

Disinhibition in a CSCL Environment

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ABSTRACT

Why do adults find it difficult to learn foreign languages? In the research literature, there are a number of hypotheses. Studies on the use of the Internet for learning, however, suggest that a hypothesis that has been largely ignored for the past two decades might have increased validity. The *language ego permeability* hypothesis argues that adults have difficulty learning foreign languages, because they are reluctant to give up control over self-presentation. Giving up this control is necessary to learning a new language (Guiora, 1972). In this paper, we present empirical data from two studies that confirm the findings of other researchers in this field, and support the language ego permeability hypothesis. Both of these studies involved students conversing in IRC Français, a text-based chat environment for language learning. We observed that students in the text environment participate in class nearly an order of magnitude more often than they do with the same teacher in a face-to-face setting. This confirms work by Beauvois, Kelm, Kern and others. In a new analysis, we examine the nature of private communication in parallel to the public chat forum. The majority of these comments between students take place in the foreign language rather than the shared native language. We conclude with some suggestions of how the medium contributes to these changes and some implications of these findings for CSCL environments in other media and other domains.

Keywords

Computer-Mediated Communication (CMC), Inhibition, Foreign Language Learning, Text, Equality, Chat

INTRODUCTION

Roughly a decade ago, synchronous text-based chat environments first found their way into the classroom as a tool for foreign language education. This effort began as a way of helping deaf children to learn English through the Electronic Networks for Interaction (ENFI) project (Batson, 1993). Deaf children learning English only experience the language in its written form. They never have the opportunity to explore the playful interactivity of the language. To them, English is a fixed, boring language. Motivation to learn the language is difficult to impart to these students. The ENFI project sought to provide playful, English-based interactions in a forum that could easily include the deaf students. Since the chat conversations are in a written form, the students were able to use this media to actively engage in the language. As a result, dramatic improvements in motivation to learn were observed (Bruce, Peyton, & Batson, 1993). The deaf children seemed to thrive in this type of foreign language learning environment.

With the success of chat for deaf language education, a number of other foreign language educators began to look at the use of synchronous, text-based interactions for other types of language students. While students of other languages do have to contend with oral language in addition to written language, these researchers believed that chat could still play a positive role in their education. Much of the research on chat for foreign language learning has focused on explicating the nature of this role. The largest body of literature looks at power and dominance relations between individuals in the interactions. It is now widely accepted that interactions online tend to have a much more democratic quality with instructors speaking significantly less than they do in the classroom (e.g., (Kern, 1995)). Not only are teacher/student interactions more balanced, there is some evidence to suggest that gender differences are also reduced in the online environment (Wang & Hurst, 1997).

While relatively little work has been done on the learning outcomes of these environments (Ortega, 1997), a number of these studies have taken closer looks at the affective components of the online interactions. In these synchronous online environments, students exhibit higher levels of attention (M. H. Beauvois, 1992). They are more honest and candid toward those in a position of authority (Kelm, 1992). They get to know one another much better online than in the classroom environment (Beauvois, 1997). Finally, they tend to speak mostly in the foreign language; code switches into the native language – even among participants who all share a common native language – are relatively rare (M. L. H. Beauvois, 1992; Kelm, 1992; Kern, 1995). The student experience in the online environment seems to be rather different from the experience in the classroom. In none of this research, however, is

there a suggestion that the online environment should replace the classroom. Rather, online learning and classroom learning appear to play a complementary role in learning a language.

INHIBITION AND FOREIGN LANGUAGE LEARNING

The puzzling question to explain is: why do these changes happen in an online environment? We suggest that one possible explanation of this behavior lies in the fundamental problem of foreign language learning; that is, understanding what makes a foreign language difficult to learn might explain why different behaviors are exhibited in different learning environments. Most people can agree that learning a foreign language as an adult is difficult, particularly when compared with child language learning. Fewer, however, agree on the reasons, although the critical period hypothesis has received notable attention. In its simplest form, this hypothesis argues that something changes in the brain at some point that causes adults to approach foreign languages differently than native languages (Scovel, 2000). While the exact age and nature of this change are still being debated, the core of the argument rests on the belief that there is something fundamentally different about the way adults and young (enough) children approach language learning.

