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Asynchronous CMC, Collaboration and the Development of Critical Thinking in a Graduate Seminar in Applied Linguistics

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Abstract

Abstract: A primary objective of graduate education, and often promoted by peer collaboration tasks, is the development of critical thinking skills. The present study compares how graduate students enrolled in a qualitative research design course in applied linguistics utilized asynchronous computer-mediated communication (ACMC) and face-to-face interactions to critique field-specific research, to design and conduct their own research projects, and to engage in professional discourse in and out of class. The analyses reveal that 1) it was impossible to measure the *development* of critical thinking skills within one semester, and 2) rather than ACMC serving as a spring-board for such development *prior to* or *in collaboration with* classroom exchanges, ACMC and face-to-face interactions served different social and intellectual purposes in the process of practicing critical thinking skills. While face-to-face exchanges were preferred when discussing previous research, only in the ACMC context were students willing to critique each other's work.

Résumé: Un des principaux objectifs de l'enseignement du deuxième cycle universitaire est le perfectionnement de l'esprit critique, objectif qui est souvent encouragé par le concours des pairs. La présente étude compare la façon dont les étudiants diplômés inscrits à un cours de méthodologie de recherche qualitative utilisent la communication électronique asynchrone et les interactions directes en vue de critiquer les recherches propres au domaine, d'élaborer et de mener leur propre projet de recherche et de participer à des discussions professionnelles en classe et à l'extérieur de la classe. Les analyses révèlent deux choses: (1) il s'est avéré impossible d'évaluer le perfectionnement de l'esprit critique à l'intérieur d'un semestre; (2) la communication électronique asynchrone n'a pas servi de tremplin au perfectionnement avant ou pendant les échanges en classe, la communication électronique asynchrone et les interactions directes ont

plutôt défendu divers objectifs sociaux et intellectuels au cours de l'utilisation de l'esprit critique. Alors que les échanges directs avaient la préférence dans la cas de recherches précédentes, ce n'est que dans un contexte de communication électronique asynchrone que les étudiants acceptaient de critiquer le travail des autres.

Introduction

Collaborative learning is gaining attention in the context of teacher training in applied linguistics. Asynchronous computer-mediated communication (ACMC) promises to be an especially effective tool for collaborative learning, and a few studies have examined the efficacy of collaborative learning via this medium in graduate level education (Arnold & Ducate, forthcoming; Belz & Müller-Hartman, 2003), but none, to our knowledge, explore the development of critical thinking among pre-service teachers by using ACMC. The purpose of the present action research-based qualitative study was to explore the juncture of these three fields of enquiry by examining how weekly ACMC discussions in conjunction with classroom interactions promoted critical thinking through collaboration in a graduate seminar in applied linguistics. The results suggest that while the *development* of critical thinking could not be measured due to the short time-span of the study (one semester); ACMC effectively fostered critical thinking when participants reviewed each other's work. Thus, the ACMC discussions successfully complemented the face-to-face classroom interactions.

Collaboration, ACMC And Critical Thinking

Researchers and language educators recognize that learning is a social process rather than contained within an individual. Oxford (1997a) differentiates between cooperative and collaborative work. She describes the former as a structured set of activities that promotes the development of cognitive and social skills particular to a community, and a system of learning in which individuals and the community are held mutually accountable. It can lead to the generation of higher-order thinking skills and the development of scholarly norms among a group of peers (p. 445). Collaborative learning, in contrast, is less structured, and focuses on "acculturating the learner into a knowledge community" through engaging with other participants who are more knowledgeable (p. 444). According to Dewey (cited in Oxford, 1997b), teaching activities should create positive action and should be co-constructed by participants in a society, guided by reflection, and centered on "content-rich ideas" (Oxford, 1997a, p. 447). The present study merges these principles and defines collaboration as a process in which participants are collectively responsible for developing knowledge through structured activities, and in which the instructor's role is to facilitate and co-participate in the learning process (Nunan, 1992b). When group members combine their knowledge, expertise and experiences, they gain exposure to diverse perspectives. Every member's background becomes a shared wealth of knowledge, and contributes far more to each individual's developing expertise than that person could have gained by receiving feedback from one instructor.

ACMC has strong promise to foster collaboration. It has been shown—in the context of

foreign/second language (L2) learning—to (a) allow for increased participation by all interactants since they do not have to wait for others to finish talking before they can contribute their thoughts, (b) promote equality among participants and (c) remove cultural or personality barriers often found in face-to-face interactions (Abrams, 2001, 2002; Barile & Durso, 2002; Beauvois, 1998; Bruce & Kreeft Peyton, 1993; Chun, 1994; Sproull & Kiesler, 1991; Swaffar, Romano, Markley, & Arens, 1998; Warschauer, 1996, 1997). Two further positive effects of this modality have been reported: (a) openness because the lack of direct contact with one's interlocutors reduces one's fear of "appearing foolish" (Sproull & Kiesler, 1991, p. 42), and (b) equality across participants regardless of gender, culture or status (Baron, 1984; Kern, 1996; Sproull & Kiesler, 1991; Warschauer & Lepeintre, 1997; Zuboff, 1989).

