

The Role of Teacher Questioning in Promoting Dialogic Literary Inquiry in Computer-Mediated Communication

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Abstract

This article reports research from an innovative university-secondary school partnership, the Web Pen Pals Project, which pairs preservice English teachers in online chat rooms with local middle school students to talk about young adult literature. The analyses reported here center on the type of dialogue that results during such online conversations. Findings suggest preservice teachers bring traditional classroom discourse expectations to CMC, and strategies that help CMC facilitators synthesize and focus discourse into co-created "group texts" are needed. Based on these findings, implications for educators who use CMC in teacher preparation to facilitate collaborative learning are suggested. (Keywords: computer-mediated communication, online discourse, classroom discourse, dialogue, English education.)

INTRODUCTION

Computer-mediated communication (CMC) is often used to foster beginning teachers' development through discussion. As such, preservice teachers may be asked to use asynchronous and/or synchronous communication formats in their coursework to confer with each other about instructor-selected case studies and educational themes and issues, and to reflect on their practice (e.g., Jetton, 2003-2004; Levin, He, & Robbins, 2006; Paulus & Roberts, 2006; Thomas, 2002). As these researchers and others have found, discussion through CMC tools can promote collaborative, learner-centered connection-making; multiple perspective-taking on educational issues; clarification and elaboration of understandings; and reflection, therefore promoting preservice teachers' learning.

Less research has been conducted, however, on the use of CMC between preservice teachers and adolescents to facilitate collaborative learning about school-based content (e.g., a text, a math problem, etc.). This article reports research from an innovative university-secondary school partnership, the Web Pen Pals Project¹, which pairs preservice English teachers in online chat rooms with local middle school students to talk about young adult literature.

One goal of teacher preparation programs is to encourage beginning teachers to use technology effectively in their future teaching. A particular goal of the Web Pen Pals Project is to help beginning English teachers facilitate literary inquiry through collaborative dialogue with their own future students. The

¹ The Web Pen Pals project won second place in the 2006 International Society for Technology in Education (ISTE) SigTel (Telelearning Special Interest Group) Online Learning Awards.

analyses presented here shed light on questioning strategies teachers can use to facilitate dialogic inquiry in CMC. Findings suggest preservice teachers bring traditional classroom discourse expectations to CMC and strategies that help CMC facilitators synthesize and focus discourse into co-created “group texts” are needed. Based on these findings, we suggest implications for facilitating collaborative learning in CMC.

THEORETICAL FRAMEWORK

Dialogic Inquiry

The theoretical approach that grounds the Web Pen Pals Project is based on the assumption that dialogue supports collaborative inquiry processes (Burbules, 1993; Christoph & Nystrand, 2001; Nystrand, 1997). We draw on a Bakhtinian perspective to better understand the character of dialogically-organized inquiry. Bakhtin (1981) argues that dialogic discourse is structured by a tension—between self and others, between multiple perspectives and competing voices—that lies at the heart of understanding as a dynamic, sociocognitive event. In Bakhtin’s terms, dialogically-organized inquiry instruction would provide public space for student responses, accommodating and promoting the refraction of voices representing differing values, beliefs, and perspectives (Christoph & Nystrand, 2001).

In such a space, both teachers and students would co-create the discourse context and respond to it (Goodwin & Duranti, 1992). In a discussion about a literary work, this process would facilitate the emergence of a “group text,” as readers share their varying interpretations of texts with each other and confirm, modify, or abandon their original interpretations through hearing others’ viewpoints and referring to others’ experiences (Golden, 1986).

Role of Teacher Questioning in Promoting Dialogic Inquiry

Researchers studying both traditional face-to-face classroom discourse and CMC have found that teachers’ questions can facilitate dialogic inquiry. Wang (2005), who has studied synchronous communication among preservice teachers, found the use of *open* questions (no “known” prior answer) (e.g., “What did you learn from the book?) to initiate discussions can help establish a “climate of equal participation for multiple perspectives” and promote sustained discussion when followed by *comparison*, *probe*, and *synthesis* questions (p. 306).

Similarly, Nystrand (1997) and Nystrand and Gamoran (1991) found that teachers’ *authentic* initiating questions—similar to Wang’s *open* questions—encourage collaborative, student-centered dialogue in face-to-face classroom discussions of literature. Nystrand also encourages teachers to use *uptake* and *high-level evaluation* to encourage student participation and collaborative dialogue. *Uptake* occurs when a teacher follows-up on a student’s response to a question rather than returning to the teacher’s original line of questioning. *High-level evaluation* occurs when a student contributes new information to the discussion so that it modifies the topic of discussion in some way and the teacher acknowledges the contribution (e.g., “Can you say more about that?” “Why do you say that?” or “How did you learn that?”).

Walker (2004), studying synchronous communication among tutors and adolescents in an out-of-school context, found that *challenge* questions which ask students to defend a point of view “impelled students to develop an argument thread” (p. 181), and thus may encourage dialogic inquiry. Similarly, Bridges (1988) suggests that questions asking why someone holds a particular opinion, what alternative opinions might be presented, and how one point follows from another can promote dialogic inquiry.

In most secondary English classrooms, however, collaborative co-construction of discourse is rare, as discussion often takes the form of recitation where teachers’ “display” or “closed” (Barnes, 1990; Cazden, 1988/2001; Mehan, 1979) questions elicit recall rather than multiple interpretations. Cazden (1988/2001) explains the triadic pattern of teacher initiation, student response, and teacher evaluation/feedback (IRE or IRF) is the most common form of classroom discourse, and has provided “powerful scripts” that shape teachers’ talk and work against students’ response and collaborative participation in discussion and literary knowledge-building (Christoph & Nystrand, 2001).²

Because online environments have the potential to be inquiry-focused, collaborative, and student-centered (Berge, 1997; Bump, 1990), CMC may offer opportunities for teachers to disrupt these “scripts” and promote student-centered dialogic inquiry in school settings. The desire to know if CMC can provide a space for teachers and students to co-construct “group texts” about literature prompted this study of the Web Pen Pals project.

