Chapter XI

Interpersonal Assessment:
Evaluating Others in Online Learning Environments

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Abstract

This chapter introduces and discusses the concept of interpersonal assessment. *Interpersonal assessment refers to the act of assessing what other participants in an online learning environment know and how they behave. Interpersonal assessment is critical for successful learning outcomes, especially in collaborative groups, since students need to know what others in a group know and how they act to be able to work them. Moreover, knowledge about participants has implications for self-, peer, and group assessment. Although interpersonal assessment is important for both online and traditional learning environments, it is often more difficult to assess others in online learning environments due to the lack of face-to-face interaction, mediated cues, and unshared contexts. In this chapter, I review the literature to support this thesis theoretically and look at evidence from preliminary data analysis of an online class. I also suggest future directions for research and practice.*

Interpersonal Assessment: Assessing What Others Know and How They Behave

In this chapter I introduce and discuss a critical aspect of assessment that is often overlooked in online learning environments research and design—*assessment of other participants' knowledge and behavior*. Assessment has traditionally been understood and used as a method directed at evaluating the product of an educational exercise or the producer. In education and learning literature, assessment usually refers to assessing student learning. The title of a recent National Research Council (2001) report sums it up: "Knowing what students know." But over the last decade, the concept of assessment has evolved with the change in educational practice (Dochy, Segers, & Sluijsmans, 1999). We have started to move away form a teacher-centered perspective on education to one that involves more peer interaction and group activities, and assessment practices are also changing in part to reflect the change in educational practice, although such a move is not without its problems (Broadfoot & Black, 2004; Segers & Dochy, 2001). Group assessment, peer assessment, and self-assessment are increasingly becoming a part of educational practice leading to a need to examine the social aspects of such arrangements (Meldrum, 2002; Reynolds & Trehan, 2000). In such a scenario the concept of interpersonal assessment assumes significance as its study is yet underrepresented in the literature. And even though assessment in e-learning is not fundamentally different than traditional face-to-face environments (Macdonald, 2004), there are some differences such as increased student reflexivity (Lea, 2001). Mediation by technology for communication changes the nature of social interaction in online environments and has the potential to affect assessment.

Interpersonal assessment refers specifically to the perceptions participants have about what others know and how they behave. This knowledge can range from information about how competent a peer is at a particular task to how helpful she is to others. Knowledge about other participants in a learning environment has several benefits. Information about other students can help in forming groups, facilitating teamwork, and increasing overall interest and participation levels in a course. Interpersonal knowledge is particularly important in classes where students have to work on group projects. In such instances, knowledge of what others in the group know and how they behave determines the success of group members to work together and to learn.

In traditional face-to-face learning environments, students and teachers come to know about each other as they interact over time. Through one-on-one interaction, observations, and conversations with each other, in class and out of class,

teachers and students gain interpersonal knowledge about other people in the class. Participants gain information through cues such as age, experience, and grades. Interpersonal knowledge about behavior develops through *interactions* that the peers have with each other. In an online environment this interpersonal knowledge is either absent or present in a mediated form, which is often harder to assess, and most online courseware provides minimal explicit support for such signals. Therefore, informal assessment of fellow students, teachers, and other participants is diminished in an online environment.

Interpersonal assessment has not been addressed so far in the literature of online learning but it is critical to gain an understanding of it for research as well as design of online learning environments as learning is a social process and collaboration among participants is essential for learning to take place (Brown & Duguid, 2000; Lave & Wenger, 1991; Wenger, 1998). Moreover, in online classes, communication, and hence interpersonal assessment, is mediated by technology. Therefore, it is important to understand the role of technology in the interpersonal assessment process. In the rest of this chapter, I attempt to provide a comprehensive introduction to this topic by synthesizing literature from different research streams. I will focus primarily on learning situations that involve group work since interpersonal assessment is most critical for such situations. In addition, I will provide preliminary evidence from a research study that I undertook. Finally, I will discuss research and design implications of the proposed framework and make some recommendations.