The language ego permeability hypothesis presents a different picture of this learning difficulty. This hypothesis starts from the understanding that humans project to others different aspects of themselves depending on how the individual wishes those others to perceive the interaction (Goffman, 1963, 1967; Ornstein & Ehrlich, 1989). By adulthood, many individuals are quite adept at projecting the “appropriate” image of themselves in any situation. While one only needs to look at politics to see the experts at work, all people engage in this type of behavior in every interaction. Learning a foreign language as an adult requires that the individual give up this control of presentation that comes from language use. Since individuals do not have the same control over the foreign language as over their native languages, they become inhibited about using the new language (Guiora, 1972). Therefore, adults do not receive the practice necessary to reach linguistic fluency. Unlike the critical period hypothesis, this view allows for the variation that is seen in ultimate levels of adult achievement. If it were true that fluency is impossible to obtain, we would not have the masterful works of English literature written by Joseph Conrad or Vladimir Nabokov.

Evidence for the language ego permeability theory suggests that improved performance linguistic performance can be obtained in a foreign language through the use of inhibition-lowering drugs. The Standard Thai Procedure (STP) is a methodology designed to obtain oral production measures from students learning to speak words in a distant foreign language in which they have had no previous exposure. Alexander Guiora and his colleagues ran a number of studies using this procedure to obtain evidence for this theory. In each case, all students participated in the STP procedure. Only the experimental group received the inhibition-lowering drug while the control group received a placebo. In the experiments using alcohol (Guiora, Beit-Hallahmi, Brannon, Dull, & Scovel, 1972), they found clear evidence that moderate amounts alcohol insignificantly lowered mental reasoning while significantly improving oral production skills. Studies with Valium (Guiora, Acton, Erard, & Strickland, 1980) and hypnosis (Schumann, Holroyd, Campbell, & Ward, 1978) found similar, though not as strong, results. While this is interesting evidence, it suffers from two weaknesses. First, oral production in a distance language being learned for the first time does not generalize well to more general language learning skills. Second, these types of techniques for lowering inhibition offer little in terms of practical classroom teaching methodologies. While a number of techniques for dealing with inhibition have arisen, few have been adopted. Inhibition still offers a challenge to the language learning process.

In a separate body of literature, however, the Internet has been credited with having the ability to lower inhibitions among those online (e.g., Joinson, 1998). If the Internet lowers inhibitions and inhibition difficulties are particularly salient in the domain of language learning, it makes sense that students in an online environment might exhibit the behaviors that have been observed online. Further, language ego permeability theory implies that the greater linguistic output demonstrated by the students in the online environment has effects beyond those credited to greater time on task. The fact that the output exhibits greater disinhibition contributes to language learning. By partially overcoming this barrier to language learning, online environments likely provide both greater language practice and more beneficial language practice. Language production in an environment marked by lower inhibition likely contributes toward deeper learning rather than only toward greater time on task. Further research into learning outcomes in online chat environments is needed to substantiate this claim¹.

¹ To date, the only quantitative research looking at learning outcomes of online chat environments for foreign language learning is that of Payne and Whitney (2002). This research suggested that strictly text-based interaction could improve oral production skills.

IRC FRANÇAIS

Over the past two years, we have involved students in online language learning conversations in a number of ways. Typically, seven to ten students participate in a conversation hosted by a teacher or a native speaker. This host, who is not necessarily the teacher of the students participating, acts as a party host would: s/he provides the seed to start the conversation and then participates like any other conversant. The host periodically takes more control of the conversation if the discussion seems to be waning. In both studies, we chose one semester at random and examined the interactions. During both semesters, all conversations followed this hosted model.

Each of these conversations took place using IRC Français, a real-time, text-based CMC client. At its core, IRC Français² is an Internet Relay Chat (IRC) client program. IRC is a text-based discussion space that allows users to interact with one another over the Internet. In an IRC environment, a number of individuals are synchronously located in the same virtual space, even though they may not be physically co-located. Each individual is able to type a short message (only a sentence or two) and have all others see it immediately upon pressing the return key. As new messages arrive, older ones scroll off of the screen.