Initially, we wanted to know what discourse strategies preservice English teachers use to discuss literature online with middle school students. Our research was guided by the overarching question: What is happening in these online discussions? When preliminary analysis revealed the preservice teachers’ participation levels were characterized predominantly by questioning, and the preservice teachers often employed traditional classroom discourse patterns to facilitate discussion, we refined our research questions to: *What questions are used by the preservice teachers when talking about a book? How do these questions impact the conversations?*

Findings reveal that the type of initiating questions posed by the preservice teachers influenced the possible range of students’ responses and, subsequently, the types of follow-up questions the preservice teachers posed. Together these choices affected whether or not dialogic inquiry occurred in the discussions. Understanding these patterns provided insight into assumptions about meaning-making the preservice teachers brought to the project and suggested the need for educators to rethink teacher preparation for participation in CMC environments.

RELATED RESEARCH

Computer-Mediated Communication

Research on the use of CMC in preservice teacher education reveals that asynchronous communication formats are used more frequently than synchronous

²The IRE/F pattern is a three-part pattern of Initiation-Response-Evaluation/Follow-up, where a teacher initiates or asks a question, a teacher-selected student responds, and the teacher then follows-up the response with another question, comment, or feedback.

formats to facilitate discussion, perhaps because asynchronous formats tend to be more task-focused and accommodate structured learning purposes (Im & Lee, 2004); encourage extended peer interactions and dialogue (Bonk et al, 1998); allow more time for composing messages and reflecting (e.g., Davidson-Shivers, Muilenberg, & Tanner, 2001); and thus foster depth of discussion (Hara, Bonk, & Angeli, 2000).

Some researchers have found students' synchronous conversations often lack cohesion and direction, resulting perhaps from such synchronous features as the non-adjacency of related turns, and overlapping threads (e.g., Davidson-Shivers, Muilenberg, & Tanner, 2001; Groenke, Maples, & Dunlap, 2005). Too, asynchronous forums are viewed as more educational than synchronous chat rooms, which tend to be viewed as recreational (Burnett, 2003). This has prompted some researchers to advise limiting the use of synchronous formats to purposes requiring a friendly social atmosphere (Maier & Warren, 2000; Poole, 2000).

At the same time, it is this very "friendly," "social," "recreational" tenor of synchronous communication formats which explain why still other researchers have found such formats foster a sense of community (Duemer et al., 2002) and encourage high levels of engagement and interaction in discussion tasks (e.g., Carico & Logan, 2004; Davidson-Shivers, Muilenberg, & Tanner, 2001). The consistent participant reaction and response to ideas (e.g., quick feedback) found in synchronous discussions (Duemer et al., 2002; Wang, 2005) and the lack of time for reflection may encourage students to articulate ideas more precisely (Condon & Cech, 1996) and may foster more engaged discussion.

Synchronous Communication to Support Collaborative Dialogue

The ability to utilize the capabilities of a computer to tailor a human communication process to the nature of the application and the nature of the group is fundamental to CMC (Turoff & Hiltz, 1995). As such, the Web Pen Pals project utilizes synchronous communication tools to tailor a virtual educational space, where the preservice teachers can interact with adolescents and learn *with* and *from* them about the role of dialogue in literary knowledge-building. In addition, the preservice teachers can practice facilitating collaborative dialogue in a "safe" space, where they are not constrained by mentoring teachers' or administrators' expectations.

We think this opportunity to practice is necessary. Facilitating dialogue about literature may *appear* easy, but it involves skills that require development over time (McCann, Johannessen, Kahn, & Flanagan, 2006). Too, beginning teachers may not have had opportunities in their own secondary school experiences to participate in collaborative, dialogic inquiry about literature. As O'Loughlin (1995) has argued, "We have failed in our responsibility to our students if we unveil possibilities for them, yet deny them opportunities to reinvent their teaching philosophies in action by seeing and doing the kinds of teaching we advocate" (p. 114). Our goal for the Web Pen Pals project is to provide a space where preservice English teachers can "reinvent their teaching philosophies in action" as they practice facilitating dialogic inquiry with adolescents.

THE WEB PEN PALS PROJECT: CONTEXT OF THE STUDY

Initiated in spring 2005, the Web Pen Pals project is a university-secondary partnership that connects preservice teachers with local middle school students in cyberspace to chat online about young adult literature. This paper reports findings from a larger study conducted over the course of this initial project year. The project is part of the first author's young adult literature course and has three goals, to provide an opportunity for beginning teachers to: (a) understand the potential values of using young adult literature to foster reading engagement; (b) understand the role of collaborative dialogue in literary knowledge-building and reading engagement; and (c) consider the potential of CMC as a classroom discussion tool.

The preservice teachers in the young adult literature course were in their first year of a two-year post-baccalaureate program, where students earn both state licensure and a master's degree in Teacher Education. The young adult literature course, at the time, was not a requirement for the licensure program (it is now). The preservice teachers in the course had not yet begun their field placements and had little to no experience teaching or working with adolescents.

The middle school students attended a local school that was about a four miles away from the university campus. The researchers chose to work with this school because it had just received a large technology grant and had mobile laptop carts that could be used as necessary. A reading teacher at the school had also expressed a desire to do the project with us.

Six times over the course of a 15-week semester, the 24 middle school students traveled to a computer lab during their regularly schedule reading class time. At the same time, eight preservice teachers met in a computer lab on the university campus. All participants logged onto the project site and went to one of eight designated rooms in a "virtual house" (see figure 1, p. 146).

Three middle school students were randomly placed with one preservice teacher in an assigned room. These groups remained the same throughout the project. Each group participated in six one-hour chat sessions.

