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## Online Teaching: Creating Text-Based Environments for Collaborative Thinking

*This article examines some of the ways graduate students engage in interactive writing in online university courses as a means of discussion. In particular I present data from course transcripts that suggest that discursive interaction in an asynchronous, text-based, online course may be uniquely suited to fostering higher-order thinking and social construction of meaning. I support this argument by considering the emergent online community and its participation structures, qualities of the interactive written discourse, and means by which the discourse supports making meaning and higher-order thinking. Findings support research that suggests that well-designed, text-based, online courses for university students create collaborative learning environments that enhance thinking.*

*Cet article porte sur quelques-unes des façons dont les étudiants des deuxième et troisième cycles participent aux discussions interactives dans le cadre de cours universitaires en ligne. Nous y présentons des données tirées de relevés de notes et qui laissent croire que l'interaction discursive dans le contexte d'un cours en ligne asynchrone à base de textes peut s'avérer particulièrement apte à favoriser des processus mentaux de niveau élevé et la construction sociale de la signification. Pour appuyer ce point de vue, nous tenons compte de la communauté virtuelle naissante et de ses structures de participation d'une part et des qualités du discours interactif et des moyens par lesquels il appuie la construction de la signification et les processus mentaux de niveau élevé d'autre part. Les résultats viennent appuyer la recherche qui propose que les cours universitaires en ligne, bien conçus et à base de textes créent des environnements d'apprentissage collaboratif qui promeuvent la réflexion.*

Much recent research has examined the complex ways school learning and social practices are reflected in and negotiated through discourse (Gee & Green, 1998; Lapadat, 2003; Stables, 2003; Wells, 2001). Gee and Green summarize the key findings of this work as showing

[how] opportunities for learning are constructed across time, groups, and events; how knowledge constructed in classrooms (and other educational settings) shapes, and is shaped by, the discursive activity and social practices of members; [how] patterns of practice simultaneously [sic] support and constrain access to the academic content of the "official" curriculum; and how opportunities for learning are influenced by the actions of actors beyond classroom settings. (p. 119)

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What counts as knowing and the rules for participation differ across classrooms. Both are shaped by classroom discourse and practices. Through the understandings they construct by participating in events and talk in classrooms, class members contribute to the sociocultural resources of the class as a whole, with implications for their own learning and for the learning of their classmates (Gee & Green). This occurs through their construction of local understandings or situated learning and by their reflexive indexing and negotiating of shared informal theories.

The purpose of this article is to examine some of the ways graduate students engage in interactive online university courses and use written discussion as a tool for thinking and for socially negotiating meaning. Recent thinking about the design and delivery of online courses draws on constructivist perspectives and acknowledges the integral role of discourse in learning. In a critical examination of the role of the World Wide Web in education, Roschelle and Pea (1999) identify three change vectors: toward collaborative representations, toward advanced sociocognitive scaffolding, and toward tools that foster self-improving communities.

These directions can be seen in recent publications about online course development and teaching. For example, Jonassen, Davidson, Collins, Campbell, and Haag (1995) call for constructivist and situated learning theory to be applied to the design of online courses, in recognition that "learning is necessarily a social, dialogical process in which communities of practitioners socially negotiate the meaning of phenomena" (p. 9). Schallert et al. (1996, 1999) point out that in traditional face-to-face (F2F) classroom discussion, it is difficult to foster the kinds of deep discussion that lead to learning. They suggest that attaining genuine discussion is especially important in advanced seminars in higher education and that computer-mediated communication (CMC) is an alternative discussion forum that offers increased access to diverse voices (but see Wolfe, 2000, on the interaction of gender and ethnicity factors). Cooper and Selfe (1990) concur, pointing out that an advantage of CMC as a discussion forum is that it might "allow interaction patterns disruptive of a teacher-centred hegemony.... [enabling students] to create internally persuasive discourse as well as to adopt discourse validated by external authority" (p. 847; also see McComb, 1994). Merryfield (2003) suggests that "the online discussion acts as a veil to protect people as they reveal, question, and take risks" (p. 10).

