

Virtual Group Problem Solving in the Basic Communication Course: Lessons for Online Learning

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Skepticism about online instruction often erroneously blames the electronic medium for shortcomings in instructional design or technique. This essay discusses the performance expectations for fully online group problem-solving via threaded discussion boards. Four years of administering this assignment in a basic oral communication course yield detailed instructional guidelines that enrich the online learning experience and fulfill general education competency mandates. Experiences with online group problem-solving should encourage educators to adapt to technological innovations in pedagogy.

In the early days of computer-augmented instruction, scholars lamented the dearth of theoretical frameworks for analyzing computer-mediated communication. Dordick (1989) observed that mass communication theories seem inapplicable to the communication environments created via computers, and traditional interpersonal communication theories fail to account sufficiently for asynchronous communication. Thought and discussion about online education still remains disturbingly anachronistic in some quarters. At a recent regional conference in communication studies, an audience member asked panelists who had just made presentations on online speech instruction: "Don't you think that some courses simply are not meant to be taught online?" The question is problematic for two reasons. First, the online medium can enable or limit instruction, but neither effect is necessarily or causally related to the instructional medium itself. An equivalent question might be: "Don't you think that some subjects just aren't meant to be the topics of poetry?" The automatic, unreflective answer would be "yes"—until

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an inventive poet composes a beautiful poem on that topic. Second, the question already has been answered by information technology (IT) specialists and not educators. Information technologists and private enterprise already have ventured where many educators feared to tread. An excellent case in point is the rapid progress being made in digitized instructional components known as learning objects. Some of the richest repositories of these online course resources are proprietary, despite public access repositories such as MERLOT (Multimedia Educational Resource for Learning and Online Teaching; www.merlot.org).

While educators ponder whether certain courses or activities should be taught online, in many cases these very courses or components already are being offered. Educators confront a choice: to engage in philosophical debates about what should be taught online, or to behave proactively by recognizing the availability of the online medium and design pedagogically sound instructional materials. If educators do not step forward and participate actively in discussing online course content and design, then ultimately the quality of online courses will be in the hands of the technicians and commercial interests. Effective online education will emerge as a partnership among educators, IT experts, and software/educational product marketers. Educators need to enter this discussion to help shape online education; otherwise, teachers

and ultimately students will be in the position of accepting what they are given rather than crafting what could emerge.

Denial that certain courses can be taught online may reflect a limit on imagination as much as a limit on technological capabilities. Oral communication courses, especially those that require live performances such as speeches, seem antithetical to the online instructional format. Yet, colleges and universities across the country are offering online oral performance courses. This essay discusses the techniques employed in teaching a rather rare breed of the online basic oral communication course, known as the "comprehensive" version because it extends beyond public speaking. The comprehensive basic course in this case covers public speaking, collaborative group projects, and interpersonal communication (interviewing and relationship skills). The wide array of communication skills involved in the course present challenges and opportunities that could inform the development and refinement of other online courses across academic disciplines.

The online basic communication course was first offered in Fall 2001 and has been offered continuously since that time. Because the course is required in the university's general education curriculum, students must fulfill the same competency requirements regardless of whether the section is online or in a traditional classroom. These competency requirements also fulfill state guidelines for general education, so consistency across sections has particular importance. This paper addresses the group problem-solving project. The group project fulfills three state and institutionally mandated competencies:

- communicate effectively in groups by adapting and responding to others;
- employ higher-order thinking in problem-solving, which specifies that students employ a version of Dewey's (1910/1991) reflective thinking process (identify problem, criteria for solutions,

propose solutions, evaluate solutions, select solutions, test solutions);

- manage information, which encompasses researching relevant sources and evaluating the quality of their claims.

The conduct of the group problem-solving project illustrates how student performance in online courses can be guided and improved by confronting, not retreating from, the challenges of the online medium.

Threaded Discussion Rationale and Process

Threaded discussion tools are virtually ubiquitous in online course delivery platforms, yet very little theoretical or empirical research has been conducted on how to maximize their effectiveness (Jeong, 2003). The group project in the online sections is conducted entirely through threaded discussions. Although students repeatedly voice preference for live chats, geographic considerations prevent requiring synchronous meetings as part of any student's grade. Since the course draws students from all over the world, synchronous course tools give students living in the same geographic region a distinct advantage over those living several time zones away. Given the family and professional responsibilities of today's students, it is also unrealistic to expect groups of students to coordinate their schedules to permit regular attendance at live chats. Meyer (2003) notes that online students on the average work almost twice as many hours at jobs per week compared to students in traditional classrooms. Asynchronous tools such as threaded discussions solve these problems (Klemm, 2002). The options would be to require chats for everyone or no one, and in the interest of fairness no synchronous discussions are required.

