessment type. The assessment types included handwritten comments on the writing assignment (HW); use of Track Changes on the writing assignment (TC) so students can see edits made to the document and view comments provided; use of audio and video techniques so students could hear the instructor explaining the changes and view changes being made to the writing assignment via the use of a keyboard and desktop computer (AV-Desktop); and use of audio and video techniques along with e-handwritten edits so students could hear the instructor explaining the changes and view changes being written on the document using a tablet PC (AV-Tablet) stylus. The handwritten edits are referred to e-handwritten edits, as the user is writing on the document electronically with the tablet PC stylus. Therefore, students can see the e-handwritten edits in a similar fashion to edits traditionally written using a pen or pencil on a hardcopy. However, the e-handwritten edits are saved electronically with the paper, so that it may be electronically returned to the students via an attachment. Each assessment example was shown and explained to the participants.

Participants were then asked to identify if they *strongly agree*, *agree*, *disagree*, or *strongly disagree* with each of the following statements for each of the four types of assessment. This type of assessment

- Will improve my writing skills
- Will help me understand why I am making mistakes in my writing
- Will help me be successful in this course
- Will help create a relationship with my instructor
- Provides positive feedback
- Would be effective in podcast format
- Would be effective for traditional, in-class courses
- Would be effective for online courses

An open-ended question, “What benefits do you believe would result from this type of assessment?” was also asked at the end of each set of questions above for each type of assessment. Additionally, basic demographic information was obtained through the web-based survey. The demographic information included gender, age, grade classification, and major.

FINDINGS

Students participating in the study were 55% male and 45% female. The sample group was predominantly traditional undergraduate students (87%) with an age less than 23 years old. Participants were mostly seniors (77%), followed by juniors (51%), sophomores (10%), and freshmen (1%).

Participants ranked the audio and video with e-handwritten feedback through the use of a tablet PC (AV-Tablet) stylus assessment type as the one they perceived as most helpful and second-most helpful. Track Changes was ranked as the third-most helpful, and handwritten changes (HW) was ranked as the least helpful assessment type (see Table 1).

Audio and video with e-handwritten feedback through the use of a tablet PC stylus (AV-Tablet) was ranked the most helpful type of assessment (49%). Handwritten assessment was ranked the lowest (17%) as the most helpful type of assessment. In rating benefits for AV-Tablet type of assessment, 97% of the participants chose *strongly agree* or *agree* for improving writing, helping participants understand

Table 1. Students' Preferred Assessment Method

<i>Method</i>	<i>1: Most Helpful</i>	<i>2: 2nd Most Helpful</i>	<i>3: 3rd Most Helpful</i>	<i>4: Least Helpful</i>
AV-Tablet (%)	49	30	15	6
AV-Desktop (%)	29	23	25	23
TC (%)	17	20	31	32
HW (%)	17	24	25	34

NOTE: AV-Tablet = use of audio and video techniques along with e-handwritten edits so students could hear the instructor explaining the changes and view changes being written on the document using a tablet PC stylus; AV-Desktop = use of audio and video techniques so students could hear the instructor explaining the changes and view changes being made to the writing assignment via the use of a keyboard and desktop computer; TC = use of Track Changes on the writing assignment; HW = handwritten comments on the writing assignment.

Table 2. Audio and Video Type of Assessment Along With E-Handwritten Feedback Using a Tablet PC Stylus (AV-Tablet)

	<i>Improve Writing</i>	<i>Understand Why</i>	<i>Be Successful</i>	<i>Relationship</i>	<i>Positive</i>	<i>Podcast</i>	<i>Traditional Effective</i>	<i>Online Effective</i>
Strongly agree (%)	59	62	49	46	52	43	43	54
Agree (%)	38	35	46	44	45	41	45	41
Disagree (%)	2	2	3	7	2	14	10	4
Strongly disagree (%)	2	1	2	2	1	2	2	1

why they are making mistakes in writing, and noting the assessment was positive. Ninety-five percent chose *strongly agree* or *agree* the AV-Tablet type of assessment would help them be successful in the course and 90% chose *strongly agree* or *agree* it would also help build a relationship between them and the instructor. Ninety-five percent of the participants strongly agreed or agreed the AV-Tablet type of assessment would be effective for online courses, yet fewer participants (88%) strongly agreed or agreed it would be effective in a traditional classroom or podcast format (84%). Overwhelmingly, the participants chose the AV-Tablet type of assessment as most beneficial to their learning (see Table 2).