Teachers of writing have used online media for peer conferencing and interactive journaling, citing benefits such as improved access to the floor, deeper reflection, reduction in social bias, and student preference (Andrusyszyn & Davie, 1997; Bump, 1990; Honeycutt, 2001; Woods, 2000). In addition, distance educators have been in the forefront of developing and evaluating online learning environments (Harasim, 1990, 1993; Harasim, Hiltz, Teles, & Turoff, 1995; Kanuka & Anderson, 1998; Rourke, Anderson, Garrison, & Archer, 1999; Stacey, 1999).

Blanton, Moorman, and Trathen (1998) conducted a review of the research literature on computer technologies and communication in the field of education. Taking a social constructivist stance, they argue for the value of integrating such technologies into teacher education programs, as computer-based telecommunications have the potential to reconstruct pedagogy. As an ex-

ample, they note that "computer- and video-mediated conferences are tools especially suited for constituting social arrangements that enable the joint construction of knowledge" (p. 238). However, they criticize much research into educational applications of telecommunications as "atheoretical" (p. 243), as "mak[ing] causal claims based on inappropriate or inadequate evidence" (p. 248), as being overly driven by the aims of justifying funding or saving money on instruction, and for the paucity of studies examining the actual discourse patterns in online communities. They argue that a theoretical framework is needed to guide future research.

Despite the acknowledgement by many researchers and theorists that online courses can be designed to provide environments that facilitate discussion, a central element in constructivist pedagogy, few have addressed the fact that online discussion occurs through the medium of writing (however, see Ferrara, Brunner, & Whitemore, 1991; Lapadat, 2002). I argue here that students in online university courses use written discussion interactively as a tool for thinking, for socially negotiating meaning, and for building relationships. In particular I develop the idea that discursive interaction in asynchronous, text-based, online courses may be uniquely suited to fostering higher-order thinking and social construction of meaning. I support this position through a consideration of the qualities of written discourse, as well as the discursive implications for cognitive and social construction of meaning in technologically mediated learning environments (Gee, 1996; Harasim, 1990; Herring, 1999; Lapadat 2000, 2002; Lemke, 1989; Ong, 1982; Schallert et al., 1999; Wells, 1990).

The theoretical argument is based on the results of a discourse analysis of contributions to an online interactive conference of a graduate-level education course. It is also grounded in my experiences of having developed and taught four online courses in three versions and topic areas over the past few years.

#### *Background to the Study*

I have been involved in designing, developing, and teaching graduate education courses online since 1997. The university where this has occurred has a main campus and three regional campuses and serves a large, sparsely populated area. Typically, regional courses have been taught face to face, which at times poses considerable traveling hardship for instructors and students. For example, one of the regional campuses is located in a community eight hours by road from the main campus, in a northern, mountainous area where road conditions are often hazardous. Thus quality alternatives to face-to-face instruction serve a practical purpose and acted as a stimulus for my initial interest in investigating online teaching.

I developed the first course, from which the data are drawn for the present analysis, as an intact all-on-the-Web course (supported by telephone, fax, e-mail, surface mail, and the bookstore and interlibrary loan systems), in collaboration with an Internet design consultant.<sup>1</sup> We designed this asynchronous, text-based Web course to be interactive, consistent with social constructivist principles (Jonassen et al., 1995). Students read one or two research articles per week and posted commentary on the articles and in response to each other on weekly discussion topics using the Web site's asynchronous conferencing facility (the Discussion Forum).<sup>2</sup> The Discussion Forum enabled participants to choose from a variety of possible paths in

reading and responding to postings: chronological or reverse chronological within the global message set; chronological or reverse chronological within the weekly (instructor-defined) discussion topic; or threaded (participant-controlled). As the instructor I was also an active participant in the discussion. Over the semester, students also selected three additional articles each pertaining to weekly topics to read individually and present to the class online. They gave brief reports online about their term paper research and about a mini-research project that they conducted. The course topic of EDUC 645, "Discourse in Classrooms," matched the discursive approach to learning used in the course.

Subsequently I taught the same online course again with minor modifications. Then I used the original course Web site as a template to design a new course that alternated between face-to-face meetings/audioconferencing, interspersed with online conferencing. The third course Web site, which I developed from the same basic template, was used as an optional, adjunct means of communication and discussion for class members for a combined face-to-face/audioconference course. In addition to developing and teaching online courses, I have also supervised graduate students who have designed course Web sites for use in adult education settings (Bialobzyski, 1999; Yun, 2000) and as an adjunct to a high school English course (Woods, 2000).