The Benefits of Group Work and the Importance of Knowing Others in a Group

The advantages of working in a group are well-documented in the literature. Research across disciplines has demonstrated the benefits of students working together, such as higher levels of achievement (Slavin, 1996), higher-order thinking (Cohen, 1994), improved communication and conflict management (Johnson & Johnson, 1994), and strategic problem-solving skills (Barron, 2000). In addition, small-group student collaboration has also been shown to positively enhance intrinsic motivation to learn, greater long-term maintenance of skills, prosocial behaviors, and persistence in courses and programs (Bruffee, 1999; Cohen; Ede & Lunsford, 1990; Johnson & Johnson; Roschelle & Clancey, 1992). Economic and technological changes in the work place require employees to work in teams, and real-world benefits of students gaining experience with small-group collaboration are clear. Several recent studies (Bransford, Brown, &

Cocking, 1999) underscore the importance of people working collaboratively and sharing expertise in the workplace (National Research Council, 2001, p. 17).

But for groups to be successful, recent studies show it is equally important that for participants to know each other. Research on *transactive memory systems* emphasizes the importance of understanding "who knows what" at the dyadic as well as team levels. Transactive memory refers to group memory systems that come into place as members of a group learn who knows what in a group, especially who is an expert on what (Wegner, 1987). Wegner studied relationships among intimate couples and found that transactive memory keeps one or the other member of the couple responsible for information at all times. Liang, Moreland, & Argote (1995) showed that training group members together, rather than apart, improves the performance of their groups, and that this change is due to the development of transactive memory systems (also see Moreland, 1999). Hollingshead (2000) expanded these findings to a dyadic level using a sample of clerical workers in a laboratory setting and found that people learn and recall more information in their own area of expertise when their partner has different, rather than similar, work–related experience, and that this effect reverses for recall of information outside work-related expertise. Taken together, studies on transactive memory emphasize the importance of knowing what a group member knows, especially knowing who has what expertise. Sharing of knowledge is critical for the success of teams and knowledge sharing takes place through the everyday interaction of people and the relationships that individuals form with one another (Cross et al., 2001). Moreover, our perception of others determines whether we ask them for information or not, and whether we share information with them or not. In a recent study, Cross et al. asked 40 managers to reflect on a recent project and indicate where they obtained information critical to their projects. Over 80% of the managers reported that they got this information from other people. They indicated that there were four features that made a relationship effective: (1) knowing what another person knows and thus when to turn to them; (2) being able to gain timely access to that person; (3) willingness of the person sought to engage in problem-solving rather than to dump information; and (4) a degree of safety in the relationship that promoted learning and creativity. In a separate quantitative study, the authors found that these dimensions are consistent even after controlling for education, age similarity, physical proximity, tenure in an organization, and formal position in the organization. These findings suggest that not only is knowledge about the nature of expertise of a coworker important to coworkers but also whether that person is accessible and willing to share knowledge. All four dimensions identified in the above study indicate the importance of interpersonal assessment. Whether to identify what the other person knows, to find out if they are accessible, to gauge how they engage in knowledge-sharing, or how safe your relationship with them is, the prerequisite is that somehow you get that information about them. Given

the importance of knowing others in a group, it is important to understand how that understanding develops. Impression formation is the primary process by which people develop an understanding of each other.

Assessing Others by Forming Impressions of Them

Social psychologists have been studying impression formation for almost half a century starting with Asch (1946), who proposed the gestalt approach to impression formation; according to the gestalt approach, the impressions people form of others are holistic in nature, that is, we assign a particular category to a person, rather than different traits, and our actions are guided by the way we categorize a person. On the other hand, the piecemeal view of impression formation proposed that people form an impression of a target by averaging various isolated features of the target (Anderson, 1981). Bridging the gap between Gestalt and piecemeal views of impression formation, Fiske and Neuberg (1990) proposed a continuum model of impression formation. According to the continuum model, people do both: they form holistic as well as individuated impressions depending on the extent to which they use a target's particular attributes. Towards one end of the continuum are *category-based processes* that use a target's category membership (e.g., race and gender) and exclude individual attributes, and on the other end are *individuating processes* that include a target's particular attribute (e.g., jovial or sarcastic) and exclude category membership. Furthermore, Fiske and Neuberg's continuum model proposes four stages in the impression-formation process: initial categorization, confirmatory categorization, recategorization, and piecemeal integration. Of these, the process a perceiver follows depends on the *information* available to the perceiver and his or her *motivation* to form an impression. Only in high-motivation and high-information scenarios does piecemeal integration occur, and pure piecemeal integration is highly uncommon. Another important aspect of this model is the attention paid by a perceiver to attributes and the manner in which attributes are interpreted. Therefore, information and motivation affect impression formation by determining whether a perceiver pays attention to a cue, and if she or he does, then the cue is interpreted. Overall, the continuum model of impression formation (Fiske, Lin, & Neuberg, 1999; Fiske & Neuberg, 1990) suggests that to study the impression-formation process, it is important to look at the information a perceiver has about a target and the motivation she or he has for forming an impression. In addition, it is important to understand how much attention a perceiver pays to different cues about a target and how the cues are

