Using a Variety of Technologies to Create and Maintain a Long-Distance Materials Development Team

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ABSTRACT
Over a two year period, a group of editors and authors used a variety of technologies to create a cohesive team that produced a textbook series with instructor manuals along with a supporting web site. Small groups can be analyzed in terms of their (a) situation, (b) leadership, (c) individual vs. group goals, (d) norms, (e) roles, and (f) cohesiveness. The development of the group for this materials publication project is described in terms of these six areas and the ways in which communication technologies were used to facilitate achieving the group’s goals.

KEYWORDS
Materials Design and Publication, Virtual Teamwork, Email, Listserv, Small Group Communication

BACKGROUND
In the winter of 1996, Joy Reid and Pat Byrd—with the help of editorial staff at Heinle & Heinle Publishers—selected a group of five ESL teacher/materials writers to participate in the development of a four-level composition-grammar textbook series that would also include instructor manuals and a supporting web site as well as a teacher reference book on grammar in the composition classroom. While the publisher’s staff lived in Massachusetts and Maine, the editing/writing team members lived in Georgia, Kansas, Pennsylvania, Colorado/Wyoming, and California and were
able to meet face to face as a complete group only one time in the approximately two years that we worked to produce the series. In those 24-26 months, we experimented with and learned about the benefits of and problems with a variety of technologies for group interaction and productivity. When we started the project, we were a group of individuals with individual goals for writing our individual books. By the time of the publication of the books in the series, we had become such a cohesive group that we had started talking about “the book” when we meant “the four books and the instructor manuals in the series.” We had come to see the four separate textbooks with their instructor manuals as a unified set we could refer to as a single product.

In this article, we analyze our experiences through the lenses provided by studies of small group development and maintenance (Beebe & Masterson, 1997; Ehrman & Dornyei, 1998; Salazar, 1996). Our experiences and results can help others who are planning to assemble teams to carry out projects of various sorts—not just materials writing but any effort that requires a widely dispersed group to work together to achieve group rather than simply individual goals. Because such efforts require the use of communication systems and strategies beyond the face-to-face meeting, we describe our uses of different types of technologies, indicating the particular uses to which we put email, telephone, the Web, and express mail for delivery of manuscripts and materials.

**EFFECTIVE SMALL GROUPS**

In the study of human communication, a *small group* is defined as a collection of between 3-15 people who work together to achieve some group goal (e.g., Beebe & Masterson, 1997). Five or six people standing together in front of an elevator are not a “group” because simply being in the same space at the same time does not make a small crowd into a small group. Ehrman and Dornyei (1998) discuss the features that distinguish “people who happen to be in the same space” from “a group.” These features include (a) having a shared purpose, (b) a structure, and (c) a sense of themselves as a “group.” The members think of themselves as belonging to something larger than themselves which has been organized in a particular way to carry out a goal.

In the fifth edition of their classic textbook on small group communication, Beebe and Masterson (1997) provide a “constellation of variables in small group communication.” The six variables included in their system are (a) situation, (b) leadership, (c) individual versus group goals, (d) norms, (e) roles, and (f) cohesiveness. We have used these variables to help us understand the functioning of our small group and to make recommendations for other groups that will need to work effectively at long distances to carry out their projects.
OUR GROUP’S SITUATION

Our group situation included physical limitations involving space and time along with the intellectual and emotional demands of writing individual books that had to be part of a coherent series of materials. We were physically in different parts of the country and different time zones and were under tremendous time pressure from the publisher to finish the books and get them published by the 1998 TESOL conference. As writers, we were involved in a task that required producing materials and reacting to criticism, not just from the series editors, but also from the publisher’s staff and other outside reviewers in an almost continuous process of receiving feedback about the materials. Our situation was characterized by long distance communication, time pressure, and a complex, often emotionally charged, writing task.

As a result of these situational features of the project, we knew from the beginning that effective communication would be a key to creating a group that could create a unified product. We realized quickly that effective communication in this situation involved ongoing discussions along with the timely sharing of documents.

