Effective Communication in Online Learning

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Abstract: Learning is based on interactions with people, information and environment. Communication as a form of interaction is, actually, a major tool of learning. Moreover, effective communication and collaboration in the class are capable of enhancing learning outcomes. To achieve this effect, however, we need to build a learning community characterized by close relationships which is a necessary milieu for communication, collaboration and cooperation. Yet, in online learning this goal may be affected by a number of factors interfering with the development of such relationships. This paper demonstrates how communication in the online class can boost student progress, and discusses what should be done to build an effective learning community.

Key words: Online learning, communication, collaboration, learning community, relationships.

1. Online Learning: Advantages and disadvantages

Online learning is enjoying skyrocketing popularity among students, particularly working adults. The attractiveness of online learning is based on a number of its advantages, such as accessibility, flexibility, convenience, time efficiency, discreteness, equity, numerous and varied opportunities for learning, free and practically unlimited web-based learning resources, effective and instantaneous communication with anybody, anywhere and at any time. Furthermore, students usually feel more confident in online environment: they find it easier to express themselves due to the "masking" effect of the computer that “shields” the user from all other communicants who don’t see or hear him or her. The instructor and peers are never present in the online classroom in person. In addition, typing on your own computer doesn't feel like a social situation where there are certain rules of behavior.
Therefore there may be less anxiety in a virtual online environment than in a live, face-to-face situation (Conrad, 2002; Moore, 2007; Serdyukov & Hill, 2008).

One of the major problems facing effective online learning, however, is the quality of communication which, being mediated by computer, acquires not only a new form but also a new meaning and is challenged by many factors. Psychological and social disadvantages of the new educational format affecting communication among all participants in the online environment as well as learning outcomes in general, are quite powerful and include:

- Lack of personal, face-to-face and continuous interaction
- Disappearing opportunities for personal relationship among participants
- Weakened social ties and responsibilities
- Fewer prospects for effective collaboration and reflection
- More sporadic, often delayed, sometimes ineffective and definitely less close interaction with peers and instructors
- Deficiency of eye contact, nonverbal cues and voice which can result in miscommunication.

Effective online learning outcomes can hardly be achieved without finding ways to cope with these challenges.

2. Interaction and Communication

Current research in the field of web-based learning indicates that interactivity and communication are key factors in student achievements and satisfaction (Moore, 2007; Mahle, 2007; Wanstreet, 2006; Bruck, 2005; Lewis, 2003; Salmon, 2002). Communication is a vital tool for any type of education, but it assumes critical value in online learning which separates the student from the instructor in both time and distance. “Researchers and practitioners are in general agreement that interaction is a key variable in learning and satisfaction with distance education courses” (Fulford & Zhang, 1993; Gunawardena & Duphorne, 2001; Swan, 2001 as cited in Wanstreet, 2006, p.399). Mahle clearly states that “Instructors need to be cognizant of incorporating a significant amount of interactivity into their courses (Mahle, 2007, p. 47). Typically, the quality of online course outcomes can be affected by the quality of the interactions in class (Norton & Hathaway, 2008).

Discussing communication in learning we distinguish between educational or cognitive interaction which integrates various exchanges of information and ideas on the course content, and social interaction which involves personal information, opinions, and reflects dispositions. Being a part of a social system, social interaction, common ties and physical co-location are the essential elements of a community (Jones, 1995, as cited in Kok, 2008). Such interaction can go beyond class matters. Social interaction allows the learner to reflect and reconsider, get help and support, and participate in authentic problem solving (Shank, 2004, Berge, 1996; Brooks &
Brooks, 1999; Brown & Duguid, 1989; Lave & Wenger, 1991). While cognitive interaction is necessary for building knowledge and solving problems stemming from the course content, social interaction is critical for student behavior, attitudes and relationships that affect both communication and learning. Three of the more pronounced benefits of the social interaction for learners included improved learning strategies, greater perseverance, and reduced need for help from the instructor (Lou, Abrami, & d'Apollonia, 2001). These outcomes are especially important in online education because of the inherent difficulties with learning without the structure and motivational elements of an in-person classroom setting (Moore, 1991). Social interaction, therefore, provides critical support for learners who are learning at a distance.