Even without considering the general education mandate to develop competency in group communication, threaded discussions can serve as a potent instructional tool. The

asynchronous nature of threaded discussions ameliorates the challenge of constantly coordinating group member schedules to accommodate personal meetings. The explicit teamwork in online threaded discussions also increases interaction among students (Edelstein & Edwards, 2002). Evidence suggests that more interactive course environments improve student attitudes toward learning and increase satisfaction with the course (Andreu & Jáuregui, 2005). Threaded discussions also permit greater instructional flexibility, since student comments can be channeled toward external resources via hyperlinks directly in the discussion board text. In addition, the sheer fact of participating in a threaded discussion can develop "social negotiation" skills that require engaging in reasoned advocacy, thoughtful questioning, and creative suggestions (Harman & Koohang, 2005, p. 72). These benefits, however, are realizable only if discussion boards are designed and used carefully.

The physical arrangement of the discussion boards is highly structured, since fully online courses both need and can accommodate more explicit instructional frameworks than face-to-face classes (Andreu & Jáuregui, 2005). Students work through the problem-solving process by progressing sequentially through six threaded discussion boards that correspond to the six steps of the problem-solving method adapted from Dewey (1910/1991). The instructions for posting appear as the introductory text before each step. In the instructions, students are prompted to answer questions appropriate for each step:

1. What is the problem? What is the situation in which the problem is occurring? What in general is the difficulty? How did the difficulty arise? What is its importance to the audience? What are the meanings of any terms that need clarifying? What caused the problem? What effects show that a problem exists? How serious are the effects? What is causing the problem?

- Are the causes inherent in the problem situation? Have previous attempts been made to solve the problem?
2. What are the criteria for solutions? What are the time constraints? How much money will be needed? What kinds of personnel needs (numbers and skills) are involved? Whose interests should be served? Which stakeholders are most important (example: students, faculty, staff, community members)?
 3. What are possible solutions to the problem? Does the solution correct the causes of the problem? General considerations: Is the solution workable, is it economical, is it the best possible way to solve the problem, will it produce more benefits than disadvantages, are the benefits significant, is the proposed solution just, is it moral, will it get the job done effectively, is it clear and will it be harmful in any way?
 4. What is the best solution to the problem? What is the exact nature of each solution? How would it remedy the problem? How well would it satisfy the criteria? Would a combination of solutions be best?
 5. How can the selected solution be implemented? Who is responsible for implementation? Is it workable? Should the solution be phased in or implemented immediately? How will you determine whether your solution has worked?
 6. How can the solution be tested? How will we know whether the solution is working? What do we do if the proposed solution fails?

For the sake of fairness, each student earns an individual grade. During the piloting of online group projects, students tended to wait for other group members to post, letting the slowest participants regulate the pace of the entire group. To urge students to take responsibility for their own posts and not wait for tardy input, the "Deadbeat Clause" was instituted as part of the guidelines:

If a member listed in a group fails to

contribute or respond, the rest of the group should continue and proceed with their work. Non-participants will have no effect on the grades of other group members unless you let them. Each person is responsible for earning an individual grade and for keeping in touch with the group.

The Deadbeat Clause has had the positive effect of preventing tardy or non-participants from holding back the rest of the group.

Since the group project fulfills research requirements for general education, a research component always has been included. Most commonly, students tended to insert research randomly throughout the discussion. A perfunctory hyperlink might appear with no clear relevance to the topic being discussed or the problem-solving step that was associated with the thread. One point became obvious from student inquiries: the group members did not understand how research coordinated with the problem-solving discussions. Instead of responding to an ongoing barrage of e-mails about this issue, the assignment guidelines were revised to include suggestions about incorporating research. Students were reminded that research can be employed at many stages throughout the group's deliberations. For example, research might be important in answering the following types of questions:

- Where and when have similar problems arisen? (Define the problem)
- What solutions have been attempted in coping with similar problems? (Establish criteria for evaluating solutions, Identify possible solutions, Evaluate solutions)
- Which solutions have succeeded or failed and why? (Evaluate solutions, Select best solutions)
- What can you learn from analogous problems and solutions? (Select best solutions, Test selected solutions)
- Who can offer information that will contribute to your group understanding

the problem and its possible solutions? (All stages)

The list of suggested contexts for research has enabled students to become far more self-sufficient in conducting research. After the guidelines were revised, no more students asked about how research could connect with the stages of problem-solving.