In addition, whether interactants are willing to take the floor in face-to-face settings may depend on their ability to think quickly on their feet and plan their own utterance concurrently with listening to those of others'. Language abilities (navigating jargon effectively may be a new linguistic skill even for native speakers) may also contribute to the quality and quantity of oral exchanges. ACMC removes many of these potential hindrances to participation in interchange. Interactants may simultaneously post their comments (of any length); planning time is only limited by an interactant's own schedule; and language resources are available for assistance (e.g., dictionaries). The more democratic power distribution in ACMC is especially important f or the development of critical thinking: there is no *one* central knower (e.g., the professor) who is in control of the truth, and who may not be questioned. Rather, participants are seen as more equal contributors to the (collaborative) learning process.

Baron (1984) points out two social characteristics of CMC interactions relevant to the present study. First, while "'objective' information [e.g., facts] can be efficiently transmitted …'soft' or 'subjective' data [e.g., personal comments] are often difficult if not impossible to convey" electronically (p. 131). Second, the time-lag involved in ACMC allows participants to plan and reformulate their comments, which is especially appealing when reviewing peer projects. Schwier and Balbar (2002) distinguish the social role of synchronous and asynchronous CMC. While they both encouraged healthy risk-taking and dynamic, challenging discussions in their study, the former helped promote a sense of community among course participants and provided "a forum for professional discussion and enriched learning" (p. 5), and the latter offered a place "well suited to ... content that required reflection ... [and] careful attention" (p. 7).

Careful reflection is essential for critical thinking, which is defined here as the purposeful use of cognitive skills for successful problem solving, evaluating information, and re-evaluating one's assumptions about the world (Boud, Keogh, & Walker, 1985; Brookfield 1987; Halpern 1997). Critical thinking requires analytical and "argumentative capacities such as recognizing ambiguity in reasoning, identifying contradictions in arguments, and ascertaining the empirical soundness of generalized conclusions" (Brookfield, 1987, p. 11). Brookfield (1987), Halpern (1997), and King and Kitchener (1994) add planning, flexibility,

self-reflection and self-correction as requirements for critical thinking.

Working with a group of equal-status peers to solve a problem is particularly conducive to the development of critical thinking skills because it exposes individuals to different perspectives and interpretations of a problem or idea. Therefore, group work tends to expand an individual's scope of understanding, as well as their ability to "learn to reason more complexly and effectively" (King & Kitchener, 1994, p. 124). ACMC, as Table 1 illustrates, seems ideally suited to promote critical thinking through collaborative work as thus described.

Table 1. *Parallels between collaboration in ACMC and critical thinking*

Components of Critical Thinking	Collaboration via ACMC
Planning	• participants compose and edit comments before submission, read peers' feedback at one's own pace, access outside resources to substantiate statements and responses
Analysis	▪ expanded time available for reading input from others to allow improved, in-depth processing of material ▪ participants follow the development of - or identify contradictions in - lines of argumentation ▪ archived comments provide continued access to details of others' research, leading to improved peer feedback
Expanded knowledge	▪ feedback available from all contributors and the diverse sources they read all participants are recognized as equal contributors ▪ access to useful sources/resources ▪ increased sources and types of knowledge through collaborative contributions by all participants
Flexibility	▪ reconsideration of evidence for problems ▪ unlimited participation: no sequential turns, no loss of chance to talk because the group moved on to other topics, or due to shyness ▪ more evenly distributed contributions among participants than in face-to-face conversation; teacher not only source of authority ▪ diverse opinions fostered because participants are not in same physical space ▪ process information non-sequentially, revisiting / revising previous input

To summarize, collaborative work that promotes critical thinking via ACMC should include evidence of (a) self- and group identity as sources of knowledge (here: researchers, experts or developing experts in the field of applied linguistics), (b) planning and referencing outside authoritative resources to support one's own arguments (in one's own

as well as in peers' writing), (c) ability to distinguish between reliable and less reliable sources of information, (d) revised and recursive editing of writing (content and form), and (e) synthesis of one's own ideas with peer feedback and information from external sources (where appropriate). The present study examined student contributions in ACMC discussions, as well as in face-to-face classroom exchanges, to identify whether evidence of critical thinking was present in student work.

The Present Study

In order to achieve our research goal, we sought to identify effective collaborative learning practices that promote the successful development of critical thinking skills in a graduate seminar on qualitative research in applied linguistics. Since the researcher was also the course instructor, this study is best described as action research, which "calls for a practitioner to develop a theory within a system, with the goal of doing something to improve that system: theory leading to intervention, research resulting in action" (Rankin, 1999, p. 109), through systematic observation, investigation and data analysis (Nunan, 1992a; Schecter & Ramirez, 1992). In addition to describing and analyzing the way in which collaboration via ACMC may promote critical thinking, the researcher-practitioner aimed to find more effective ways of integrating ACMC into future teaching. Given the qualitative nature of the study the findings are not meant to be generalized, but they may be relevant to other educators whose philosophy of learning and teaching draws significantly on peer collaboration.