Discussions

Five authors, two series editors, and an assortment of editorial and production staff from the publisher had to participate in decision making and decision implementation throughout the project. We had to coordinate (a) group discussions among the editors and the authors about group issues, (b) other group discussions that brought representatives of the publisher into the mix, and (c) individual discussions between an editor and an author or between two authors.

Document Sharing

We initially shared resources such as a series outline previously prepared by the series editors, copies of possible readings, copies of student writing samples, and other written materials that had to be delivered, read, absorbed, and discussed quickly before any writing could occur. Soon drafts of chapters from four books and from the teacher reference book were being sent back and forth among author, editor, and publisher. We had to have a system to coordinate author-to-editor sharing, author-to-author sharing, and author-editor-publisher sharing.
PROVIDING LONG-DISTANCE LEADERSHIP

Beebe and Masterson (1997) define leadership as “behavior that influences, guides, directs, or controls a group.” In our situation, leadership by the series editors and the publisher’s staff was initially focused on creation of a system through which all of the discussion and document sharing could occur, that is, who would be sending what to whom and by what communication system. For example, we originally thought that all draft materials would go through the development editor but soon realized that we did not have enough time for this kind of routing. We started circulating all materials directly among authors and the series editors and sending additional copies going to the publisher.

As soon as draft materials started to be produced and shared, leadership by the series editors had to be focused on communication that helped the authors to achieve the series goals. One of the most difficult aspects of a project such as this one involves the emotional and intellectual strain on the writers who must produce materials and then accept criticism from the series editors and a variety of other readers including editorial staff at the publishers and external reviewers selected by the publisher.

Exercising leadership at long distance was a challenge for the editors and the authors. Editorial fiats would clearly have destroyed our work at building a group; moreover, fiats are relatively easy to disregard when the “dictator” lives many states away and can only rule by influence and not through law or brute power. The series editors adopted work rules for themselves that featured availability and flexibility. They had to respond to drafts as soon as they got them, be available when authors needed to talk, make suggestions for changes, listen to explanations, and eventually go along with the author’s final decision. Again, effective use of communication technologies was crucial for successful leadership over long distances to carry out a complex project.

MERGING INDIVIDUAL AND GROUP GOALS

Conflict between the goals of the individuals and the goals of the group can damage a group and prevent its functioning to carry out tasks. In a textbook development project, authors typically join the writing group because their individual goals include at least three goals that motivate most materials writers: (a) a hope to sell a large number of books and, just as important, (b) a desire to express ideas about language teaching through (c) the creative process of writing a unified book (Byrd, 1995).

The first step in creating our writing team was the careful selection of the authors by the series editors and the publisher’s staff. Along with other requirements, all authors had to have ready access to email and to be
experienced in using word processing packages. Additionally, all authors understood that they would be working with the series editors and the authors of the other books throughout the project. Working at long distances, however, would naturally tend to encourage the authors to focus on their own goals unless the editors could find ways to pull them into the group and to keep them involved in the group and on task for the project. To counter this tendency to individual isolation and potential loss of group focus, the series editors communicated to the authors from the beginning of the project that the series did not belong to the editors but to the authors and the editors as a team. As a result, communication and decision making could not just flow top-down from the editors to the writers but in numerous directions as authors talked with each other and the editors. As in all other areas of small group development and maintenance at long distance, communication was clearly a central problem of leadership for the production team.

MAKING RULES

The norms or rules that govern a group’s interactions need to be provided in the initial formation of the group to clarify how the group’s work will be done. Other practices also develop over the time that the group remains together. Because we were working on a tight schedule, we developed many of our initial rules around time lines and decision-making procedures in email communications. Other rules focused on the kind of content that was appropriate for the series—how composition would be taught, what content to feature at what proficiency levels, how to work with grammar, and what readings would be included. A third set of norms developed around ways that group members interacted and worked to create and maintain a sense of group unity. Overall, we had process rules, content rules, and group interaction rules.