Information Quantity and Quality

Because threaded discussion boards allow students to review and reflect on the contributions of other students, posts should be more in-depth than typical face-to-face interactions that rely on off-the-cuff reactions (Benbunan-Fich & Hiltz, 1999). Despite this theory, a major concern in conducting group work via threaded discussions is the hesitancy of students to post. The discussion boards remain sparsely posted until just before the due date for completing a step in the process, then floods of input appear in the nick of time. By their nature, collaborative group projects require group members to respond quickly and post frequently so necessary information can be shared and acted upon. Research on asynchronous learning tools has uncovered the time span between discussion board posts, dubbed "login-lag," as a major challenge (Benbunan-Fich & Hiltz, 1999). Groups cannot proceed smoothly or rapidly if requests for information, proposals, or assignments for group members languish on the discussion board without response. This post-ponement (a particularly apt pun in this context) undermines the group process, which requires access to other group members' input for any decisions to be rendered or for information to be shared. The requirements for group project participation also specifically stipulate that each student make at least one post on each of the six discussion boards (one for each step of the problem-solving process) that replies to another student's post. The mandatory reply stipulation encourages some mutual accountability and productive peer pressure. Students often urge each other

to post so they can meet the requirement to respond to other group members.

Qualitative feedback from students in the online basic communication course repeatedly expresses frustration at delays in posting needed information and feedback. One group devised a resourceful method to prevent procrastination. This group set due dates for each stage of the project a few days before the instructor-imposed deadline to assure promptness and to allow time to correct errors by editing posts. Qualitative feedback about the online group project repeatedly associates high group cohesion and overall satisfaction with prompt communication among group members. This communication often extends beyond the formal, graded channel of the threaded discussions. Highly satisfied students cite frequent e-mails and chats among group members, although neither form of communication comprised part of the grade criteria, as important for success. Conversely, students whose group members did not post or respond promptly voice disappointment with the group process, even when the group eventually accomplished its task. Ironically, one student wished for more proactive group members but did not choose to become one. Another student complained that lack of peer input not only impeded group task accomplishment, but prevented group members even from knowing whether the group was encountering a roadblock.

At first, it appeared that students were not posting simply because they did not want to complete the assignment. There is some truth to this conclusion, and the reluctance does not stem from laziness. Measurement of self-reported communication apprehension via the PRCA-24 (Personal Report of Communication Apprehension) instrument (McCroskey, 1982) reveals that students in the online sections are more apprehensive about communicating in groups than their traditional classroom counterparts. This explanation, however, begs the question by responding that students are reluctant

to participate because they harbor anxiety about participation. There must be a deeper reason.

In his study of political discourse on Usenet, the ancestor of threaded discussion boards within online course platforms, Benson (1996) describes the ease of access to information as an illusory democracy. The ability to obtain information has grown so rapidly that the physical and logistical ability, but especially the desire, actually to participate in rendering decisions has decreased. The deluge of information has given so many options for participating in discourse that: (1) time spent processing the incoming messages reduces time available for responding, and (2) a small proportion of incoming messages actually receives a response. Students participating in the group project may balk at posting aggressively because they do not prioritize the discussion board as a unique communication venue that deserves immediate attention and rapid response. Repeated reminders, encouragement, and threats from the instructor do not yield more posts, so the problem is not that the students simply remain oblivious about what to do. All the reminders and coaxing, however, do not necessarily enable students to recognize a threaded discussion as a different kind of electronic communication. Unlike incoming e-mails, threaded discussion posts do not announce themselves as they arrive. They simply aggregate, lengthening the text under each discussion topic. This lengthening chronicle of participation might discourage passive group members from participating. The longer the threaded discussion becomes, the more it requires students to read, process, and respond to more and more complexly related messages, thereby amplifying information overload.

Information overload as an explanation has merit because it clearly affects other dimension of the online course. The group projects fulfill the "managing information" component of general education, which re-

quires that students be able to judge the quality of information and use research appropriately. The overwhelming quantity of available information has outpaced the development of critical thinking skills that discern information quality. A decade ago, Besser (1995) noted that "the proliferation of images (both those available and those accumulated) may lead to a reduction in meaning and context for all of them. This levelling [sic] effect (floating in an infinite sea of images) is a likely result of information overload" (p. 69), and is visible in cases where people surfing the Internet cannot judge the relative quality of the information they find. The oversupply of information leads to fragmentation, with tidbits of data substituting for extended arguments. In electronic communication, the sound bite or shocking image trumps the carefully constructed chain of logic.

