

The Impact of Technology on Student Perceptions of Instructor Comments

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Abstract: The lack of writing skill among college graduates is often blamed on poor teaching, or alternatively, failure on the part of schools and instructors to teach the basic grammar and punctuation skills that employers remember learning in their own school years. While it may be true that teaching techniques and course content have changed over the years, a far greater cause of student inability to write clearly may be students' negative perceptions of instructor comments. If this is indeed the case, as borne out in some earlier studies by Bardine, then how might students who grew up in a digital era view electronic comments? The prevalence of technological tools to make electronic notations increases readability, but what impact might instructors' use of technology in making comments have on tone, completeness, and length of comments when viewed through the lens of the student writer?

Keywords: teaching, writing, technology, teacher comments, grading

I. Introduction.

A cursory search for information about faculty grading practices reveals that there is no dearth of research about instructor comments. Indeed, qualitative research into this subject often produces recommendations such as making positive comments, and not making so many comments that students are overwhelmed (Monroe, 2002), and making sure comments are as clear as possible (Fife & O'Neil, 2001). Other research focused on length, tone, type of comments (Bardine, 1999), placement of comments, use of hedges, (Ferris, 1997; Fife & O'Neil, 2001). Other research focused on length, tone, type of comments (Bardine, 1999), placement of comments, use of hedges, (Ferris, 1997; Fife & O'Neil, 2001), and on the relative ease of on-line as opposed to hand-written commenting (Monroe, 2002; Monroe, 2003).

Information gleaned from these works clearly suggests that instructor comments are important tools in teaching students to write. However, advice on grading papers and making comments is used only to change a narrow aspect of the comments themselves, often without addressing the overall impact of the comments upon students. The result is that comments continue to have the same impact they have had for many years, and students' negative perceptions continue to be a problem (Fife & O'Neil, 2001; Wiltse, 2002). What appears to be certain is that the effective utilization of instructor comments, including the use of technology to deliver those comments, could potentially change writing in the classroom and affect student writing (Bardine, 1999; Bardine, Bardine, & Deegan, 2000). More recently, faculty, particularly those who teach online, have begun to use technological tools to make comments about students' writing, but how these comments are perceived and the effect that the use of technology is likely to have on student perceptions of the comments made is just one issue that warrants

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investigation. Further, there is some concern as to what might be the long-term impact of comments made about student writing using technological tools.

A. Justification for Research.

The purpose of this study was to explore the relationship between the use of technology to provide comments to students, and students' perceptions of these comments. Studies of this nature are necessary and important in view of the current emphasis on writing across the curriculum. While it may be the responsibility of composition instructors to teach basic writing skills, instructors in all disciplines who make comments on papers will likely have an impact on student perceptions, and an awareness of that impact among teachers could be beneficial to students in every field of study. This article examines the following questions:

1. In what way or ways does placement of faculty comments, i.e., in the paper's margins, at the end of the paper, close to where there are structural or other issues associated with sections of the students' work, or on a separate page, as determined by the necessities of the use of various technologies in delivering comments, affect how the comments themselves are interpreted and perceived by students?
2. How, and to what degree, are student perceptions of faculty comments affected by the appearance of the comments, especially as determined by the use of technological tools to deliver those comments?
3. What relationships, if any, exist between the completeness of comment marks provided via computer technology, such as symbols, abbreviations (i.e., frag., tr., sp.), single words, phrases, complete sentences, and explanatory paragraphs, and student perceptions of teacher criticism?

The possibility of a relationship between the use of technology as a comment delivery system and students' perceptions of the comments received from instructors was explored in this study. An examination of student reports about the tones of comments they received is one way to explore student perceptions of those comments. The comment tones explored in this research included resigned, encouraging, positive, negative, impartial, and hostile tones.

B. Theoretical Framework.

An instructor's primary goal in making comments on student papers is to teach student writers to do something differently in the next draft or the next paper (Wiltse, 2002). However, despite this noble goal there do not appear to be clear and concise conclusions about how students might interpret comments made about their writing (Sommers, 1982). Most of the research into instructors' comments to students seems to focus primarily on written commentary style, and is based on the assumption that the problems of ineffective response stem from the way those comments are written, insofar as poor wording, vagueness, or insufficient information may apply (Bardine, 1999; Bardine, Bardine, & Deegan, 2000; Fife & O'Neil, 2001). However, given the possibility of the use of programs such as Electronic Markup and Track Changes, it is increasingly likely that teacher feedback would be in an electronic format. While this has not been addressed in the literature it does raise some question about the potential impact of the use of technology on students' responses to instructor comments.

