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# Cognitive and Social Help Giving in Online Teaching: An Exploratory Study

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# Cognitive and Social Help Giving In Online Teaching: An Exploratory Study

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While literature suggests that college students may be less reluctant to seek help in online rather than traditional courses, little is known about how online instructors give help in ways that lead to increased student help seeking and academic success. In this study, we used theories and research on learning assistance and scaffolding, teacher immediacy, social presence, and academic help seeking to explore through a cross-case study design how three online instructors differed in their use of cognitive and social supports and how those differences related to student perceptions of support, help seeking, and performance. Primary data sources included all course postings by the instructors, interviews with the instructors, observational field notes on course discussions, student interviews, and final student grades. Archived course documents and student discussion postings were secondary data sources. Data analysis revealed that while all instructors provided cognitive

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and social support, they varied in their level of questioning, use of direct instruction, support for task structuring, and attention to group dynamics. This variation in teaching presence related to differences across the courses in student perceptions of support, student help seeking in course discussions, and final course grades. Implications for online teaching and suggestions for further research are offered.

# Introduction

Many students in higher education are reluctant to seek academic help for reasons that include low self-efficacy and threat to self-esteem, a competitive classroom climate, and teachers who appear to be unresponsive or inflexible (Karabenick 2003, 2004; Kozanitis et al. 2008). Recent studies of student help seeking in courses where all or most of the class is conducted online, however, suggest that students are less reluctant to seek academic help in these environments and, in fact, do so more frequently than in face-to-face courses (Kitsantas and Chow 2007; Kumrow 2007). In a study of 472 students enrolled in undergraduate and graduate face-to-face classes in educational psychology and geography and distance courses in information studies, Kitsantas and Chow (2007) found that students in the distance courses sought help more often and reported less reluctance to seek help than students in traditional learning environments. In a similar study of 38 graduate nursing students, Kumrow (2007) found that students in a health care economics course (with 50% of the class online) engaged in more help seeking and had higher final grades than students in a lecture section of the same course.

Although promising, these studies have only begun to explore relationships between online teaching, student help seeking, and academic performance. In particular, they do not address how differences in instructors' methods of giving help might relate to student help seeking or academic success. With the persistence of high drop out rates and achievement problems in online courses (Morris et al. 2005; Tyler-Smith 2006), such study is needed so that instructors can understand how to strategically support students in online and blended environments. The study reported in this article was designed to be a first step in that direction.

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## Theoretical and research perspectives

The study was grounded in theories of learning assistance and scaffolding (Collins et al. 1990; Rogoff 1991; Tharp and Gallimore 1991; Vygotsky 1986). It also drew from theories and research on teacher immediacy and presence (Anderson et al. 2001; Christophel 1990; LaRose and Whitten 2000; Shea 2006; Shea et al. 2002); social presence in online discussions and classes (Gunawardena and Zittle 1997; Richardson and Swan 2003; Swan and Shih 2005), and academic help seeking (Karabenick 1998, 2004; Karabenick and Newman 2006; Ryan and Pintrich 1998).

## Learning assistance and scaffolding

Based on Vygotsky's theory of learning development, Tharp and Gallimore (1991) and Collins et al. (1990) offer frameworks for thinking not only about how students learn and construct knowledge in social contexts but how teachers (and peers) can scaffold that learning. Teachers assist learners in their zones of proximal development through modeling, feedback, reinforcement, questioning, task structuring, and direct instruction. These supports are continually adjusted, faded, and eventually withdrawn as students move toward expertise.

For more than a decade, these theories of learning assistance and instructional scaffolding have influenced conceptions of teaching in online learning environments (Bonk and Cunningham 1998; Dzubian et al. 2005; Harasim et al. 1995; Roblyer et al. 1997). Three recent reviews (Swan and Shea 2005; Tallen-Runnels et al. 2006; Wallace 2003), however, argue that empirical research on online teaching is still limited and has only begun to identify specific teaching methods that assist learners in online discussions. Bonk and his colleagues (1998, 2000), for example, identified a number of cognitive help giving behaviors they observed instructors and mentors using in computer conferences for pre-service teachers taking an introductory educational psychology course. These behaviors included: acknowledgement, questioning, direct instruction, use of examples, praise, task structuring, elaboration seeking, pushing for exploration, and dialogue prompting.

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# Teacher immediacy, social presence, and teaching presence

Communication studies of teacher immediacy and media theories and research on social presence and teaching presence offer additional insight into how teachers can support learning in online courses. Teacher immediacy originally referred to verbal and nonverbal teaching behaviors in face-to-face classrooms that lessen both the physical and psychological distance between teacher and students. A number of studies have shown that these behaviors (e.g., praise, using humor, maintaining physical proximity, making eye contact) are related positively to student learning (Christophel 1990; Weiner and Mehrabian 1968). More recently, LaRose and Whitten (2000) identified how instructors in online classes can use a variety of immediacy behaviors to make up for their lack of physical closeness to students. In a study of instructors in three different types of media settings (text-based, audio, and video), they found that instructors in each of these settings used immediacy behaviors that were appropriate to their particular medium. The text-based instructors, for example, used praise, personal examples, first names, questioning, humor, and digressions; instructors on video used gestures, smiles, a relaxed posture, and movement around the classroom.

Social presence theory (Rice 1992; Short et al. 1976) originally focused on how students could connect socially and emotionally with their instructors and peers in an electronically mediated course despite physical distance. A number of recent studies, however, have looked at specific methods (similar to teacher immediacy behaviors) that students use to successfully project social presence in online discussions. These studies have also found that student perception of social presence is a strong predictor of their satisfaction in online courses (Gunawardena and Zittle 1997; Swan 2003). In a study of 50 graduate students across five universities who participated in an online computer conference on distance education, Gunawardena and Zittle (1997) found that students who experienced higher levels of social presence were also more inclined to use emoticons (e.g., , and L) and paralanguage in written form (e.g., ''Hmm,'' ''Yuk'') to make up for the lack of social and nonverbal cues that help create social presence and immediacy in traditional face-to-face communication. Swan (2003)

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extended these findings in a study of all of the discussion threads in a graduate online educational computing class. Drawing from a framework developed by Rourke et al. (1999), she found that course participants projected social presence in online discussions by using significant amounts of affective, cohesive and interactive language indicators that included not only paralanguage, but also humor, self-disclosure, praise, acknowledgements, greetings, group references, social sharing, agreement/disagreement, invitations, and personal advice.