The project-defined roles of the preservice teachers were to serve as "reading buddies" to their middle school pals, rather than strict monitors of reading comprehension (Eeds & Wells, 1989). For the first three chat sessions, preservice teachers discussed with their middle school pals Avi's (1993) *Nothing But the Truth (NBTT)*; for the final three chat sessions, the groups discussed Walter Dean Myers' (2001) *Monster*. The analyses of this article focus on the first three chat sessions about *NBTT*, a book that tells the stories of Philip, a high school freshman who wants to be on the track team but is failing English, and Ms. Narwin, Philip's old-fashioned, well-intentioned English teacher who is misunderstood and ultimately mistreated by Philip, his parents, and school administrators.

In addition to participation in the Web Pen Pals project during the spring 2005 semester, other course activities included lecture, reading various young adult novels, and participation in varying face-to-face literature response/discussion formats. In addition, the preservice teachers wrote journal reflections immediately after each chat session. At semester's end, the preservice teachers

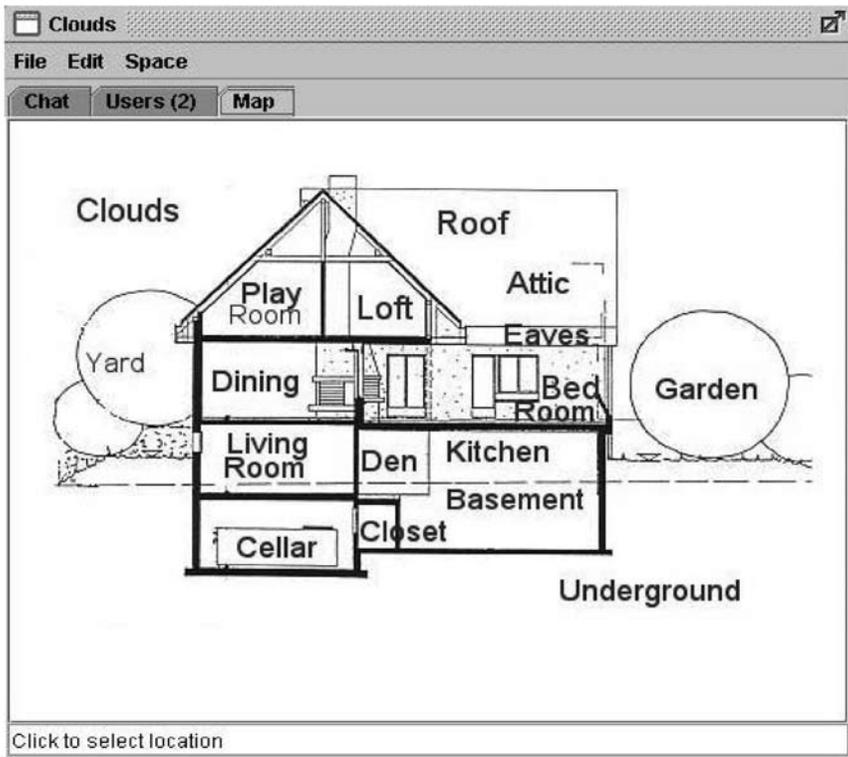


Figure 1: Map of virtual house and assorted chat rooms

wrote a cumulative reflection paper on the experience, and both sets of students met each other face-to-face for the first time at a pizza party held at the middle school.

While both college-level and middle school students self-reported they had some experience using CMC prior to this project, neither group was accustomed to using this particular Web Pen Pals environment. Both groups participated in one practice chat with students in their respective groups prior to project start; neither group received training on synchronous chat/discussion and questioning techniques prior to project start.

METHODOLOGY

Participants

Three of the eight preservice teachers were chosen for this analysis because they participated in all six chat sessions. All were female. The middle school students included four females and five males. Table 1 outlines the composition of the three groups.

A case study approach (Stake, 1995) was used to frame the analysis, with a cross-case analysis comparing the three teachers' questioning strategies. Because we were interested in English preservice teachers' development as collaborative discussion facilitators, "purposeful sampling" is appropriate for this case study

Table 1: Participants*

	Kitchen	Attic	Dining Room
Preservice Teacher	Amanda	Tara	Karen
Middle School Students	Kendra Sarah Steve	Lindsey Tom Robert	Nick Jenny Tyrone

*Pseudonyms used throughout

Table 2: Turns Taken

Preservice teachers	Chat 1			Chat 2			Chat 3		
	Teacher turns	Total turns	%	Teacher turns	Total turns	%	Teacher turns	Total turns	%
Amanda	74	189	39	107	288	37	87	257	34
Tara	37	121	31	96	247	39	115	252	46
Karen	43	149	29	69	232	30	67	286	23

(Merriam, 1998, p. 61). The preservice teachers are treated as individual cases because they chatted in different rooms, with different middle school students, and had varied experiences with CMC prior to this project. These individual cases allow for the opportunity to cross-analyze each of the preservice teachers' questioning strategies to gain a fuller, more complete picture. A benefit to using more than one case is a more compelling interpretation due to the variation that can occur across cases (Merriam, 1998). Merriam also suggests that including multiple cases enhances the external validity of the findings.

Data Collection

Data for this study included transcripts of each one-hour chat session, which were downloaded into word processing documents at the end of the semester. The preservice teachers' written reflections were also collected after the semester was completed. These were used to triangulate findings of the chat transcript analysis. Modified computer-mediated discourse analysis (Herring, 2004; Paulus, 2004) and qualitative data analysis (Hatch, 2002) were utilized for processing the chat transcripts. Analysis occurred on several levels to answer the research questions.