Both cognitive and social interactions contribute to knowledge construction which has the most pronounced effect in threaded discussions. From a constructivist perspective, discourse is a central mechanism for learning (Palincsar, 1998). Actually, these asynchronous discussions serve as one of the most effective mechanism of knowledge construction, where students post information, share their knowledge, comment on other students’ and instructor’s posts, express their opinions, add new information, and argue (Knowlton, 2001; Hmelo-Silver, 2003; Serdyukov & Hill, 2004). Students perform various operations in threaded discussions that help them in knowledge construction: they read, analyze, develop, generate, write, demonstrate, present, participate, communicate, collaborate, discuss, assess, argue, prove, process, retrieve, repeat, simulate and reflect. Quite a number of skills are being developed in threaded discussions: communication, collaboration, reading, writing, planning, critical, analytic and synthetic, to name a few. To make threaded discussion a productive knowledge construction tool, student active participation, analysis and reflection, reading the recommended literature, making explicit references to the course literature, as well as comments on the peers’ and instructor’s posts should be incorporated in the discussions and each student post.

3. Learning Community

Learning, to be successful, can not be an internal, individual activity. In an online environment where students can no longer personally experience and acquire knowledge they need to construct their personal knowledge establishing whatever relationships that help collaboration and cooperation. “We derive our competence from forming connections” (Siemens, 2003, p. 3). Learning takes place through interaction with the environment, particularly with people and information. Learner ability to construct internal knowledge depends on his or her skills to locate the needed knowledge, select, evaluate, reconstruct, expand and apply, which happens in the interactions not only with the information and computers, but also with people. To
facilitate effective and continuous learning we have to maintain and nurture connections among all participants thus creating a community of practice (Lave & Wenger, 1991) capable of sustaining the challenges of learning.

A learning community is a group of people who share common goals, interests, values and beliefs, and are actively engaged in learning together and from each other (Brower & Dettinger, 1998; Bonk, Wisher & Nigrelli, 2004). Continuous collaboration may lead to synergy which can enhance learning outcomes. Synergy is capable of producing a result of group work that is greater than the sum of individual students’ work (Harung, 1997). A combined effort thus can produce a better outcome. In order to achieve this effect partnership relationships should emerge and develop in the community. A student group is usually made up of the formerly unacquainted people. Their initial relationships may be defined as weak bonds which are productive for information exchange (Granovetter, 2004). Weak bonds can bring novelty in group information exchange. However, these weak bonds should grow into stronger bonds founded on common goals and interests necessary for collaboration and success of the group. “Virtual community is represented by intimate secondary relationships, weaker ties and homogeneity by interest” (Kok, 2008, 2). These characteristics point to the need for partnership relationships in online learning.

Online learning, though highly individualized, in order to be successful needs to take place in learning communities, even more than in onsite classrooms. Moreover, in view of the trend for informal, independent learning outside formal academic institutions, this phenomenon will definitely grow. Individualization and independence of the learning, however, may affect learning outcomes that thrive on open communication and strong relationships, especially in view of the social constructivist theory which advocates collaboration and cooperation. But how can one collaborate and cooperate with people whom he or she has never met, does not see, nor will ever meet after the class is over? There must be some kind of relationship built among members of the group. Relationships, incidentally, are based on trust which develops in continuous personal contacts, frequent interactions and numerous joint activities. Due to the inherent character of online learning, nonetheless, there are practically no close personal contacts and no face-to-face interactions, therefore we cannot hope for strong connections and extended relationships.

Another hindrance to developing relationships in online learning is, in fact, one of the advantages of online learning, the asynchronicity which ensures flexibility and convenience of learning. Asynchronicity interferes with developing relationships that rely on at least some time to be spent together, i.e. simultaneity. Separation in time, as well as in space, is not helpful for developing relationships. Chats and videoconferencing offer some opportunity for that, but it is difficult to organize a synchronous session as people take online classes primarily because they can adapt the classes to their busy life schedules, not to school schedules. This eliminates almost any opportunity of people getting physically together. Therefore, one of the goals of online educators is to create the environment in which communication, collaboration and
cooperation are an inseparable ingredient of learning. One of the options is presented by hybrid, or blended learning, which, however, has its own geographic limitations.