The initial rules for the group involved the product on which we were working. These rules included “follow the editorial guidelines,” “ask questions when confused,” “ask Pat about grammar, Joy about composition, and both about everything.” Another rule involved the authority of the two editors: “the editors have the authority to make final decisions about the materials.” However, this rule was soon revised to “while the editors have the authority to make final decisions about the materials, such decisions will not be arbitrary, will come after all authors have had opportunities to express ideas and opinions, and will be justified to the authors.” A subset of process rules involved communication technology and included “answer the email messages” and “open, read, reply to, and send back draft materials immediately.”

As professional writers, we also had rules about productivity. Chief among
these rules were “take the deadlines seriously” and “handle the criticism and make the suggested revisions unless you strongly disagree and can justify your decision not to make the changes.”

When we reviewed our work after publication of the series, we realized that other rules and interpretations of the core rules had developed that we would want to review for future groups. For example, norms that might have needed overt consideration by the group were “put this project above everything else in your life,” “make the project a daily priority,” “check the email and respond right now or you’ll miss your chance to participate in this decision,” and “get on board and don’t ask too many questions because we’ve got to meet the schedule.” We also had concerns about possible GroupThink (Beebe & Masterson, 1997) that would lead us to go along with group decisions even when we disagreed.

For a long distance team, making, following, revising, and enforcing rules has to occur without the powerful influence of face-to-face meetings with leaders and team members. The communication system has to be used to create and carry out the systems of rules through which the group governs its work and its behaviors.

**CREATING AND SHARING ROLES**

Communication studies divide roles into three categories: task roles, maintenance roles, and individual roles (Beebe & Masterson, 1997; Mudrack & Farrell, 1995; Salazar, 1996). Task roles involve the roles taken by the members of the group to carry out the work of the group. Beebe and Masterson describe the “initiator-contributor... [who] proposes new ideas or approaches to group problem.” Maintenance roles focus on helping the group to work together peacefully and, consequently, are about group building rather than task completion. An example of a maintenance role in Beebe and Masterson’s system is the “encourager” who “offers praise, understanding, and acceptance of others’ ideas and suggestions.” “Individual roles” are viewed as harmful to the group because individuals put their own interests above those of the group. An example of an individual role in this system is the “aggressor” who “destroys or deflates the status of other group members, may try to take credit for someone else’s contribution.”

Four important points about roles and role development should be made about small group roles (Beebe & Masterson, 1997; Salazar, 1996).

1. Roles are not just slots in a system but are sets of behaviors by members of the group.
2. A role is not just the creation of the person who takes the role; each role results from interactions among the members of the group.
3. Additionally, no one takes just one role; each person takes on several roles.
4. Finally, roles are not static but develop over the life of the group. New roles can appear and old roles disappear as the group achieves its tasks and as members grow more confident in the stability and cohesion of the group.

We started with some task roles that would normally be expected in a materials development project: Pat and Joy as “editors” explained the project and set up the work procedures and called meetings; Pat as “grammatician” planned, explained, and defined the grammar element in the books; Joy as “composition specialist” planned, explained, and defined the approach to teaching composition in the books; the authors as “team members” asked questions to learn about procedures and about ways to bring the plan to reality; the authors as “writers” put together chapters of explanations, examples, and exercises; the authors as “reviewers” read each other’s work and provided feedback.

We also took roles to help create and maintain the group. Assuming maintenance roles evolved over time, starting with the roles that Pat and Joy took to get the group organized and feel like a “group” and then progressed to the point at which the authors took on group maintenance roles that focused primarily on encouraging each other through sharing resources and supporting each other through the difficult emotional and intellectual work of writing and revising a textbook. For example, norms developed around group maintenance issues which can be stated as “be productive, work hard, meet deadlines, work all the time, share freely, and be polite, that is, do not do anything to harm the group and do many things to support the group.”