These varied experiences with online course development and delivery lend support to online course delivery issues that have been documented by others. These include: the importance of clear, efficient procedures and supports for communicating with students before and during the course; the need for strategies to address some students' fear of technology such as by providing a pre-course demonstration; the need for good technical support while the course is ongoing; adaptability to accommodate late joiners; the importance of instructors establishing a facilitator role; time and funding to update and maintain online courses; and recognition of and planning for the time-consuming nature of such courses (Harasim et al., 1995; Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000; Hiltz, 1986; McComb, 1994). I also found that making the Web discussion required rather than optional, setting posting deadlines, and marking participation facilitated students' engagement in the online course (also see Harasim et al., 1995; Rovai, 2001).

#### *Characteristics of Online Interactive Writing*

The topic addressed in the remainder of this article relates to the quality of the written discourse observed in the online courses. During the first online course, I was interested to note that class members became intensely engaged in the course and contributed many lengthy, deeply thoughtful remarks to the discussion. The number and length of their contributions far exceeded the minimum requirements for participation. It also seemed that the level of discussion was superior to what I had observed teaching the same seminar course face to face. These impressions were fortified by my second experience with EDUC 645 on the Web and also by subsequent experience with other Web courses. I began to wonder how to describe the discursive characteristics that I was observing in these online courses and to speculate about why this online environment appeared to be so successful in scaffolding students' thinking about course themes.

I began by conducting a thematic analysis of the content of the students' contributions to the discussion in the first EDUC 645 course, which I have reported elsewhere (Lapadat, 2003). In that analysis, using *NVivo* qualitative analysis software (Fraser, 1999; Richards, 1999), I traced how topics developed and described how individual and group points of view shifted over time. The study reconstructed class members' negotiation of meaning as they collaboratively wrote themselves into new understandings, thereby scaffolding their intellectual work. However, that study examined only the content of students' remarks, without focusing on the discursive processes, the social aspects of the interactions, or the medium of online written interaction and how participants used it to achieve their purposes. In this article I describe the establishment of community and the course participation structure in the first four weeks of the first EDUC 645 course. Then I examine the qualities of the emerging online discourse and consider how textual contributions exhibited characteristics of both oral and written language. I conclude by suggesting how written discursive characteristics in this online environment may foster higher-order thinking and joint construction of meaning.

#### *Data Analysis*

I began the analysis by saving the Discussion Forum contributions as a text file. After coding the headings and searching and replacing participants' names with pseudonyms, I imported the file into *N-Vivo*. As I was interested in participants' initial moves in establishing an online community and intellectual climate of discussion, I focused only on the first one third of the course (about 100 messages) for the purpose of this analysis. I examined each message for qualities of language use or response patterns that appeared to contribute to (or obstruct) the process of building an online community. Next I returned to the recurrent discursive themes that I had identified in the earlier analysis (Lapadat, 2003), but rather than focusing on the content of the discussion as in that earlier study, in this analysis I describe the predominant discursive strategies used to initiate and develop the topical themes. Finally, I examined each message in order to identify communicative markers that were characteristic either of oral discourse or written language genres.

#### *Participants*

Participants included six graduate students enrolled in the first online offering of EDUC 645 (January-April, 1998). Three of the students lived in three distant communities, and the other three resided locally. Two participants were college instructors with specialties in technology and adult basic education respectively; one taught adult literacy in a private setting; one not currently practicing had a background in speech-language pathology and teaching English as a second language; one taught high school social studies; and one was an elementary learning assistance teacher in an inner-city school. One student was male, and the rest of the participants were female.

#### *Community and Participation Structure*

At the outset of the course, participants did not all know each other. The three local graduate students (Elaine, Rita, and Judy) knew each other from a previous course, and two had met Lisa before (pseudonyms are used for reporting purposes). Neither Patrick nor Colette had met any of the other students. As

the instructor I had taught all the students in previous face-to-face courses, except Colette whom I had not met. Furthermore, Lisa, Patrick, and Colette were late in joining the online discussion for various reasons, including late registration, technical difficulties, and anxiety about posting online.