Placement of comments (at the end, in the margins, or near an issue to be addressed), appearance of hand-written comments (color and legibility), and the use of typed comments (e-mail or list-serve) (Monroe, 2003) may also have an impact on how these comments are perceived by students. Bardine (1999) found that end comments tended to be longer than margin comments, with 87% of the end comments being rated as average or long. This may be in part because instructors have more space to write comments at the end of the paper. Would comments delivered by technology-based methods be perceived differently, though, because of their tendency to be placed at the end of the paper?

An often-overlooked aspect of instructor comments is the tone, which students often interpret far differently than intended by the instructor. Tone can range from positive and encouraging to negative, hostile, or resigned. For example, a comment with a positive tone would be, “Good work,” while an encouraging tone might be perceived in a comment that pointed toward future accomplishment, or recognition of improvement, such as, “Good start, keep working.” In contrast, a comment with a resigned tone might imply a sense of futility, while one with a negative tone would be more critical, and less hopeless in nature. For example, a comment with a negative tone might say something like, “Sloppy, careless work.” Hostile tone, on the other hand, is more aggressive and even personally critical, and comments perceived as hostile may sound almost like accusations, such as, “You really do not belong in this program.” The important issue is not necessarily what the instructor intended (though some may indeed intend to make negative comments) but rather how the recipient perceives the tone of the comment.

Finally, comments can be evaluated for completeness, which, though similar to Ferris’s (1997) category of length, refers not only to the actual length of comments, but to how complete and effective students perceive those comments to be. The readers in Lunsford and Straub’s (2006) study made a point of providing full comments, generally in complete sentences. In contrast, the use of symbols, abbreviations, and one-word responses can leave students uncertain about what they are being asked to do, while lengthy comments may be overwhelming.

The question to consider is how the use of technology affects students’ perceptions of those comments, and whether that effect is positive or negative. It could be important to examine the impact placement of comments has on student perceptions and anxieties, as well as how technology influences the placement of those comments. Does the typescript appearance of technology-delivered comments have any relationship to the way in which students perceive the comments? Are comments delivered through the use of various technologies generally more or less complete than those delivered in other ways? These questions could be important in determining how, and to what degree, technology should be used in responding to student writing.

II. Methodology.

A. Survey Instrument.

The student survey was developed after examining literature from various researchers on the topic, as well as comments about common student responses that seemed to warrant investigation (Bardine, 1999; Bardine, Bardine, & Deegan, 2000; Ferris, 2001; Fife & O’Neill, 2001; Monroe, 2002; Popovich & Masse, 2005; Wiltse, 2002). A pilot study was conducted of the instrument

with a selected sample consisting of instructors from the University's Language and Literature Department and students from a freshman composition class.

Instructor comments were broken into four sections: placement, appearance, tone, and completeness. Placement referred to whether comments were written in the margins, close to problems associated with student writing, at the end of the paper, or on a separate sheet of paper. Questions pertaining to appearance requested information about the color of writing implement used as well as instructors' penmanship styles, including case, darkness, underlining, legibility, and the use of typed or electronic transmission. To evaluate student perceptions of the tone of comments they had received, students were asked, using a likert-type scale, how often they had received comments with tones that were, respectively, positive, encouraging, negative, impartial, hostile, or resigned. To enhance clarity, each of the questions regarding tone included a brief example, such as, "Good start, keep working" as an example of encouraging tone. Finally, questions about completeness asked how often students received comments in the form of symbols, abbreviations, single words, phrases, sentences, and complete paragraphs.

B. Demographic Information.

The population for this study consisted of college seniors at Dickinson State University from the Departments of Business, Nursing, and Education, though many of the Education students carried a second major in their teaching subject areas, such as history, music, or math. The majority, $N = 64$ (81%) were traditional students, ranging from 20 to 25 years of age. An additional 11 students (13.9%) were 26 to 30 years old, and four students (5.1%) were over 30 years of age. Male students made up 27.8% ($N = 22$) of the students responding to the survey, while 72.2% ($N = 57$) were female. The majority (89.8%) of these graduating seniors were full-time students ($N = 71$), completing a minimum of 12 credit hours in the semester during which they were surveyed. An additional 10.2% ($N = 8$) were part-time students.