Many studies on social presence in online courses have pointed to the critical importance of the online course instructor who not only projects and models social presence behaviors but creates a class culture that encourages students to use them as well (Jung et al. 2002; Richardson and Swan 2003; Shea et al. 2002; Swan and Shih 2005). In a study of three classes of Korean undergraduates taking a career development course with three different support conditions, Jung et al. (2002) found that student online discussion participation and achievement on course assignments were higher when they were supported socially and academically by instructors in contrast to students who did not or who only interacted with peers on academic tasks. In a study of 97 adult students taking online undergraduate courses at Emporia State College, Richardson and Swan (2003) found a high correlation among students' sense of social presence, perceived learning, and satisfaction with course instructors. In another study of graduate students in four online educational technology courses, Swan and Shih (2005) discovered that students who were most satisfied with online discussions had the highest perceptions of social presence and attributed that satisfaction more to instructors than peers.

Anderson et al. (2001) bring together these cognitive and social perspectives of online teaching in their conception of ''teaching presence,'' which they define as ''the design, facilitation and direction'' of both cognitive and social processes. They have developed lists of support behaviors that can be observed in online discussions. These behaviors are grouped under what they see as the primary roles of the online teacher: instructional design and administration (e.g., setting curriculum, setting deadlines, establishing netiquette); discussion facilitation (e.g., identifying areas of agreement/disagreement, seeking

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consensus, climate setting); and direct instruction (e.g., question posing, discussion focusing, summarizing, providing explanations).

## Academic help seeking

Strategic/adaptive help seeking or getting "only the assistance necessary to accomplish tasks independently" (Karabenick 1998) is an important self-regulation strategy that has been linked to high academic achievement and learner satisfaction in higher education (Karabenick 2003, 2004; Karabenick and Newman 2006; Kitsantas 2002; Zusho et al. 2007). Researchers distinguish between formal help seeking from instructors and informal help seeking from peers and family members. They also distinguish strategic help seeking from expedient help seeking, which centers on using others to avoid work (e.g., getting the right answer on a problem). Studies have found that many college students in face-to-face classes avoid formal help seeking by trying to solve academic problems on their own (studying harder, dropping a class) or seeking expedient rather than strategic help (Karabenick 2003, 2004).

Earlier literature on academic help seeking focused on the relationship of strategic help seeking to individual characteristics in learners like achievement goals, self-regulation, self-esteem, and self-efficacy beliefs. Studies found that learners who sought help most efficiently were learners who were highly motivated to achieve, self-regulatory, and had high self-esteem and self-efficacy. Those more reluctant to seek help tended to be learners who set low performance-oriented goals, did not strategically use self-regulation strategies, and had lower self-esteem and self-efficacy. While not disagreeing with these earlier findings, more recent studies on help seeking have been interested in the importance of contextual factors, especially classroom achievement goals that support autonomous help seeking. These studies suggest that students are more inclined to seek help in classrooms where rules and norms promote strategic help seeking (Ryan and Pintrich 1998); where classroom goals are perceived as mastery rather than performance-oriented (Karabenick 2004); and in classrooms that students perceive as socially supportive (Karabenick 2004; Kozanitis et al. 2008; Ryan and Pintrich 1998). The teacher plays a particularly important role in these perceptions. In

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their study of contextual influences on student motivation and help seeking, Ryan and Pintrich (1998) found that middle school students' positive perceptions of teacher support for both student-teacher and student-student interactions influenced their help seeking. In a more recent study, Kozanitis et al. (2008) found that college students were more likely to use autonomous help seeking strategies when they perceived support and positive responses to their questions from their instructors.

## Research questions

Although previous research has identified a number of cognitive and social strategies that online instructors can use to assist students, there has been little investigation on how online instructors can vary in their use of these strategies. Furthermore, there has been even less study on how such variation might relate to student help seeking and academic success in online courses. For this reason, the present study used the literature on learning support, teacher immediacy and presence, social presence, and help seeking to frame the following three questions: (a) What cognitive and social help-giving behaviors can be observed in online instructors as they teach a course? (b) What similarities and differences in cognitive and social assistance can be observed in these online instructors? (c) What relationships can be seen among these help giving behaviors, student perceptions of support, formal student help seeking, and student performance in online courses?

## Context for study

For the past 12 years, a mid-sized, private Midwestern university has been offering blended graduate courses (primarily online with two face-to-face meetings) in education and instructional technology. The courses are designed to be highly interactive with frequent, required asynchronous discussions, availability of instant e-mail, online chats, paging, and a variety of interactive tutorials on course topics and technical skills needed for course navigation and assignments. At the time of this study (Spring of 2006), all courses were using Desire to Learn as a platform for delivery; the instruction

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was largely text-based although some instructors were incorporating some video and audio in their courses.

The courses attract students in education, business, and the health sciences who present a wide range of technology proficiency and experience. Instructors are a mix of full time and adjunct professors who are both experienced and novice online teachers. All first-time online instructors are required to participate in an orientation workshop that covers current online technologies and pedagogy. Additional assistance for faculty includes a technical help desk and a faculty mentor who helps with course design and conducts an ongoing support forum for online instructors.

# Method

Because the study was intended to develop a rich description of teaching methods that support student help seeking and academic performance as well as differences in teaching across courses, a comparative cross-case study design using naturalistic and descriptive methods of inquiry was used (Lincoln and Guba 1985).