interpreted. Therefore, to understand how people form impressions of each other in online classes, it is important to look at the information students have about each other and their motivations for forming impressions. It can be argued that motivations to form impressions do not differ substantially between online and face-to-face environments since students working in a group are motivated by the same factors to learn about each other Therefore, I will focus on the effect of technology-mediation on the information that participants have about each other.

Interpersonal Assessment in Online Environments

Online environments by their very nature are technology-based, and participants interact with each other via technology. Moreover, online classes often have no offline component and this precludes face-to-face interaction among participants. This means that whatever cues participants get about their peers are primarily technology-mediated. Mediation by technology changes the information participants have about each other, often in both quantity and quality, and this has the potential to result in impressions that are different from those formed in face-to-face interaction (Fiske & Neuberg, 1990). This conclusion is supported by several studies on impression formation in computer-mediated communication (CMC), which show that although impressions do form when people interact via communication technology the resultant impressions have characteristics that are different from those formed in face-to-face interactions.

Studies in the field of CMC suggest that people form interpersonal impressions of each other regardless of the medium of communication, but the process of impression formation in CMC takes more time than it does in face-to-face interactions (Walther, 2002). Hancock and Dunham (2001) found that, in CMC, impressions are more intense than they would be in face-to-face communication but there is less breadth in the impression, that is, the impressions one forms are strong but simple, unlike face-to-face impressions, which are often complex. Tidwell and Walther also found that, although impressions take longer to form in CMC, they reach the same intensity as those in face-to-face communication, and often they are more intense. Moreover, since participants interact within a similar context, they keep recategorizing their initial impression such that it confirms with the initial categorization, and their impression of a peer does not change with time.

Studies that directly compared the effect of medium and others' evaluations also show that the communication medium has an effect on how people evaluate each other. In a study to test the effects of communication media, Straus, Miles, and Levesque (2001) compared the effects of face-to-face, telephone, and videoconferencing on judgments in job interviews. Fifty-nine MBA students took part in mock interviews face-to-face and either through videoconference or telephone. Their results show that interviewers evaluated applicants more favorably over the telephone versus face-to-face. Interviewers also reported more difficulty regulating and understanding through videoconferencing but did not evaluate applicants less favorably. Hinds (1999) ran a series of studies to explore the relationship between communication media, cognitive load, and impression formation. She found that compared to audio only interaction, participants interacting over an audio-video system formed impressions biased towards a primed trait. The author attributed this finding to the additional cognitive load required to process information over an audio-video system as compared to the audio-only system (Hinds, 1999). Weisband and Atwater (1999) ran a study to understand how performance evaluations of self and others that are based on electronic interaction compare with evaluations that are based on face-to-face interaction. The authors found that the medium of communication made a difference and group members liked each other more when communicating face-to-face than electronically and liking accounted for significant variance in ratings of others in face-to-face groups but not in electronic groups. Moreover, actual contributions accounted for significant variance in ratings of others in electronic groups, but not in face-to-face groups, and the total variance accounted for by liking and actual performance was higher in the face-to-face condition than in the electronic condition (Weisband & Atwater, 1999). These studies show that in settings that use technology-mediated communication media have an effect on processing of interpersonal information, and therefore it is important to understand the use of communication technology within online learning settings. However, since CMC does not necessarily mean distributed or distance learning, we have to be cautious in assuming that the results from CMC studies will carry over to e-learning settings. Most CMC research draws conclusions from studies where participants meet for the first time in the lab, take part in the study, and then leave. In real-world settings, participants often interact face-to-face over a longer period and have the opportunity to interact in different contexts and situations, suggesting that different factors might be at play here, as compared to a solely CMC condition; this is can be determined empirically, and we need a lot more research in real-world settings to fully understand the effects of communication technology on interpersonal assessment.