Studies of role development usually assume that groups meet face to face as they negotiate their relationships and carry out their tasks. However, long distance teams must develop strategies by which members can take on maintenance as well as task roles and thereby act to build the group to carry out the tasks assigned to the individual authors.

BECOMING A COHESIVE GROUP

A successful small group becomes cohesive when the members make commitments to the group and to each other; at this point, the group becomes important in the professional lives as well as in the emotional lives of the members. Ehrman and Dornyei (1998) call “cohesion” the most important variable in the attempt to explain group dynamics. They comment that cohesion
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is often manifested by members seeking each other out, providing mutual support, and making one another welcome in the group. The opposite is fragmentation, where there is little mutual loyalty, the group is split into mutually uncooperative factions, and the members experience themselves as merely a collection of individuals.

Creating and maintaining group cohesion at long distance was a major challenge for the editors and the authors as we worked together. From the beginning, the project goal of having a coordinated series of books at four proficiency levels depended on communication among the authors as well as between authors and the series editors. Finding ways to communicate the importance of this goal supported the maintenance of a cohesive group over the life of the project.

LONG DISTANCE COMMUNICATION AND TECHNOLOGIES

Everything in the project depended on effective use of communication technologies as we dealt with our long-distance situation, explored leadership strategies, submerged individual goals to group goals, developed and enforced group norms, figured out our roles and learned to play them effectively, and, ultimately, formed a cohesive small group. Over the two years of the project, we had the following experiences with particular communication technologies.

Face-To-Face Meetings

Contributing to the success of our team was a two-day face-to-face meeting funded by our publisher near the beginning of the project. At this early point, the theoretical background of the project had been laid out, the authors selected, and initial chapters had been written for several of the books; the project was underway. However, most of us had never met the other members of the team or key people at the publishing company. Although we did not realize it at the time, this initial meeting was pivotal to the ultimate success of the group and helped us to build teamwork, enthusiasm, and momentum. Without this opportunity to meet face to face, it would have been more difficult to build and sustain loyalty to the group and to visualize each other during subsequent phone calls and email messages. While some of us managed to meet together at TESOL conferences, all seven members of our team were never in the same place at the same time again.

This group meeting also gave us a chance to articulate some of the norms
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that would be needed to achieve our goals and to begin establishing the personal relationships that would help us to make commitments to the group goals rather than simply to our individual reasons for signing a contract to produce a book in the series. Joy took photographs of us during the time we were together—at the formal meetings, on a walk in the garden across from the publisher’s office, eating ice cream cones. When the photographs arrived in the mail several weeks later, they were reminders of who we were and of the group that we had started to build. Sharon promptly taped one of them to the top of her computer at work in order to have faces to go with the email messages. An ESL student asked her if the women in the picture were her sisters, and her answer was very nearly “yes.”

Express Mail

Throughout the project, we relied heavily on overnight and two-day mailing to send materials between members of the team. In the early stages, this type of communication included theoretical information as a foundation for the project, sample chapters, and competing textbooks. As we advanced in the project, chapters in progress were sent back and forth between authors and editors. While we did not send chapters in progress to all members of the team, we did distribute completed chapters to everyone. As we got further into the project, we relied more heavily on sending materials through e-mail attachments or posting materials on a web site, which gave everyone immediate access to the materials and allowed all of us to look at the same thing at the same time. This shared knowledge and background information helped us move forward and avoided problems that would have arisen if some had information that others did not.

With future projects, we will undoubtedly rely more heavily on electronic transfer of information, reducing our need for standard mailing. This approach would definitely result in lower postage costs and give every team member access to the same information more quickly.