Nevertheless, a collegial, supportive atmosphere quickly developed among class participants. Class members addressed each other and the professor by name, acknowledged each other's points in an encouraging way, and expressed disagreements constructively and with tact. For example, early in the course, class members established a practice of explicitly marking to whom they were directing a particular response:

Post 13

Elaine Jan 12 22:36:16 1998

SUBJECT:Week 2 Theories of Classroom Discourse

Sub Topic: more to Rita and others 884673376<P>Message:

Hi Folks! Rita: In regard to students and teachers perhaps having different schemas....

Post 14

Rita Jan 12 22:38:47 1998

SUBJECT:Week 2 Theories of Classroom Discourse

Sub Topic: Elaine's comment 884673527

<P>Message:

Just a brief comment Elaine before I go to bed - you're right on the mark....

As shown in this example, they accomplished this explicit marking by the wording they chose for the subtopic header. Subject headers were conference topics that I had preestablished to structure the Discussion Forum. However, participants could label their own subtopics within these topics. Explicit marking was also aided by addressing each other by name and by restating the key idea to which they were responding (Honeycutt, 2001). As a result, they not only constructed a discussion that felt coherent (Schallert et al., 1996), but also established a personal and supportive tone to the discussion. As other researchers have noted, such social cohesion strategies are important in both asynchronous and synchronous online conferencing in order to establish social presence and to minimize transactional misunderstandings (Murphy & Collins, 1997; Rourke et al., 1999).

Class members did not always agree with each other. However, even when disagreeing, their responses were respectful and constructive.<sup>3</sup>

Post 87

Patrick Feb 4 8:49:22 1998

SUBJECT:Week 5 Secondary and Post-Secondary

Sub Topic: Sainsbury-Meaning 886610962

<P>Message:

... "Each child has his or her individual differences: idiosyncrasies and deviant behavior.... The accepting teacher treats all this as legitimate and valuable...." (Sainsbury, 1992, p. 123). YIKES! Can you imagine a grade 5 class, 25 students, Friday afternoon and an accepting teacher tolerating deviant behavior. Sounds like a recipe for a 3 aspirin headache. Great in theory but does in work in a practical situation? A similar comment can be made about all of the individual attention given by an accepting teacher. Does the teacher have time to spend

on each student to create new linkages? What about classroom management?

...

Post 89

Elaine Feb 4 14:20:21 1998

SUBJECT:Week 5 Secondary and Post-Secondary

Sub Topic: response to Patrick 886630821

<P>Message:

I appreciated your comments particularly about classroom management and the real possibility of latching on to a bottle of aspirin. Deviant behavior in classrooms is something we all struggle with. I think many of the ideas in this article such as students being able to make connections to prior learning to gain understanding, and the importance of ensuring that students do have the necessary background knowledge so that connections can be made are important points for us as teachers. We need to provide opportunities for students to make these connections.... [34 lines of text supporting this argument theoretically and with practical teaching anecdotes].... In order to provide educational opportunities for all students we must not only recognize what their needs are but have the necessary resources to address those needs, whether that be in the form of trained personnel or materials. Maybe then we wouldn't need to clutch the bottle of aspirin? What do you think?

In this example Patrick suggests that teachers should not be expected to accept deviant behaviors in the classroom and that adjusting to students' individual differences would be too time-consuming to be practical. Elaine responds by acknowledging Patrick's point about the importance of managing deviant behavior and then voices disagreement with Patrick's view about individual differences. Her thesis is that it is essential for teachers to be aware of students' prior knowledge, to adjust their teaching based on what they know about students' individual differences, and to make connections with individual students. She suggests that there would be more time for this approach to teaching and less stress for teachers if there were sufficient support in the form of resources. Thus she disagrees strongly with Patrick's point, but maintains a collegial tone by focusing on the content of the argument rather than making attributions about her classmate's political or pedagogical stance. Furthermore, she softens her disagreement by initially agreeing with his point about deviant behavior. Finally, by turning the topic to lack of resources, she offers a pragmatic and face-saving way to align their different points of view. Such examples of meaning negotiation are important. As noted by Kanuka and Anderson (1998), "[online] social discord serve[s] as a catalyst to the knowledge construction process" (p. 57).