We chose to design our own IRC client so that we could specifically tailor the software to the unique needs of foreign language learners (Soloway, Guzdial, & Hay, 1994). Most IRC clients present users with a vast quantity of information relevant only to expert IRC users. Unfortunately, technical details often cause students to get bogged down with superfluous information (Bruckman, 1997). By designing our own interface, we were able to eliminate many of the details that confuse non-technical students. Also, by designing our own interface, we were able to guide students with similar learning goals to the same virtual location. In an earlier pilot study, we attempted to provide students with authentic conversations by leading them to places where native French speakers were already conversing. Unfortunately, the experience proved less than beneficial to the students since the students and the native French speakers had little in common from which to start conversations (Hudson & Bruckman, In Press). In later studies, we found that shared learning goals can provide this important piece of common ground. Finally, we wanted to add the ability for students to use accented characters easily without remembering cryptic keyboard combinations.

In designing this software, we specifically chose to include a mechanism for private conversational asides. By this, we mean a comment that is outside of the main medium of conversation. In IRC Français, conversational asides are referred to as “whispered” messages. See (Cherny, 1999) for an in-depth discussion of conversational asides and other linguistic features of synchronous, text-based environments. These whispered messages are private messages between two individuals who are in the same public conversation. Others in the public conversation can see neither the content nor even the existence of these messages. As long as someone remains an active participant in the public conversation, no one is the wiser about the existence of these private messages. We chose to allow these types of messages for two reasons. First, whispered messages provide a forum in which students can ask for help from the teacher without public embarrassment. Second, whispered messages provide a way for students to maintain social relationships with one another without disrupting the public conversation.

In this paper, we present evidence from two studies that examine behavior in the online environment. In the first study, we examined the public conversations in the classroom and online. These studies essentially replicate previous research in the field. This further confirms the observed results of previous studies. Since our software was not used in previous studies, this suggests that a medium effect is contributing toward these results. The second study examined what happened in the note passing behavior in these conversations. We show that private messages largely flow between the teacher and the students. When the students do whisper with one another, however, these messages tend to be in the foreign language rather than the shared native language. In the sections below, we present the results of these two studies.

CONVERSATION IN THE TRADITIONAL CLASSROOM

Over one semester, we examined two second-year college French classes from two different universities in order to understand how classroom discussions contrasted with online behavior. Both classes were conversation-oriented and used a circular seating formation to encourage group discussion. We randomly selected lessons from both of these classes to videotape. Afterwards, we intentionally chose typical discussions for transcription and analysis. Below, we will show how each teacher was the dominant voice in classroom conversations. In this section, the teacher’s names have been changed for confidentiality.

² <http://www.cc.gatech.edu/elc/irc-francais/>

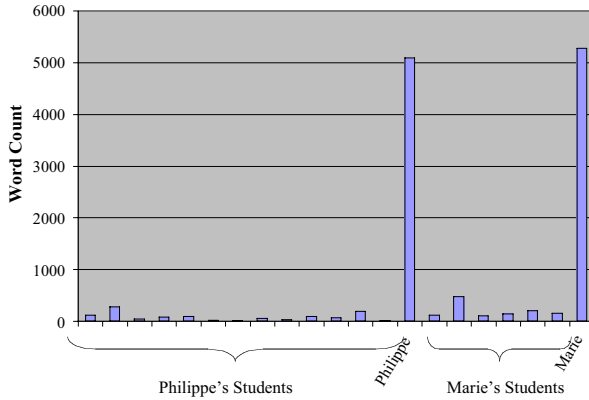


Figure 1: In the traditional classroom, teachers (Marie and Philippe) speak significantly more than any student.

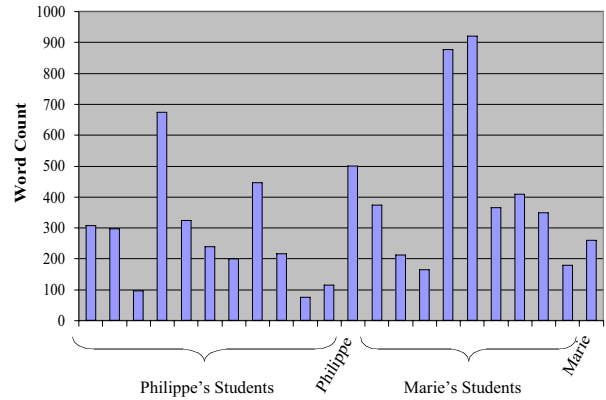


Figure 2: In the online environment, participation is much more egalitarian.

