

Electronic Writing and Workplace Literacy

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Abstract: Askov and Gordon (1999) recognize the need to write effectively in an electronic context as important to literacy programs. The goal of situated learning is to create a context that is meaningful and relevant. When an instructional approach is developed based on principles of situated learning, instructors acknowledge the fact that adult learners bring already existing knowledge and skills to workplace literacy programs. Askov and Gordon (1999) suggest that the integration of work-related materials and instruction in basic skills builds on workers' background of experience and knowledge while developing their abilities to use communication and computational skills more effectively in the workplace. This paper discusses the importance of integrating electronic writing into workplace literacy programs, describes an approach to instruction based on reciprocal teaching, situated learning and strategy instruction, outlines the data analysis process used to assess the impact of the instruction, and discusses the findings.

Introduction

The definition of workplace literacy is shifting to encompass much more than the traditional interaction with text, as the idea of text itself is continually transforming with the onslaught of new technologies; there is now an essential focus on written communication within the boundaries of workplace literacy. Heath and Mangiola (1991) suggest that literacy is a mix of content, process and context by differentiating between 'literacy skills' and 'literate behaviours'. Literacy skills they define as "mechanistic abilities that focus on separating out and manipulating discrete elements of text" (p.40), while literacy *behaviours* refer to being able to "communicate ... analy[se] and interpret ... through extended text [They are] ways of going about learning that treat language as both the medium and the object" (p.40). This distinction is central to this study; by concentrating on improving electronic writing our goal was to focus instruction on literate behaviors and literate skills that may be necessary in the workplace.

Writing in electronic spaces has changed most workplaces. For example, the impact of e-mail has recently overwhelmed the workplace. A poll conducted by Kopp (1998) estimates that ninety percent of large companies, sixty-four percent of mid-sized companies, and forty-two percent of small firms currently use e-mail systems. The same poll found that more than forty million employees correspond via e-mail, and the number is expected to increase by about twenty percent each year. In addition to the significant presence of e-mail in today's workplaces, there has been an escalation in the use of electronic discussion in

many environments (Bonk, Appelman & Hay, 1996; Hemming, 1999; Kuehn, 1994; MacKinnon & Hemming, 1998). Electronic discussions provide adult learners with opportunities to reflect, pose questions, and examine problems (Brett, Woodruff & Nason, 1997). Given the growing need to be able to communicate effectively, exposing adult learners to computers is not sufficient preparation for the workplace. Communicating through the use of computers must be distinguished from simply using computers. Workplace literacy programs must be founded on research that focuses on understanding methods of teaching individuals to use literacy skills effectively within a technological context and to support the development of literate behaviors for interaction with electronic texts. In this research project we developed and examined an instructional approach designed to teach adults strategies for writing effectively in an electronic context. The instructional approach was developed based on a reciprocal teaching framework and the goal was to situate the learning within a meaningful work-related context through electronic discussions.

Reciprocal teaching has been used extensively in previous studies designed to examine the effectiveness of teaching cognitive strategies (Collins, Brown & Newman, 1990; Lysynchuk, Pressley & Vye, 1990; Palinscar & Brown, 1984). Results in many studies suggest that reciprocal teaching has potential to be an effective instructional approach to teaching workplace literacy skills (Rosenshine, Meister & Chapman, 1996; Spivey, 1995). Reciprocal teaching involves providing instruction over several sessions beginning with the instructor modeling strategic approaches to tasks. Gradually, from session to session, the instructor shifts more and more of the responsibility to the learners for using strategies. The gradual transfer of responsibility allows learners to ask questions, clarify the approach, and receive feedback before being required to complete the task independently. Reciprocal teaching supports an ongoing dialogue between student and instructor; various instructional strategies including teacher-led discussion, explanation, and modeling of strategy use may be effective ways of scaffolding participant attempts to employ the strategy.