The sense of community that arose also was facilitated by the first course requirement, which was to post a self-introduction on the "Meet the Class" page. In addition, at the outset I provided explicit guidelines for online contributions: "As this course is organized around interaction and discussion, personal opinions and perspectives are encouraged. However, class members must ensure that their contributions are cordial, respectful, and constructive in tone." Part of the moderator's role is to set a tone in the conferencing environment that is both hospitable and welcoming of diverse opinions (Klinger, 2001).

All voices were heard in the discussions. Although some class members tended to write more frequently and at greater length than others, all participants contributed to all the weekly topics at a level well above the minimum expectations. One reason for this was that I built specific expectations for participation into the course design. I explicitly informed class participants that they were expected to contribute thoughtful remarks to the discussion each week by the posting deadline, to present their ongoing work online, and to provide feedback to each other; and that participation would be graded on the basis of both quantity and quality. Thus participation structure initially was established by the course design and further developed by the class participants by the way they interacted to create a safe and supportive online community (Haythornthwaite et al., 2000).

#### *Qualities of the Online Discourse*

A number of researchers have commented on the depth and coherence that can be achieved in online discussions (Lapadat, 2002; McComb, 1994; Schallert et al., 1996, 1999; Whittle, Morgan & Maltby, 2000), as well as conditions that limit effective online discussion (Weatherley & Ellis, 2000) and coherence (Herring, 1999). In this section some of the qualities of the discourse in this online course are identified and described.

One interesting characteristic of the discourse related to the emergence and maintenance of topics or themes. As mentioned above, there were pre-established weekly topics in the Discussion Forum, as well as additional topic headers pertaining to each course assignment, the online article presentations, technical support ("Problems and Solutions"), and a student chat area ("The Back Porch"). I also provided weekly notes that introduced the weekly topics and asked questions to stimulate discussion linked to the assigned readings. This basic framework structured the conference discussions.

In this basic framework, however, a great number of topical threads and subtopics emerged. Furthermore, a number of persistent discussion themes also emerged that either cut across or overarched the weekly topics and readings. These themes linked the superordinate topic of classroom discourse with student identity, administrative structures and aims, and the issue of school change. Other overarching themes related discourse to culture, student evaluation, speech registers, teacher training, and the transmission-of-knowledge paradigm. These subtopics and themes emerged freely in participants' responses to each other and to the readings, thus were related to but not constrained by the pre-designated weekly topics. This design can be described as an "open framework construction;" the conference was prestructured in such a way as to elicit participation and topical contributions, yet sufficiently open that novel and productive discursive themes emerged (Lapadat, 2003).

In contrast to what I have often observed in face-to-face class discussions, most of the contributions to the online conference were relevant to course topics and the emergent discursive themes at multiple levels, with few digressions. When there were apparent digressions, these were woven back into the discussion using a number of strategies, either by the original contributor or by others. For example, in Post 86, Elaine presents a lengthy anecdote about a former student J.R. who was failing his elective courses at his new school and how she took it upon herself to intervene (see Appendix). She links this story to



a subtopic that had been introduced a few posts earlier about how schools sort students (J.R. is being sorted into the *failure* category) and to the ongoing theme of culture (how students can be marginalized on the basis of social and cultural differences despite high effort and ability). Also, in this story she begins to develop a personal theme that she continues to elaborate throughout the remainder of the online course. That is, she begins to articulate a view of herself as an advocate for the students with whom she works as a learning assistance teacher and whom she increasingly perceives as poorly served by the wider educational system.

In this example we also can see how discussion participants worked at cohesion: Elaine explicitly referenced Judy's earlier presentation, my comment about sorting students, and the discussion that had followed Rita's online presentation of an article. It was typical in these data that topical threads and the emergent overarching themes were jointly sustained over many turns and many weeks through the use of such cohesive ties, as well as through thematic intertextual referencing. This active listening seemed to contribute to a sense of an inclusive community, perceived topical coherence, and also the opportunity for collaborative and sustained intellectual inquiry. That mutually incompatible perspectives coexisted did not seem to threaten the ongoing joint construction of meaning.

