Writing Assessment in Electronic Contexts

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Abstract: As electronic writing gains increasing prevalence in today's society, workforce literacy educators are faced with new challenges to provide learners with opportunities for communicating within electronic contexts. With this, writing assessment in electronic environments may require new perspectives whereas electronic writing differs from traditional print composition. This study explores the assessment of electronic discussion entries produced by 47 workforce literacy learners over 11 writing sessions. Participants' entries were scored in terms of quantity as well as quality using direct writing assessments. This paper will describe the context of the writing sessions as well as the development and implementation of the assessments.

Introduction

Whereas information technologies are emerging exponentially within today's workforce, educators are confronted with new challenges to institute a heightened emphasis on electronic communication. Using new technologies often requires individuals to synthesize and evaluate information from a variety of sources, which involves higher-level skills than those necessary for interacting with more traditional forms of information (International Information and Communication Technologies (ICT) Literacy Panel 2002; 21st Century Literacy Summit 2002). Further, writing in electronic environments such as e-mail and online discussion groups demands attention in various educational settings whereas computer-mediated communication requires not only skills similar to that of traditional written expression, but also additional skills (Blake 2000; Smith 2003). Workforce literacy program educators are not only summoned to integrate electronic communication within their curricula, but additionally are met with concerns around evaluation methods that are suitable for assessing electronic writing. The process of writing assessment takes on new meaning within electronic forums whereas there are both similarities and differences between traditional and electronic writing. For example, electronic writing used in various forums such as electronic discussion groups, chat rooms, e-mail require writing skills that require an increasing emphasis on the importance of clarity and precision (Kellner 2001). The differences between electronic and traditional writing may suggest a new demand for writing assessments that account for such divergence. Electronic writing may be more adequately assessed if its distinct characteristics are specifically addressed rather than using a previously developed scheme designed for traditional writing. Huot (1990) suggests that any writing assessment must take into account the writing context and purpose to maintain effectiveness. The method, context in which the writing takes place, as well as its purpose, may directly impact the way in which individuals approach writing. This study

examines the assessment process of electronic discussion entries produced by workforce literacy participants over several writing sessions. Participants' entries were scored in terms of quantity as well as quality using two direct writing assessments. The quality of writing was assessed with consideration of the strategies used for writing in such an electronic context, the content of the writing, and the overall purpose of the writing. Although both direct and indirect writing methods are often used to assess writing, it remains an ongoing debate whether indirect or direct assessments yield the most accurate representation of writing ability (Benton & Kiewra 1986; Troyka 1982). However, direct writing assessment places the value on the actual writing produced, which may be viewed as beneficial whereas the scoring is directly applied to the writing. Direct assessment requires the examination of actual writing samples of learners by two or more readers (Breland & Gaynor 1979). This paper describes the context of the writing sessions, the development of the scoring schemes, and the assessment of participants' electronic writing.

The Study

This study involved forty-seven adults (aged 18-55; mean 32) enrolled in a workforce literacy program learning about and applying three writing strategies for effective communication within electronic discussion groups through a blended learning environment, a combination of face-to-face and computer-mediated instruction. Blended learning enables the personal elements of human contact and support in addition to the conveniences of technology-based approaches to learning (Lytle 1999). The learners worked through the instructional phase in heterogeneous, small groups in a computer lab during regular class hours. Prior to instruction, learners wrote three responses to a case study using pencils and paper; then, they created three written responses to a case study using the electronic discussion groups in an introductory session. During the instructional phase, each writing strategy (explaining/expressing a viewpoint, asking pertinent questions, and writing effective responses) was taught over three 45-minute sessions. The instruction was based on a reciprocal teaching framework that gradually moved learners toward independent use of the strategies. The first session consisted of an instructor modeling and talking-aloud the processes involved with the strategy, encouraging learners to maintain open dialogue and ask questions throughout the session. The second session involved the learners using the strategy with guidance from the instructor. The third session required learners to use the strategy independently. This three-session format per strategy resulted in a total of six electronic entries made by the learners. After participating in the instructional phase, learners were involved with a session during which they used all three strategies with guidance over two 45-minute periods. Finally, learners independently used all three strategies over two additional 45-minute sessions. Therefore, learners produced six pre-instruction entries, six instructional entries, and nine post-instructional entries.

