Using On-line Discussion to Teach Critical Thinking Skills 
in an Adult Workplace Literacy Program

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Abstract
This paper describes an instructional approach designed 
to teach adults in a workplace training program strategies 
for communicating in an electronic context. Students used 
an on-line discussion group to respond to cases that were 
relevant to their experiences of seeking and preparing for 
employment. A scaffolded teaching approach was used 
whereby students were taught to explain or express a 
viewpoint, ask pertinent questions, and provide feedback 
to their peers. The students’ writing quality was assessed 
before and after following strategy instruction. Overall 
writing quality improved after instruction and students’ 
statements showed greater evidence of critical thinking 
following instruction. Current data collection includes a 
control group to assess the impact of strategy instruction.

Introduction

Writing in electronic forums has changed most 
workplaces. E-mail, for example, has recently 
overwhelmed the workplace. There has also been an 
escalation in the use of electronic discussion in many 
environments [1,2,3,4]. Electronic discussions provide 
adult learners with opportunities to reflect, pose questions, 
and examine problems [5]. Given the growing need for 
effective communication, exposing adult learners to 
computers is not sufficient preparation for the workplace. 
Workplace literacy programs must be founded on research 
that focuses on understanding methods of teaching 
individuals to use literacy skills within a technological 
context and to support the development of literate 
behaviours for interaction with electronic texts. In this 
research project we developed an instructional approach 
designed to teach adults strategies for writing effectively 
in an electronic context. The instructional approach was 
based on a reciprocal teaching framework [6,7,8] and the 
goal was to situate the learning within a meaningful work-
related context through electronic discussions.

Reciprocal teaching involves providing instruction 
over several sessions beginning with the instructor 
modeling strategic approaches to tasks. Gradually, the 
instructor shifts more of the responsibility for using 
strategies to the learners. The transfer allows learners to 
ask questions, clarify the approach, and receive feedback 
before completing the task independently. Case studies 
were created to reflect real-life situations and provided the 
context for the electronic writing. The cases were based 
on issues such as trust, loyalty, fairness, work ethic, 
searching for employment, interview preparation, time 
management, setting priorities, and tolerance of 
differences among many others that often occur in 
workplace situations.

Method and Results

22 participants, aged 18-48 who, enrolled in an adult 
workplace preparation centre participated. The students 
had little previous experience using computers for writing. 
The work centre provides support to adults who are 
having difficulty finding or maintaining employment. The 
instruction consisted of eleven 40-minute sessions that 
focused on 3 specific writing strategies: explaining/expressing a viewpoint, asking pertinent 
questions, and writing effective responses. The instruction 
was also designed to situate the teaching and learning in 
context relevant to workplace preparation. Three sessions 
were designated to each of writing strategies. Participants 
received instruction in groups of 3 or 4 during their 
regular class schedules. The first session consisted of an 
introduction where the strategy was modeled by the 
teacher; the second session involved participants working 
through the strategy with some guidance; during the third 
session, participants used the strategy independently. 
Worksheets and study guides were provided to 
participants during each session. Participants also 
completed two additional sessions, which involved 
working through a case study using the 3 writing 
strategies. During the first of those sessions, participants 
received guidance and support from the instructor while 
participants used all 3 strategies independently during 
the 2nd session.

To assess the change in writing quality after 
instruction, we compared the electronic discussion entries 
about case studies 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 when stating an opinion 
before and after instruction did not differ, \( t(20) = 1.77, \) \( p = .092 \). Participants used more sentences after instruction 
than they did prior to instruction \( t(20) = 3.24, \) \( p = .004 \). The overall quality of participants’ writing was compared 
using a modification of the TOWL. There were 
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 that measured whether participants explained their opinions. This reliable scale indicated that the arguments were explained better after instruction than before, \( t(19) = 12.58, p = .001 \).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-instruction</th>
<th>Post-instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td># of words in writing</td>
<td>M 79</td>
<td>M 68</td>
</tr>
<tr>
<td>sample</td>
<td>SD 39</td>
<td>SD 22</td>
</tr>
<tr>
<td># of sentences in writing</td>
<td>M 3.5</td>
<td>M 4.9</td>
</tr>
<tr>
<td>sample</td>
<td>SD 1.9</td>
<td>SD 1.4</td>
</tr>
<tr>
<td>Writing Quality (maximum 29)</td>
<td>M 19.2</td>
<td>M 22.3</td>
</tr>
<tr>
<td>(maximum 5)</td>
<td>SD 4.4</td>
<td>SD 4.0</td>
</tr>
<tr>
<td>Quality of Argument (maximum 5)</td>
<td>M 1.5</td>
<td>M 4.7</td>
</tr>
<tr>
<td></td>
<td>SD 0.9</td>
<td>SD 1.0</td>
</tr>
</tbody>
</table>

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

There were additional changes in the participants’ literate behaviours throughout the duration of the project. Participants began to think about the conventions of writing such as spelling, punctuation, and capitalization. One participant stated that she “now reads her work over and over again to make sure that it makes sense before posting it”. Further, participants began to use each other for resources in the process of writing. While making their entries, participants asked each other questions about capitalization, spelling, punctuation, and sometimes context. They would then consider the feedback and decide whether or not they agreed with it, making the appropriate changes in their writing. When reading the entries in the discussion group, participants made comments on various conventions of writing, as if they were proofreading the responses of others. One participant asked another if she “believe[d] in capitals”. Another participant who had not paid much attention to spacing in his pencil and paper writing realized that spacing does matter when making entries in the discussion group and is now more conscious of spacing between words.

This first study did not include a control group so it is impossible to attribute changes to strategy instruction. We are currently collecting data that includes a control group of students who are taught how to use an EDG, but not given instruction in expressing a viewpoint, posing questions, or providing feedback to other people. Preliminary analyses indicate that students who are instructed in strategy use are writing a greater quantity of text following instruction and they are more likely to support their opinions with explanations.

Conclusions

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, EDGs may provide an appropriate learning atmosphere that allows for the diversity of adult learners enrolled in workplace literacy programs. 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. The data presented in this paper provide empirical support to assess the potential impact of computer-mediated communication on adult literacy.

References


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