## *Participants*

Three adjunct online instructors teaching graduate education courses agreed to provide access to all of their course discussions and postings, and also participate in an interview at the end of the semester. All three of the courses were conducted primarily online with faceto-face sessions at the beginning and end of the semester. Two instructors, Karen and Robin (names of instructors were changed to protect privacy), had been teaching online courses for several years and also had considerable experience teaching at both the K-12 and college level. The other instructor, Robert, had 17 years of college teaching experience but previously had only taught one online course. Table 1 offers a fuller profile of these instructors:

## *Data collection*

Primary data sources were: (a) all instructor course postings, (b) interviews with course instructors, (c) weekly field notes taken by

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the authors while observing course discussions, (d) student interviews, and (e) final student grades. Archived course documents (course syllabus, assignment descriptions, discussion prompts, and student discussion postings) were secondary data sources.

### *Instructor postings*

All 916 of the instructors' postings in course discussions and on the instructors' announcement pages were copied (392 written by Robert, 333 written by Karen and 189 written by Robin).

### *Instructor interviews*

Within a month after the courses ended and grades were submitted, the second author interviewed each of the course instructors on student problems in the course, their methods for supporting students, their perceptions of the course's learning climate, and their perceptions of how students sought and received help. (See Appendix for interview protocol.) The interviews were audio-taped and transcribed.

### *Observational field notes of course discussions*

Independently, we each read all asynchronous discussion postings in each course on a weekly basis. We kept field notes of our observations, met weekly to discuss them, and kept a journal of our emergent questions, hunches, and tentative understandings. We also made charts to record communication patterns in the discussions (who spoke to whom, frequency of student-student and student-teacher interactions, and timing of student and instructor postings). All instances in the postings of formal help seeking by students were isolated, charted, and copied with an indication of to whom and why the request for assistance was made as well as who responded. All comments in the course by both students and instructors about the academic and social climate were also noted and copied.

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### *Student interviews*

The first author recruited 21 of the 29 students enrolled in the three courses (nine in Robert's course, six in Karen's course and six in Robin's course) to participate in a 45-minute interview at the end of the semester. All interviews were conducted face-to-face either at the student's place of employment or on campus by one of the two authors. Students were asked to describe problems they encountered in the course, how they got help, their perceptions of the instructor's support, and their perceptions of the course's learning climate. (See Appendix for interview protocol.) All interviews were tape recorded and transcribed.

### *Final student grades*

With the permission of students and instructors, copies of final grade reports were obtained from the university registrar.

### *Course documents*

Course syllabi, assignment descriptions, discussion prompts, and student discussion postings and threads were used to contextualize the instructors' postings. They were also used to elaborate understanding of some cognitive supports like task structuring, content presentation, and discussion facilitation strategies (prompting, focusing, summarizing). In addition, they were used to check for any evidence that would confirm or disconfirm emerging understanding of how these instructors were supporting their students.

## *Data analysis*

To carefully examine instructor help giving in these courses, we used both individual and cross-case analytic techniques (Patton 2002; Stake 1995; Yin 2003) to analyze the instructor and student data. Using literature on learning support in online learning environments (Bonk et al. 2000), teaching presence indicators (Anderson et al. 2001) and social presence indicators in online discussions (Rourke et al. 1999; Swan and Shih 2005), we developed a preliminary list of coding categories. We then independently read through each

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instructor's discussion postings, announcements, and interviews to isolate instances of instructor help giving in the postings and references to help giving in the interviews. We met to agree on thematic coding units in the texts as well as additional coding categories that emerged from our reading of the data. We independently tried the coding categories on several of each instructor's postings and then met to reach consensus on coding units and to refine coding categories. We continued this process of coding and refinement with each of the instructor's postings and interviews until consensus was reached on all coding units and codes. We then completed frequency counts for both cognitive and social supports in each of the instructor's discussion and announcement postings. (See Tables 2 and 3 for final coding categories and frequency counts.) We used the coded instructors' interviews to confirm and elaborate on findings from the coded postings and also to make comparisons across the cases.

We used similar techniques to analyze student interviews. First, using the research questions as well as the coding categories on cognitive and social supports that emerged in our analysis of the instructors' postings, we searched for patterns in the interviews of each student in each of the courses and then across all the students in each course using a constant comparative method (Glaser and Strauss 1967). We read the student interview transcripts independently several times and then independently marked the texts to capture main ideas. We subsequently revised the coding categories on one of the student interviews and met again to reach consensus on a final resolution of coding units and codes for the student interviews. We continued this process of coding and refinement with all of the other student interviews until consensus was reached. We then used the coded student interviews for each course to confirm and elaborate on findings from the instructor data for each course and to make additional comparisons across cases.

Drawing from all of the data (coded instructor postings, announcements and interviews; student-student and teacher-student interaction and help seeking charts; field notes; coded student interviews; and grade reports), we wrote detailed case reports for each course that summarized instructor help giving (cognitive and

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social), level of student formal help seeking, level of student participation in discussions, student perceptions of support, and final grades.

# Results

## *Cognitive supports*

As indicated in Table 2, all three instructors offered a variety of the cognitive supports to students that have been mentioned in the literature. Most frequently all made use of acknowledgements and praise. There was, however, variation in their (a) level of questioning; (b) amount and consistency of direct instruction; and (c) task structuring.

## *Acknowledgement and praise*

Social and cognitive acknowledgement is an important learning support that often serves to keep students focused and motivated (Bonk and Cunningham 1998; Tharp and Gallimore 1991). This kind of support was evident in 73% of Karen's, 40% of Robin's, and 38% of Robert's postings. Some examples include:

- You have expressed your definition of learning as acquisition of knowledge that is permanent and that can be accessed when needed. (Paraphrase of a student's position)
- As you implement the online tutorials, would you consider training your more savvy students as tech coaches who can help other students? Check out this website showing how one teacher successfully did that. (Acknowledgement with a push for further exploration)
- You write that 'some sort of test may be performed to verify that any learning has occurred.' But how do you know if the test is reliable or valid? (Direct quoting of a student posting combined with questioning)

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## Level of questioning

Literature on teaching in higher education in both face-to-face and online environments has paid considerable attention to the importance of discussion prompting that moves student discussion beyond mere information sharing to higher levels of critical response and knowledge construction (Tharp and Gallimore 1991; Gerber et al. 2005; Kanuka and Anderson 1998; Rourke et al. 1999). Gerber et al. (2005) make a distinction between a challenging and unchallenging "stance" that an online instructor can take in discussions. Unchallenging postings, while supportive, simply provide additional information or ask for clarification. Instructors who adopt a "challenging" stance are supportive and informative but also ask students to use data or theory to defend and elaborate arguments; they highlight student disagreements and present counter-positions to challenge student postings.