III. Results.

An examination of student reports of the tones of comments they received is one way to explore student perceptions of those comments. Comment tones explored in this research included resigned, encouraging, positive, negative, impartial, and hostile tones, as well as comments that sounded like orders, instructions, suggestions, and questions, respectively.

A. Population Sample.

Table 1 provides a summary of the descriptive statistics analyzed with respect to study participants. These data include the participants' age, gender, cumulative grade point average, native country, and native language.

Research Question #1: In what way or ways does placement of faculty comments, i.e., in the paper's margins, at the end of the paper, close to structural errors or other issues associated with sections of students' work, or on a separate page as determined by the necessities of the use of various technologies in delivering comments, affect how the comments themselves are interpreted and perceived by students? Comments in any of the locations studied could be delivered by technology, though some locations are more feasible than others.

Table 1. Descriptive Statistics of Study Participants

		Frequency	Percent
Age	20-22	33	41.8
	23-25	31	39.2
	26-30	11	13.9
	over 30	4	5.1
Gender	Male	22	27.8
	Female	57	72.2
	1.0-1.9	1	1.3
	2.0-2.9	9	11.4
GPA	3.0-3.9	63	79.7
	>4.0	6	7.6
	US/Can.	68	86.1
	Other	11	13.9
Native Country Native Language	English	69	87.3
	Other	10	12.7

In examining the data related to this question, several significant findings were discovered with regard to the relationship between the placement of the comments and the tone the students perceived in those comments. For example, a statistically significant correlation was found between comments placed at the end of the paper ($r = .38, p < .01$) and encouraging tone. A similar correlation ($r = .29, p < .05$) was found between comments placed on a separate page and encouraging tone. This information is shown in Table 3.

Not every specific element of instructor comments studied could be related to the use of technology; however, the findings with regards to comment placement are of particular interest because further statistical analysis showed a strong correlation ($r = .33, p < .01$) between the use of comments that were typed or electronically transmitted and placement of comments on a separate page. This information is shown on Table 2.

If computer-generated comments are placed at the end of the page, those comments could then be shown to have a positive relationship with comments having an encouraging tone. No statistically significant correlations were found between comment placement and any other comment tones, or between typed and computer-generated comments and any other comment placement. No significant relationships were found between any aspects of demographic information, i.e., age, gender, grade point average, native country, or native language, and the student perceptions of comments in various places.

Research Question #2: How, and to what degree, are student perceptions of faculty comments affected by the appearance of the comments, especially as determined by the use of technological tools to deliver those comments?

Once again, interesting findings were uncovered with respect to the relationship between the appearance of comments and the tone students reported. This is of particular interest because of the close tie between comment appearance and the use of various programs or techniques

designed for commenting on student papers using computer technology. This aspect of instructor comments is directly related to the use of technology in responding to student writing since comments delivered using computer technology are typed, and students were specifically asked how often they received instructor comments that were typed.

Table 2. Correlation Between Comment Placement and Use of Typed or Computer-Generated Comments.

		Typed
End of paper	Pearson Correlation	.107
	Sig. (2-tailed)	.346
Separate paper	Pearson Correlation	.331**
	Sig. (2-tailed)	.003

In this case, typed or electronically submitted comments showed a statistically significant relationship ($r = .36, p < .01$) to negative comment tone. This was the strongest relationship seen in this area of exploration. Illegible comments, on the other hand, showed a statistically significant relationship ($r = .26, p < .01$) with hostile comment tone. Since computer-generated comments are generally not illegible, this is an interesting finding, if somewhat contradictory. No other aspects of comment appearance showed significant relationships with comment tone, or with typed or computer-generated comments. No significant relationships were found between any aspect of demographic analysis and the perception of comments with different appearances. These results are shown in Table 3.

Research Question #3: What relationships, if any, exist between the completeness of comment marks provided via computer technology, such as symbols, abbreviations, (i.e., frag., tr., sp.), single words, phrases, complete sentences, and explanatory paragraphs, and student perceptions of teacher criticism?

This question was not as closely tied to the issue of technology use as the previous question, but it still provided interesting results. Both one-word comments ($r = .23, p < .05$) and paragraph-long comments ($r = .28, p < .05$) showed statistically significant correlations with hostile comment tone. In addition, abbreviations showed a statistically significant negative relationship ($r = -.23, p < .05$) with positive tone. Although this research showed no significant correlations between the use of typed or computer-generated comments and the completeness of those comments, the correlations between completeness and tone are important to keep in mind, since comments of any level of completeness could be delivered by the use of computer technology. These correlations are shown in Table 3. No significant relationships were found between the various demographic analyses and the perception of the tone of comments of varying levels of completeness.