Interpersonal Peer Assessment in the Global Classroom Project

This section presents preliminary results from an ethnographic study of an online learning environment. The data analysis from this study shows that students do engage in interpersonal assessment of their peers, especially when they are working in a group, and that there is a need to support interpersonal assessment.

The Global Classroom Project

The Global Classroom Project (GCP) is a technology-based class that has both face-to-face and online components. It connects students from the United States with students from Russia, Sweden, and other European countries. The learning philosophy behind the GCP is *experiential learning*—students learn best by personal experience. The class uses a discussion-board-based software called WebBoard as the primary tool for interaction among students from different countries in addition to face-to-face classes held at each location. The purpose of the class is two-fold: to teach students technical communication skills such as resume, proposal, and project-report writing and to teach them the skills needed to work in a crosscultural, online environment. The European students are typically graduate students enrolled in the social sciences, whereas the American students are either undergraduates or graduates and range from liberal arts to engineering majors. The major assignment for the class is a group project to be submitted at the end of the semester (Herrington & Tretyakov, 2005).

Research Methodology and Data Collection

The setting for this study is a large technological institute located in the southeastern United States. The research was designed as an ethnographic case study (Yin, 1994) using multiple data-collection methods to ensure data triangulation. In-depth interviews (45 to 90 minutes) were conducted with a total of 15 participants, including students and instructors. The primary participants for the interviews were American students. The researcher also participated as a team member of a group of six students for a period of 8 weeks and worked on their class project with them, in addition to observing the class overtly. Other data-gathering methods included open-ended surveys and informal communication between students and the instructor. Detailed analysis of online WebBoard transcripts provided valuable data about participation by the Russian and American students, and more data on the Russian perspective was gathered

from the Russian instructor via e-mail over several months. The total data-collection period lasted around 3 months. Data was analyzed using an inductive coding and categorization process, following a grounded-theory approach (Strauss & Corbin, 1990). One group was analyzed in-depth to understand the interpersonal-assessment process at different levels. This group consisted of American and Russian students who were assigned an open-ended topic to research in order to write a proposal for their final project. The topic given to the students was "analysis of propaganda." As part of their group project, students also compiled an annotated bibliography that they used for their project. They were also given a list of readings that were discussed electronically on the WebBoard and sometimes in the face-to-face classes (Johri, 2005).

Findings

During the interview, most American students expressed a desire to know more about the Russian students. Amy, one of the more enthusiastic students in the class, said:

I wish the Russian students would make a page with their pictures and profiles and interests, we know they are there, and we see them posting, so we don't know them very well, so they are kind of just there.

American students also mentioned the advantages of face-to-face interaction. Sarah, an American student, mentioned that her American group bonded when they met for lunch after a class:

We met for lunch, that was pretty neat, because we became friends actually. It was important to ease tension. Later, we were in the computer lab for 6-7 hours and we came to know each other pretty well and everyone was friendly.

She also expressed a desire to have known the Russian students better. When I asked her how well she knew the Russian students in her group, she said,

Not all that well, I would say. There were introductions online where we talked a little about our interests. The main thing was that we learned a lot more about their personalities from their posts, like they put a smiley face or a wink after everything, it was pretty cute, in their emails and stuff.

Moreover, she suggested that personal emails would have made it more fun and added, "We saw their photos towards the very end, that was kind of cool, we could put a face to a name, earlier, although it didn't make not that much of a difference then." Another student said that, "What would have helped me more, have them tell me about themselves. It was integral part of the process that I missed out on, in the long run it would have helped." As these responses suggest, American students had a desire to know more about their Russian colleagues as they thought it would have helped them in their group work and also made it easier for them to understand their counterparts. Moreover, in the absence of explicit information about their peers, American students tried to pick clues from whatever resources where available to them—primarily the messages posted by the Russian students on WebBoard. One student, Jennifer, narrated her learning experiences from the class:

One very important thing I learned, was the manner they posted, the method they are using to post, gotta understand the cultural differences, pick up posting styles, it took me to figure out why they posted one single post, you have to confirm to their way to get your message across other things- just being attentive, being flexible, being open to ideas, given, making sure that you clearly illustrate with an example.