Data Analysis

Participation levels and question frequencies. First, the number and percentage of turns taken by each preservice teacher was calculated to determine participation levels (see Table 2). Teacher participation levels were generally low, indicating it was the middle school students who were doing most of the talking. This was encouraging, but we noticed the teachers were predominantly asking questions, suggesting students' participation consisted primarily of

Table 3: Number of Questions Asked

Preservice teachers	Chat 1			Chat 2			Chat 3		
	Questions	Turns	%	Questions	Turns	%	Questions	Turns	%
Amanda	29	74	39	55	107	51	45	87	52
Tara	25	37	68	51	96	62	57	115	63
Karen	22	43	60	32	69	51	21	67	60

responding. This led us to next calculate the number of questions asked as a percentage of the total turns taken (see Table 3). Tara asked the most questions (133)—increasing in frequency from the first to third chat. Amanda asked 129 total questions, with the numbers varying across the three chats. Karen asked the fewest questions (75).

Relevant topical episodes. Next, because we were interested in understanding how preservice English teachers facilitated discussion of literature, we focused on the conversational turns, which were on the topic of “book talk,” that is, *Nothing but the Truth (NBTT)*. When a comment seemed to introduce a “book talk” topic, comments responding to it were coded. A “book talk” topic was designated whenever at least two or more linked comments about the topic occurred. A “book talk” topic was considered finished when overt references ceased. Using these techniques (Dodson, 2000), 63 preservice teacher-initiated “book-talk” topics and 12 student-initiated “book-talk” topics across all chat sessions were identified, noting who had contributed to them.

Types of questions. The resulting 250 “book talk” questions were analyzed inductively to identify types of questions asked. Table 4 outlines the coding categories that emerged. To create these categories, we first identified general patterns and formulated possible codes that combined themes from the literature with themes that emerged as we discussed the cases. We continually refined these categories. For example, *uptake* questions at first seemed to include *requests for elaboration* because a preservice teacher’s *request for elaboration* does take-up a student’s contribution, but it does not necessarily encourage the student’s contribution to become (and thus change) the focus of the discussion. Thus the two types of questions were made distinct in the coding scheme.

Initiating questions. During this analysis phase, we noticed that the preservice teachers were predominantly employing an IRF pattern (Wells, 1993). Unlike the IRE pattern, the third teacher move in this pattern is not always evaluative.

Because language researchers have found certain types of initiating questions can be effective in encouraging student participation in the IRF model (e.g., Boyd & Rubin, 2002; Wells, 1993), we applied another level of coding to the preservice teachers’ initiating questions, which we outline below. We began this phase by coding the preservice teachers’ initiating questions as either *authentic* or *inauthentic*. *Authentic* questions (those for which there is no predetermined answer) signal to the students that the teacher is interested in what they think

Table 4: Coding Categories for Types of Questions

Authentic initiation		
No predetermined answer		
Question type	Description	Examples
Generalized opinion	Request reader's general attitude toward the written text, author, etc.	<i>"What did you think of the book?"</i>
Binary	Request reader to respond with information that fits between two extremes	<i>"Do you like Mr. Lunser or Ms. Narwin?"</i>
Conditional	Request reader to respond with value judgment (modal auxiliary verbs, e.g., "should" often present)	<i>"Should Philip have received that grade?"</i>
Inauthentic initiation		
Predetermined answer		
Question type	Description	Examples
Known-answer	Answer can be found in text	<i>"What is the setting of the story?"</i>
Closed-ended	Requests which can be responded to in "yes" or "no" form	<i>"Does Philip like his English teacher?"</i>
Follow-up		
After student response		
Question type	Description	Examples
Uptake	Inquire into something a student contributes to the discussion	<i>Ok, well, what about Dr. Doane made her so good?</i>
Challenge	Elicit a defense or line of argument	<i>What about from the side of Mrs. Narwin?</i>
Request for elaboration	Elicit more information about a student response to teacher-posed question	<i>Why don't you like Allison?</i>
Request for clarification	Elicit response from student who has not responded to teacher or student-posed question/comment	<i>Sarah, what about you?</i>
Request for response	Convey confusion/elicited more information to clear up confusion	<i>You like what better, the format?</i>
Regulate	Manage task and/or student participation	<i>Do you all want to ask me any questions?</i>

and know, and thus often solicit the respondent's opinion (Nystrand & Gamoran, 1991; Nystrand et al, 2003). *Inauthentic* initiation questions, in contrast, are those with a prespecified answer (*known-answer*) (e.g., "Where does the story take place?") or those able to be answered solely with a "yes" or "no" response (*close-ended*) (e.g., "Does Philip like his English teacher?").

Christoph and Nystrand (2001) explain *authentic* questions “allow a range of responses not present in a more typical question, in which a teacher asks a question with a prescribed answer in mind” (p. 50). During the analysis it appeared that *authentic* initiating questions did “allow a range of responses,” but the *scope of the range* was dependent upon the kind of *authentic* initiating question posed. For example, *authentic* initiating questions coded as *generalized opinion* (e.g., “What did you think of the book?”) allowed for an unlimited range of responses. In contrast, *authentic* initiating questions coded as *binary* (e.g., “Who did you like better, Mr. Lunser or Ms. Narwin?”) delimited the range of responses to information that fit between two extremes offered in the question.

Questions in context. Finally, because language research has also found that the IRF sequence can be effective when it responds to the evolving situated context (O’Connor & Michaels, 1996; Rex & McEachen, 1999), and follow-up questions in the sequence can sustain dialogic inquiry or act as “terminal acts,” preventing opportunities for student participation and inquiry (Mehan, 1979; Nystrand & Gamoran, 1991), the final analytic phase was a detailed analysis of specific threads and how initiating questions and follow-up questions impacted the conversations. This phase of the analysis occurred by examining the preservice teachers’ questions in the context of the conversations.

FINDINGS

This study explores the discourse strategies preservice English teachers use to facilitate online discussions about literature with middle school students in a CMC environment. This section is organized around the two research questions as they apply to each of the three preservice teachers. We first describe the type and frequency of questions asked by each individual preservice teacher, and then share excerpts from the chats to illustrate our finding that conversational outcomes were contingent on the various types of authentic initiation and follow-up questions asked by the preservice teachers.