The examination of all of the correlations between the various aspects of instructor comments and the tone students reported perceiving in comments, as well as between those aspects of instructor comments and the use of typed or computer-generated comments indicates that some degree of correlation does in fact exist between specific aspects of instructor comments and the use of technology to deliver instructor comments, as well as between those specific aspects and the tone perceived in the comments. Those correlations, however, vary and

are limited to the specific aspects identified. The implications of the findings will be explored in greater detail later.

Table 3. Correlations Between Various Aspects of Teacher Comments and Perceived Comment Tone.

		encouraging	negative	hostile	positive
End of paper	Pearson Correlation	.38**	.04	.03	.15
	Sig. (2-tailed)	.00	.75	.78	.20
Separate paper	Pearson Correlation	.29*	.11	.13	.05
	Sig. (2-tailed)	.01	.33	.26	.64
Typed	Pearson Correlation	.02	.35**	.07	.14
	Sig. (2-tailed)	.88	.00	.53	.23
Illegible	Pearson Correlation	.17	.21	.26*	.03
	Sig. (2-tailed)	.13	.06	.02	.81
Abbreviation	Pearson Correlation	-.11	.17	-.07	-.23*
	Sig. (2-tailed)	.32	.14	.57	.05
One word	Pearson Correlation	-.01	.20	.23*	-.14
	Sig. (2-tailed)	.94	.08	.04	.23
Paragraphs	Pearson Correlation	.19	.04	.28*	.22
	Sig. (2-tailed)	.09	.70	.01	.06

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

IV. Discussion.

Although research about writing and instructor comments, as separate issues, is available in plentiful amounts, little attention has been given to the relationship between the use of technology in delivering instructor comments, and its impact on student perceptions. The results of this study provided some significant findings in this regard. However, before any changes to student comments can be addressed it may be necessary to examine the nature of the relationship between technology used in instructor comments and students' perceptions of those comments.

In this study, comments made by faculty on students' papers appeared to be perceived as having or conveying certain elements of tones, e.g. positive or hostile, none of which might be intended, but which nonetheless must be considered in the evaluation of students' responses. Examples of generally positive tones might include statements like, "well done," or alternatively, an error being pointed out in a positive way. "Your punctuation is generally very good, but this comma can be deleted." An encouraging tone could be similarly demonstrated, where an instructor might point out an error, but then encourage the student by saying, "This is a good start. Keep working."

Comments that were perceived as negative or hostile are also worth noting. A negative comment might be one that indicates a negative perception on the part of the instructor, like, "This is immature and undeveloped." Comments with hostile tone, on the other hand, might include phrases such as "You really do not belong in this program."

The first area of instructor comments researched was that of comment placement. Placements considered included in the margins of students' papers, near structural or other issues that warranted the comments, at the end of papers, and on separate pieces of paper.

The impact of comment placement is particularly interesting because of the correlation ($r = .33$, $p < .01$) found between typed or electronically transmitted comments, and comments placed on a separate page. Keeping in mind that this study examined the impact of the use of technology in delivering comments, the finding that comments at the end of a paper are frequently typed provides a link between the use of technology and the perceived tone of the comments.

Why do students perceive comments placed at the end of the paper as having a positive tone and comments placed on a separate piece of paper as having an encouraging tone as discovered in this study? Perhaps this distancing of comments from a particular section of the paper that needs further work or attention is viewed as less threatening, which may cause those comments to be perceived by students as less judgmental or attacking and thus more encouraging of their work.

In addition, it might be important to consider that although the distance between the student's writing and the comment may in itself be a factor, it is also possible that teachers unintentionally write a different type of comment at the end of the paper, because they may be conscious of addressing the quality of the paper as a whole. Regardless of the reason for students' perceptions, the lesson may be that the placement of comments, combined with an awareness of the need for a positive tone, can help increase the beneficial aspects of teacher comments overall.

These findings support the conclusions of Elbow (1989), who suggested writing comments separately, in letter form, in order to have those comments be perceived in a less threatening manner by students. The results of this study are therefore encouraging for those who provide computer-generated comments on a separate piece of paper.