One difficulty with express mailing was the emotional impact on an author seeing her manuscript returned from an editor with handwritten notes in the margins and the text itself making suggestions or criticizing content and teaching activities. Similarly, the receipt of reviews from outside reviewers was a difficult type of communication to handle. While most of the external reviewers liked the materials, they did make suggestions for changes and sometimes misunderstood aspects of a book that surprised the author. Unfortunately, as is all too common in the review of teaching materials, authors received communications from external reviewers who intensely disliked the project, despised the sample work, and excoriated most of the words that the author had written. While vital to
the creation of materials, such reviews can drive writers away from projects. In our case, support from the whole team of authors and editors was needed to make sensible use of written feedback delivered to the door by the express mail driver. The initial face-to-face meeting was central to this aspect of the project. It gave cheerful faces and pleasant tones of voice along with a sense of “we’re in this together” to help the authors review comments meant as helpful (even if the news was sometimes unwelcome). Email and telephone communication also supplemented the delivery of documents by express mail.

Telephone

After our initial face-to-face meeting, we thought that group conference calls would strengthen our collaboration and the cohesion of the group, but these calls proved to be ineffective because of logistical problems. As busy professionals in four time zones, we found it almost impossible to get everyone on the phone at the same time. When we did, it was difficult to distinguish our individual voices and effectively discuss the issue at hand to reach resolution.

However, we were able to make good progress one-on-one using the telephone. For example, an editor and author would talk together about a specific issue relating to a given book in the series. This individual communication also provided a very immediate way to deal with particular concerns and ultimately led to more effective group progress. Some of these calls dealt with group maintenance issues rather than focusing on task issues. Anger over a review could be shared, and frustration over the pace of the project could be vented.

Email

As a team, we found that e-mail communication was the most effective way to move forward on the project and to maintain group relationships. One member of our team preferred the telephone to email. However, she “lurked” on the email communication, listening to our discussion and ultimately adding her ideas to major issues. One of the roles of the series editors was to ensure that all team members felt included in the email discussion, even those who were not initially as comfortable with email communication as other group members.

Two types of email communication were used throughout the project. First, we all used email for one-on-one communication, for example, messages from one author to another author or one editor to another editor with copies sent to various staff members at the publisher’s office. Sec-
ond, a listserv was set up to include the two series editors, the five authors, and key people at the publishing company with most of the communication being among our seven member writing team. The listserv messages were archived to enable us to trace and analyze decisions we were making. By the end of the project, the printed log of our listserv discussions had 688 single-spaced pages of messages.

We communicated almost daily on the listserv, sending messages at all hours of day and night. Immediate responses to messages came to be expected as part of the support we all provided to each other. A team member could ask a question at the beginning of the day and often receive many responses by the end of the day, sometimes almost immediately. Other discussions took place over the course of several months. Despite major and minor computer glitches, email proved to fit in well with our busy schedules and to be a very portable means of communication, allowing us to stay connected even when individuals traveled internationally. The quality and quantity of our messages kept the group cohesive. No one ever felt isolated because of our pervasive use of email communication. Each person could tap into this communication network with questions and input to help achieve the goal of unified books published together on time.

Another advantage of email communication over telephone discussions was that copies of messages could be kept to use for a variety of purposes (e.g., record keeping of decisions and lists of deadlines). Additionally, email was used to send text that could be easily included in materials: sample exercises or suggested language for explanations of the teaching focus in a chapter.

For all its advantages, email communication has potential drawbacks that must be considered when used as the primary communication technology for a project team. The problems that we had to deal with included technical issues, communication management by individuals and the whole group, and the emotional impact of emailed comments and instructions.

Although having access to email was a requirement to be selected for the team, we had varying levels of computer expertise at the beginning of the project along with varying levels of comfort with email communication. Sporadic equipment failures left some members off our list for up to a week. Some group members had access to better computers than others so that downloading attachments was possible for some but not for others. Technology was changing so rapidly over the time we worked on the project that some of these problems were resolved by the end of the project. However, system failures remained a constant concern. Recognizing that a person’s silence on the listserv might indicate a system failure rather than a refusal to talk is an aspect of group leadership that needs to be assigned to a team member from the beginning of any project. This person’s task should be to take note when a team member does not respond to
messages and to telephone to find out why.