The key way in which American students made use of interpersonal knowledge about their peers was in distributing tasks for the group project. Amy noted that one of the advantages of knowing about others was for doing group work, "I think so you know what kind of interests they have and you can go from there." "The four of us, we and Susie worked on content, Jason on web design, and the other guy what is his name, lets call him Mark, he worked on the computer languages, java part" says Sarah. Jason says that although he remembers the selection to be random, it was definitely done skill-wise to make best use of available resources, "Programming guys were all split up so each group would have one each." In addition to the major of the student, American students also made use of which year the students were in to distribute their work. Students who were more senior in terms of their years in school took on greater responsibilities. Through their interaction, American students came to know about the class schedules of their group members, which helped them in scheduling meetings. One group made use of the knowledge of whether students lived on or off campus to schedule meetings and to nominate members to submit assignments. Another kind of implicit contextual knowledge that American students used was their knowledge of technology use, and access to technology, by their peers. American students assumed that their peers in the United States had similar access to technology, which meant high bandwidth and frequent use of the

Internet. This meant that they were used to getting fast replies to their emails from their peers, and they also used technology such as instant messaging (IM) for communication. Although at face value this looks like a simple fact, similar assumption on their part for the Russian students played a big role in leading to a breakdown in communication between American and Russian students.

Several problems were created by the lack of interpersonal and contextual knowledge between American and Russian students. One problem mentioned by several American students was that the Russian students would misunderstand the messages send by the American students, and reply rudely to them. In reality, most American students later realized that their characterization of Russian students was wrong and that the Russian students were just being straightforward and not intentionally rude. But the damage was often done by the time American students realized this, and several of them stopped communicating with the Russian students. This shows that lack of contextual and cultural knowledge about ways of communicating can adversely affect communication. Another problem that puzzled American students was the tendency of Russian students to reply as a group to individual messages posted by American students on WebBoard. American students were frustrated by the lack of personal responses to their messages. Even after the end of the semester the American students had no idea as to why the Russian students posted as a group. Every American student I interviewed confirmed this observation. During the interviews, several American students also complained that they have no, or very little, idea of what goes on in the Russian class. To complicate matters further, Russian students expected American students to respond as a group to their messages. Another thing that stood out was the large amount of interaction among the different Russian groups, which influenced their group work and even their interaction with the Americans. The Russian students were talking to other students in their class who were in different groups to make sure that their topics did not overlap. From my interviews and participation in the class I observed that there was very little or almost no interaction among different American groups. One obvious reason for this is that American students did not meet face-to-face every class period as did the Russians students. This meant that American students had little idea of what other students in their class were working on, and the Russian students complained to them that they were not making any progress since their topic kept overlapping with other groups.

Discussion

As we can see, there is some evidence that interpersonal knowledge made a difference in how students interacted in the GCP. In the absence of information about how students communicate, how groups are formed, how they interact

within groups, and who people are as individuals, American students made more personal misattributions, and as a consequence, their interaction with the Russian students suffered. This analysis is a first attempt at trying to delineate some of the ways in which interpersonal assessment might influence online collaboration and learning. Although the data analysis in the above section is preliminary, it suggests three things: First, students want and need interpersonal information about others to assess them; second, they utilize this knowledge to shape their interaction with other students; and third, lack of interpersonal knowledge leads to breakdowns in communication and collaboration, which results in breakdowns in learning. One important lesson from the in-depth analysis is that even though groups often realize that they are having problems communicating with others, they are not able to improve their situation when they lack interpersonal information. This is because even though they realize they have problems, they are often not able to recognize what gave rise to those problems. They are not able to ascertain whether it is because of the behavior of an individual, his or her lack of understanding of something, or simply because of situational factors beyond their control.