#### *Oral Versus Written Language Characteristics*

In reflecting on the qualities of the discourse described above, it seems that these qualities might be attributable in part to the online textual environment (Harasim, 1990). As others have noted, online communication is a form of writing that exhibits some characteristics more typical of oral language than of formal writing (Collot & Belmore, 1996; Harasim et al., 1995; Yates, 1996). As this course was a graduate seminar, the students were highly literate practitioners of text-formed thought and in the process of being further inducted into an academic discourse (Lapadat, 2004; Ong, 1982). Also, they were cognizant that their contributions would be evaluated, so it is likely that they would use more formal language than, for example, in casual e-mail communication with friends. Nevertheless, contributions show a blend of both written language and oral language characteristics, which may have been particularly facilitative of the cognitive level of the discourse (Bangert-Drowns, 1997).

Ong (1982), in his classic book, compares the characteristics of orality and literacy and the implications for thought and knowledge in primarily oral cultures versus literate cultures. Yet even in cultures like our own, oral patterns coexist with literate patterns of discourse and thought, and both may be realized in either spoken or written modes. In this online course, literate expression predominated due to participants' habits of mind and literate assumptions formed through their upbringing in North American culture; the university communicative context, which foregrounds hyperliterate academic discourse; and the use of the mode of writing as the means of communication. Some characteristics of written language apparent in class members' online posts include: the use of complete, well-formed sentences; literate grammatical structures using complex clausal structures rather than the additive, aggregative, and redundant patterns found in oral texts (Ong, 1982); textual argument

structures that freeze meaning and rely on readers' ability to look back (Lapadat, 2002); and the use of precise, formal vocabulary.

Unlike oral discussion seminars in which remarks are fleeting or evanescent (Ong, 1982)—more an event than a constructed object—these online contributions had permanence. Class members could look back, reflect, print them out, or paste them into subsequent responses. Time also was an important factor in the online compositions. Whereas speech is rapid and people can say a lot in a short time by “thinking on their feet,” in online text-based discussion, it takes longer to compose and “say” a remark. This looking back and extra composition time creates a context of active reflection (Andrusyszyn & Davie, 1997; Harasim, 1990; Honeycutt, 2001). Thus in this course, the characteristics of written language formality, permanence, and time to reflect created a textual environment with considerable potential to foster deep meaning-making.

Yet these online posts also retained some of the texture of oral communication. For example, although grammar and punctuation most resembled literate written discourse, participants were relaxed about matters of spelling and paragraphing. They did not edit their writing as closely as they would for a final draft of a term paper. They did employ a literate pattern of academic argumentation and referencing, especially in their presentations, as in the following example.

Post 40

Judy Jan 22 22:26:43 1998

SUBJECT:Week 3 Integrating language across the curriculum Elementary

Sub Topic: Cross-cultural issues 885536803

<P>Message:

... While a growing number of books discuss the content area instruction of language minority students (Mohan 1986, Cantoni-Harvey 1987 and Enright and McCloskey 1988) these works do not provide adequate information concerning diverse cultural groups. (Scarcella, 1990, pg. vii.) In other words, many instructional materials do not discuss how the cultural background of the teacher influences the teacher's teaching style and the affect that this style will have on the student as a learner.

However, they also inserted conversational elements into their contributions, especially the more discursive ones, as seen above in Elaine's “Hi folks!” and Patrick's “YIKES!”

Another characteristic of the online discourse that was more reminiscent of oral discussion than formal writing was the participants' ready appeal to personal anecdotes and stories from their teaching practice to anchor their points. Elaine's story about J.R. is a typical example. Here is a personal account from Colette.

Post 80

Colette Feb 2 16:47:20 1998

SUBJECT:Week 5 Article Presentations

Sub Topic: Interpersonal Boundaries 886466840

<P>Message:... However, I find that unreasonably high expectations foster a fear of failure from which avoidance can grow. This was my personal experience. I grew up in a village in PEI. In elementary school, I was pitted against my second cousin, Jayna and another “bright” little girl. When I came home

with the results of a test or with a report card, the response I got from my mother and grandparents was, "Did you beat Jayna?" I learned to display only those results where J. and I tied or I did 'beat' her, and eventually, as I began to have difficulty in math and science, areas where J. excelled, I gave up. This is something I regret today.