Students may indiscriminately use information from Internet sources, equating appearance in a public electronic forum with careful editing and peer review. This phenomenon simply extends an earlier tendency to believe that publication legitimizes whatever information appears because its public appearance proves its authenticity (Montagu & Matson, 1983, p. 122). If seeing is believing, then seeing something in print or on a website constitutes proof. Instructors already are starting to see cites of weblogs (blogs) as if they were scholarly sources, although they are simply public diaries of individuals. Various Holocaust commemorative organizations such as Nizkor (www.nizkor.org) have emerged to combat the new legitimacy electronic communication has lent Holocaust denial. With web sites sometimes arbitrarily classified as historical information alongside organizations such as the Simon Wiesenthal Center, denial groups such as the Institute for Historical Review seem legitimate because no filters are present to determine factual reliability. In the absence of disclaimers or dissenting opinion accessible within the same cite, each web site seems to stand on its own,

perhaps offering hyperlinks—but even those carefully chosen to reinforce what the webmaster deems relevant and appropriate.

The tendency to cite Internet sources uncritically led to formulation of increasingly stringent standards for using research in the online discussions. The guidelines now include provisions regarding what counts as acceptable research.

- Research-based posts offer a tremendous resource for the group. If everyone posts the required number of research posts per step, you should have at least 5-6 sources you can use in your written report.
- Research-based posts must contribute one hyperlink to a reputable, current, relevant source that could be used for background research on the issue. Research posts must include a full description of the source (not just a web address), a brief explanation of its relevance to the discussion AND why the source is qualified. Note that you can earn full credit only if the source is reliable and current.

Assignment guidelines cross-reference the tutorial on web site credibility prepared by reference librarians at the university. Absent very precise instructions regarding what would earn full credit as research, students tended to cite a source of information as "the Internet," as if the appearance of information on the Internet certified it as official and reliable. The conceptual problem here is conflation of authorship (the fact something is available as a tangible document that one can download and possess) with authorization (certification as authoritative and genuine). This reification of documents, electronic or print, may be a vestige of the mystery of literacy, the consideration of an act as official only when it is "put into writing."

Clarifying Expectations

A central philosophy of the basic oral communication course is "no surprises."

Expectations for performance assignments are clarified in four ways:

- by written instructions that operationally describe requirements,
- by exemplary student performances that can be reviewed as often as desired,
- by distributing the actual grading form prior to the performance,
- by engaging in at least one critique of a student-delivered presentation.

Before students embark on the group problem-solving activity, they observe a narrated PowerPoint presentation depicting a group deliberating on a problem and moving through all the steps of reflective thinking.

Some concern has arisen that discussion boards might generate a high quantity rather than quality of input as students try to accumulate posts to meet participation requirements (Arbaugh, 2001; Klemm, 2002). To guard against an unmanageable number of posts, it would be wise to limit postings by setting a maximum number of posts or by closing a thread of the discussion after a required number of posts has been reached (Arbaugh, 2001, p. 51). In the communication course discussed herein, a minimum number of posts was established with no upper limit simply because the challenge historically has been to induce sufficient discussion. Since many students gravitate to the online basic communication course under the false impression that they can evade interactions and presentations, these students generally do not push the envelope with an overwhelmingly large volume of postings.

The group problem-solving assignment guides students toward high quality posts by using a different method than simply establishing an arbitrary ceiling on the number of posts. Students earn points by constructing posts that meet very precisely operationalized content requirements for each step in the reflective thinking process. The grading rubric for each step includes a list of the activities required in that step and a detailed description of the expected content for the student's posts. Figure 1 lists the activities and content requirements correlated with each step of the reflective thinking process.

In addition to the expectations listed in Figure 1, the overall assignment guidelines include expectations for posting.

- Offer original ideas relevant to the topic the group is discussing. A post should offer a concrete idea or suggestion for the group to consider regarding its topic.
- Reaction posts should make a substantive comment (go beyond simple agreement/disagreement, no personal attacks) to a post by another student. Offer a rationale for any personal opinions or evaluations. Unexplained, unsupported opinions earn no credit.