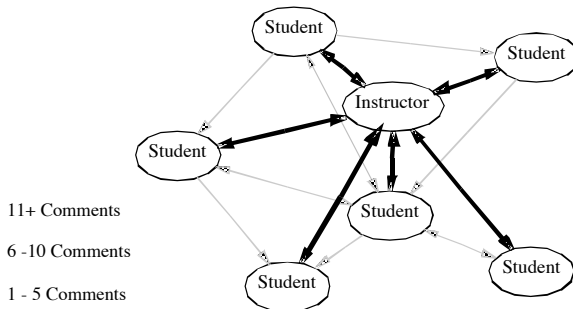


Figure 3: In Marie's traditional classroom, a social network analysis illustrates that she is the pivotal figure.

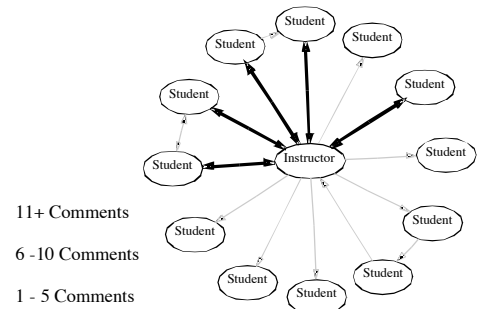


Figure 4: In Philippe's traditional classroom, a social network analysis shows that he is also the pivotal figure.

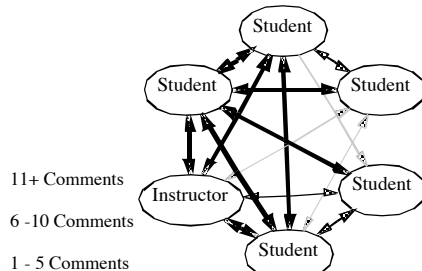


Figure 5: On Marie's online discussion, a much more democratic relationship between all participants emerges.

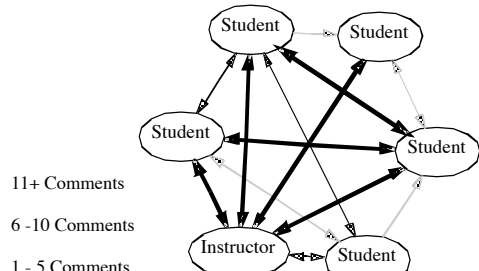


Figure 6: On IRC Français, the social network graph of Philippe's class becomes much more complete.

Marie

Marie, a native French speaker, is an excellent teacher and has the support of a large language department at a major university. The size of the department enables her to have a small class size – only six students in our study. She always has a cheerful attitude and specifically chooses open-ended topics to spur discussion. Based on the research relating to disinhibition in the foreign language classroom, Marie's class should be an ideal learning situation. Unfortunately, the students still do not feel comfortable talking in the classroom. When Marie asks a question to begin the discussion, she usually receives no response. Eventually, she must call on a specific student. In order to keep the conversation going, she finds herself forced to reply to each student comment. As a result, she is almost always the pivotal figure; the discussions are reduced to a series of one-on-one conversations involving Marie.

Not only does Marie comment between nearly every student comment, her fluency in the language means that she has significantly more to say. While students in our study averaged 6.71 words per turn, she averaged 25.04 words per turn. The result is that she spoke 82% of the total words while her students combined only spoke 18% of the total. Figure 1 illustrates that teachers in the classroom speak nearly an order of magnitude more than students.

As a result of this one-on-one pattern of interaction, students tend to direct comments to the instructor rather than to one another. Therefore, the instructor becomes the link between students; in the conversations, all comments focus on the instructor. Figure 3 shows a whole-network social network analysis for one class we examined (Garton, Haythornthwaite, & Wellman, 1997). Each edge in the network represents a comment specifically directed from one individual to another. Each comment might be a question, reply, or simply a directed comment. Gray edges represent one to five comments, black edges represent six to ten comments, and bold black edges represent more than ten comments. From this analysis, it is easy to see the striking degree to which the teacher is the pivotal figure in the classroom conversations.