In an effort to make the instruction relevant and meaningful to learners, case studies were created. Each writing session was centered around writing tasks, requiring participants to use the strategy of focus to discuss a case study with one another. This situated learning framework enabled learners to learn about and utilize writing strategies for participating in electronic discussion groups embedded within a context that was relevant and of interest to them. Discussion of the case studies provided the context for learners to write their viewpoints, to ask questions, and to make responses to one another around issues that may arise within the workforce. The hypothetical case studies were created to reflect real-life situations in various workplaces including restaurants, factories, offices, supermarkets, nurseries, as well as other businesses that participants were familiar with within their immediate community. In addition, the participants' personal experiences within those particular settings enabled them to use their prior knowledge during the writing process, which is a valuable component of adult writing (Sommer 1989). After engaging in face-to-face discussion about each of the case studies, participants made an electronic entry into the discussion group. All entries were then archived for later analysis.

All entries were assessed by two raters with regard to both quantity and quality. The quantity of writing was examined by totaling the number of words and sentences produced in each entry prior to, during, and after the instruction. It was found that both the number of words and sentences increased significantly following instruction, $t(47) = 2.12$, $p < .05$ (pre-instructional mean = 61.23; post-instructional mean = 73.96) and $t(47) = 4.47$, $p < .001$ (pre-instructional mean = 3.64; post-instructional mean = 4.70) respectively.

The quality of writing was scored using two different analytic scoring schemes developed to focus on characteristics of electronic writing and the specific context in which the writing was created. These analytic scoring systems were developed to directly evaluate the electronic entries; the scoring schemes were based on the following underlying assumptions: writing is purposeful and directed at an audience; the extent to which the purpose is achieved varies among individuals; various writing components may be concretely identified. Direct assessment

was used whereas indirect writing assessments such as multiple choice tests evaluate learners' abilities to take tests rather than to write; meaningful assessment requires learners to write (Sommer 1989). Analytic scoring evaluates individual characteristics or components that can be totaled for an overall score (Mullis 1984), which is important whereas learners may not be equally proficient in all areas of writing (Bacha 2001). Such assessment may inform future writing instruction, emphasizing the necessary components of electronic writing. After the development of the scoring schemes, the two raters discussed the criteria, asked questions, and clarified distinctions between categories until consistent scoring was achieved between the raters. Scoring showed a high level of inter-rater reliability (Spearman's rho = .90).

Findings

The first scoring scheme was developed using a modified version of the Test of Written Language – Third Edition (Hammill & Larsen 1996). This scoring scheme was used to compare participants' writing prior to instruction with their writing post-instruction; the maximum score that could be attained was 29 points (Tab. 1). The scoring scheme determined whether responses were relevant to the case studies, answered questions posed and included explanations or evidence to support their statements, shared personal opinions or experiences related to the cases, offered solutions or suggestions with regard to the cases, and presented information in a logical sequence using correct grammar and punctuation. Each criterion was then scored in terms of frequency or quality range. For example, if an explanation was included in the electronic entry, the raters determined the score accordingly (0=no; 1=sometimes; 2=yes, always). All scores were entered into SPSS to analyze potential differences between pre- and post- instructional entries. A paired groups t-test showed significantly higher writing quality following instruction, $t(47) = 3.64$, $p = .001$ (pre-instructional mean score = 14.67; post-instructional mean score = 17.58).

Criteria	Scoring
Response exhibits relevance to the case study	0=no;1=yes
Direct response to question posed	0=no;1=yes
Explanation included within the response	0=no;1=sometimes; 2=yes, always
Response is	0=dull, merely states what was in the case;1=single, straightforward; 2=unique, interesting, coherent
Expresses evidence to support claim	0=no; 1=yes, but weakly stated; 2=overtly, clearly stated
Response involves personal opinion(s)	0=no; 1=yes
Response offers solution(s) to the problem(s) posed	0=no; 1=yes
Offers relevant suggestions with regard to case	0=no; 1=sometimes; 2=yes, always
Response includes personal experience related to case	0=no; 1=yes
Information presented in logical order	0=no; 1=sometimes; 2=yes, always
Language used is	0=immature; 1=ordinary; 2=serviceable, matter-of-fact; 2=artful, stylish
Uses complete sentences	0=no; 1=sometimes; 2=yes, always
Response is written as a single entry	0=no; 1=yes
Uses correct grammar	0=no; 1=sometimes; 2= yes, always
Uses punctuation correctly	0=no; 1=sometimes; 2=yes, always
Correct use of capitals	0=no; 1=sometimes; 2=yes, always