Amanda: Binary Initiation Followed by Challenge.

As Table 5 shows, Amanda asked eight authentic initiation questions and 58 follow-up questions. Of the eight authentic initiating questions posed by Amanda, five were coded as *generalized opinion* (e.g., “What did you think of the book?”) and three were *binary* questions (e.g., “Do you like Ms. Narwin or Mr. Lunser better?”). Of the 58 follow-up questions posed by Amanda, 18 *took up* student contributions to the discussion, 22 *challenged* the middle school students to defend a point of view, and 18 *requested elaboration*.

Most salient in the analysis of Amanda’s questions was her use of authentic initiating questions seeking less generalized opinions, such as binaries, paired with follow-up challenge questions. This combination seemed to encourage lively debate and extended collaborative dialogue, thus promoting the co-construction of a “group text.” To illustrate, we trace the development of a thread from Amanda’s second chat that illustrates the IRF sequence Amanda typically used: asking binary initiating questions followed by challenge questions (see Example 1, p. 152).

Table 5: Number of Most Salient Question Types Used by Each Preservice Teacher

Question type	Amanda	Tara	Karen	Total
Authentic initiation				
Generalized opinion	5	14	9	28
Binary	3	1	0	4
Total	8	15	9	32
Follow-up				
Uptake	18	3	34	55
Challenge	22	2	3	27
Request for Elaboration	18	55	7	80
Total	58	60	44	195

We coded Amanda’s initiating question (line 59) as *authentic* because it doesn’t communicate to the students that she has a particular answer in mind. The question was also coded as a *binary* question, as the ensuing dialogue shows that Kendra’s response and Amanda’s follow-up *challenge* question provide two extremes as the range of possible answers to the initial question: ages 12–19 (line 64) and 30–35 (line 69), respectively.

The *binary* initiating question works to constrain the range of student answers so that a “group text” (Golden, 1986)—focused on one topic that all participants work to sustain—emerges rather than individual topics based on individual responses. Combined with Amanda’s follow-up *challenge* questions, this strategy seems to encourage dialogic inquiry as the students provide the “tension” Bakhtin (1981) says characterizes dialogic discourse as they contribute alternative counter-arguments and justify their views about who can “relate” to the book. For example, Kendra and Sarah don’t believe adults will “relate” as well since they haven’t been in school in a long time and may not “remember it as well” (line 98) as adolescents.

As the “group text” that emerges from Amanda’s initiating *binary* and follow-up *challenge* questions shows, both teacher and students join in the process of confirming, modifying, or abandoning their original interpretations through hearing others’ viewpoints. Steve is tentative (line 72), Kendra wavers back and forth (lines 74, 99, 106), but eventually supports Sarah’s point that Amanda—an adult reader—can probably “relate” to the book better than other adults because Amanda is preparing to be a teacher.

This collaborative back-and-forth, then, ultimately allows for Sarah and Kendra, especially, to contribute a sophisticated understanding of the role a reader’s purpose and context (e.g. age, experiences, etc.) plays in the level of engagement between a reader and a text, and interpretation of that text. Amanda wrote in her journal following this chat that she had “not thought of this,” and [Sarah and Kendra’s] ability to “back up their points” “surprised” her. The excerpt con-

Example 1: Thread from Amanda's Chat Room

Line # ³	Speaker	Turn	Question type
59	Amanda	What audience was the author looking to reach when he wrote this book?	Binary initiation
63	Amanda	What ages?	Binary initiation
64	Kendra	12-19	
65	Steve	A mind jogger maybe	
68	Sarah	Old enough to understand the mastermind of his plan	
69	Amanda	Does it appeal to that age more than say 30-35?	Challenge
72	Steve	Maybe	
73	Sarah	Yes, because they [30-35 year olds] aren't in school.	
74	Kendra	I just think it sounds like a teen book.	
75	Amanda	What about from the side of Ms. Narwin?	Challenge
77	Sarah	They don't know what it's like to not be able to change homerooms.	
78	Amanda	She is older and older people might read it and relate with her.	Counter
80	Sarah	Yeah but she isn't the main character.	
95	Amanda	You said the 30-35 year olds don't know what it's like not to be able to change homerooms. Well, weren't they in school at one time?	Challenge
97	Amanda	Don't you think they can remember what it is like?	Challenge
98	Sarah	Yeah, but they probably don't remember it as well.	
99	Kendra	Maybe it is for all ages.	
105	Sarah	They would know but they wouldn't care as much b/c the book doesn't relate to them as much.	
106	Kendra	I think she has a point.	
119	Amanda	Well, I'm 22 and I related to both Philip and Narwin. What does that say?	Challenge
121	Sarah	Because you are still in school.	
123	Sarah	And you have a different perspective on it.	
127	Amanda	Ok then, what about the older people in my class who r in their 40s and related to it?	Challenge
128	Sarah	You read the book knowing that u would have to talk about it w/ 8 th graders.	
133	Kendra	You're going to be a teacher so you'll be able 2 relate to it	
139	Amanda	Great job guys. U r making great points.	Regulate
141	Steve	A guy's ideas are different. Our perspective of things is thought out in a weird way.	

³Conversations overlap in synchronous chat rooms. Thus the missing line numbers indicate chat turns that were part of a different conversation than what is being analyzed here. With the exception of adding pseudonyms, all examples are presented verbatim.

tinues as Amanda praises them for their “great points” (line 139), and Amanda, Kendra, and Sarah ultimately take up a comment Steve contributes to the dialogue about boys having different perspectives (line 141).

Tara: Generalized Opinion Initiation Followed by Request for Elaboration

As Table 5 shows, Tara asked the most initiating questions (15). Of these 15 initiating questions, 14 requested *generalized opinions* (e.g., “What do you think about the different styles in this book?”) and only one was coded as *binary*. In addition, Tara asked predominantly *request for elaboration* follow-up questions—55 of 133 total questions (41 %), which was the highest number of any follow-up question asked by all three preservice teachers.