In their formal written assignments, students often strive to emulate the objective, detached, omniscient authorial voice with which they are familiar from reading professional publications, school textbooks, and traditional academic texts. An aim of this course was to facilitate graduate students' construction of their own understandings, using texts as lenses to help them reflect on and theorize about their own practice rather than simply summarizing and restating information transmitted by experts. I encouraged them to identify and support their own perspectives, both by modeling this myself and by responding positively to students' use of illustrative anecdotes. This oral-like aspect of online discussion led naturally to participants making theory-practice connections through writing in the first person, stating opinions, and offering practical examples.

#### *Meaning and Higher-Order Thinking*

A final important way this online writing differed from most written language was in its interactivity. Class members were not merely reading experts' words in a passive, isolated way, nor merely writing from a position of invisibility or isolation to a limited, contrived audience (i.e., the instructor) or to an unknown audience, as for published submissions, online contexts like listservs, or online public forums (Collot & Belmore, 1996; Klinger, 2001; Lapadat, 1995). Rather, reading and writing were being employed discursively as a means of focusing members of a virtual classroom community on matters of joint interest. By reading and responding in writing to each other, class members defined matters of importance to them; posed and solved problems; and theorized about epistemology, practice, and policy. This interactive environment involving joint participation with a community of supportive and interested colleagues (Rose & McClafferty, 2001) and benefiting from a permanent discussion record and the luxury of composition time (Harasim et al., 1995) nudged participants toward epistemic usage of text (Wells, 1990). Wells defines epistemic engagement with written text as

a tentative and provisional attempt on the part of the writer to capture his or her current understanding in an external form so that it may provoke further attempts at understanding as the writer or some other reader interrogates the text in order to interpret its meaning. (p. 373)

Such epistemic literacy yields what we also recognize as higher-order thinking: analysis, synthesis, interpretation, and evaluation.

Wells (1990) points out that most educational reading activity is devoted to low-level performative, functional, and informational modes of engagement—what he calls an "impoverished model of literacy" (p. 386). We can speculate that it is precisely because these low-level forms of reading perform a disciplining function that students are provided only this limited initiation to literacy and literate thinking. Lemke (1989) has argued that it is through writing, not reading, that individuals can come to use written language to accomplish their

own goals: "it is the explicit meaning-constructing skills of *writing* alone that enable us to be truly literate" (p. 296, italics in original). He explains that writing is a form of social action that "however minutely or locally, tends to reconstitute and may also act to alter the social order of the community" (p. 301).

Essentially, this online course provided a context for epistemic engagement in text that class members were empowered to construct jointly on themes of importance to them in their lives and teaching practice. This outcome seems highly congruent with the aims most would hold for the kind of learning appropriate in a graduate program (Rose & McClafferty, 2001).

### *Conclusion*

The findings from this study relate to the initial questions about how the qualities of online discourse might promote higher-order thinking and social construction of meaning. I argue that through interactive online writing, participants had the opportunity to reflect on and jointly construct practice-relevant themes that became elaborated and extended throughout the whole course. I theorize that deeper levels of understanding may have been achieved in part because of the nature of online written discourse as compared with oral discourse or other forms of writing. The formal nature of written communication leads to greater emphasis on finding precise terminology and phrasing to convey an idea (Honeycutt, 2001; Yates, 1996). The permanence of print and the extended time frame allowed by the asynchronous medium permitted students to look back, reflect, compose, and revise (Harasim et al., 1995). By devoting extra time to thinking, reading, and writing, and by holding higher expectations for the clarity and coherence of their contributions, students engaged in more higher-order thinking and thus potentially could achieve deeper understandings.