The Course

The introductory course, entitled "Qualitative Research and Applied Linguistics," was considered the graduate students' first exposure to qualitative research design. Its pedagogical objectives included preparing the graduate students to (a) evaluate critically the design and conclusions of previous research, (b) design and conduct their own small-scale qualitative research study, (c) analyze and interpret their own findings using existing theoretical frameworks and (d) gain confidence as qualified applied linguists (scholars and researchers). We worked towards all of these goals through pair, small group and entire class discussions, and via ACMC (see Table 2).

Table 2. *Class assignments and student groupings*

	Group Constellation of Course Assignments and Activities				
Assignments and Activities	Individual Work	Pair Work	Small Group	Entire Class	WebCT
Writing process (proposal, back-ground reading, drafts of final paper)	X				
Discuss previous literature relevant to own research project	X (term paper)	X		X	X
Create questions & lead discussions based on primary readings	X	X	X		X
Discuss approaches to collecting data & conducting research		X	X	X	X
Conduct practice interviews with a partner (feedback on questions)		X			(X)
Review survey questionnaires, planned interviews				X	X
Analyze preliminary findings	X		X	X	X
Present findings in front of class, provide feedback				X	X

Given the small class size (n = 8), the entire group participated in all ACMC discussions. Most course assignments were conducted in groups of alternating sizes and constellations to ensure that students got feedback on their projects from a diverse peer audience. Where relevant, the groups were arranged to reflect the purpose of sub-tasks (e.g., a practice interview with one partner since students conducted interviews one-on-one with their research subjects). Students were regularly required to give feedback and make comments in and out of class on readings and on each others' research based on relevant studies they read.

During the first half of the semester, students had to lead in-class, face-to-face discussions based on chapters they read from Bogdan and Biklen's *Qualitative Research for Education,*and Taylor and Bogdan's *Introduction to Qualitative Research Methods,* and additional articles that illustrated various aspects of qualitative research specifically in applied linguistics. In order to prepare for more in-depth, critical in-class discussions, and to promote a thoughtful exchange of ideas both on-line and in class, students had to submit questions using WebCT at least a week before their class presentation. The class session was followed by on-line discussions to further explore ideas and to provide for exchanges for which we did not have enough time in class. When the follow-up on-line discussion ended (when messages were no longer posted to the relevant discussion threads), the discussion leader was supposed to synthesize the main points of debate and

discussion, connecting them explicitly to the relevant arguments, concepts and issues in the assigned readings. To set up a critical reading of studies in applied linguistics, students received a handout (see Appendix A) with questions outlining typical article formats and content with open-ended questions to guide ensuing discussions. These questions were also supposed to guide the students' own writing of their final, research-based term papers.

During the second half of the course, class sessions were spent conducting practice interviews, discussing readings related to the students' own projects, discussing their research designs, their proposed methods for data collection and analysis, and finally their preliminary conclusions based on their results. Each step required for the students' own small-scale qualitative research project was modeled by the instructor and other expert guest presenters on various issues related to qualitative research (e.g., conducting sociolinguistic interviews).

The students were told at the beginning of the semester that the researcher was evaluating the efficacy of various tasks and assignments in the course. At each step (e.g., identifying research questions or themes, designing and conducting interviews, coding and analyzing data; for further details see Appendix B), the students' *critical* feedback was elicited by direct questioning and by (anonymous) written surveys. For example, the students were asked to compare the intended purpose of modeled interviews with the answers the interview-subjects provided: Did the responses allow the investigator to understand the research questions better? How could the interviewer have solicited responses that were more insightful and revealing?

In addition, students were asked to situate each modeled activity in the weekly readings: How did the author of an article suggest triangulating the data? How did the researcher's approach compare to this approach? Were there potential weaknesses in either the article or the modeled presentation? Students were also asked to critique the researcher's analysis of all data collected, followed by a discussion of how student analyses of data compare to interpretations provided by other student groups and those provided by the researcher (data were analyzed by groups of 3-4 to promote more dynamic discussions and more rigorous analysis).

The students' comments increased in both number and critical value as the semester progressed. This recursive, formative evaluation process was meant to ensure that student input would guide future improvements on the syllabus and pedagogical practices, and to provide triangulation for data analyses and conclusions the researcher drew. Cohen and Manion (1985), Kemmis and McTaggart (1988) and Nunan (1992b) encourage such collaboration between students, and between students and instructors, since the presence of multiple analytic voices allow for a less biased interpretative analysis. The students reported unanimously in a semester-final anonymous survey that they found both the modeling and the professional collaboration very insightful and helpful for their own projects.

The Participants

Eight graduate students, from diverse scholarly backgrounds (Second Language [L2] Acquisition, Communications, African-American Literature, Elementary Bilingual Education) participated in this study. Four were American; the others were from Germany, France, Taiwan and Austria. All foreign students had spent at least one year in the U.S. prior to this study and had excellent English language proficiency; language problems were not believed to have affected the students' willingness to talk in class. All students had had at least one course in applied linguistics.