Philippe

Like Marie, Philippe's cheerful attitude and well-chosen conversation topics make him stand out. In fact, students frequently take his courses simply because he is the teacher. Despite this, Philippe also experiences the same difficulties as Marie. In classroom conversations, his voice dominates; he spoke nearly 84% of the total words in the classes we examined. Like Marie, he needs to comment on each student statement, hindering student-to-student interaction. Again, this results in making him the pivotal figure in the conversation; all conversation passes through him. As he manages the conversation, he says significantly more than his students. While his students said 7.70 words each turn, he averaged 39.45 words per turn. These results are illustrated in Figures 1 and 4.

CONVERSATIONS USING IRC FRANÇAIS

During the spring of 2000, we involved four classes in a pilot test of IRC Français. We had each of the four instructors and a native French-speaking graduate student act as hosts for IRC Français-based discussions. Every week, we scheduled three, one-hour discussions and required each student to attend one of his/her choosing. The IRC Français software recorded transcripts of each conversation for analysis. Finally, we conducted in-depth interviews with five students and two professors. We only present information here from the two professors whom we studied in the classroom.

IRC Français-based conversations, in fact, seem to have little in common with classroom discussions. The same group of instructors and students (though in different combinations) approach conversations differently depending on whether they are held online or in the classroom. Students tend to talk more; instructors, less. More complex conversations arise. In this section, we explore online discussions hosted by the two teachers previously examined.

Marie

Marie became the pivotal figure in the classroom largely because no one answered her attempts to begin discussions. When she asks a general question online, however, she frequently receives a flood of responses. Almost all students seem to participate in the conversations with no provocation. As a result, she could relax control and let the conversations develop among the students.

In the online environment, Marie spoke much less often, speaking only 6% of the total words. Her comments became much more equal to students comments; she averaged 7.08 words per turn while the students averaged 6.07 words per turn. Typically several students would comment between each of Marie's comments. While she continued to ask both general questions and questions targeted at specific individuals, the students began replying much more to one another. In fact, whispered comments – the online equivalent of passing notes – were almost always written in French. From this student-to-student interaction, a much more complete social network graph appeared. See Figures 2 and 5 for illustration of these patterns.

The first time she hosted an IRC Français-based conversation, the amount of French generated by the students surprised Marie. At the time, she commented on how shocked and excited she was that she could not type fast enough to insert her opinion. The students took control of the conversation, not waiting for her mediation before replying. Often, she found the students had taken the conversations in a different direction before she had a chance to respond. She was surprised about this, but fascinated that the simple mediation of an online environment seemed to draw the students out. While her experience suggests a concern about students potentially getting left behind if they cannot type fast enough, no students cited this as a problem.

Philippe

When hosting discussions on IRC Français, Philippe faced the same situation as Marie – students who never seemed to talk in class rapidly joined into the conversation online. In fact, the students frequently took charge of the conversation. In one discussion, Philippe's suggested topic of discussion was to compare the attitudes of Americans and the French with respect to women in the workforce. One student, however, had broken up with his girlfriend the

previous evening and really wanted to talk about that experience. The other students online decided to give this individual the emotional support he needed, ignoring Philippe's topic until significantly later in the conversation. Philippe found this exciting since it met his primary goal – to engage the students in the French language.

Like Marie's experience, typically many students commented between each of Philippe's comments. Using IRC Français reduced his talking time from 84% of the words spoken in the classroom to 14% of the words spoken online. Students still averaged 6.04 words per turn in these discussions, but he decreased from 39.45 words per turn to 7.58 words per turn. Again, we see Philippe becoming a more equal force in the conversations as the social network graph became much more complete. See Figures 2 and 6 for this data.