As Table 2 indicates, Robin and Robert rarely used probing questions or questions that challenged their students to elaborate on or defend their positions, while Karen more frequently posed counter arguments and challenged students to apply and evaluate educational theories with questions like these:

- Is there really no solution or are there many possible solutions? How, for example, might the cognitive information processing theorists approach this issue?
- Although the action and your reaction can be explained from a behaviorist point of view, I wonder if it was planned and intended that way. My guess is that it was not intended to create a change in your behavior….
- You state that the most important mediating factors in learning are interest and relevance. Have you considered how physical or emotional factors might come into play as mediating variables? Have you ever studied Maslow's Hierarchy?

In contrast, Robin's questions typically asked for information, e.g.,

- Do you have any other suggestions on what to do about resistant faculty or staff?

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- Do most of these kids get over their fear after a couple of weeks in your [kindergarten] class?
- Do your school parents ever ask for a more traditional ABCD-F report card?

Robert's questions, although thought-provoking, tended to be broader and open-ended rather than targeted and probing, e.g.,

- How far have your schools come with technology integration?
- What do you think about the move toward virtual schools in K-12 education?
- Do you ever find it difficult to empathize with any of your students?

**Amount and consistency of direct instruction**

Anderson et al. (2001) and Bonk et al. (2000) both include direct instruction as an important cognitive support used by online teachers. Their research offers these indicators of direct instruction: (a) presentation of content and examples, (b) bringing in knowledge from diverse sources and personal experience, (c) assessing student ideas, (d) diagnosing misconceptions, (e) prompting, (f) focusing, and (g) summarizing.

Table 2 shows how all three instructors frequently presented and encouraged student exploration of content with links to additional resources. Robert presented his own thinking about course readings and topics (e.g., informal learning environments, instructional design paradigms, distributed cognition), and he suggested books and articles that students might pursue as they researched project topics. Karen summarized current research and raised questions on topics that came up in course discussions, such as test anxiety, student misconceptions in science, learned helplessness, online learning environments; and she often provided links to websites and articles. In more than a third of her postings, Robin provided information and links to websites and online tutorials on topics related to instructional technology, such as electronic portfolios, archiving web resources, and Web Quests.

However, Table 2 indicates variation in these instructors' facilitation of course discussions. While all three made some effort to

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offer discussion prompts that would keep the discussion going and draw in participants, Karen was more systematic in her efforts to focus course discussions. At the beginning of every module, she used Power Point and occasional videos to provide a mini-lecture overview of the module and offer explicit instructions to focus the week's discussions on specific issues. She regularly used her announcement pages to preview upcoming modules, share general assessments of student projects, and summarize discussions. In addition, she periodically offered advice to students on how to improve discussion postings. Early, for example, she noted,

> The tendency has been to affirm what others have said and react emotionally to the topic of learning in general. I would like us all to stretch ourselves by staying focused on the prompt question, using the text to support your positions, and raising critical questions.

Discussion focusing and guidance were less apparent in Robert's postings; and students in Robert's discussions frequently digressed from the central topic of the course (instructional design) to topics like child rearing, television watching, medicine, and sports. As one of Robert's students explained, ''In this class we were just sort of rambling, and if there was a tangent to grab, we'd grab it and run with it.''

## Task structuring

Tharp and Gallimore (1991) emphasize the need for teachers to structure cognitive tasks within a student's zone of proximal development. They argue that students need help in breaking large tasks down into clear, achievable goals and procedures. In response to students having difficulty keeping track of deadlines, for example, both Karen and Robin created timelines and calendars that they posted on their announcement pages. In addition, in discussion postings, on announcement pages, and also privately on e-mail, all three instructors helped students narrow project topics and tackle extensive readings assignments:

- Pick any one of your ideas and do some preliminary searching for information. (Karen)

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- After you immerse yourself in your readings on situated cognition, think about how to use the
- language and framework of the theory to analyze what's going on in your classroom. (Robert)
- Use the rubric to help you plan this project. (Robin).

However, while Karen's and Robin's students commented on the helpfulness of step-by-step project instructions and clear rubrics that made it clear "exactly what I needed to do," six of Robert's students complained about his lack of explicit directions for course projects with comments like "You had to wade through a lot of information to figure out what the core assignments were and what was expected" and "The project deadlines were never clear."

## *Social supports*

Table 3 shows that in addition to cognitive supports, these instructors frequently used many social supports that are mentioned in the literature. While all of the instructors took care to consistently use language in their postings that helped to create an inviting learning climate, they varied in their (a) consistency of public and private interactions with students and (b) attention to group dynamics and processes.

## *Use of welcoming language*

To make their largely text-based courses more welcoming and help lessen the physical and psychological distance between themselves and their students, all three instructors frequently used linguistic techniques in their postings that have been identified by Rourke et al. (1999) as those which help project social presence. For example, all three addressed most postings to students by their first names. Robin and Karen signed their postings and some of their announcements with their own first names as well. In addition, Robin and Karen typically began postings with a "Hi" or "Thanks for your response."

All of the instructors also found ways to project emotion into their postings. In almost a third of her postings, Robin used emoticons,

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exaggerated punctuation or spelling (e.g., ''Whheeeww!'' ''Here gooeesss…. ''). Robert frequently emphasized ideas with words written in capital letters. He also projected emotion by naming his feelings (e.g., ''I'm excited…'' ''Sorry if I sound angry here.'') Karen invited student response by inserting ''Hmmmm…'' or using exaggerated punctuation after raising a question or presenting possible ways to look at an issue. Also, in almost half of her postings, she projected emotion with empathetic responses (''I hear your frustration.''), reassurances (''That feeling of panic can be productive.''), and enthusiasm for student ideas (''I love your tardy slip story.'' ''You got me thinking!'').

