

TOWARD AN EFFECTIVE INTEGRATION OF TECHNOLOGY: MESSAGE BOARDS FOR STRENGTHENING COMMUNICATION

Arif Altun, Ed.D.

Department of Computers and Instructional Technology Education
Nigde University & Abant Izzet Baysal University
altunar@ibu.edu.tr

ABSTRACT

This paper reports on preliminary findings from a longitudinal study on the integration of multimedia and the internet technologies into language teaching. Phase I of the study included novice computer users' approaches to multimedia design. Phase II explored the correlations between their attitudes and cognitive styles; and Phase III focused on their attitudes and beliefs about the use of computer-mediated communication (CMC) tools. The current paper discusses and reports the findings from the last phase. A total of 53 students from the department of English Language Teaching (ELT) at Abant Izzet Baysal University (AIBU) voluntarily participated in the study. An integrated message board system was designed and adopted for an elective computer assisted language learning course (CALL) for students in the ELT program. 26 students were enrolled in this course. The data was collected through several sources. One source was an attitude questionnaire toward computer-mediated communication. Students' asynchronous correspondences constituted the other part of the data. Also, students' personal reflection journals were gathered as another source of data. The data was analyzed both quantitatively and qualitatively. The findings of the study indicated that students generally tended to develop positive attitudes toward using asynchronous communication tools in their language teaching program. Also, no attitudinal changes in their attitudes toward CMC were observed. Finally, students expressed positive reflections about the use of CMC tools and their integration into teaching.

INTRODUCTION

This paper reports the findings from the phases about the integration of multimedia and the internet technologies into language teaching. The integration of computer mediated communication tools into language teaching gave impetus to the idea of exploring how language learners would approach these new tools. In addition, as more and more campuses are being wired and initiating attempts to integrate web based instructions into their policy and future accomplishments, it is important to assess learners' attitudes and reflections and implement those CMC tools for developing sound rationale for such purposes. Although this project is a multi-phased longitudinal study, only students' attitudes and reflections about the use of CMC tools were reported here.

Computer Mediated Communication

Computer mediated communication provided asynchronous and synchronous interactivity to participants within the domain of distance education. CMC is a generic term commonly used to refer a variety of systems that enable communication with other people by means of computers and networks (Romizowski & Mason, 1996). CMC can both be synchronous and asynchronous depending on the selected tools.

The use of CMC tools led {to the emergence of many online communities} in virtually created environments. These online communities are also defined as communities of practice where the parties "come together around mutual engagement in an endeavor. Ways of doing things, ways of talking, beliefs, values, power relations- in short, practices- emerge in the course of mutual endeavor" (Eckert & McConnel-Ginet, 1992, p. 464).

The introduction of those online communities of practices has been explored by many researchers from various standpoints. For example, in a research study, Tyan & Hong (1998) integrated CMC tools into a Business Policy course at National Taiwan University to assess participants' attitudes toward CMC and their reflections on using CMC tools in their courses. They found that students developed positive attitudes toward using CMC tools in their classrooms. Moreover, students also expressed that the integration of these tools facilitated communication among their peers and instructor after school hours.

In another research study, Ross (1996) explored the experiences of 15 practicing teachers in a graduate distance course delivered on an asynchronous electronic conferencing system. The main research question was to analyze how participants' communication skills affected their participation in a CMC course and the role of prior knowledge of course content as related to their communication skills. Ross (1996) claimed that the level of computer skills in using these tools affected participants' contribution to the communication process and their ability to solve the given problems within this environment. Ross (1996) went further to suggest that no differences in participation in class discussions were observed regardless of whether the students' communication skills were weak or strong.

In a more recent research study, Stevens & Altun (2002) investigated foreign language learners' experiences in joining an online community (Webheads) from a distance. In their study, the researchers asked a group of students studying English as a foreign language to join an online community by using synchronous CMC tools. The findings indicated that students showed a keen interest in repeating this event again to meet online. Instead of feeling like a foreigner in the community, they seemed to find something in common to further carry on the conversation. It was concluded that English and the Webheads online community created a purposeful environment for EFL students to join and be part of the community.

To conclude, integrating CMC tools into educational settings is new avenue for educators to explore for designing and delivering educational materials through CMC tools. The effectiveness of these emerging communities as community of practice, however, is subject to participants' approval and/or rejection. Therefore, it is important to explore the participants' attitudes toward and reflections about using these tools in their learning processes.

Message Boards

Message boards are web based forums where participants engage in asynchronous discussion with their peers. While current web based communication tools emphasize chat, instant messaging, and desktop video conferencing for real-time communication, message boards allow individuals to become engaged in different settings where they can discuss the same topic at differing times in participation. Consequently, this tool provides instructors an opportunity to integrate asynchronous communication tools in language learning process where communication is extended beyond the classrooms.

As reported elsewhere, the use of asynchronous CMC, i.e., message boards, in education is more common than synchronous CMC tools (see, Bageci-Kilic, 1999). According to Wiesenber (1995), the advantages of using asynchronous CMC tools are convenience, promoting interaction, fostering a higher quality of learning, and presenting a number of resources online. Convenience is important in that learners can choose when to participate regardless of geographical barriers, distances and time.