CONVERSATIONAL ASIDES

Over the course of the following fall semester, we examined whispered comments during the online conversations. Overall, whispered comments were relatively rare, but a couple of patterns did emerge. Of the twenty-four hours of text-based conversations, only ninety-seven comments were made using the whisper feature. In light of research showing that high levels of participation in these types of foreign language learning environments (e.g., (Hudson & Bruckman, 2001; Kern, 1995)), this confirms that the "rapt attention" observed by researchers (e.g., (M. H. Beauvois, 1992; Kelm, 1992)) is being focused into the conversation at hand, rather than into social asides. Students spend a much larger percentage of their time conversing in the public discussion than in private communication. This lends some evidence to the hypothesis that students spend more time on task in the online environment than in the classroom. This hypothesis, however, is countered with the observation that students working on non-collocated computers in different locations have many more ways of having their attention drawn away from the assigned task. Email, roommates, television, and a myriad of other things can pull a student's attention away from the conversation. Additionally, there is some evidence from interviews that students use other media such as ICQ and AOL Instant Messenger for these private discussions. Therefore, we can only make specific claims about what happens in the private communication supported by IRC Français. Finally, a somewhat more cynical hypothesis argues that the students were only online to fulfill their class requirements. Therefore, they only participated in the public conversation because this is all that they receive credit for. This, however, does not explain the increase in conversation in the public environment. Further research is needed to understand why private conversations were sparsely used in these foreign language learning discussions.

What we do see in these private asides, however, is somewhat surprising. In beginning this study, we expected to see two patterns emerge through the whispered comments. As we discussed above, students often commented on the peer support in the online community. As one student said, "I got to know [the others] better online than I ever would have in class." This type of community-based support for the learning process seems to be rather important to the excitement the students exhibit toward the environment. This led us to believe that the majority of the whispered comments would involve students talking with other students. Whispering would be a private forum where students could engage in completely social activities away from the watchful gaze of the teacher.

Our second prediction involved the language used in these private discussions. Because of the way that students work in groups in the classroom, we felt that any private discussion between students would most likely be in English. Both observation of classrooms and discussions with students leads us to believe that the majority of small group discussions in the foreign language classroom take place in English. Students find it quicker and easier to negotiate the challenge presented in their native tongue and, as a result, tend to avoid using the foreign language whenever the teacher is not observing. It makes sense that this same mentality would carry over to discussions taking place in an online environment. We would expect that students conversing without a teacher present would use a shared native language rather than a shared foreign language. Therefore, we predicted that the majority of whispered comments between students would be in English.

In examining the whispered comments in IRC Français, we expect that we would see two patterns:

Hypothesis 1: Students predominantly use whispered comments to speak with one another rather than with the teacher.

Hypothesis 2: Students speaking with one another through whispered comments use their shared native language rather than the foreign language being learned.

Results

With both of these predictions, we were surprised. Figure 7 illustrates the number of comments in each language. Comments involving the teacher include the teacher as both sender and receiver. Both hypotheses proved to be incorrect. Contrary to hypothesis one, students spoke more often with the teacher than with other students. The

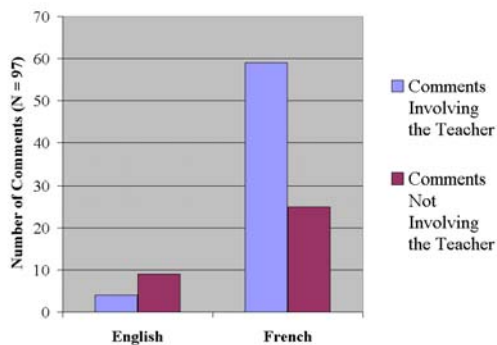


Figure 7: The majority of private conversations involved a teacher. Surprisingly, nearly two-thirds of the comments not involving the teacher occurred in the foreign language. (N = 97)

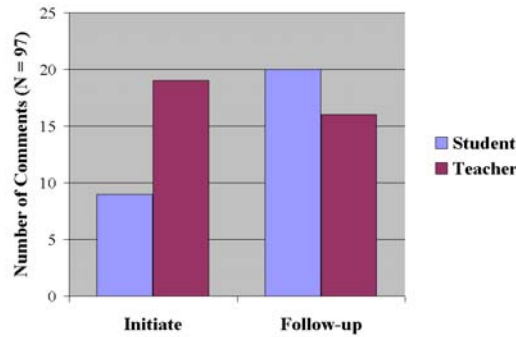


Figure 8: While the teacher initiated the majority of private conversations, students still initiated one-third of the conversations. Each conversation received an average of 1.29 replies. (N = 97)