In addition to welcoming language, all instructors on occasion included direct invitations and personal offers to help in their postings. Robin invited students within driving distance to events at her school. She offered to set up a videoconference for one of her students; and she offered to come to a teacher's class to show students how to use The Geometer's Sketchpad. Karen and Robert invited students to contact them by e-mail or to meet face-to-face (''Would it be helpful to meet and talk over options?'' ''If you are having difficulty, just let me know what's going on'').

Only Robert made frequent use of personal disclosures and humor (in almost half of his postings) to illustrate points and create an inviting climate. He described his unmotivated seventh-grade son, his teaching experiences at a college in Illinois, and watching horror movies when he was a child. He was open about his technical and pedagogical vulnerabilities (e.g., how he lost ''a brilliant response'' that he had written by not saving it and how some of his discussion postings might ''ramble''). He used humor through his frequent play with words or with a sudden light comment at the end of a more serious posting (''Is this too much for a Friday morning?'').

## *Public and private interaction with students*

As Table 4 illustrates, with 18–28% of the total number of postings in their courses, including more than weekly use of their announcement pages, all three instructors appeared to have a strong course presence.

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With an average of 31 postings to each student in her class (at least two per week) and an average of 14 postings from each student directed to her, Karen frequently and consistently interacted with all of her students. With a similar average of 32 postings to each student and an average of 21 postings from each student directed to him, Robert also appeared to be highly interactive with his students. However, observations of the interaction patterns and interviews with his students indicated that his presence was inconsistent. He was absent during one module and late with his postings in two others. In the weeks where he posted, his number of postings varied between 29 and 5. In contrast, while Robin's 18 postings per student were less than Robert's and Karen's, they were consistently made each week. Interviews with Robin and her students and observations also revealed that she projected her presence on her announcement page where she posted reminders, notes, and web links at least twice per week. She also frequently directed students to her personal website where she posted additional resources including project examples, tutorials, and videos.

Although all three instructors invited students to contact them if they needed help in postings and on announcement pages, only Robin and Karen attempted to interact with students who were absent in the discussions. They e-mailed, phoned, and paged their students with suggestions and encouragement, which Robert admitted that he rarely did. They also held regular office hours for private communication.

## *Attention to group dynamics and processes*

Much has been written about the importance of a supportive climate in online courses (Palloff and Pratt 1999; Swan and Shea 2005). Both Karen and Robin indicated that they tried to create a supportive class climate through their welcome letters, announcement page encouragements, and a face-to-face orientation class. They made an effort to know their students and connect those with similar interests. Early in Robin's discussions, for example, she encouraged two public health educators and two adult educators who were students in her class to talk to each other; later, she paired them up for a class project. When one student was having difficulty coming up

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with an idea for a project, she directed him to ask his peers for feedback in her Cyber Cafe´ (informal chat area).

Karen, too, often assessed the group process, reinforcing positive behaviors and attempting to head off potential problems. Early in the discussions, for example, she could see that her course had a group of experienced online learners who had taken several courses together and a group of new online learners. She stated, "There was an in-group and a new group, and we had to bring those groups together." She consistently reassured the new online learners that their contributions in the discussions were valuable. To one of them, in response to a posting where a student apologized for disagreeing with someone, she responded: "No apologies in our discussion !!! We're sharing perspectives, beliefs, and feelings. I value your statements…. We do not need to agree." Mid-term, she also addressed a problem that had emerged about the timeliness of discussion postings by adjusting her discussion evaluation rubric so that late postings did not receive full credit. She explained her decision to students: "If postings are not made on time, the richness of our discussions can be diminished." She also asked that students always respond to all who have written to them so that no one feels "ignored." Later in the course, when two students developed a misunderstanding, Karen thanked one of the students for her "thoughtful response" to the other student [which] "exemplifies the benefits of the learning community [that] we have established here."

This consistent attention to group process was less evident in Robert's class. On his announcement page, for example, he more typically offered suggestions on assignments rather than group development. On one occasion, he suggested that students respond to all who wrote to them in the discussions but backed off from requiring them to do so. His lower attention to group process may have been why, in contrast to the collaborative climates that emerged in Robin's and Karen's classes, a more competitive climate prevailed in Robert's class which made some students feel isolated. Three students who did not successfully complete the course mentioned that they felt outside of a "clique" of early responders who knew each other and rarely responded to their postings. One student said that he "didn't feel connected," that he often felt that he was "looking at" and

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''monitoring'' the discussions. Another student described how the ''people that were first with their discussion postings…were really sticklers for 'on this page it says this and on this page it says that.'" The competitive class atmosphere made her ''kind of scared to put [her] discussions in'' because she didn't think it would ''sound as good as theirs.'' Instead of addressing this divide between early and late responders, Robert encouraged it when in a class discussion he compared students in an online class to marathon runners: ''Some race to the head of the pack and others fall behind,'' he wrote. His metaphor vindicated the ''fast group,'' giving them permission to race ahead of the others. One student in that ''fast group'' commented that this ''diversity of the abilities… made it difficult to keep up any sense of community'' and that he was glad that he had the ''luxury'' of simply ignoring the slower group.

## *Final grades, student help seeking, and student perceptions of support*

As Table 5 illustrates, on average, final grades were high in Karen's and Robin's classes but unusually low in Robert's class, with five of the 11 students either not completing or failing the course. All five of these students had lower participation rates in the course discussions (an average of 66 total postings) than the six students who successfully completed the course with an average of 141 postings in the discussions. All five also had fewer responses to their discussion postings from the instructor (an average of 19 postings) and other students (an average of 29 postings) in contrast to the average number of postings that the six successful students received from the instructor (42) and other students (84).