Table 1: Scoring scheme adapted from TOWL-3

The second direct writing assessment involved the development of a scoring scheme to specifically address targeted components of effective electronic writing. This scoring system was based on the instructional protocol for explaining/expressing a viewpoint as well as for writing effective responses. For entries that involved participants using the explaining/expressing a viewpoint strategy, writing was scored based on the following criteria, each equal

1 point: states viewpoint, provides explanation for viewpoint, and provides evidence of critical thought. There was no maximum value for this scoring scheme. Each viewpoint and explanation for the viewpoint were counted; statements scored as critical thought included those that provided support for an argument, lent support to why the statement would be effective or ineffective in the given situation, and provided insight into the consequences of the decision. Entries written after instruction showed significantly higher scores when compared with those produced prior instruction, $t(47) = 2.22$, $p < .05$ (pre-instructional mean score = 4.67; post-instructional mean score = 6.29). Entries using the writing effective responses strategy were scored using the following criteria, each worth 1 point: makes statement of agreement or disagreement, provides explanation for statement of agreement or disagreement, provides a question relevant to the argument, and shows evidence of critical thought. Again, there was no maximum value for this scoring scheme. Each statement, explanation, and question were counted; statements were scored as critical thought when they provided support for an argument, lent support to why the statement would be effective or ineffective in the given situation, and provided insight into the consequences of the decision. Using this scoring scheme, it was found that entries produced after instruction were of significantly higher quality than those created prior to instruction, $t(47) = 3.28$, $p < .005$ (pre-instructional mean score = 2.44; post-instructional mean score = 4.28).

Conclusions

Whereas teaching learners how to communicate within electronic environments is becoming increasingly important within workforce literacy programs, it is essential that attention is paid to the approaches used in terms of both pedagogy and assessment. This study may suggest that a blended approach to electronic writing offers learners opportunities to learn writing strategies for effective electronic communication while receiving support and guidance through face-to-face interaction with a facilitator. Direct writing assessment may offer researchers and workforce literacy program facilitators an effective way to track changes in writing quality within electronic environments. The development of scoring schemes enables flexibility to individualize writing assessment to better suit context-specific characteristics. Scoring schemes such as those discussed within this paper may provide an effective way of evaluating electronic writing whereas they have the capability to address distinct strategies for writing in electronic environments. In an attempt to investigate the overall effectiveness of the instructional protocol developed to teach adult learners how to effectively communicate in electronic settings, additional research is needed. For example, the use of a control group may be able to provide more insight into its effectiveness. To begin pursuing this line of inquiry, preliminary work has been done with two groups of participants chosen to represent an instructional group (n=4) and a control group (n=6). Both groups spent the same amount of time writing electronic discussion entries in response to the same case studies. Preliminary findings suggest that the instructional protocol may improve the overall writing quality of adult learners using electronic discussion groups. For example, using the same two scoring schemes (first the modified TOWL-3, then the second scoring scheme) it was found that the writing quality of the control group did not significantly increase (pre-test scores = 13.50, 1.80; post-test scores = 13.17, 2.00 respectively); however, the group that received instruction showed significant improvement in their writing quality when entries were scored using the modified version of the TOWL-3, $t(4) = 9.80$, $p = .002$ (pre-test score = 12.75; post-test score = 20.75) as well as the second scoring scheme, $t(4) = 4.37$, $p = .022$ (pre-test score = 1.75; post-test score 7.25). Whereas these results represent a very small sample, it is recognized that further research is needed in this area. However, this study offers some insight into alternate ways of assessing electronic writing in such a way that varying components of electronic writing within the described context are considered valuable; rather than assigning only a total score to the electronic entries, the breakdown of multiple category scores enables facilitators to closely examine their learners' writing in a way that may inform future writing instruction.

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