Data Collection and Analysis

The data consists of (a) four audio- and one video-taped class sessions over the course of five weeks (375 total minutes), (b) the students' ACMC exchanges during weeks 6-12 (approximately 360 minutes total), and (c) student responses to an anonymously collected 13-item survey with open-ended questions regarding their self-perception as researchers and scholars, their previous experience conducting (either qualitative or quantitative) research, their comfort level with conducting research in applied linguistics and critiquing published studies as well as those of their own and their peers (collected during the last week of classes; see Appendix C).

Students working in pairs or small groups were audio-taped with individual audiotapes each time (i.e., each pair or small group had a different audiotape recording their exchanges). These audio and videotapes were transcribed verbatim for each class period; the video-recording helped organize these audiotapes for chronological sequencing, as well as provided additional confirmation of audio records during whole class discussions. All utterances recorded—including hedges, false starts, all backchannel signals—were noted during transcription (typed by the researcher using a Panasonic transcription machine, subsequently rechecked by both the researcher and several students). However, since the focus of analysis was the content of interaction rather than its linguistic manifestation, this researcher considered it unnecessary to mark overlaps, interruptions and paralinguistic features (intonation, etc.) 1 . Next, both the face-to-face and the ACMC data were analyzed by the researcher (then for validation purposes each sample was re-analyzed by the researcher and the students in the course a week later) using discourse and content analyses 2 to identify evidence of critical thinking in the questions and comments made by the students during small group, pair and whole-class interactions. For a numeric representation, idea units 3 (Crookes, 1990) comprised the basis of analyses.

Evidence of critical thinking was, for example, the presence of (a) constructively critical, probing questions, (b) suggestions for improvement of others' research, (c) statements revealing that others' comments were incorporated into one's own thinking, and (d) active mention and integration of a variety of sources of information from relevant, previous literature (i.e., synthesis of arguments). Since it was impossible to ascertain the precise amount of time students spent on ACMC, for comparability the data is analyzed in percentage of idea units instead of raw minutes (i.e., 43% of total idea units talked about information or facts about the students' own research in in-class pair discussions, and 34%

of the total idea units from both ACMC and face-to-face discussions dealt with giving advice on a peer's research projects) [4] .

The results of the survey / questionnaire were compiled verbatim from each respondent for each individual answer. For example, all responses to question 1 were listed together. This allowed an across-student comparison of answers and revealed related and divergent themes in the students' responses. Although the surveys were meant to be anonymous, all respondents wrote their names on their questionnaires, so their initials are included in this report.

Findings and Discussion

The primary purpose of this research was to examine how collaborative work via ACMC may promote critical thinking skills. At the onset of teaching this course, I had envisioned that ACMC discussions would enrich classroom face-to-face discussions by providing a forum in which student would follow up in-class discussions with continued analysis and synthesis, and would elaborate on points raised but not exhausted in the classroom, leading to a spiral discourse in which old ideas are expanded with novel observations and relevant references to theoretical, pedagogical, practical and research (design) issues. I had also anticipated, and expected as course standards, that both ACMC and face-to-face conversations would contain references to outside sources as well as to the research conducted by the subjects of this study. As the following discussion demonstrates, however, ACMC and face-to-face interactions seemed to serve distinct, but mutually supportive roles in the students' development of critical thinking.

Given the short duration of a semester-long course it was difficult to track the *development*of critical thinking skills. However, in-class and ACMC discussions evinced various trends and levels of critical thinking, suggesting that using these two modalities *in combination*offers a rich forum for demonstrating critical thinking through collaborative learning.

To reiterate, collaborative learning in this article refers to an environment—as described by Nunan (1992b)—in which the students share the responsibility for exploring theories and practical aspects of applied-linguistics related research, and instead of waiting for the professor to convey information, students actively search for standards of practice. At this point, Hank's (1991) and Lave and Wenger's (1991) discussion of legitimate peripheral participation is applicable. One key aspect of Lave and Wenger's framework requires that learners become members of a scholarly community, for example, only if they actively "gain access to sources for understanding through growing involvement" (p. 37). Furthermore, the authors posit that knowledge of and membership in such a community is reciprocal and spiral: "learning is not merely a condition for membership, but is itself an evolving form of membership" (p. 53). In the next section I examine the ways in which the participants in this study demonstrate critical thinking skills in their new scholarly community as individuals and as members of a group.

Self-perception as Researcher

As mentioned earlier, a pre-requisite for collaborative learning is that scholars feel qualified to critique others' work and to create their own. As the following two excerpts from the survey illustrate, the students' feelings as scholars changed over time. The students originally assumed that they were quite qualified to conduct research and critique the existing body of literature. The students soon realized that their field-specific knowledge was limited and that they would need specialized information about qualitative research to evaluate each others' work effectively and appropriately. Finally, the students' feelings progressed to increased confidence as fellow researchers:

> *I tend to think that for some reason I was less intimidated at the beginning than later on. I was very excited and rather confident. The latter has changed a bit. J …It was kind of an illusion; it doesn't seem possible I could be myself a researcher, and contribute to the field.* (FG)

> *I thought it sounded romantic, something I never thought I would do because I just wasn't a researcher. That's something people who know something do.*(CH)

These comments suggest a maturation of self-perception to an identity that is aware of the complexity of being a researcher, and which enables one to see oneself as a qualified scholar. Lave and Wenger (1991) emphasize the importance of one's self-perception as a valid member of a given community—as well as one's understanding of the way other members view and accept her. These comments from the survey were consistent with AT's claims during a follow-up, in-class model interview that he had "*sort of known what being a researcher was about*," but that he had not thought that he really had something to say about his topic [5].