Students in these courses formally sought help for a variety of reasons: feedback on course assignment topics, time management, clarification on assignment expectations, questions on course readings and concepts, technical problems, emotional support, how to access course materials, and advice on non-course related issues. As Table 5 indicates, instances of formal help seeking on these issues in the class discussions were highest in Karen's class (in 10% of the student postings) and lowest in Robert's class (in 4% of the postings). In addition, interviews with Karen and her students indicated that

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students frequently sought private help from her and several students in the class by phone, e-mail, and instant messaging. Although there was less evidence of formal help seeking in Robin's class discussions than in Karen's, Robin's students indicated that they, like Karen's students, frequently sought and received help from her privately through e-mail, instant messaging, online chats, phone, and face-to-face visits. Interviews with Robert's students and Robert, on the other hand, indicated that while three students occasionally sought help from him on e-mail and one student had several face-to-face meetings with him, most of his students had little private interaction with him.

Student perceptions of academic and social support in Karen's and Robin's classes were unanimously high, whereas student perceptions of support were mixed in Robert's class. Interviews with Karen's students confirmed how much they valued her support: ''She bent over backwards to help…. She even advised me on personal issues.'' ''She looked at all of us as individuals.'' ''She pushed me to the upper level with her questions.'' ''She was always quick to respond within twenty-four hours.'' When asked about Karen's class climate, students described it as ''friendly,'' ''comfortable,'' and ''respectful.'' ''It wasn't mean or competitive like 'I'm going to do better than you…. It was more collaborative, like 'Prove it to me. I want to hear more.'''

Robin was praised for being ''very helpful.'' ''She gave lots of feedback.'' ''She responded to everybody.'' ''Her questions would get us to thinking and also then make us go out and do a little more research.'' When asked about Robin's class climate, students described it as ''comfortable,'' ''laid back,'' ''cooperative,'' and ''warm.'' ''People were not hesitant at all to e-mail each other if they had problems even though we had dental hygienists, a grad student from philosophy and classroom teachers. These [different] cliques of people work[ed] together.'' Several students remarked how ''you felt like you were actually in a class'' because even though you ''hadn't met these people… you felt like you knew them.''

Perceptions of Robert's support, however, were mixed. While three students felt that ''contact with [him] was so easy'' and that his detailed feedback on assignments ''would help you clarify,'' six students mentioned his inconsistent feedback. One student explained,

"We did not get feedback in a timely fashion on the stuff we were posting. So, for instance, we were in Module 6, and he hadn't posted any grades for Module 1 yet." Another student said, "I never knew if he was there." She explained that at times the students in the class "would e-mail each other" with their questions but admitted, "I'm not sure how helpful we were to each other." When asked about Robert's class climate, students described it as "unorganized," "rambling," and "competitive." While one student compared the class discussions to "intense conversations" on a variety of topics, another student questioned their depth: "I missed the argument, the face to face debates where you're really getting at something."

Several also spoke about the division mentioned earlier between the group of five early responders and others in the class: "There was definitely a pack kind of mentality there." One student suggested that race may have had something to do with this division. The five early responders, who were White, tended to interact more often with each other in the discussions than with the four African American students in the class. One of the African American students said, "I felt kind of like the little dog nipping on the heels of the bigger dogs." A female student suggested that perhaps gender played a role in the class climate: "There were more men in that class than [usual]. Some of the guys would say 'Oh, here you go again' or they would… banter back and forth and try to out-debate or out-theorize each other."

## Discussion and implications

Although limited by its small sample size and generalizability, this study adds support to a growing body of literature that affirms the importance of the instructor in supporting student satisfaction and learning in online courses (Garrison and Cleveland-Innes 2005; Jung et al. 2002; Picciano 2002; Swan and Shih 2005). While all of these instructors provided both cognitive and social supports, they varied most in their level of questioning, use of direct instruction, task structuring, and attention to group dynamics. This variation in what Anderson et al. (2001) call "teaching presence" related to differences across the courses in student perceptions of support, student help seeking, and final grades. In addition to this finding, by drawing from diverse literatures on learning assistance and scaffolding, teacher

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immediacy and presence, social presence, and help seeking, this study brings together a number of cognitive and social support strategies (Tables 2 and 3) that can be useful frameworks for online teaching practice and future research.

## *Suggestions for online instructors*

Online instructors can use these lists of help-giving strategies to evaluate and improve their teaching. As a starting point for self-analysis, instructors might consider how Karen used an effective combination of these supports. She frequently asked challenging questions, probed for elaboration and explanation, and shared her knowledge from research, professional experience, and Web-based resources. She consistently provided timely, clear, and concise responses to student help seeking. She offered firm direction and guidance in the discussions that included efforts to prompt all students to participate, discussion focusing on specific issues, and weekly summaries. She projected a strong social presence with her frequent acknowledgements, affirming feedback, friendly greetings, use of first names, and expressions of emotion and empathy. She maintained a supportive class climate by monitoring and addressing group dynamics, inviting students to seek help, and contacting non-participants.

In addition to incorporating such strategies in their discussion postings, online instructors may want to consider how a variety of technological tools might assist them in providing some of these supports. We noted, for example, that Karen and Robin, in addition to their discussion postings and announcements, used online tutorials, e-mail, paging, the phone, and an informal chat room to support students. Instructors may want to investigate the help-giving potential of newer technological tools like audio conferencing (Ice et al. 2007; Ice et al. 2008); mobile computing (Attewell 2005; Shih and Mills 2007); social networking media like Weblogs and wikis (Cameron and Anderson 2006; Du and Wagner 2007; Nickens et al. 2008); virtual reality environments (Hodge et al. 2006) and collaborative knowledge-building learning environments like CaMILE and Knowledge Forum (Jonassen and Remidez 2005).

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## *Suggestions for further research*

This study also suggests several topics for future research: (a) student use of instructional assistance; (b) use of instructional supports in varied content areas, educational levels, and contexts; (c) personal factors influencing instructor help giving; and (d) peer help giving.

## *Student use of instructional assistance*

To gain a full understanding of instructor help giving, we will need to know how online students use or do not use the help that is offered to them. How, for example, do various supports lead to greater or lesser critical thinking or knowledge construction? How might particular combinations of cognitive and social teaching supports like task structuring or targeted questioning and teacher immediacy behaviors relate to learning outcomes on particular kinds of online course activities, such as projects, exams, written assignments, and course discussions? Gerber et al. (2005), for example, studied how one course instructor's use of challenging questions and higher-order topics influenced student use of reasoned arguments in their online discussion postings. In a survey of 75 students taking four distance education courses with varied levels of instructional support, Garrison and Cleveland-Innes (2005) found that students in the course with the highest level of instructor involvement, critical questioning, and reflective assignment requirements were most inclined to take a deep rather than a surface approach to their learning activities. More targeted interpretive studies like these are needed along with experimental studies that include larger groups of students and numbers of courses.