In rating benefits for the AV-Desktop type of assessment, 90% or more of the participants chose *strongly agree* or *agree* for improving writing,

Table 3. Audio and Video Type of Assessment With Keyed Feedback Using a Keyboard and Desktop Computer (AV-Desktop)

	<i>Improve Writing</i>	<i>Understand Why</i>	<i>Be Successful</i>	<i>Relationship</i>	<i>Positive</i>	<i>Podcast</i>	<i>Traditional Effective</i>	<i>Online Effective</i>
Strongly agree (%)	40	45	35	40	38	27	20	46
Agree (%)	51	45	56	44	55	60	52	47
Disagree (%)	8	9	8	16	7	13	25	6
Strongly disagree (%)	1	1	1	1	1	1	3	1

helping participants understand why they are making writing mistakes, helping them succeed in the course, noting this type of assessment was positive, and indicating this type of assessment would be effective in an online classroom. A total of 84% chose *strongly agree* or *agree* this type of assessment would help them build a relationship with the instructor and noted (87%) the assessment would be effective in podcast format. However, only 72% of participants *strongly agreed* or *agreed* this type of assessment would be effective in a traditional classroom. When combining the *strongly agree* and *agree* categories, all benefit choices were rated lower than the AV-Tablet type of assessment except for the effectiveness of this assessment in podcast format (see Table 3).

In rating benefits for the Track Changes type of assessment and combining the *strongly agree* and *agree* categories, no benefit was rated higher than 83% as noted in Table 4. Overall, 83% of the participants chose either *strongly agree* or *agree* that the Track Changes type of assessment would be effective in an online classroom while 71% noted it would be effective in a traditional classroom. Eighty-one percent of the participants chose *strongly agree* or *agree* this type of assessment would improve their writing and help them understand why they are making writing mistakes.

In all, 78% of the participants chose *strongly agree* or *agree* that the Track Changes type of assessment was positive. However, only 38% and 46% chose *strongly agree* or *agree* that this type of assessment would help them succeed in the course and help them build a relationship with the instructor respectively. Sixty-seven percent chose *strongly agree* or *agree* that the Track Changes type of assessment would be

Table 4. Track Changes Type of Assessment (TC)

	<i>Improve Writing</i>	<i>Understand Why</i>	<i>Be Successful</i>	<i>Relationship</i>	<i>Positive</i>	<i>Podcast</i>	<i>Traditional Effective</i>	<i>Online Effective</i>
Strongly agree (%)	11	15	36	10	15	6	10	26
Agree (%)	70	66	0	36	63	61	61	57
Disagree (%)	17	17	61	46	18	28	26	14
Strongly disagree (%)	2	3	3	8	4	5	3	3

effective in podcast format. The percentages in the *strongly agree* and *agree* categories combined are all lower than any of the percentages in the AV-Tablet type of assessment. Overall, using Track Changes as an assessment technique was perceived effective (see Table 4), but at a lower level than the AV-Tablet or AV-Desktop types of assessment.

In rating benefits for the traditional handwritten type of assessment, 90% of the participants chose *strongly agree* or *agree* that this type of assessment would be effective in a traditional classroom and would help improve their writing (89%; see Table 5). Approximately 80% of the participants chose *strongly agree* or *agree* that this type of assessment was positive, would help them be successful in the class, and would help them understand why they were making writing mistakes. However, only 62% chose *strongly agree* or *agree* that the handwritten type of assessment would help build a relationship with the instructor. Also, fewer participants chose either *strongly agree* or *agree* that the handwritten type of assessment would be effective in an online classroom (38%) or be effective in podcast format (49%).