With respect to the question of how class members discursively negotiated and constructed meaning, I found that students drew on their own personal and professional experiences to persuade others and to shape group discussion. They incorporated other participants' responses in their subsequent self-reflections on their own claims. These findings lend support to claims by the pioneers of online education like Hiltz, Harasim, and Turoff about the unique potential of online discussion-based courses to supplant transmission-based approaches in distance education and to create collaborative learning environments in higher education that enhance thinking (Harasim, 1990; Harasim et al., 1995; Hiltz, 1986). As others have pointed out, online discussion takes place through the medium of interactive writing, and the discursive characteristics of this medium may be particularly well suited to collaborative construction of meaning and the facilitation of higher-order thinking (Bangert-Drowns, 1997; Ferrara et al., 1991; Harasim, 1990, 1993; Kanuka & Anderson, 1998; Lapadat, 2002, 2003; Schallert et al., 1999; Stacey, 1999; Whittle et al., 2000).

Limitations of these data, as well as findings from the study, point to important areas for further investigation. This analysis is based on one online course at the graduate level into which students may have selected themselves. Although the small number of participants facilitated my close observation and the tracing of discursive patterns such as cohesive ties between messages, it would be valuable to analyze the discourse of other text-based interactive

online seminars to discover if similar patterns appear and to elucidate the relationships between course design, instructional strategies, group dynamics, and the sociocognitive characteristics of the discussion. Finally, my preliminary findings about the online community and its participation structure, the qualities of the online discourse, the oral-like and written-like characteristics of the discourse, and the specific aspects of the discourse that promote higher-order thinking warrant further systematic investigation using discourse analysis methodologies.

#### Notes

1. Co-authored by Judith C. Lapadat and Peter Thompson, 1997.
2. Designed by Stan Beeler, UNBC, 1997.
3. In these excerpts I have retained the exact spelling, grammar, fonts, and so on as used by the participants. However, where students have used direct quotations from texts but failed to reference them, I have attempted to insert the correct references after the fact.

#### Acknowledgments

This article is based on a paper presented at the annual meeting of the Canadian Society for the Study of Education, Congress of the Social Sciences and Humanities, Edmonton, AB, May, 2000. It is part of a larger program of research using a database of archived online course transcripts. The research and development has been supported by a University of Northern British Columbia Web Course Development Grant awarded to the author in 1997. The collaboration of my colleague Peter Thompson in designing the original course template is deeply appreciated. Comments by Tom Strong on an earlier version of the manuscript are acknowledged.

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### Appendix

Post 86

Elaine Feb 3 21:16:04 1998

SUBJECT:Week 4 Empirical studies

Sub Topic: Sorters/ Judy's presentation 886569364

<P>Message:

Hi Professor! I am enjoying the discussion forum. Not only are teachers via marks sorters but the present set up in the education sorts students. I don't believe there is equal access to educational opportunities. I have felt this way in regards to opportunities for our aboroginial students for some time but the other day it really struck home. Some of my previous E.S.L. students paid me a visit the other day. 4 of these students made the honor roll and were justifiable proud. There were also quite concerned about one of their aboroginial friends, also a former student of mine. These students formed a study group and J.R. always joined them. J.R. never misses school and although he passed all of his academic courses, he failed all of his electives. Why? He did not have the money that was needed to buy material, pins and thread for his sewing project. He did not have the money needed to buy the wood for his woodworking project. He refused to tell any of the teachers why he didn't have the materials. Instead he told them he forgot and shrugged his shoulders as if he felt it was not important. There is an Aboroginial Youth Care worker at the high school who would have helped him if she had known. He was too proud to tell her. I wonder if he will get through high school- how long will it take before discouragement sets in. Nobody gets J.R. up for school or sees that he has a lunch. His friends pack extra food and he is very willing, thank God, to accept it. J.R. is a beautiful young boy- thoughtful and kind and has always tried hard in school. He's still trying and experiencing failure. As Judy mentioned in her article, some students eventually give up. I hope J.R. won't be one of them. I contacted the high school and went over to visit. J.R. now is on a meal program.

He just wanted sandwiches and milk so he could still eat lunch with his very caring friends. He did ask for treats once in a while so he could share them- that brought a chuckle from us. Also he has all the materials for his courses next semester. I am worried about him, he has so many challenges to face in his home life and on top of that the inequalities he faces at school. We are not only sorting by marks but also sorting by economic factors. I do take encouragement from his friends who realize that he does not have the same opportunities as they do and do try to pave his path somewhat. Will that be enough to sustain him over the next few years? I think I need to read Rita's article again. It was so positive!