Different Uses of Critique in WebCT and Face-to-Face Activities

Despite the students' claims of feeling "inadequate" as researchers, the survey responses indicate that they ultimately perceived each others' comments and feedback as very constructive. In response to the survey question: "What activities / assignments for this course have you found especially helpful for preparing you for your current research project?", all eight students found that discussing their literature reviews and their research methods in small groups in class was helpful, as were the small-group and whole-class discussions pertaining to their daily readings from the main textbooks in class. They also found the practice interviews they conducted with a partner very insightful. Five of the eight students also emphasized that posting discussion questions to each other using WebCT and using ACMC for giving everyone feedback at their leisure, were very helpful. In the survey, students claimed that they felt comfortable discussing their own and their peers' research in class, and that they felt their comments were welcome.

Analysis of the evidence from the in-class discussions and from the archived ACMC interactions, unveil a slightly different story than the survey did. These data show that students did not, in fact, share all types of comments in both face-to-face discussions and ACMC. Students analyzed primary readings articulately and critically in face-to-face discussions, but did not critique each others' research in the same setting. Instead, they provided their peers with feedback on presentations, research design, and other suggestions solely in the ACMC setting, which—despite clear instructions that they should

—they never used to critique the weekly readings. Table 3 provides an overview of the types and distribution of comments students made in the two modalities.

Table 3. *Classroom and ACMC interactions: types and frequency*

Types of Comments	Classroom discourse percentages			ACMC discourse	Percent of Total:
	pairs	small groups	Entire class		
info/facts about own research connect to relevant literature	43% 0	28% 0	16% 0	18% 3%	23% .7%
sharing problems or funny stories about own research	16%	13%	8%	1%	8%
questions about own research (asking for advice)	6%	13%	9%	6%	8%
questions about other's research (asking for clarification or detail)	8%	12%	3%	9%	7%
giving advice on peers' research plus describe own experience plus references from literature	6% 5% 0	8% 0 0	5% 1% 0	15% 4% 9%	8% 2% 2%
emotional support in response to others' research	16%	10%	2%	0	5%
references to other sources to help improve peers' research	0	0	0	7%	1.6%
feedback on peers' performance	0	0	0	6%	1%
discussion questions for primary readings	0	0	0	8%	1.9%
discussions of primary readings	2%	6%	56%	0	24%
general "friendly" comments and thanks	4%	8%	5%	18%	6%
TOTAL:	22%	14%	40%	24%	

When working with a partner in face-to-face interactions, many of the students' comments consisted of complaints and concerns they encountered in their research (e.g., uncooperative subjects or audio-visual equipment malfunctions). Such comments were

almost always followed by a supportive response such as "That's horrible! / I'm sure it'll be fine." or the other participant relating a similar difficulty about his/her own research. Questions pertaining to the students' own research (asking for advice), questions about their partner's research or advice they wanted to share were less than half of the pair work comment types. There were no references to other studies and sources, no critique of a peer's work, no suggestions for improvement and very little discussion of the primary readings. Most of the pair work time was spent on (re)presenting facts and information about one's own research, attributable perhaps to the students having to repeat the information about their own research because they had new partners each day. Little time remained to progress beyond the factual description or research to analysis. A possible solution to this problem is to assign research partners for the entire semester 6; students can get other input from the rest of the class in ACMC, for example.

During small group interaction (3-4 people), students were more likely to ask for advice regarding their own research, but most often did not get any feedback. The responses typically ignored the first commenter or offered emotional support, as illustrated by an excerpt from a small-group in-class discussion, without any actual recommendation to resolve the problem:

> JB: *Sometimes I feel that the professor is in his own mind, and he can't focus on anything else but what he says. He says yes to the students, then he answers his own questions, and he gets carried away, and his answer is totally contradictory to what the students just said.*
>
> CH: *So, what do I do about my coding?*
>
> KW: *And I will ask the other ones for an interview on Wednesday. How many should I ask?*

In this conversation JB describes a problem she encountered in her observations, but instead of suggesting solutions, CH simply begins a new train of thought about her own coding, and KW closes by not addressing either JB's or CH's comment, merely introducing a new topic.

In the following example from a small-group in-class discussion, MD acknowledges JB's difficulty in collecting data, but only with a sarcastic comment, which, although not directed at JB, only recognizes JB's frustration without providing any plausible solutions.