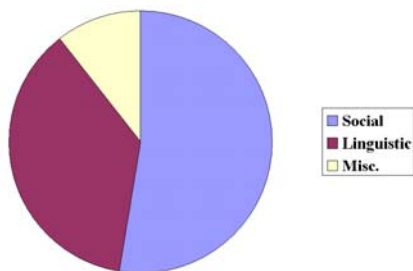


Figure 9: Teachers initiating private conversations with students focused on social issues most often. They did frequently make linguistic comments, however. (N = 19)

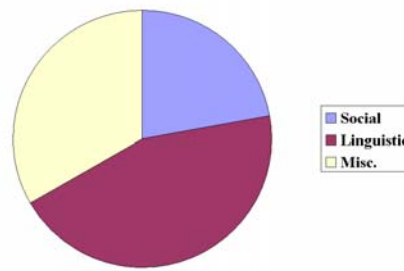


Figure 10: Students initiating private conversations with a teacher often focused on linguistic difficulties. The sample size is extremely small, however. (N = 9)

teacher was one of the participants in nearly 65% of the private comments³. Contrary to hypothesis two, the majority of the whispered remarks took place in the foreign language. This is true overall, for comments involving the teacher as one of the participants and for comments not involving the teacher. Therefore, students conversing with one another in comments that cannot be seen by a teacher still use the foreign language. Something about the environment changes their attitudes toward the use of the foreign language for learning. Decreased inhibition is evidenced by the fact that 74% of comments between students take place in the foreign language. Students are more likely to use the foreign language than their native language in their private conversations online.

The high level of teacher involvement in the private comments led to another set of interesting questions: if the teacher is participating in a number of private conversations with students, who is initiating these conversations? Are students asking for assistance or is the teacher providing unsolicited feedback? Are the comments involving the teacher even about feedback or are they social? The answers to these questions are examined in Figures 8 through 10. Of the sixty-three comments involving the teacher, there were twenty-eight initiations and thirty-five replies. Teachers initiated the comments nearly twice as often as the students did, but the students actively responded to the comments that the teachers made. The average thread depth of these discussions was 2.3 comments. Therefore, there was some level of back-and-forth in each private discussion.

³ Note that four of the ninety-seven comments did involve a teacher, but were classified as involving only students. These comments were classified as this way since the sending student believed he was initiating a conversation with another student rather than with the teacher. Because the teacher's name and the desired recipient's name were similar, the student became confused. Therefore, these comments were classified as being between students since that was the initiator's intent.

For each time the teacher initiated the discussion, Figure 9 indicates whether or not the comment was social or linguistic. When the teacher is acting as a participant in the conversation, these comments are largely social. When the teacher is acting as an expert in the language, however, the comments are largely linguistic. We also included a category of miscellaneous to cover comments relating to issues such as the logistics of class. While the majority of the teacher's initial comments were social, linguistic comments did represent 37% of the comments. These linguistic corrections were often brief, passing corrections. In one example, the teacher simply wrote "en fait" to a student who had used "en fete" in the primary conversation. In another case, the teacher wrote "Sacre Coeur" to the student who had written "Sacre-coure". The students, however, requested linguistic feedback more frequently than they initiated social contact, as shown in Figure 10. Since the sample size for students is extremely small, it is difficult to make any generalizable conclusions about their behavior.

DISCUSSION

Students who refuse to speak the foreign language in classroom situations reverse this pattern and speak significant amounts in similar situations in the online environment. We suggest that it is because the online environment reduces the level of inhibition that the students face. When inhibitions are lowered, students are more willing to engage the discussion as if it is truly a foreign language discussion. Each student feels that s/he has less to lose through using the foreign language in the online environment than in the classroom. Peer pressure contributes in the classroom to a fear of publicly making mistakes. The online environment reduces this type of peer pressure, however. As one student commented:

It's ok that I was going to make mistakes speaking French [online]. I'm not a native speaker and even if I were, I would make mistakes. That helped me realize that I could speak and that I wasn't going to be ridiculed for anything I said. ... I'm not scared to speak French now.

This also led students to feel that stronger friendships developed in the online environment. A number of students echoed this comment that one made:

I think it allowed us to get to know each other better. ... You learn about [the others] as people. We would talk about relationships and all kinds of things that you wouldn't talk about in class.