## *Use of instructional supports in varied content areas, educational levels, and contexts*

In this study, we only looked at graduate education courses at a private university, and the sample size was very small. Larger comparative studies of online instructors' cognitive and social assistance strategies in varied content areas, educational levels (e.g.,

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undergraduate, secondary), and educational settings (e.g., small community college, large university) might shed light on how various contextual factors can interact with and affect instructor help giving, student help seeking and academic performance. A recent study, for example, of student help seeking in an online quantum physics class at the Open University in the United Kingdom suggests that course difficulty might influence student help seeking and, in particular, to whom they turn for help (Gorsky et al. 2007).

## *Personal factors influencing instructor help giving*

The present findings surfaced some personal factors that might influence instructor help giving: online teaching experience, gender, and pedagogical beliefs. Future studies with larger samples of online instructors and courses should investigate to what extent these factors influence the quality of support for student learning in online learning environments. Robert was fairly new to online teaching, and this was also his first time teaching the course content in any delivery format. In contrast, Robin and Karen were experienced online teachers who had also previously taught their course content many times. Gender could have been a factor in the more competitive climate that emerged in Robert's class and may have influenced the quality of learning support and student help seeking. Discourse analysis methods developed by Fahy (2002) or Herring (2004) could be used to explore this possibility.

Despite the fact that all three of the instructors referred to themselves as ''facilitators'' in their interviews, there was great variation in the way they enacted their facilitation and, consequently, the way they supported students. Morris et al. (2005) found a similar result in a study of how 13 online instructors perceived and enacted their roles in online undergraduate courses. Were there differences across these courses, for example, in how responsible the teachers felt for assisting students, in the type of assistance offered, or in their motives for helping students, as Butler (2006) speculates in a discussion of instructor help giving?

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## *Peer help giving*

The data suggested that, in addition to instructors, students often helped each other in these courses and that more collaborative class climates encouraged peer help giving along with instructor help giving. Recent studies on student help giving and achievement in cooperative learning groups (Kempler and Linnenbrink 2006; Oortwign et al. 2008; Webb and Mastergeorge 2003) could be used to guide studies on how online instructors might more effectively enlist peer help giving in online courses. Such study might profitably explore questions such as, ''What differences can be seen between the quality of peer and instructor help giving or in the ways that students use help from peers and instructors?'' ''How do peer help giving and group dynamics in online courses influence student help giving, help seeking, and achievement?'' ''How can online instructors influence student help giving behavior?''

With the proliferation of online and blended courses at all levels of education and the increased understanding of the critical role that the instructor plays in these courses, it is surprising that we know so little about the teacher as help giver in these courses. Hopefully, this study will encourage more research on the critical cognitive and social roles that online instructors play in student help seeking, self-regulation, persistence, and academic achievement and how instructors might more intentionally, strategically, and consistently enact those roles.

## Biographies

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# Appendix

## *Interview questions*

### *Student*

1. As you look back on your work in this course, what were your biggest problems or challenges?
2. When you needed help with any of these problems, how did you typically get it?
3. Did you ever find yourself not getting the help you needed? Please explain.
4. How helpful was the instructor to you in this course?
5. Can you give examples of how the instructor supported your learning in this course?
6. What role did your instructor play in the course discussions? What did you think about the instructor's role in these discussions?
7. Compared to a traditional face to face class, how would you describe the learning climate or atmosphere in this course?
8. How would you describe the social atmosphere in this class?
9. How connected did you feel to other students in the class?
10. How connected did you feel to the instructor in this class?
11. What, if anything, did the instructor do to create the learning and social atmosphere that you have described?
12. To what extent were other students in the course helpful to you? (If so, give examples)
13. How helpful to you was the way the course was designed? (e.g., technical aspects, organization, assignments, activities, discussions, assessments).

### *Instructor*

1. What problems or challenges did students face in this course?
2. From your observation, how did your students typically cope with these problems or challenges?
3. J. L. Whipp, R. A. Lorentz
4. How often did your students in this course seek help from you privately and for what reasons?

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5. How did you feel that you supported your student's learning in this course (i.e., what specific teaching strategies did you use to support them cognitively?)
6. What specific teaching strategies did you use to support your students socially in this course?
7. Describe how you viewed your role in the course discussions. What are some strategies that you used to fulfill your role in these discussions?
8. Compared to a traditional face to face class, how would you describe the learning climate or atmosphere in this course?
9. Compared to a traditional face to face class, how would you describe the social atmosphere in this class?
10. How connected did you feel to your students in this class?
11. What are some strategies that you used in this class to connect with your students?

**Table 1: Online instructors**

| Name | Age | Online course | Years teaching in higher education | Prior online teaching |
|---|---|---|---|---|
| Karen | 46 | Theories of learning | 25 | 8 courses (5 years) |
| Robin | 54 | Introduction to instructional technology | 15 | 15 courses (8 years) |
| Robert | 50 | Introduction to instructional design | 17 | 1 course |