Students also provided information as whether the assessments types were being used by other instructors from whom they have taken courses (see Table 6).

More than 20% of the students noted that other instructors who taught courses they have taken provided audio and visual assessment using a keyboard and desktop computer (20.43%) or audio and visual with e-handwritten comments via a tablet PC (20.33%) minimally, moderately, or consistently. Therefore, the student population involved in this study was familiar with these types of assessment prior to completing the survey for this research.

Table 5. Traditional Handwritten Type of Assessment (HW)

	<i>Improve Writing</i>	<i>Understand Why</i>	<i>Be Successful</i>	<i>Relationship</i>	<i>Positive</i>	<i>Podcast</i>	<i>Traditional Effective</i>	<i>Online Effective</i>
Strongly agree (%)	21	18	18	14	16	8	30	13
Agree (%)	69	63	65	48	60	41%	60	25
Disagree (%)	10	17	16	33	20	40	10	42
Strongly disagree (%)	1	2	1	6	4	10	0	20

Table 6. Type of Assessment Used by Other Faculty/Instructors

<i>Technique</i>	<i>Consistently (%)</i>	<i>Moderately (%)</i>	<i>Minimally (%)</i>	<i>Not Used (%)</i>
HW	75.96	18.03	4.37	1.64
TC	4.95	11.54	20.88	62.64
AV-Desktop	0.55	5.52	14.36	79.56
AV-Tablet	3.30	7.14	9.89	79.67

NOTE: HW = handwritten comments on the writing assignment; TC = use of Track Changes on the writing assignment; AV-Desktop = use of audio and video techniques so students could hear the instructor explaining the changes and view changes being made to the writing assignment via the use of a keyboard and desktop computer; AV-Tablet = use of audio and video techniques along with e-handwritten edits so students could hear the instructor explaining the changes and view changes being written on the document using a tablet PC stylus.

Participants were asked to list additional benefits they perceived would result from each type of assessment. As the AV-Tablet was perceived to be the most beneficial type of assessment, the benefits listed by the participants included a variety of topics. However, after analyzing the comments, nine themes developed. Students indicated that they:

- Are familiar with handwritten feedback on written assignments
- Prefer to have papers returned
- Believe the recorded feedback provides a personal touch to assessment
- Believe the recorded feedback was positive
- Like to see the changes made to their written assignments provided by faculty using technology
- Like that they can have access to the recorded feedback anywhere, at any time

- Like that they can view recorded feedback more than once
- Like feedback that requires them actually make the changes themselves
- Believe the recorded feedback not only helped them develop a better understanding of what they did incorrectly but also helped them understand why what they did was incorrect

CONCLUSION AND IMPLICATIONS

Feedback from students to identify their perceived most effective type of assessment is important, as this study has shown, and feedback provided through assessment is ultimately the connection students make between the professor and the assignment. The assessment process is crucial; therefore, students must be adept at interpreting the feedback however it may be provided. Technology is essential in facilitating the interpretation of edits, comments, and corrections provided by faculty during the assessment process to improve students' writing skills. Based on student responses through this research, audio and visual feedback is an improvement over the standard marking on paper. However, students prefer to have a marked paper returned as well. Therefore, adding audio and visual along with e-handwritten feedback using a tablet PC gives students the written comments and but provides students with handwritten comments on their paper with which they are familiar.

Further research regarding this subject should include the following:

- Studying the estimated time it takes faculty to grade written papers using technology
- Determining improvement over a period of time using specific assessment techniques that incorporate technology

Providing students with e-handwritten feedback along with audio feedback offers a multimodal approach to develop meaningful feedback, helping students understand not only what they did incorrectly but also why. This multimodal approach also accounts for different learning styles. Students also indicated their preference for this type of feedback; therefore, they may be more likely to watch, listen, and learn. The

e-handwritten feedback is similar to marking up the paper, a method with which students are familiar.

In conclusion, this research has shown that students preferred the multimodal approach. Follow-up research could explore whether e-handwritten feedback, in conjunction with audio and visual comments, is not only students' preference but also successful in improving their writing skills.

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