Askov and Gordon (1999) suggest that because situated learning involves contextual instruction, based on real-world knowledge and experiences, it encourages transfer of knowledge and skills from the classroom to the job. To enhance the relevance of the writing strategies to the participants involved in this study, hypothetical case studies were created to reflect real-life situations and provided the context for the electronic writing. The cases were based on real-life issues that often surface within many workplace situations. Also, workplace settings found in local communities were used within the cases to enhance the relevancy of the material. The context of the cases enabled participants to explore important issues that often arise in workplace settings, bring and build on their prior knowledge and experiences, and increase awareness of various perspectives, which may encourage a re-examination of their viewpoints and beliefs with regard to many workplace situations and therefore enhance their ability to transfer their new way of thinking and problem-solving skills to future places of work and other areas of life.

Electronic discussion groups as a medium for writing has the potential to promote a collaborative writing environment. Further, Askov and Gordon (1999) suggest that computer-assisted instruction is one approach that educators may take to customize instruction to suit the needs of adult learners. To be prepared for the demands of electronic communication there must be opportunities to engage in writing within this context. Electronic discussions may provide an environment for more reflective responses as they enable participants to work at their own pace. Electronic discussions offer flexibility given their asynchronous capability; this makes the learning medium one that may be provided at a time when the adult learner is available and able to participate. Further, this environment allows learners to use their prior knowledge, reflect, and revise their writing within the context of an electronic learning community.

The Study

This study focused on the development of an instructional approach and the subsequent assessment of the approach used for teaching writing strategies important in electronic communication based on a reciprocal teaching model of instruction. Twenty-two participants, ages 18-48, at the Annapolis Valley Work Centre (AVWC) participated in the study. AVWC is an organization, which provides support to adults who have difficulty finding and/or maintaining employment due to various obstacles including academic, emotional, or behavioural barriers. Regardless of their unique challenges, all participants who

were involved with the study experienced varying levels of computer experience as well as difficulty with literacy skills.

Each participant completed a computer usage survey prior to receiving instruction as a method of gaining information regarding participant previous experience with computers and participant attitudes toward computers. In addition, to gather baseline descriptive data each participant was asked to complete a written sample based on the content of a selected case study, without the use of a computer. A baseline score was assigned to the written samples using a modified version of the TOWL. Basic computer instruction was provided to the participants using the IBM Thinkpads that they would continue to use throughout the study. When the participants felt comfortable using the laptop computers, they completed an introductory session prior to instruction, which involved making an entry into the electronic discussion group based on a case study. The instruction was based on a reciprocal model of instruction and consisted of eleven forty-minute sessions that focused on three specific writing strategies used when making electronic discussion entries. The instruction was also designed to situate the teaching and learning in context relevant to workplace preparation.

Throughout the instructional phase of the study, three sessions were designated to each of the three writing strategies: explaining/expressing a viewpoint, asking pertinent questions, and writing effective responses. Participants received instruction in heterogeneous groups during their regular class schedules at the AVWC. The first session consisted of an introduction to the strategy where the strategy was modeled; the second session (application A) involved participants working through the strategy with some guidance; during the third session (application B), participants used the strategy independently. Worksheets and study guides were provided to participants during each session, which were used as guidelines for making entries into the electronic discussion groups. Participants were also required to complete two additional sessions, which involved working through a case study using all three of the writing strategies. During the first of those sessions, participants received guidance and support from the research assistant while participants used all three strategies independently during the second session.

After the instructional phase was completed, all data collected throughout the study was archived for analysis. In addition to the computer usage surveys and written samples completed prior to instruction, the worksheets used during instructional phase and participant electronic discussion group entries were documented for later analysis. Additionally, detailed qualitative data was gathered throughout the entire phase of instruction.

Findings

To gain better understanding of participants' experience with computers prior to instruction, the computer usage surveys were examined. 15 of the 22 (68%) participants had used e-mail while 9 (41%) had used chat groups prior to this study. Only 3 (14%) of the participants categorized themselves as heavy computer users (many hours per day), another 3 felt they were light computer users (approximately once per week), and 3 of the 22 considered themselves to be infrequent users (rarely use the computer). These findings reveal that there was diversity among participants with regard to computer use. It is also interesting to note that although fifty-nine percent of the participants had used a computer within seven days prior to participating in the study, sixty-two percent of those participants had used a computer for playing games while only thirty-eight percent used a computer for word processing and forty-six percent for writing an e-mail message. These findings suggest that the participants enrolled in the workplace literacy program at AVWC do not frequently use computers for electronic writing when compared with using computers for entertainment purposes such as playing games. Further, only fifty percent of the participants used a computer for any purposes within the context of their workplace literacy program within one week prior to the study.