> MD: *So, have you gotten any themes from your data yet?*
>
> JB: *Well, it's been kind of hard because one class, … [the teacher] was showing a movie. She said they were having a break week.*
>
> MD: *Oh, great!* [sarcastic tone]

Such responses were very common in pair tasks as well; students never applied the relevant literature to their peers' research, despite explicit instructions from the teacher to do so. These rather incoherent "exchanges" also revealed limited or non-existent critical thought. Either due to the changing nature of group constellations (and having to re-introduce one's research repeatedly, to new audiences) there was no community history, no previous discussions to draw on, and no shared content knowledge to propel a critical

examination of the speakers' utterances. The task descriptions that were supposed to provide the cooperative structure (as defined by Oxford, 1997a) to in-class and ACMC activities seemingly went unfulfilled. Apparently, the students did not collaborate even at the most basic level.

Similarly, during entire-class interactions—even though students felt comfortable asking questions about their own research—other interactants' responses, suggestions or advice were based only on their own experiences and personal beliefs rather than on pertinent literature on content or research design. As a matter of fact, the tendency to share difficulties and frustrations students encountered during their own data collection seemed to overshadow objective discussions; the students did not attempt to solve problems collaboratively. The multiple perspectives required by collaboration (see King & Kitchener, 1994) seemed only to provide multiple perspectives on problems, without offering solutions based on critical exploration. Repeated prompts by the instructor to refer to previous readings always resulted in several students being able to state the relevant information, however, so the ability to offer evidence from authoritative sources (a characteristic of critical thought as suggested by Brookfield , 1987; Halpern, 1997; and King & Kitchener, 1994) was not absent either.

The question of why students did not offer these connections on their own remained a mystery. Students rarely suggested relevant literature to their peers or connected the references to their own and their peers' research topics or provided feedback on each others' projects. It was quite poignant to see that even after in-class presentations of the students' research designs, where students were explicitly asked for feedback by the presenter and the instructor, the audience only offered applause. Yet, concluding here that this group was simply incapable of critical thinking is inaccurate for at least two reasons.

First, discussions of the primary readings elicited quite heated intellectual debates among the participants who made insightful connections to other research and brought to light discrepancies in argumentation. Second, the presence of suggestions, syntheses, and references to other sources in ACMC underscores the notion that the problem is not a lack of critical thinking among the students, as the following excerpts from ACMC comments reveal. In these, students provide their peers with detailed, critical feedback, suggestions for improvement and information from other resources they had read (for their own research or even in other courses).

> a) AT: [commenting on FG's in-class presentation of her study and findings] FG: *Good Job! ...Also, for your presentation, some feedback (for the main paper, and you'll probably already do this*] *) might be able to explain more about how you define social and linguistic.* CS: *Myers-Scotton (1993) admits as well that they aren't always the same.*
>
> b) CH: *The questions are very much meant as little assessments of our research, as pre- research assessments. The reason for that is that I thought that reading the chapter made me think over my research idea more carefully and take these aspects into consideration. I think it would be interesting to compare how Hammersley's ideas of assessment might apply to our own research*. [provides list of assessment criteria] *Do you have to consider these aspects in your own research? How? Do you think your own study could be useful, a contribution to the field, based on these assessments?*

Both AT and CH apply readings from the course to critique another's (FG's) or their own (CH) work. They synthesize their own opinion (that a point is still not well proven or a definition was not yet clarified) and the evidence from a peer's presentation or their own work, and apply yet another perspective to it from course materials and other readings.

There are several possible explanations for the lack of scholarly comment regarding peers' research in face-to-face discussions. First, the distribution of perceived permissible comments—i.e., who could be critiqued in face-to-face interactions (any personally unknown authors) and ACMC settings (peers and other authors)—may have been based on some unspoken agreement, a social rule that traversed the different genders, cultural backgrounds and research tracks among these students. Perhaps, students performed*avoidance rituals* (Goffman, 1967). Through these rituals, they kept a psycho-social distance from the other interlocutors, to ensure that they did not say or do anything that may have offended the other speakers when personal, emotional immediacy is a given when students share the same physical space. In the ACMC context, on the other hand, students were less careful about not performing so-called face-threatening acts (Brown & Levinson, 1987) by directly criticizing their peers. They were still cautious and mostly indirect about their feedback, and made comments coated in negative politeness, which Geis (1995) describes as "choosing not to coerce [an interlocutor] by not assuming that she is willing or able to perform some desired [or suggested] action..." (p. 98).

In addition, in face-to-face discussions, students did not have pertinent references to all of the diverse research topics their peers investigated; in order to provide useful feedback on the content of their peers' presentations, they needed access to other resources. ACMC gave them time to reflect, and allowed them to contribute diverse perspectives and voices, to make suggestions for improvement, to synthesize what they had read, and to compose more effective comments that helped protect their peers' and their own feelings (i.e., positive or negative face). Because in this modality they were able to separate their critique of a peer's work from the person, plan, compose carefully, and revise their comments, they viewed ACMC as a less personal medium that helped make their comments appear more objective and professional.