For the learning community to be built, the group must meet four conditions: “1) membership, 2) influence, 3) fulfillment of individual needs, and 4) shared events and emotional connections (McMillan & Chavis, 1986). What is of particular importance for the online learner community is that it has to offer opportunities for the participants to meet their particular needs through communicating, interacting, expressing personal opinions and collaborating on common tasks. Kok (2008) argues that “in order to enhance the spirit, trust, interaction and commonality of learning experiences, instructors can attend to transactional distance (psychological space between teachers and learners), social presence, equality, small group activities, group facilitation, learning stage and community size” (p. 1). Students should be able to ask and receive help, needed information and feedback, and share their ideas and experiences on course topics. These activities should include emotional connections or affective elements for bonds to develop (Bonk, Wisher, & Nigrelli, 2004). Shared events are limited in a virtual cyberspace and include tasks requiring collaboration and cooperation, joint projects, and online forums, such as threaded discussions, chat and teleconferences as well as blogs that are a part of the social network, and wikis that can be used as a tool for collaborative projects.

In order for the online community to be successful, the following guidelines can be implemented in the interactions, especially in threaded discussions: a common goal and topic, specific rules of communicating, and effective instructor involvement in communication. Kok states that “learning communities in general allow the students to solve authentic problems collaboratively, to develop an appreciation for multiple perspectives and refine their knowledge through argumentation whereas a sense of community is fostered” (2008, 3). Cognitive activities in the discussions we use in our online classes include the following:

- Developing a concept of the topic based on the assignment
- Reading instructor and peers’ posts
- Commenting and expanding the ideas
- Analyzing feedback and subsequent posts
- Summing up and reflecting

Such discussions, as well as collaborative, team-based activities, allow, as Kok (2008) suggested, to recognize the learners’ input, provide opportunities to develop a sense of group cohesiveness, maintain the group as a unit and help learners to work collaboratively as partners which may increase the effectiveness of online communities, and build new knowledge (Serdyukov & Hill 2004).

The concept of partnership learning in online environment creates the necessary platform for enhancing learning outcomes and integrating strategies that are based on higher-order thinking skills, such as critical and creative thinking, reflection, problem solving, and decision making. “Partnerships can enhance individual and organizational
success through more effective problem solving and improved adaptation to change” (Franz, 2003).

An interactionist, or collaborative model for online learning, therefore, can be based on the following principles:
1. Learning is a collective endeavor
2. Learning outcomes can be enhanced by student engaging in active, continuous communication, collaboration and team work in communities of practice
3. Collaboration is effectively developed when relationships emerge, develop and are maintained among all participants of the online learning.

4. Time in Learning

Effective communication and collaboration in the online learning community cannot be established without considering time efficiency of learning. Time is the most valuable commodity for an adult learner and a prime factor in assessing the effectiveness of learning. Despite an evident importance of time in online learning, however, little attention has been paid to how it is used. It may be useful to investigate online student’s time expenditures on various activities, especially on communication, and develop effective ways to increase time efficiency of online learning. This may help both learners and instructors to successfully cope with the limitations of distance web-based education and to enhance learning productivity (Serdyukov & Serdyukova, 2006).

Student time expenditures in the online National University teacher preparation program were studied using a questionnaire run among 87 students and 19 faculty in the 2005-2006 academic year. The university uses an accelerated, one-month format which compresses a semester-long 45-hour course into four weeks. In each class students were required to participate in eight discussions, two per week. Time expenditures were estimated per course and per week, and average time expenditures were calculated to determine how much time students spend in an accelerated online class on various activities. Then, the results were compared to similar onsite classes. Both formats are totally congruent in learning outcomes, content, most of the assignments and evaluation. The results of this study are presented below.
As seen from Table 1, most of the time in an online class is usually spent on assignments, final paper and reading. Less time is used on participating in threaded discussions, field activities (school visits, observations and teaching), and communicating with peers. In the onsite class most of the time is spent in the classroom and on traveling. Other major activities, such as homework and reading, require almost the same amount of time in both classes though a comparatively smaller time on assignments in the onsite class may point to a better effect of onsite classroom work. The main difference, as expected, was in the time spent by an onsite student on travel and classroom presence which commonly amounts to about 45 hours each. Remarkably, a student spends in the online course only 44.4% of the time it takes an onsite student (19.7 hrs./week or 78.8 hrs./course less). The savings come from the absence of classroom time and travel to school, yet online students have to add time for threaded discussions, communicating with peers and instructors via email, and resolving technical issues.