The overall goal of the instruction was to improve the quality of electronic writing with more specific goals of having the participants use the strategies taught while writing. To assess the change in writing quality after instruction, we compared the electronic discussion entries created during an introductory session to entries made during the final independent session. These data are summarized in Table 1. The number of words that participants used before and after instruction did not differ, $t(20) = 1.77$, $p = .092$. However, participants used an increased number of sentences after instruction than they did prior to instruction ($t(20) = 3.24$, $p = .004$). This suggests that writing processes were changing; it appeared

as though participants started to make more thoughtful, planned decisions about their writing. Further, when comparing these two groups of entries it was also found ninety-five percent of participant entries showed an increased amount of explanation provided to support viewpoints generated. This data suggests improvements to participants' written communication; they were carefully explaining the viewpoints with regard to the cases rather than simply stating isolated opinions that were not relevant to the cases. The overall quality of participants' writing was compared using a modification of the TOWL. Results suggest significantly higher scores following instruction, $t(20) = 2.43, p = .024$. We also compared the explanatory quality of the arguments made by the participants on a 5-point scale. This reliable scale indicated that the participants' arguments were better after instruction than before, $t(19) = 12.58, p = .001$.

Measure		Pre-instruction	Post-instruction
Number of words in writing sample	M	79	68
	SD	(39)	(22)
Number of sentences in writing sample	M	3.5	4.9
	SD	(1.9)	(1.4)
Writing Quality (maximum 29)	M	19.2	22.3
	SD	(4.4)	(4.0)
Quality of Argument (maximum 5)	M	1.5	4.7
	SD	(0.9)	(1.0)

Table 1: Descriptive statistics of pre- and post-instruction writing measures

Specific to the goal of using the strategies in the electronic postings, we assessed participant worksheet/study guides to see whether there was evidence of strategy use. Ninety-five percent of participant entries revealed some evidence of using worksheets and study guides, which were important components of the strategy learning throughout the instructional phase.

Throughout this study, there was evidence of change in attitudes toward writing. At the beginning of the study, thirty-six percent of the participants specifically identified writing as a significant barrier for them with regard to finding and maintaining employment. During the pre-instructional session, which required participants to write in response to a case study without using a computer, eighteen percent of participant written responses did not accurately reflect thoughts verbally expressed within the group discussion. Many written responses were very brief, used basic words, contained unconventional spelling and letter formation.

There were additional changes in the participants' literate behaviours throughout the duration of the project. Participants began to think about their writing, as well as the conventions of writing particularly spelling, punctuation, and capitalization. For example, one participant stated that she now read her work "over and over again" to make sure that "it makes sense" before she published it. Further, participants began to use each other for resources in the process of writing. Also, when reading the entries of others, participants would often make editorial comments. As a result of this feedback, one participant gained increased awareness of the importance of spacing between words.

Conclusions

Computer exposure is not sufficient to prepare adult learners for the workplace. Communicating through the use of computers must be distinguished from simply using computers. Electronic discussion groups (EDGs) have the potential to promote a collaborative learning environment that enables learners of various abilities to exchange ideas and thoughts, extend their learning, and ultimately grow as a community of learners. Thus, electronic discussion groups may provide an appropriate learning atmosphere that allows for the diversity of adult learners enrolled in workplace literacy programs. If workers are to be prepared for

the demands of electronic communication, instructional approaches must reflect the authentic process of communicating electronically to promote growth in the areas of literate behaviours and skills. Adult learners require an instructional approach that will address their diverse needs and will guide them to independent use of the various strategies learned so they can then be transferred to future situations.

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