Instructor penmanship styles, including the use of typed or electronically transmitted comments, as well as underlined, uppercase, or lowercase lettering were also investigated. Only typed or electronically transmitted comments were found to be strongly related to negative comment tones ($r = .35$, $p < .01$). This raises questions about online classes, where nearly all communication between instructor and student is typed or electronically transmitted.

Interestingly, in this study, illegible comments showed correlations ($r = .26$, $p < .05$) with comments having a hostile tone, and appeared to be generally perceived as having hostile rather than positive tone. In fact the only other aspects of comment appearance that showed any significant correlations with tone were those such as color, darkness, and handwriting versus hand-printing, none of which would be influenced by the use of computer technology to deliver the comments.

Another issue that was not addressed by this study was the impact of technology-delivered comments made using computer writing implements such as a pen mouse for hand written comments. Those comments might, depending on the instructor, be either more or less legible than hand-written comments due to factors related to screen rendering. Do students react to the varying range of legibility in such cases, or are these comments considered separately based on the delivery method? This is a topic that may require further research.

In order for instructors to successfully convey a positive or encouraging tone, there are several steps that might be taken. Since both typed and illegible comments seem to be negatively perceived, the use of carefully handwritten comments, which are legible to students, might be

helpful. An alternative would be to focus more intensely on wording, in order to overcome the negative impact of either typed or illegible comments.

Among the aspects of comment appearance that could be connected to the use of technology is readability, which might be worth exploring, because illegible comments may simply be difficult for students to read, leading to frustration, confusion, and a final impression of hostility. There are a number of possible explanations, aside from innate penmanship styles, for illegibility of instructor comments. These could include a combination of grading fatigue and physical fatigue of the hand muscles, as well as haste, lack of time, overwork, insufficient attention to detail, or general indifference.

The link with technology arises because the solution for many instructors may be typing their comments. However, from a students' perspective, those typed comments may seem negative, though not hostile.

The primary suggestion for instructors that can be gleaned from this study of penmanship styles is that comments need to be legible, but if they are typed, even at the end of the paper or on a separate page, care must be taken with the wording and intended tone to be sure that the impact of the typed appearance does not overwhelm any positive tone attached to the placement of the comments.

The third aspect of instructor comments that was explored was that of comment completeness. Interpreting the findings of this research project with regards to the use of technology to deliver instructor comments was more difficult and complex than interpreting the findings related to comment appearance or placement, because comments of any level of completeness could be provided either by hand, or via technology. However, the use of comments written as paragraphs could be the most easily tied to the use of computer technology in delivering comments, and responses provided in paragraph form were related to student perceptions of hostile comment tone. At a time when instructors are urged to provide longer, more detailed comments by such noted experts as Elbow (1989), Bardine (1999), Ferris (1997), and Lunsford and Straub (2006), the findings in this study raise questions about whether such lengthy comments are actually beneficial to students. These findings suggest that they are not.

The fact that comments that are longer, such as paragraphs, might more often be provided through the use of computer technology, because it is physically easier for many people to type a paragraph than to write one, is a critical element in this examination of the impact of the use of technology in responding to student writing. Still, both abbreviations and one-word comments could also be provided by technological methods, using one of the several computer programs available for this purpose, and those showed relationships with much more positive comment tones. However, it is important to make sure students understand the abbreviations.

Since students perceived comments presented as symbols, single words, and paragraphs negatively, the use of technology could further add to their negative response. Comments provided in typed or computer-generated form also show a correlation ($r = .35, p < .01$) with negative comment tone, and it is possible that the combination is viewed in an even more negative light. Instructors who use technological comment delivery systems might do well to carefully monitor the wording and tone of the comments they make on student papers, especially when using abbreviations such as "frag.," "sp.," "tr.," when using single words like "awkward," "vague," or even simply "good," or when providing full paragraphs.

V. Conclusion.

Regardless of the root cause of students' sometimes negative perceptions of instructor comments, if instructors can begin to use commenting techniques that are neutral if not positive, they may be able to improve student perceptions, at the very least. In fact, minimal use of those aspects of instructor comments that showed a connection with negative student perceptions, including the use of technology to provide comments on a separate page, might work to actually decrease negative student perceptions.

For many years, instructors at all levels have discussed ways to respond to student writing, looking for the most helpful and effective ways to do so. Responding to student writing using one of the numerous computer programs designed for the task has been discussed, and much more research remains to be conducted. However, without careful attention to the impact of various aspects of written comments on student writing apprehension, this coordinated effort cannot reach its full potential in helping students become less apprehensive about writing.

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