The load of studying onsite as compared to the online one seems to be far too high for a working student who has to do the same amount of work outside the class, besides attending lectures and traveling. Lack of face-to-face contact in an online class evidently calls for more communication both with peers and the instructor. It is clear, that besides the convenience of online learning, time savings are very significant which is extremely important for working adult students. Roughly speaking, time-efficiency of this online program calculated by dividing actual time expenditures in the onsite course by the time in the online course is 2.25. This is the greatest incentive for students to move online which is reflected in the statistics showing a steady and significant annual increment in online enrollments.

Table 1. Online vs. onsite student time expenditures (in hours)

<table>
<thead>
<tr>
<th>Format Activities</th>
<th>Online</th>
<th>Onsite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week</td>
<td>Course</td>
</tr>
<tr>
<td>Classroom work</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Travel</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reading</td>
<td>2.69</td>
<td>10.77</td>
</tr>
<tr>
<td>Doing assignments</td>
<td>4.67</td>
<td>18.68</td>
</tr>
<tr>
<td>Participating in online discussions</td>
<td>1.72</td>
<td>6.85</td>
</tr>
<tr>
<td>Communicating with peers</td>
<td>0.91</td>
<td>3.64</td>
</tr>
<tr>
<td>Communicating with instructor</td>
<td>0.38</td>
<td>1.55</td>
</tr>
<tr>
<td>Field activities</td>
<td>1.85</td>
<td>7.40</td>
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<tr>
<td>Writing a final paper</td>
<td>2.99</td>
<td>11.96</td>
</tr>
<tr>
<td>Resolving technical issues</td>
<td>0.52</td>
<td>2.10</td>
</tr>
<tr>
<td>Total</td>
<td>15.74</td>
<td>62.95</td>
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5. The Importance of Time in Online Communication and Learning

Our current research was focused on the understanding of how communication affected the outcomes of online learning, therefore three factors were investigated:

1. The relationship between time spent by students in online discussions and their grades
2. The relationship between student and instructor time in the discussions
3. The relationship between instructor’s time in class (as well as in the discussions) and class GPA.

The data were obtained from the analysis of 12 online academic groups with total 241 students who were taught the same course (Methodology of Second Language Instruction) by 8 instructors during the months of July through October, 2008, at National University. The source of data was the User Activity function in e-college platform. Statistical analysis included calculation of the average $\bar{x}$, Sample Standard Deviation $S$, and Range (maximum – minimum values). The grading system accepted in the National University is based on the 100 % score (all the grades in the class add up to 100%). GPA (General Performance Assessment) is an indicator of the class instructional quality and amounts to 4.0 as a sum of a number of parameters, including assessment of the instruction, of student learning, etc.

The average time students spent in the discussions in all 12 classes varied between 1,232 and 1,849 minutes per student, which made 20.53 to 30.81 hours per student. On average, every student spent 1,632.62 minutes in all eight discussions of the course, which equaled to 27.2 hours per student per class. When divided by the four weeks of the accelerated, one month-long course, it amounted to about 7 hours per week or one hour every day, or 3.4 hours per student per discussion. This is a remarkable growth as compared to our data received three years ago (see above). Only 45.13% of students, however, participated in the discussions as much or more time than the average while 54.87% participated less time than the average. These data point to the need to boost student participation in the discussions.

Total time students spent in the online class varied from 1,886.78 to 2,834.78 minutes per group with an average of 2,454.25 minutes which made 40.90 hours. This estimate did not include time on reading literature. It is appropriate to recall a similar onsite class took 40.5 hours which demonstrates that the overall time students work in the online and onsite classes is practically the same. Three years ago students spent more time in the online classes (see above). If we subtract time spent on the discussions from the total class time, we get 827.63 minutes, or 13.7 hours which is spent on other activities in the class, such as acquainting with the course, its navigation, syllabus, uploading and downloading materials and assignments, and using the grade book for comments.