Thus, the data suggest that while in-class discussions allowed for critiquing readings and research whose authors were not members of the class, peer reviews were much more effectively conducted in ACMC (as a matter of fact, that was the only forum in which such peer-critiquing took place). This seems to contradict Baron's (1984) findings. Her study, corroborated by findings by Postmes, Spears, and Lea (1998) and Sproull and Kiesler (1991), showed that emotionally sensitive and, thus, potentially threatening comments were avoided in electronic discussions because they are easily misunderstood without intonation or other non-verbal softening markers and could easily result in face-threatening, unpleasant, unprofessional, or even aggressive exchanges. In this study, the opposite seems to be true.

Earlier, I proposed that the evidence necessary for successful collaborative work that

promotes critical thinking via ACMC includes

- Recognizing one's self and peers as valid members of a scholarly community of researchers, in this case (developing) experts in the field of applied linguistics
- Planning and referencing outside authoritative resources to support one's own arguments (in one's own as well as in peers' writing)
- The ability to distinguish between reliable and less reliable sources of information
- Revising and recursive editing of writing (both content and form)
- Synthesis of one's own ideas with information from peers' comments and external sources (where appropriate)

Based on these criteria, ACMC in this study was an effective tool for promoting critical thinking through collaborative work during the second half of the semester, when students were involved in peer-critiquing tasks and collaborative learning pertaining to their *own*research projects. During the first half of the semester, or in instances when the participants were not critiquing each other's work, ACMC was not only less effective, but was hardly utilized.

Suggestions for Future Teaching and Research

As stated earlier, the conclusions drawn from this study are not intended to be generalized to other contexts. More research is needed before any claims regarding the benefits of ACMC for developing critical thinking can be made. Nevertheless, several findings and reflections offer food for thought for practitioners who regularly utilize peer collaboration, especially via ACMC.

In future versions of this course, the steps involved in critical thinking will be outlined explicitly with parallels drawn between sub-assignments in preparation of the final project and the skills identified by Brookfield (1987), Halpern (1997) and King and Kitchener (1994). In addition, at least one ACMC assignment will be required that prompts peer-editing since students feel confident providing each other with feedback in this modality. The transcripts of this assignment could be used as a springboard for brainstorming in class about how students can critique their peers' work effectively with the support of authoritative sources (e.g., primary readings on content and research). In a recent graduate seminar, I assigned different readings to each student and did not cover them in class. This practice promoted a dynamic, more in-depth discussion by *all* students in an ACMC setting regarding the studies' research designs, methods and conclusions. The reception for such discussions was favourable and very often led to the students mentioning their own and their peers' comments during in-class discussions as well.

Future research should explore how cultural, gender and language factors mentioned in relation to CMC research (see, for example, Warschauer, 1996) might affect in-class and CMC discussions at the graduate level, and how these two modalities could be harnessed for optimal learning in light of these social and personal factors. Studies should also analyze whether peer critique early on is possible even in ACMC or whether students simply need time to become comfortable with themselves as rightful collaborators in a learning community and need to have a solid foundation in *content* knowledge before they are willing to offer their colleagues (often friends) any type of feedback. As Matthews,

Cooper, Davidson and Hawkes (1995) point out, collaborative learning requires that students become actively participating members of a shared knowledge community before they can construct knowledge through social interaction.

Conclusions

As we presented in the analysis, the participants in this study discussed critically the primary readings in class and used ACMC sessions to critique each others' research. ACMC proved to be especially beneficial for graduate students because they felt they *reflected* on their developing identity and practices as researchers. They took advantage of ACMC's archiving to review their own and other students' comments and to assimilate the information they received from various sources—the primary readings, course readings, their peers' and their own research experiences—and then provided their own well-thought-out responses to their peers.

The students in this study used the ACMC context to give and receive advice, to express and accept differing and competing opinions and to incorporate diverse sources of information to solve problems pertaining to their own research projects in collaboration with others. Although at some point scholars must learn to offer an immediate critique of a peer's work in face-to-face encounters (e.g., at conferences), ACMC seems to offer an intermediate solution where novice researchers can provide their peers with valuable feedback and take ample time to find and offer additional resources without having to fear committing potential interpersonal transgressions.

These findings also suggest that incorporating an ACMC component into a graduate level seminar allows students to reflect on new perspectives, preferably utilizing non-teacher centered tasks and discourse, which should lead to a reflective classroom. Lave and Wenger's (1991) claim, that "where the circulation of knowledge among peers and near-peers is possible, it spreads exceedingly rapidly and effectively" (p. 93), lends further support to the need for class activities in which learners have the freedom to explore and build on each others' contributions to develop critical analytic skills.

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Notes:

1. Although Poland (1995) suggests using conversation analysis and a very close reading of interviews to verify accuracy of transcriptions, such close attention to length of pauses and intonation patterns seemed uninformative in this particular study. It is important to recognize, however, that "verbatim accounts of what transpired in the interview, ... at best... are ... written records, partial accounts of a much richer interaction experience..." and that "transcription is [already in and of itself] an interpretive activity..." influenced by the abilities, care and thoroughness of the individual researcher (p. 306). Trustworthiness of the transcripts in this study was established through re-confirmation of the accuracy of transcriptions both by the researcher and by several of the students participating in the research.