To concretize these expectations, the instructions also contain complete text of exemplary posts to show how students have met and exceeded the expectations. These model posts are actual student posts from previous online sections of the course. By setting standards from peers as well as from the instructor, students recognize that these standards are achievable.

Figure 1. Operationalized Requirements for Discussion Board Posts

<p>Problem-Solving Step</p>	
<p>Define and analyze problem</p>	<p>Activities</p> <ul style="list-style-type: none"> • Define and explain problem clearly • Provide background information/research • Discuss problem's causes, extent of effects <p>Content Requirements</p> <ul style="list-style-type: none"> • At least 1 original post that connects the problem with actual current or historical events • At least 1 substantive response to posts by other students (not passive agreement) • Research: Discuss and actually use the content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines) relevant to this step
<p>Establish criteria for evaluating solutions</p>	<p>Activities</p> <ul style="list-style-type: none"> • Identify the standards for evaluating solutions • Discuss practical standards (resources, time, budget, etc.) • Discuss value standards (ethics, legality, etc.) <p>Content Requirements</p> <ul style="list-style-type: none"> • At least 1 original post that discusses specific criteria the group must consider in proposing solutions • At least 1 original post that discusses how to prioritize the proposed criteria • Research: Discuss and actually use the content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines) relevant to this step
<p>Identify possible solutions</p>	<p>Activities</p> <ul style="list-style-type: none"> • Identify a variety of possible solutions • Provide original solutions <p>Content Requirements</p> <ul style="list-style-type: none"> • Suggest and explain at least 2 original, relevant solutions • Research: Discuss and actually use the content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines) relevant to this step
<p>Evaluate solutions</p>	<p>Activities</p> <ul style="list-style-type: none"> • Weigh advantages and disadvantages of each possible solution <p>Content Requirements</p> <ul style="list-style-type: none"> • At least 1 original post detailing a specific advantage to a solution proposed in the previous step • At least 1 original post detailing a specific disadvantage to a solution proposed in the previous step • Research: Each advantage and disadvantage discussed actually uses content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines)

Select best solutions	<p>Activities</p> <ul style="list-style-type: none"> • Propose a best solution or combination of solutions • Explain how solution(s) satisfy practical and value standards • Describe decision-making method (consensus, majority, etc.) <p>Content Requirements</p> <ul style="list-style-type: none"> • At least 1 original post expressing a clearly justified preference among the solutions discussed in preceding step • At least 1 original post connecting a proposed solution to the criteria the group developed in step 2 (Establish criteria for evaluating solutions) • Research: Discuss and actually use the content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines) relevant to this step
Establish methods to implement and test solutions	<p>Activities</p> <ul style="list-style-type: none"> • Present clear plan of action for implementing solution(s) • Explain how plan is expected to work <p>Content Requirements</p> <ul style="list-style-type: none"> • At least 1 original post discussing how the chosen solution(s) will be put into effect • At least 1 original post discussing how the success of the chosen solution(s) will be determined and tested • Research: Discuss and actually use the content (with a link or a complete APA format cite) of a reliable source of outside information (see Research Component of Group Project Guidelines) relevant to this step
General expectations	<p>For each of the preceding steps, the group member should have:</p> <ul style="list-style-type: none"> • Made frequent, positive contributions • Avoided aggression, blocking, recognition-seeking, dominating • Stayed on task and topic • Assumed healthy task and maintenance roles • Avoided groupthink

The content of posts requires frequent monitoring to keep students on task. Early studies of unmoderated discussion boards observed that, left to their own devices, participants resorted to a dogmatic, pugnacious argumentative style when confronting controversial issues. Benson (1996) comments: "Participants do not depict themselves or their opponents as open to persuasion." Instead, defenders of a position attempt to have their opponents "purged from the polity," abandoning civil discussion and resorting to insinuations, obscenity, or accusations (Benson, 1996, p. 374). The online discussion boards in the basic communication course seem to have generated almost the opposite effect. Groupthink, triggered by looming deadlines

(accelerated by postponement of participation) and unwillingness to risk offense by disagreeing, commonly occurs. Unwillingness to disagree is consistent with empirical studies of other online courses that employ threaded discussions. Using a sequential analysis of posting and response patterns in online threaded discussions, Jeong (2003) found that students were ten times more likely to agree than disagree with a position statement by a classmate. In addition, "students rarely responded to arguments with evaluation of the argument's accuracy, validity, and relevancy" (Jeong, 2003, p. 37).

The most obvious symptom of groupthink is passive agreement with whatever ideas are proposed by other group members.