If we accept that reduction of inhibition occurs in online foreign language learning conversations, we are still left with the difficulty of explaining this process. Why would students who know one another behave radically differently depending on the medium in which they interact? Since these are the same students conversing with one another, we cannot argue that they have less to lose in the online discussions than in the classroom discussions. Rather, it is that the students perceive that they have less to lose. We cannot explain this phenomenon based on any argument about the familiarity of the discussants with one another; all know the others, but behave differently depending on the medium. This leads us to believe that the explanation lies partially in a media-richness argument (Sproull & Kiesler, 1991) and partially in an immediacy argument.

Some media allow for interactions with more richness than others. Voice discussions add intonations that text cannot match. Face-to-face conversations allow for gestures and expressions that cannot be conveyed in audio alone. In these rich environments, social mechanisms developed over a lifetime inform our behavior unconsciously. A less rich media, such as text, removes a number of the social cues that allow these mechanisms to come into play (Erickson & Kellogg, 2000). As a result, interactions in less rich media tend to be less governed by "natural" human social processes. This leads to a reduction in feelings of inhibition. It is exactly for this reason that a richer medium may be inappropriate for foreign language learning discussions. When researchers began looking at foreign language conversations in online environments, they naturally focused on text. Other CMC media were technologically infeasible at the time. With the rapid technological increases in the past decade, other media are available. Particularly audio conferencing and videoconferencing are now available. Given the oral aspects of languages, many researchers are interested in understanding what would happen if language learning conversations took place in an audio-based environment or even a video-based environment. In an environment where more social mechanisms come into play, we may find that students' behavior does not demonstrate this type of disinhibition. The sparseness of a text-based online environment prohibits certain negative social mechanisms and biases from arising.

The immediacy argument holds that the delay between message composition and message receipt allows students to feel more comfortable taking risks. In face-to-face conversations, individuals have clearly designated turns at which they must speak. These turns come from a complex intermingling of factors such as gesture, expression, and eye contact (Kendon, 1967; Vertegaal, Slagter, Veer, & Nijholt, 2000). In online environments, however, many of those guiding mechanisms disappear, making the traditional notion of turns relatively meaningless (Cherny, 1999). For

example, a conversation can continue, even when someone has specifically been questioned. An individual can comment whenever he/she wants without waiting for the floor to be relinquished. As one student commented:

People are not staring at you when you're talking. You're not put on the spot, basically. If you want to respond to something someone says, you can. And if you don't, you don't.

Students felt more freedom to speak since they could compose a message before sending it to others. Many mistakes in composition can be corrected before anyone sees them. A slight time delay was available for students to work through problems or figure out complicated grammar. At the same time, however, conversation progressed; a comment needed to be formulated within a socially limited amount of time before it became irrelevant. The dictionary could be consulted for one word, but not an entire sentence. The time pressure of real-time conversation remains, but a small delay seems to encourage greater participation.

This leads to two implications for efforts on distance education. First, online environments can provide powerful learning environments. It is possible for an appropriately designed environment to highly motivate students to participate in the learning experience. The online environment can help to hand control of the learning over to the students, increasing the likelihood that students will absorb and remember what they learn (Guzdial, 1999; Scardamalia & Bereiter, 1991). They can allow students to make personal connections with powerful ideas (Resnick, Bruckman, & Martin, 1996). They can provide an environment that students of multiple different personality types can enjoy and use to discover aspects of their own identity (Beauvois & Eledge, 1995/1996; Turkle, 1984, 1998). They can provide strong anchors from which classroom discussions can emerge (Furstenberg, Levet, English, & Maillet, 2001; Guzdial, Rick, & Kerimbaev, 2000). These benefits of online CSCL environments, however, come with a word of caution. All of these studies pointing to benefits have used text-based environments. It is possible that the benefits that come with reduced inhibition will not be seen in more realistic environments, such as audio- and video-based communities. Therefore, a distance education environment that is simply seeking to recreate a classroom experience over the Internet might be heading down the wrong path (Bruckman, 1999). The Internet is a series of powerful new media that can be used to introduce significant changes in the way the educational process works. Striving to design strong CSCL environments is not the same as attempting to design realistic environments on the Internet. Sometimes, getting rid of a little reality can be a good thing.

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