2. This study utilized discourse analysis—drawing primarily on interactional sociolinguistics, pragmatics and speech act theory (for further details, see Schiffrin, 1994)—and content analysis ("establishing categories [that are clearly defined and precise to allow multiple raters to arrive at the same analysis] and then counting the number of instances when those categories are used in a particular item of texts" Silverman, 2001, p. 122) to create a typology of question and comment types students contributed, to examine their progress (if any) in critical thinking in the domain of applied linguistics.

3. Idea units were defined as phrases maintaining the same theme, and serving the same pragmatic function. As soon as the theme changed, or the pragmatic purpose of the utterance shifted (e.g. comment vs. question), a new idea unit began. Idea units (Crookes, 1990) do not require grammatical completeness as do t-units. Considering the nature of spoken language, as well as the often more informal syntax of CMC discourse, idea units were deemed more appropriate and useful for this study.

4. Approximately equal amounts of class time were dedicated to pair, small group, and

entire group discussions during the five audio and video-taped class periods. In addition, students reported spending about 30 minutes on ACMC each week during the first nine weeks of the semester, then anywhere from 30 minutes to two hours per week during the last six weeks. Because of the unequal amounts of time spent on interaction in the two contexts, the idea units are presented in percentages rather than actual minutes.

5. As evidence of several students becoming fully contributing members of this new scholarly community, the following year, AT turned his research paper into an article, which was accepted for publication by a prestigious professional journal in applied linguistics, JB and FG successfully expanded their seminar papers for their masters theses, and KW used hers for her German *Magisterarbeit* (Masters Thesis).

6. Assigning the same partners may cause other difficulties, however, if the partners' learning styles do not match, if one partner drops the course or if there are other kinds of mismatches between the personalities or professional goals of the two members of the dyad.

Appendix A
Critical Reading of Articles/Studies in Applied Linguistics:

Preparatory work:

1. Record complete bibliographic reference (including author's full name, not only initials, date and venue of publication, volume and edition, page numbers)

Review:

2. Research Questions / Objectives and Main Hypothesis / hypotheses
3. Theoretical framework providing background for argumentation
4. Description of the study (not all categories are applicable to all studies!)
    a. subjects
    b. treatment
    c. data collected
    d. method of data analysis
5. Findings
6. Conclusions
7. Author's claims for research and pedagogical implications
8. Reviewer's critique:
    a. Are there any major problems with the research design?
    b. Can the conclusions drawn actually be drawn from this research?
    c. Are there missing conclusions that could have been drawn?

Meta-notes:

9. Structure of article
10. Useful expressions for WRITING UP such a report

NOTA BENE:

Make note of quotes or paraphrasing

Note page number from where you take direct quote or reference

Common abbreviations: NS = native speaker; NNS = non-native speaker; L1 = first language; L2 = second language; S1 = student/speaker 1 (2…n).

Appendix B
Timeline of course assignments

Timeline	Assignments
Week 2	submit research topic and the main research question(s)
Week 5	submit review of relevant literature, indicate pertinence to own project
Week 8	submit research proposal; include 1) revised research questions, 2) description of the subjects, data to be collected, methods of data collection, methods of data analysis, and 3) a detailed research agenda (dates of sub-steps in research)
Weeks 10-14	participate in regular in-class whole group, pair and small-group discussions focusing on students' own research projects; concurrent homework assignment of on-line WebCT exchanges to advise and help each other, and to provide feedback on everyone's projects
Weeks 15-16	give 30-minute in-class presentations of research projects, including a 10-minute segment scheduled for discussion and suggestions from the audience; draft of paper turned in at the same time as presentation is given; subsequent WebCT comments as part of homework to provide further suggestions to presenters
Finals week	final paper; incorporate suggestions made by peers and instructor --- include all drafts and separate chapters in portfolio

Appendix C
Survey Questions

I would like to thank you again for participating in this research study on teaching qualitative research design. As part of this research, I would like to ask you to answer the following questions in as much detail as possible. The results will be analyzed anonymously to protect your role as a student in this course. Thank you for your answers! (on the original questionnaire, more space was provided for each answer)

****

Why are you taking this research design course?

In your opinion, what are some key objectives / goals a graduate level course on research design should have in order to promote scholarly and professional development?

What research projects have you completed prior to this class?

At the beginning of the course, how did you feel about yourself in the role of *researcher*?

What qualifications do you feel a researcher must have to conduct research?

How—if at all—have the textbooks, the class discussions (written or oral) helped you gain more confidence as a researcher?

What kind of research projects do you see yourself conducting in the future?

What activities / assignments for this course have you found especially helpful for preparing you for your research project?

What are some activities / assignments that we have done this semester that you would change to make them more effective? How would you change them?

Did you find that information you received from your classmates has been useful for helping you develop research skills? If yes, in what way?

Are there any important skills that you feel you have gotten from taking this course that can particularly help you with teaching or conducting research in your own career? What are these skills and how will you most likely incorporate them into your own work?

Do you have any other comments or feedback you would like to share with me regarding the structure or content of this course?

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