The findings from the study also point to the kind of information that students look for in each other. People essentially look for information about how other people behave, especially in a particular context, and also what people know or their expertise. Moreover, often these two characteristics go hand-in-hand (Faraj & Sproull, 2000; Sonnentag, 2000). Expertise without the ability to share it and without other people having access to it is of not much use for collaboration. Overall, the behavioral information about peers helps people in describing their peers, predicting their actions, and explaining the reasons for the actions (Berger & Bradac, 1982). There is another element that stands out from this analysis and which has also been reported in the literature: contextual knowledge about peers. Contextual knowledge refers to the information that peers have about each other's context: the places they live and study in, and the tools they use. Interpersonal knowledge is linked to contextual knowledge, since how and what we think about others is linked to what we know about their circumstances. Lack of contextual knowledge leads to lack of shared context, and lack of shared context has been recognized as a common problem in distributed teams, leading to misattribution (Cramton, 2001). Misattribution occurs when perceivers misinterpret a piece of information, and attribute something to people, rather than the situation. For instance, if someone is late for a team meeting because his or her car broke down, we are more likely to attribute lateness to the person as opposed to the event of the car breaking down, if we do not know the reason. Cramton suggests that people are more likely to make personal rather than situational attribution concerning their remote partners, because of a "failure to share and remember information about remote situations and contexts, an uneven distribution of information" (p. 365) which basically means that remote partners often

lack information to make situational attributions, in keeping with the attribution literature. She also suggests that when people work under heavy cognitive load, they become more likely to make personal rather situational attributions, since information processing limitations amount to blaming individuals for problems that may have broader causes. Moreover, in the absence of situational information, they are likely to make negative attributions concerning the dispositions of the remote partners. Gibson and Cohen (2003) also argue that when distributed team members find it difficult to form impressions of their teammates, "virtual team members often err on the side of dispositional attributions, assuming behavior was caused by personality, because they lack situational information and are overloaded, and this may make them less likely to try and modify problematic situations." In a study of distributed groups, Walther, Boos, and Jonas (2002), arrived at a similar conclusion. According to them, when distributed group members are unable to adapt to each other, group members are more prone to make attributional judgments about distant partners, rather than consider their own adjustment difficulties. They also suggest, that by redirecting participants' attention to situational issues in local, rather than distributed interaction scenarios, participants become more effective when they later encounter distributed environments. These studies also hint that technology might change one's perceptions of what is important in a peer with whom one must work. Therefore, communication skills using technology might become more important for distributed learners, as opposed to colocated learners. Also, in the absence of personal interactions the process of getting interpersonal information might change. Distributed learners might be more inclined to use electronic resources to find information, as they might not have access to people who know about their peers.

Implications

Research Implications

A lot more research needs to be done to understand interpersonal assessment in educational settings, especially online environments. Given advances in technology and the increase in the number of online classes and courses, it is critical to understand how people actually work and learn together in technology-mediated environments. This is not a new concern. Researchers have been studying the impact of technology on learning for some time. This study is important because it emphasizes an understanding not just of the technology but the process by which people come to know each other once the technology is in place. The main

premise is that whether mediated or not, or mediated by technology or not, we do form impressions of each other and this has implications for how we interact with each other. The next step that this study calls for is a focus on in-depth understanding of how impression formation processes occur in real world technology-mediated learning environments. If we understand these processes better, we might be able to design the technology or the interactions among participants in a manner that increases interpersonal assessment of participants.

Design Implications: Increasing Opportunities for Interpersonal Assessment

Although interpersonal assessment in online environments is difficult, its affects can be facilitated using a combination of technological and non-technological measures. Face-to-face interaction among participants has often been suggested as a way to increase participants' interpersonal knowledge. Face-to-face interaction, in addition to providing facial and physical cues, provides students the opportunity to interact in situations other than class. This leads to more complex impression of others (Welbourne, 2001) and hence leads to more interpersonal knowledge about others. Face-to-face interaction among learners has consistently been shown to be beneficial and several distance-learning classes have successfully integrated a face-to-face component into their programs (Haythornthwaite & Kazmer, 2004). However, often it is not possible for learners to meet face-to-face, and there are other possibilities that might be helpful in such a scenario.