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## Table 2: Instructors' cognitive supports in discussions and announcements

| Cognitive support | Examples from instructor postings | References | Robert (392 postings) | Karen (333 postings) | Robin (189 postings) |
|---|---|---|---|---|---|
| Acknowledgement, encouragement | "You state that…" "Thanks for sharing…" "I agree that…" "You need to be less concerned about getting the right answer." | Bonk et al. (2000); Anderson et al. (2001) ; Swan and Shih (2005) | 117 (30%) | 189 (58%) | 39 (21%) |
| Praise, approval, confirming feedback | "What a powerful insight!" "Great illustration!" "Nice summary." "Absolutely!" | Bonk et al. (2000); Anderson et al. (2001); Swan and Shih (2005); LaRose and Whitten (2000) | 36 (9%) | 105 (31.5%) | 51 (27%) |
| Probing, challenging questioning | "How would you design a democratic school?" "Vygotsky would disagree with you!" | Bonk et al. (2000); LaRose and Whitten (2000); Tharp and Gallimore (1991) | 24 (6%) | 120 (36%) | 15 (8%) |
| Request for elaboration, explanation, evidence | "What examples can you give?" "What support can you offer from…?" | Bonk et al. (2000) | 9 (2%) | 30 (9%) | 3 (1.5%) |
| Presentation of content, examples | "Our readings suggest…" "There are two ways to go about…" | Bonk et al. (2000); Tharp and Gallimore (1991); Anderson et al. (2001) | 72 (18%) | 29 (8%) | 46 (25%) |
| Scaffolding exploration of content from diverse sources | "For more information check out this website…" "You might want to contact…" | Bonk et al. (2000); Anderson et al. (2001) | 24 (6%) | 54 (16%) | 66 (36%) |
| General advice | "Ask the teacher what she wants her students to know and be able to do" | Bonk et al. (2000); Rourke et al. (1999) ; Swan and Shih (2005) | 9 (2%) | 30 (9%) | 21 (11%) |
| Focusing discussion on specific issues | "In the discussions stay focused on our prompt question which is…" "Connect this week's readings to the definition of instructional design we discussed earlier…" | Anderson et al.(2001); Bonk et al. (2000) | 6 (1.5%) | 15 (4.5%) | 0 |
| Summarizing discussion | « Our discussion this week centered on three important issues…" | Anderson et al. (2001) | 2 (.005%) | 20 (6%) | 12 (6%) |
| Task structuring | "Use the rubric to guide your planning." | Tharp and Gallimore (1991); Bonk et al. (2000) | 33 (8%) | 71 (21%) | 12 (6%) |

Percentages in Tables 2 and 3 indicate proportions of each instructor's postings that included various cognitive and social supports. Most postings included more than one category of support, so no both tables the sum total of percentages for each instructor does not equal 100%.

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## Table 3: Instructors' social supports in discussions and announcements

| Social support | Examples from instructor postings | References | Robert (392 postings) | Karen (333 postings) | Robin (189 postings) |
|---|---|---|---|---|---|
| Greetings and salutations | "Hello" "Wow, Annie!" "Good Luck!" | Rourke et al. (1999); Swan and Shih (2005) | 10 (2.5%) | 309 (93%) | 168 (89%) |
| Use of first names | "Hi Jim" "Check out Catherine's project!" "Thanks to Roger!" | Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000) | 314 (80%) | 252 (76%) | 153 (81%) |
| Group reference | "We as teachers…" "our learning community" | Rourke et al. (1999); Swan and Shih (2005) | 72 (18%) | 32 (9%) | 23 (12%) |
| Social sharing unrelated to course/digressions | "Have a restful spring break!" "Hope you are enjoying the sunshine!" "Great news for our basketball team!" | Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000) | 41 (10%) | 18 (5%) | 9 (5%) |
| Conventional expressions of emotion/empathy | "I can relate to your joy…" "I would like to give you an online hug." "Don't worry about the quiz…" | Rourke et al. (1999); Swan and Shih (2005) | 71 (18%) | 149 (45%) | 4 (2%) |
| Un-conventional expressions of emotion, empathy | ☺ "Whheewww!" Wow!" !!! "Hmmm…" | Gunwardena and Zittle (1997); Rourke et al. (1999); Swan and Shih (2005) | 260 (66%) | 54 (16%) | 56 (30%) |
| Invitations, personal offers of help | "Maybe we should meet to narrow your topic." "Please e-email me with any questions or concerns." | LaRose and Whitten (2000); Rourke et al. (1999) | 58 (15%) | 79 (24%) | 16 (8%) |
| Humor | "Is this too much for a Friday morning?" "I am hoping for a lively debate in this modDUEL." | Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000) | 121 (31%) | 4 (1%) | 4 (2%) |
| Self-disclosure/personal examples | "Your story reminds me of my son…" "I've made the same mistake." | Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000) | 69 (18%) | 22 (6%) | 14 (7%) |
| Assessing and advising on group process | "We will learn much more from one another if we can agree to disagree." "Read each other's homepages and consider…How might you help each other?" | Anderson et al. (2001) | 34 (9%) | 37 (11%) | 8 (4%) |

**Table 3 (continued)**

| | | | | | |
|---|---|---|---|---|---|
| Discussion prompting to draw in participants | "How might this play out in your classrooms?" "Anyone out there want to respond?" | Anderson et al. (2001) | 54 (14%) | 37 (11%) | 12 (6%) |

Percentages in Table 2 and 3 indicate proportions of each instructor's postings that included various cognitive and social supports. Most postings included more than one category of support, so on both tables the sum total of percentages for each instructor does not equal 100%

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## Table 4: Student/Teacher postings

| Teacher | Course and number of students | Total number of posts | Student posts | Teacher posts[a] | Posts from teacher to students | Average number of teacher posts to students | Posts from students to teacher | Average number of student posts to teacher |
|---|---|---|---|---|---|---|---|---|
| Robert | Introduction to instructional design (11) | 1579 | 1187 | 392 (25% of course posts) | 347 | 32 | 233 | 21 |
| Robin | Introduction to instructional technology (9) | 1026 | 837 | 189 (18% of course posts) | 161 | 18 | 76 | 8.5 |
| Karen | Psychology of learning (9) | 1200 | 867 | 333 (28% of course posts) | 275 | 31 | 126 | 14 |

[a] Includes discussion postings and general announcements

## Table 5: Student help seeking and final grades

| Teacher | Number of students | Average final grade[a] | Number of student posts | Number of student help seeking posts | Percentage of help seeking posts (%) |
|---|---|---|---|---|---|
| Robert | 11 | 2.2 | 1187 | 47 | 4 |
| Karen | 9 | 3.4 | 837 | 85 | 10 |
| Robin | 9 | 3.5 | 867 | 54 | 6 |

[a] Based on 4-point scale with 4 = A, 3 = B, 2 = C, 1 = D, 0 = F

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