Students commonly remark in their written reports about the group experience that the participants never disagreed and never had to resolve any conflicts—telltale signs of groupthink. To reduce groupthink, posting guidelines have required “devil’s advocate” posts that challenge or disagree with comments made by other students. Even if students do not actually disagree with a viewpoint expressed on the discussion board, assuming the devil’s advocate role helps broaden their perspective to anticipate opposing arguments.

Assessment and Implications

By far the most important advantage of conducting group projects using threaded discussions is transparency. In traditional classroom settings, the quality of group meetings is notoriously difficult to monitor. Instructors often must rely on sanitized reflections in student journals or other techniques that do not reliably reward the hard workers or penalize the social loafers. Online discussion boards make students “show their work” by capturing the actual process of group deliberations. Non-participants cannot hide; their lack of posts demonstrates inactivity. Initiative and promptness are manifest in timely posts that show creativity, substance, and concern for the group. Students and instructors can observe the group’s progress, and instructors can intervene to assist groups that stall. Often problems in traditional classroom groups are recognized only after they have damaged the group’s decision-making. Although there are challenges attendant to threaded discussions, their ability to render observable data about a group and its members justifies their inclusion for collaborative problem-solving.

Criticisms leveled against threaded discussions actually target poor execution or inadequate software, not the use of threaded discussions themselves (Meyer, 2003). Despite the acceptance or endorsement of threaded discussions as educational tools, little research has discussed the development

of guidelines and practices that can maximize the effectiveness on online asynchronous discussion. Instead, attention generally focuses on assessment of discussion quality (Edelstein & Edwards, 2002; Meyer, 2003) rather than on the factors that influence the quality of posts. Hopefully this essay has clarified some instructional practices that can maximize the advantages of online threaded discussion while coping with the limitations.

Aside from how to design and manage threaded discussions, this paper has broader philosophical implications for online education. The reasons that underlie suspicions about online learning do deserve consideration. Reluctance to embrace online courses has deeper philosophical roots than mere Luddism. Some critics fear that rather than computers serving human needs, humans seem to have become more mechanized. Wendy Kaminer (1999) summarizes this subservience: “Computers haven’t been humanized so much as humans on the Net are being digitalized” (p. 222). In a similar vein, Ritzer (1996, pp. 106-107) argues that the impersonal technology in universities teaches students to be docile, to conform to what is easiest for the teachers, the machines, or the scheduled curriculum. These concerns have led early optimists, such as Douglas Rushkoff, who predicted computers would encourage greater human community, to hedge their previous predictions. Although still hopeful that electronic communication will create more savvy consumers, Rushkoff (1999) now laments that the vast democratic frontier of cyberspace has been co-opted by commercial interests that can precisely target their marketing techniques to individuals.

To avoid force-fitting students into technological molds (e.g., inflexible, user-antagonistic course delivery platforms), online course content and functionality should be devised and tested in collaboration with students. All of the multimedia exercises devised specifically for this course were developed with student IT workers or interns.

Their involvement in developing course material has been crucial not only from the standpoint of technical expertise, but to gauge user-friendliness and functionality. Since most of the student developers had taken the basic oral communication course (and some had taken it online), the students already had some familiarity with the instructional techniques and educational requirements. The partnership of these students has enabled electronically based exercises to emerge that are well-adapted to the users because the student co-developers can understand the items from a user standpoint.

The central contention of this essay has been that many objections to online courses, specifically online basic communication courses, stem from misconceptions about online communication pedagogy or from poor course design and delivery. Drawbacks routinely attributed to the medium often are shortcomings in adapting the course to the online medium and vice versa, not inherent limitations of online education. The tendency to blame the medium has precedent and rationale. When television first became widely available, some advocates lauded it as the savior of education. Opponents demonized it as the ultimate corrupter of the youth. Computer-mediated instruction in the form of online courses often receives the same treatment. Blaming the technology conveniently shields critics from reflecting on their own pedagogical practices or their reluctance to incorporate new technological resources. If online education per se earns categorical condemnation, then traditional teaching methods and ways of interacting with students remain unexamined, protected by blithe refusal to accommodate change. Online education, like television and computers, does not qualify as educational savior or demon. Online instruction is only as good or as poor as the pedagogy it serves. What many critics

and enthusiasts fail to recognize is that online education serves as a mode of instruction that has attendant advantages and limitations, just as any method of teaching. The demons and angels reside in the pedagogy, not in the technology.

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