Tara’s combination of soliciting *generalized opinions* with her initiating questions, followed by *requests for elaboration* seemed to close down the discussion and discourage student engagement and participation. In the following example, we illustrate how Tara’s use of *authentic* initiating questions soliciting *generalized opinions* detract from the development of a “group text” in the online medium when not followed up effectively. This example is taken from the first chat (see Example 2, p. 154).

When two of the students respond differently to Tara’s initiating question (lines 55, 58), she poses *request for elaboration* questions (lines 56, 59) which encourage the development of two different topic strands: Lindsey’s favorite genres in *NBTT* and Robert’s reading preferences. When Tom doesn’t respond to her initiating question as quickly as the others, she asks him a different question (line 67), initiating yet a third topic strand: what Tom thinks about one of the main characters, Philip.

The use of initiating questions soliciting *generalized opinions*, followed by *request for elaboration*, then, in this case closes down opportunities for collaborative dialogue. For one, *generalized opinion* questions allow for a variety of responses that are hard to field in an online medium, where participants don’t have to raise their hands to be called on and thus can contribute to the discussion at any time. In this medium, teachers can’t acknowledge student contributions with a nod, or a gesture, or put off the responses until a more appropriate time, (e.g., after they’ve heard all individual contributions and can synthesize them).

In addition, Tara’s insistent *requests for elaboration* (she asks this type of question 55 times across the three chats) move the dialogue in multiple, individual directions rather than synthesizing the students’ comments into a “group text” (Golden, 1986) that all participants work to sustain. In essence, it seems as if Tara is attempting to carry on three separate conversations rather than engage all the group participants in collaborative inquiry. Neuwirth et al. (1993) might describe such discussion as “simultaneous monologues,” characterized by “presentational” talk and an “imposing” teacher’s stance (p. 185).

Karen: Generalized opinion initiation followed by uptake

All nine of Karen’s initiating questions requested *generalized opinions* (e.g., “What did you think of the book?”). Thirty-four of Karen’s 44 follow-up questions were coded as *uptake*. Uptake questions are those which take-up and make

Example 2: Thread From Tara’s Chat Room

Line #	Speaker	Turn	Question
52	Tara	what do you all think about the different styles in this book?	Generalized opinion initiation
54	Tara	like the memo’s or the dialogue or the journal entries? which one is your favorite?	Generalized opinion initiation
55	Robert	it makes it more confusing	
56	Tara	what does Robert?	Request for Clarification
58	Lindsey	i think that the different styles are cool. i like the journal entries best of all.	
59	Tara	why are the journal entries your fave?	Request for Elaboration
61	Lindsey	i also like to read the letters that the teacher writes to her sister.	
64	Robert	the way its setup one person talks then it switches to a diferent one	
65	Lindsey	because you get to really know and understand what Phillip is going through.	
66	Tara	brit, why do you like the letters?	Request for Elaboration
67	Tara	Tom, what do you think of phillip?	Generalized opinion initiation
69	Lindsey	i just think that they are really cool	
71	Tara	Robert, is that confusing? or do you prefer it when there are different view points?	Request for Elaboration
72	Tom	i think he’s cool	
74	Lindsey	i think the conversations are neat too	
75	Robert	different view points	
76	Tara	Tom, why is he cool?	Request for Elaboration

a student contribution the focus of the discussion. Nystrand and Gamoran (1991) explain this type of question signifies the importance of student contributions and encourage student-centered participation (p. 14). However, as Example 3 shows, without strong initiating questions that pose engaging topics for discussion in CMC, teachers may resort to taking up any and all students’ contributions to facilitate dialogue. Because any participant can contribute an on- or off-topic response at any time in CMC, the result of uptake can be a dizzying lack of focus that works against collaborative inquiry (see Example 3).

That Jenny—a middle school student—is posing an initiating question seems positive. As Nystrand and Gamoran (1991) explain, student questions, rather

Example 3: Thread From Karen's Chat Room

Line #	Speaker	Turn	Question type
125	Jenny	So...what did you think about the ending? You know how we feel, what about you?	Generalized opinion initiation (by student)
127	Nick	I think the superintendent was a cool character.	
130	Jenny	My principal in kindergarten was Dr. Doane.	
131	Tyrone	Nick, do you think Mrs. Narwin got re-assigned?	
133	Karen	Good question. I think that it shows that there are many truths. Philip was trying to be a good citizen, but his not knowing the words is a hard thing for him, especially with all that it cost him.	
135	Nick	Dr. Doane was a crazy character	
136	Jenny	No really, she was. I'll show you my yearbook.	
137	Jenny	At Norwood Elementary.	
139	Tyrone	How was he crazy, Nick?	
140	Karen	What about the, what are you guys talking about?	Request for clarification
145	Jenny	I'm talking about Dr. Doane...my kindergarten principal and my character in the book [the part she read aloud in class]	
149	Karen	Ok, well, what about Dr. Doane made her so good?	Uptake
153	Jenny	I liked her...she seemed...down to earth... didn't get too personal with the situation either	
155	Karen	Do you think it is better to not get personal?	Uptake
158	Jenny	Yeah, because then she can be fair.	
160	Tyrone	Why did you like Dr. Seymour?	
161	Nick	He was greedy.	
162	Karen	Greed is a good thing?	Uptake
168	Nick	I also played him [in class].	
172	Karen	Was that the only character you read?	Uptake
176	Karen	What about everyone else, what parts did you read?	Uptake

than teacher questions, should inform dialogic discussion. Analysis of the chat prior to this excerpt, however, reveals that Karen posed the generalized opinion question “What did you think of the ending?” on two separate occasions, but had not been able to facilitate a “group text,” or dialogic inquiry, as the students talked instead about off-topic subjects among themselves. It is interesting to note that one of the middle school students in Karen’s group asked her at one point to “ask us harder questions.”