Student average times in the discussions by classes were distributed by the grades they earned in the class in %. The four selected grade categories were: 1. 70% and
below; 2. 71-80%; 3. 81-90% and 4. 91-100%. Then the time students spent in the discussions in each grade category was averaged by groups and a chart demonstrating the trend was built (Fig. 1).

The curve indicates a strong dependence between the grade and the time students spent in the discussions. The steepest part of the curve was observed between the first and second categories because students who did not make sufficient effort were found in the first category, whereas those who made at least some effort rose to the second category and on. This is evidently a threshold where quantity turns into quality.

To see if there is any correlation between instructor’s and students’ time in the discussions, we distributed the time students spent in the discussions into five categories between the lowest of 1232.42 min. and the highest 1849.73 minute on axis x in Figure 2 (top curve). Instructor time values (lower curve) were aligned with their students’. The actual time spent in the discussions was marked on axis y.
Figure 2. Correlation between student and instructor discussion time.

\( \bar{x} = 1632.62, S = 189.94, \text{Range} = 617.31; \ \bar{x} = 1368, S = 719.43, \text{Range} = 2128 \) 

We started this research with a hypothesis that students might be led by the instructor’s example which models quality participation in the discussions, therefore expecting student and instructor time in the discussions to correlate. Actually, our hypothesis was confirmed but only to an extent: we found correlation to the point of 1779 minutes for the students and 1593 minutes for the instructors, with students’ time in the discussions exceeding that of the instructors. After that point, the amount of time instructors spent in the discussions did not seem to affect students’ participation.

This may mean it is critical for the instructor to actively facilitate the discussions, however it is not so much the amount of time instructor spends in the discussions that influences students’ activity as the quality of the instructor’s facilitation. Excessive instructor presence is not conducive for students’ participation, however optimal presence which is around the breaking point of approximately 1600 minutes which makes 25-26 hours per class or about 7 hours per week is desirable to maintain instructor’s visibility in the classroom, modeling, motivation and support for students.
To see if there is any dependence between instructor’s time in class and GPA we compared these values in Figure 3. GPA values were grouped into five categories 1. between 3.0 and 3.8; 2. 3.0 - 3.2; 3. 3.21 - 3.4; 4. 3.61 - 3.8; and 5. 3.61 - 3.8 on axis x. The time values in minutes were correspondingly arranged on axis y. As seen in Figure 3, there is a growth of time in the discussions in the smaller GPA values, from 3.0 to 3.4, which points to a small dependence between low GPA and instructor’s time, however further on the amount of instructor’s work in class does not affect the GPA.

6. Methodological Considerations

What helps to create an effective learning environment? First of all, the design of online course that involves students in continuous communication, assignments that engage students in collaboration and cooperation, instructor’s informal and personal behavior, and activities based on real-life situations. Instructor facilitation is a critical factor of success of this community. By including personal experiences and adding a human touch to the communication with students, to the course page, and to all interactions within the class, an instructor can create what Richardson and Swan (2003) called “social presence.”
Actually, all participants of online learning (both students and instructors) must be prepared to learn in the virtual, technology-based environment. Students need to be informed of the benefits of active communication and collaboration in the orientation given in the beginning of the class and develop minimal necessary learning skills. Instructors also should be educated in the culture of creating a rich communicative and collaborative environment and enhancing interactions in the class.

In an attempt to ensure that teacher candidates in the online credentialing program have a better understanding of the attitudes, skills, and dispositions they will be expected to demonstrate, and to prepare students for the challenges of online learning, a 1.5 credit orientation course called “Introduction to Teacher Credentialing” was created and required of all students entering the National University program as of July 1, 2008. The course description states that the course is designed, in part, to familiarize teacher candidates with “pedagogical knowledge, skills, and dispositions,” as well as “program and course organizational structures.” These and other course outcomes provide students with a detailed overview of the scope and sequence of their program, as well as an introduction to the necessary skills for them to be successful in their studies, including communicative and collaborative skills.