Electronic resources can be used to store and share knowledge about participants in an online community but for this to happen they need to be designed with an explicit focus on the social aspects of learning. The technological solution does not require technical sophistication, but it should be able to augment everyday learning behavior of participants. Learners should be exposed to interpersonal information while searching or browsing and be able to access information about other participants. As one student, John, suggested when asked what he would want in a custom software:

For one thing, some thing that would have a backend database with more information on the students, we get responses from students we have virtually no personal information on, and some kind of personal database students will be required to fill out, it will also be useful to have more control for the moderators, fro example, it is always difficult to get the American students to interact, some kind of automated system that would keep track of who is posting with what kind of frequency, send some kind of reminder, something that would allow more control over the interaction and be able to enforce people to participate.

The solution can be as simple as a Web page for each learner. For instance, Bly, Cook, Bickmore, Churchill, and Sullivan (1998) studied the role of personal home pages in the workplace. They found that workers used the pages primarily for project information, but authors took advantage of the opportunity to personalize them. Even readers read the pages because they reflected the authors. Furthermore, they argued, that regardless of organizational culture, project tasks or difficulties of implementation, people personalized their work and their presentation of self, in ways that were meaningful both to themselves and their readers and that the emergence of personal Web pages at work suggests that Web technologies can play a useful role in the ways in which employees further their self presentation in the organization.

Another way in which computing resources can be used is to represent participants' interaction in an online community. Although not necessarily linked to interpersonal knowledge, these representations can go a long way in increasing participants' contextual knowledge about each other, especially their knowledge about how their peers are participating in an online community. VisOC (Avery, Civjan, & Johri, 2005), a digital assessment tool, was created specifically to allow visual analysis of student communication and learning outcomes in the GCP. VisOC's goal was to provide participants in the learning community with a versatile automated process for building interactive graphical representations that compare aspects of student profiles with performance patterns and analyze their role in contributing to the overall learning goals of the classroom. Awareness systems are yet another visualization technique that can be used (Gerosa, Fuks, & Lucena, 2003).

Conclusion

The chapter started out with the aim of putting forward and discussing an alternate view of assessment—interpersonal assessment. Although this view is not necessarily in line with the conventional view of assessment, it nonetheless sheds light on a very important part of assessment that goes on informally in an educational setting. Peers often make informal assessments of each other to determine what others know and how they are to work with. These assessments are particularly salient when students have to work with other students on a group project. In an online environment, cues to make such assessments are either lost or are mediated by communication technology, making it difficult for students to assess each other. Therefore, there is a need to study and understand how interpersonal assessment takes place in online environments to design successful e-learning environments. Although not discussed directly, interper-

sonal assessment also has implications for peer assessment in the conventional sense. Peer assessment may be biased by lack of contextual knowledge or by biased personal impressions of peers (Magin, 2001) therefore it is critical to understand how biases develop in technology-mediated learning environments.

I have discussed several studies on CMC to illustrate how technology-mediated communication might influence the information peers have about each other and consequently their impressions of each other. Although we stand to gain a lot from studies on CMC, it is important to keep in mind that most CMC studies have been conducted in lab settings and we still know very little about how interpersonal assessment takes place in real-world online learning environments. As a first step, through a preliminary data analysis from a study on a distributed online class I show that students do make use of interpersonal and contextual knowledge in their interactions with each other especially for group work. Lack of interpersonal and contextual knowledge between American and Russian students was shown to lead to a breakdown in communication, with adverse consequences for learning.

As we design online classes, one important design consideration is the social affordances of any technological environment (Volet & Wosnitza, 2004). What kind of social interaction does the environment allow? As this chapter shows, one key element is affordances for students to be able to share information about each other. This should not only be possible, but also encouraged, not only by the teachers, but by the design of the environment itself. When someone becomes a member or joins a class, information can be collected about him or her that can later be shared among peers. Students can be encouraged to post information about new students or to make their Web pages. In the same way that interactions are designed within physical spaces, it is essential that we foresee and design interactions in electronic spaces as well. Hopefully, this chapter will provide momentum for educators, teachers, and designers to work towards a better design of online learning environments to foster greater interpersonal assessment. Of course, this needs to be supported by researchers developing a better understanding of how interpersonal assessment happens in online learning environments.

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