Jenny then asks Karen what she thinks of the book’s ending (line 125). Before Karen can respond to Jenny’s question, however, Jenny makes a comment explaining that her kindergarten principal’s name was Dr. Doane—the same name of the principal in *NBTT* (line 130). Her peers “flock” (Crystal, 2001) to this comment (lines 135) and contribute to the ensuing peer-to-peer dialogue (lines 136-139). Karen, confused, must ask her pals what they are talking about (line 140). When Jenny responds to Karen (line 145), rather than re-focus the discussion to Jenny’s initial question (line 125), and the line of questioning she had tried to initiate earlier in the discussion, Karen takes up the new topic of Jenny’s kindergarten principal, Dr. Doane (line 149). She then extends on her prior uptake question when Jenny responds (line 153), and then proceeds to take up Nick’s responses to Tyrone (lines 162, 172, 176), who has been attempting to engage Nick throughout the discussion.

What seems to result from Karen’s use of uptake follow-up questioning is a constant shift in topic focus, as any student’s contribution—when taken up by Karen—changes the direction of the discussion, often to trivial, spur-of-the-moment topics that don’t contribute to the ongoing building of ideas or a “group text,” and thus, effective collaborative dialogue.

DISCUSSION

Dodson (2000) explains a “dialogic stance” is necessary for fostering “the kind of exchange that would make any discussion, whether it be oral or CMC, a platform or forum for learning” (p. 140). Bruner (1986) explains such a stance “invites counter-stance” and permits a process of “objectifying in language... what one has thought and then turning around on it and reconsidering it” (p. 129). Amanda seems to assume this “stance” through the use of *binary* initiating and *challenge* follow-up questions. The *binary* questions communicate to the students that their opinions are valued, but the questions work to delimit the scope of possible opinions to a manageable range.

Too, due to its either/or-and/both nature, the *binary* questions encourage debate and “argumentative threads” (Walker, 2004; Bridges, 1988) that can be sustained and elaborated through the use of *challenge* follow-up questions which “invite counter stance,” asking participants to defend their line of thinking. Through such a process, the group “[turns] around” their ideas and “[reconsider] them,” learning from each other as they co-construct meaning.

By contrast, Tara’s *request for elaboration* follow-up questions seem to communicate that her goal is not to engage in collaborative inquiry, but rather to elicit an elaborated student response. An entry in her journal seems to support this. She writes, “I don’t care what students’ opinions are, but they should have

them, and be able to back them up.” Burbules (1993) describes the “rule of reciprocity” necessary for true dialogic inquiry, which includes the “willingness to disclose one’s underlying reasons, feelings, and motivations, when asked” (p. 82).

In soliciting student opinions, Tara doesn’t seem to play by this rule, as she doesn’t share her own personal opinions or ideas with her pals. By this group’s final (third) chat, students have begun to resist Tara’s requests with consistent “I don’t know” responses. Taking a monologic stance, rather than a “dialogic stance” as recommended by Dodson (2000) does not seem to foster collaborative inquiry.

Karen also does not seem to play by Burbules’ “rule of reciprocity.” Karen explained in her journal she didn’t “know how to take [her pals] to another level” [with her questioning]. She wrote: “. . .they talked all around me, sometimes ignoring me, and my ego was a little hurt. . . . We’re supposed to be on the same page. I’m the expert, but I guess I was not doing a good job in the chat room.” As Karen explains, she sees herself in the role of “expert” in the chat discussions, as someone who perhaps should monitor students’ literary understandings rather than co-construct negotiated meanings through discussion of the literature. This may explain why Jenny must ask Karen what she thinks of the ending of the book (line 125), as Karen has shared few opinions or personal thoughts throughout the chats. Like Tara, Karen maintains a distance between the students and herself as warranted by her “expert” status.

Too, Karen explains she didn’t “know how to take [the students] to another level” with her questions. As Table 5 shows, all of Karen’s nine initiating questions solicited *generalized opinions*. Of these nine, five asked the middle school students how they liked the book and/or what they thought of what was happening in the book. As observed in Tara’s chat sessions, these questions can lead to a variety of responses that require skilled facilitation if a “group text” is to emerge. As explained previously, the preservice teachers did not receive training on such facilitation prior to project start. Paired with Tara’s belief that as an “expert” she needed to pose questions to guide the discussion, her lack of know-how in synthesizing student comments and scaffolding questions may have influenced the types of questions she asked.

To summarize, the preservice teachers asked more *authentic* initiating questions than *inauthentic* questions, indicating they were interested in what their pals thought and knew. However, the type and frequency of *authentic* initiating questions differed, as did the follow-up questions posed by the three preservice teachers. These differences in questioning strategies affected whether or not dialogic inquiry occurred in the discussions. We next discuss the implications of these varying questioning strategies and their underlying assumptions on future teacher preparation for dialogic participation in CMC environments and research.

IMPLICATIONS

Implications of this study include 1) a CMC environment alone does not guarantee equitable participation structures and dialogic inquiry in discussion-

based tasks; 2) IRF patterns of discussion can facilitate “group texts,” or dialogic inquiry, if and when effective initiation and follow-up questions responsive to evolving contexts are posed; and 3) questions which promote dialogic inquiry in face-to-face discussions do not always transfer successfully to the CMC environment.

Promoting Dialogic Inquiry in CMC

As Dodson (2003) and others claim (e.g., Bump, 1990; Groenke, Maples, & Dunlap, 2005), use of CMC in the classroom affords increased student communication and interaction. Researchers suggest one possible reason for this is that turn-taking and topic maintenance are disrupted in CMC environments, as participants can offer a comment at any time, without prompting, and thus may change the topic at any time (Groenke, Maples, & Dunlap, 2005; Davidson-Shivers, Muilenberg, & Tanner, 2001).