Instructor professional development should be an integral part of an online institution. How do instructors understand online teaching? A common interpretation of teaching styles includes five categories; expert, formal authority, demonstrator, facilitator and delegator (Grasha, 1996). Much research on teaching styles is focused primarily on goals and methods (Teaching Style Inventory, 2005). In an online class, the instructor is expected to perform a role of a facilitator who, in our opinion, first of all has to personalize teaching and establish personal relationships in the class. Our analysis of online instructor performance demonstrates there are three major instructional styles affecting communication and collaboration in the class: Formal impersonal, informal personal, formal-informal personal.

1. Formal impersonal focuses on delivering course information, managing student work and grading. Communication and collaboration are limited, no relationships emerge.

2. Informal personal relies on students’ doing their work by themselves, with the instructor only making a good impression on students maintaining some visibility in the class and responding to their most urgent needs. Communication may be lively but without academic rigor, and few if any relationships emerge.

3. Balanced formal-informal personal, which is based on the instructor’s dedicated involvement that provides the necessary support, stimulates students’ interest for the course, encourages their participation in the class, fosters collaboration among them, and establishes personal relationships with students. Communication is active and academic, and relationships emerge.

Clearly, the latter approach looks more effective and appealing, however it takes more time and effort than any other approach. Therefore, not many instructors use it to
the full. It should be remembered, “Teachers must model effective knowledge construction and collaboration by establishing trusting relationships with students and providing feedback, supervising, troubleshooting as well as providing the infrastructure for interaction (Kok 2008, 3).

To effectively maintain high level of instruction and instructor interaction with students, institutions of higher learning might consider investing in a system of continuous professional development for both full time and, in particular, adjunct instructors that includes face-to-face as well as online opportunities for instructors. To develop a common professional vision, an understanding of essential methodological principles and online learning culture must be extended to all faculty members for reasons of quality control, accreditation, and especially for consistency of student learning outcomes and student satisfaction. Best outcomes can be achieved in the professional communities that collaboratively address all instructional issues. We have been successfully using for several years an effective model of online faculty professional development which ensures common understanding of the online delivery techniques and instructional methodology among numerous faculty, focusing principally on creating learning communities among the faculty for implementing successful communication and collaboration among students (Hill & Serdyukov, 2005).

Conclusions

Research demonstrates the value of communication in the online class. The functions of communication in online learning environment include the following:
1. Communication for information exchange and creating meaning: asking and answering questions, informing, providing comments and feedback, sharing information, requesting help, expressing ideas and opinions.
2. Communication for knowledge construction. Group communication and collaboration, especially in threaded discussions, as our research demonstrates, creates the environment for effective knowledge construction. Students often comment they are learning more from each other than from the books.
3. Communication for personal needs, such as expressing feelings and attitudes, supporting self-esteem and forming relationships. Success of learning to a great extent depends on the relationships among the participants. Moreover, people have an inborn desire for establishing relationships and communicating which should be supported and nourished.

The time students participate in the discussions ultimately affects with their grades: the more they participate, the higher are the grades. The instructor’s participation in the discussions correlates with the students’ input but only to a certain point after which the time instructor spends in the discussions makes no impact on student
participation. GPA, as was found out, is not closely related to the instructor’s time in the discussion and in the class as a whole. In general, online learning may be more effective if intensive communication and collaboration are firmly integrated in each class, and personal relationships develop among all participants.

References


Gunawardena, C.N. & Daphorne, P.L. Which learner readiness factors, online features, and CMC related


Knowlton, D. Promoting Durable Knowledge Construction through Online Discussion. 6th Annual Instructional Technology Conference "Developing a Participatory Learning Culture “Middle Tennessee State University, April 2001.


Moore, M. Handbook of Distance Education. Routledge. (2007).


Serdyaov, P., Hill, R. Masonry of E-learning: Managing knowledge construction and skill development in an online


Serdyukova, N., Serdyukov, P. Time Efficiency of Online Adult Learning. The 22nd ICDE World Conference, September 3-6, 2006 in Rio de Janeiro, Brazil.