We experienced a few other problems with using email for group communication. Because of the large quantity of messages on the listserv system, if a team member did not check her e-mail for a few days, the number of messages to be read could be overwhelming. In fact, some decisions may have already been made without input from everyone due to the nature of our short deadlines. Also, while the progress of each of the four books was somewhat parallel, if an author delayed in dealing with a particular issue or aspect of her book, the messages/discussions could be more confusing than helpful. By the time the author eventually dealt with the issue, others had already moved on.

We also found that someone needed to take a role of “communication encourager.” Pat initiated the listserv site and continued throughout the project to encourage communication. Her strategies included sending emails to the group that posed questions about some issue that needed group attention. She would also issue “roll calls” asking for reports on the status of their work and reminders about upcoming deadlines. The “role calls” were useful as a way to ensure that the authors understood what the other authors were doing. When issues arose that needed group discussion, she would state the issue and ask for opinions and comments. After some discussion, she would summarize the opinions that had been stated and ask for the opinions of those who had not spoken up yet. Since she maintained the listserv, she could also check the archive when we had trouble remembering the exact details of decisions that had been made earlier in the project.

Effective email depends on trust and respect because messages come without much emotional support embedded to soften the blow of hearing that revisions are required or a deadline must be met. Smiley faces such as the “:)” can help, but knowing the personality, the voice, and the real smile of a colleague helps even more to make un-welcomed messages palatable. We credited our face-to-face meetings and telephone calls with helping to overcome the shock of a message that would otherwise have seemed overly abrupt.

CONCLUSION

Our team achieved its goals. We published the unified series of textbooks with the instructor manuals and supporting web site materials along with the teacher reference book on grammar in the composition classroom, and we published them all in time for the 1998 TESOL conference. Our experience suggests that creating a long distance team to achieve such goals must start with a vision by the leaders of the project that clearly describes the need for the individual members to form a unified group. If
the authors are viewed simply as worker bees in a top-down communication system, then creating a cohesive small group is simply not possible. When the goal of the group involves a product that is created in small, incremental steps, the leaders must work with the group members to create a communication system for regular (weekly and sometimes daily) communication that allows for task-based discussions and relationship building procedures. Listservs will not automatically lead to group unity or to integrated work on a project. In addition to thoughtful management of the email system to encourage ongoing communication, a virtual team needs to work with a variety of communication options, including some opportunity for face-to-face interactions.

Our experience has led to a set of Recommendations for Effective Virtual Teamwork.

1. Get the team off to a good start.
   a. Choose team members carefully.
   b. Clearly communicate the goals of your group.
   c. Share initial resources with everyone so that each group member starts from the same place.
   d. If possible, arrange a face-to-face meeting early in the project to help begin to form teamwork.
   e. Consider your norms—your working rules—to get started, realizing that these norms will evolve over the life of the project.

2. Decide when telephone, ground mail, and email will help further the group goals. (Undoubtedly, the answers to this question will depend on the size of the group, preferred communication styles (oral or written), and the nature of the project.)
   a. The telephone is excellent for immediate one-on-one feedback. It is important to remember that the larger the group, the more time required for logistical planning to get all members on the phone at once. It is also important to identify all speakers and to encourage participation from all parties.
   b. If using e-mail, create an archive of the messages to track the decision-making process.
   c. Decide what information can be posted to a web site.
   d. Do a test run of everyone’s equipment (e.g., sending attachments before the project gets underway).

3. Work to create a cohesive group.
   a. Establish the goal of becoming a cohesive group.
   b. Keep all members of the group up to date with concerns and progress. This task can be initiated through roll calls.
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c. Encourage everyone’s participation and input.
d. Evaluate the norms of the group. Are they still working?
e. Realize that the more people in the virtual team, the greater the number of possible interactions. It may be necessary to form subgroups.
f. Individuals should be able to state their own views, but they must be prepared to compromise or concede for the benefit of the group project.
g. Maintain flexibility and a sense of humor.
h. When the project is completed, celebrate the success of the team with a face-to-face meeting.

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