But just as Smagorinsky and Fly (1993) found in their study of peer-led discussions, it is not the structure—or in our case, the medium—that guarantees dialogic inquiry, but rather the overall patterns of discourse shaped by teachers’ instructional goals. If teachers’ goals don’t include dialogic patterns of knowledge-building, then discussion will most likely resemble the “monologues” Newirth et al. (1993) describes.

Important for us to consider in future instruction, then, are the expectations for participation that beginning teachers bring to the CMC environment, as these expectations inform the goals for discussion. Tara and Karen seemed to bring more traditional expectations of teacher-student interaction and discussion to the project that worked against the goal of dialogic inquiry. Instead of participating as “reading buddies” to the middle school students, Tara expected students to provide elaborated responses to her questions and Karen saw herself as the literary “expert,” whose role it was to take students to a “higher level” in their discussion.

This indeed informs us of the power of “school culture” that might help keep IRF scripts in place in both traditional and nontraditional discussion formats. As O’Loughlin (1995) has argued, “Students come to us with embodied conceptions of teaching and learning—ideas that have built up not from learning about these topics intellectually but from experiencing them over many years of schooling....Prospective teachers do not *think* teaching should be done a certain way; they *know* it from their lived experience” (p. 114 [italics in original]). Beginning English teachers usually only “know” how discussion should be done from their own “lived experiences” as students in traditional face-to-face classroom contexts, where discussion might have been monologic (e.g., following an IRF pattern).

As Vonderwell (2004) explains, online learning “requires the reconstruction of student and instructor roles, relations and practices” (p. 31). To better understand how to encourage this “reconstruction” in the Web Pen Pals project, it might behoove us to first consider the “ideas that have built up” from the pre-service teachers’ own experiences with discussion in secondary schooling before we place them in cyberspace and expect them to disrupt the only scripts they have ever known.

Our Questions Matter

The IRF scripts themselves may not be the culprits for monologic discourse. While Tara's and Karen's uses of the IRF pattern didn't allow for the emergence of "group texts," Amanda's use of the pattern *did* seem to encourage "group texts," and thus, collaborative, dialogic inquiry.

Wells (1993) explains the IRF sequence can "[function] more as an opportunity to extend the student's answer, to draw out his significance, or to make connections with other parts of the students' total experience" (p. 30). However, the kinds of questions teachers ask in the IRF sequence seem to matter, as teachers can't "draw out" the "significance" of or "extend" students' responses into a collaborative group text with follow-up questions if initiating questions never establish a common topic. Our research confirms that authentic initiation questions do seem to promote dialogic inquiry, but as we discuss next, not all authentic initiation questions are the same. Too, our research confirms research conducted by Walker (2004), who found that challenge questions were effective in promoting engaged student participation.

Ultimately, a relationship exists between initiating and follow-up questions, and as our research suggests, when these questions work together to respond contingently to students' responses and contributions to the discussion, they can promote dialogic inquiry. Our findings confirm research that reports the IRF sequence is effective when it responds to an evolving situated context (O'Connor & Michaels, 1996; Rex & McEachen, 1999), and points to the need for CMC researchers to regard the functions questions play in growing from and engendering student talk rather than their structures.

Dialogic Questions in CMC

Finally, these findings confirm earlier research that reports certain types of initiating questions can be effective in encouraging student participation in the IRF model (e.g., Boyd & Rubin, 2002), but cautions the transfer of successful questioning strategies in face-to-face discussions to the CMC environment.

As encouraged by Nystrand and Gamoran (1991), *authentic* questions soliciting students' opinions can facilitate dialogic inquiry in face-to-face discourse as they elicit multiple perspectives. This would seem to be desirable, but the multiple perspectives provided in response to *generalized opinion* questions made it hard for Tara and Karen to facilitate a common focus, or "group text" in the CMC medium. *Authentic* questions, which solicit generalized opinions, may need to be reconsidered for use in the CMC medium if dialogic inquiry is the goal.

Similarly, the use of *uptake* in CMC may need reconsideration as the online medium allows all participants to contribute comments at any time. Teachers can't possibly take-up all comments if they hope to co-create a "group text" that both teacher and students contribute to. When Karen attempted to take-up any and all students' comments, dialogic inquiry did not occur.

As we discussed earlier, the desire to know if CMC can provide a space for teachers and students to co-construct "group texts" prompted our study of the Web Pen Pals project. We believe that while a CMC environment can provide a

space for teachers and students to construct “group texts,” it is not the only factor to consider. We also feel that the types of questions teachers ask, and their expectations for student participation, should be considered in light of dialogic inquiry as a goal.

AREAS FOR FUTURE RESEARCH

As Tolmie and Boyle (2000) and Luppigini (2007) suggest, researchers should treat CMC environments as “complex systems,” and allow for a “more comprehensive account of the multiple factors affecting CMC system use” (Luppigini, p. 173). These factors include the topic of the discussions, and while this study looked at conversations around the *Nothing But the Truth* text, other research is needed on conversations about other texts. As a research community we need to understand under what conditions CMC can help equalize participation structures in discussion-based tasks.

In our own research we plan to next examine all of the beginning teachers’ discourse strategies for the second book in the course, to explicate the differences between the discussions and the discourse conditions present. It is important to explore how the beginning teachers’ discourse strategies change and develop over time, what the preservice teachers learned about facilitating dialogic inquiry in CMC as a result of their participation in this type of project, and what impact, if any, the project might have on their future teaching.

Finally, it is also important to consider those students and beginning teachers who do not have access to computers outside of school or college settings. Karen, and several of the middle school students involved in this project, did not have computer access at home and thus had less experience than others. Thus, they may struggle to keep up in a rapidly paced synchronous chat. Similarly, CMC users who are not fluent readers or do not typically discuss literature (like several of the middle school students) may resist discussion-based tasks. Attending to who the preservice teachers and adolescents are *outside* of the CMC environment may help us better understand the complexities involved with facilitating dialogically organized inquiry in CMC.

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