Asynchronous tools also foster the thinking process in that participants would have enough time to think before they contribute. Moreover, instructors or participants can deliver resources and links to other related materials via asynchronous CMC tools. In a recent study, Thomas and Hofmeister (2002) investigated the effectiveness of integrated message board systems into teaching. The researchers investigated whether the cognitive complexities of students' responses by using the message boards would differ according to prompt types. Students were provided various types of prompts to reflect upon. The researchers predicated that the more engaging and interactive the learning activity, the greater the increase in cognitive complexity. Therefore, they concluded, the infusion of message boards into the teaching process would help students develop higher order thinking processes, when designed and moderated effectively.

In another research article, Vonderwell (2003) explored the asynchronous communication perspectives and experiences of undergraduate students in an online course from qualitative paradigm. Vonderwell (2003) found that CMC was a drawback in terms of collaboration among students; however, an opportunity to communicate with the instructor for learning interaction. Secondly, she reported that students sought to construct interpersonal relationships with the instructor, rather than asking questions in public. Thirdly, students expected consistent and timely feedback from the instructor. Vonderwell (2003) concluded that online instructors need to carefully utilize the web technologies for collaboration and interaction. Moreover, providing discussion or collaborative activities alone does not necessarily make students active participants in the communities.

Purpose of the Study

Although the integration and use of message boards in language teaching processes is not a new topic, more studies are needed to better understand the efficacy of technology integration and to establish a knowledge base for effective planning and implementation of successful learning environments. Moreover, most studies emphasize somewhat moderate or expert computer users' experiences. How first time users would approach this new technology, however, is an important question to be explored. The research questions asked in this study are as follows:

1. What are EFL students' self-perceived attitudes toward communicating on computers?
2. Does access to computers and networks play a significant role with respect to EFL student's attitudes toward new information technologies—the message boards?

3. Is there a significant difference between EFL students' attitudes toward communicating on computers after using message boards in their teacher training courses?
4. What are EFL students' reflections toward using asynchronous CMC tools?

METHODOLOGY

Participants:

The participants in this study were 52 prospective English teachers enrolled in two different courses (Computer Assisted Language Learning, Methods in Language Teaching). Eleven participants were male and 41 of them were female. None of the students had any previous experience using an asynchronous forum messaging system or other electronic conferencing system before. In addition to their departmental courses, all participants had received a formal instruction on a basic computer course (This course included basic concepts in using computers (such as keyboarding and using mouse) and word and math processing office programs. This course was a mandatory for all education students at the college of education). However, none had an earlier experience with using any kind of asynchronous communication tool.

Teacher Trainees' Attitudes toward Communicating on Computers Questionnaire

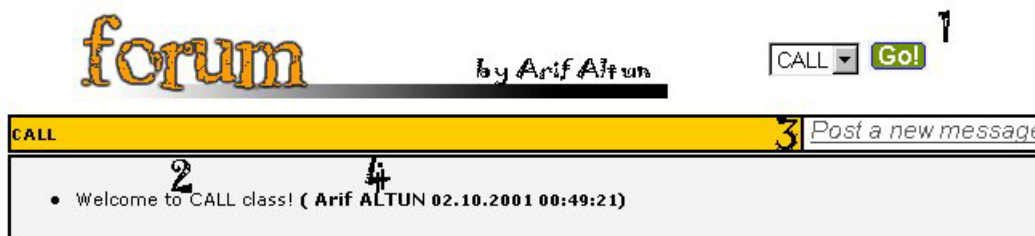
The Teacher Trainees' attitudes toward communicating on computers questionnaire (ATC) was administered to each participant during the first and last weeks of the semester. The purpose of administering the ATC was to address the participants' attitudes and perceptions of communicating on computers in education prior to their classes and after completion of their semester. The ATC included 10 items in a Likert type with six categories: Strongly Disagree, Disagree, Barely Disagree, Barely Agree, Agree, and Strongly Agree coded from one to six respectively (See, Appendix A).

The ATC was first adopted by Bagci-Kilic (1999) as a subscale in an attitude questionnaire. The reliability of the scale was reported to be .82 for the subscale. Another reliability analysis was calculated for this study, and it was found .69 after excluding one item in the subscale. Content validity for the ATC is believed to be quite high due to the way the instrument was constructed.

Web-Based Forum Design

Before the classes started, a web based forum system called CALL Forum was developed and placed in the context of course web pages. Students were asked to register with their own username and passwords before they were allowed to participate in forum discussions. The CALL Forum served as an online agora for students and the course instructor. Students' postings during discussions through the CALL Forum constituted the majority of the qualitative data (Figure 1).

Figure 1: A screenshot from the CALL Forum webpage



1. Group selection; 2. Title of the Message; 3. Sending messages; 4. Sender's information

Reflection Papers

In addition to the questionnaire and web-based discussion forum, students were asked to occasionally write reflection papers. It was explained to students that because this type of communication is new to them, they should reflect upon their experiences. These reflection papers were also collected at the end of the semester to be analyzed.

Data Analysis

The data was analyzed using SPSS 11.05, and basic descriptive statistics (mean and standard deviations) were computed for the data (Research Question 1). The mean differences among students' access to computers with respect to their attitudes (Research Question 2) and among their attitudes toward communicating through computers before and after using the message boards in their courses (Research Question 3) were analyzed using Mann-Whitney U statistics.

An analysis of the completed reflection papers was included as written data, as well (research question 4). Students' reflections were collected so as to provide insightful perspectives to our understanding of the efficacy in integrating message boards into the teaching process. Initially, a detailed report for students' interaction was gathered through the database. Secondly, this data was converted into a word document. Lastly, the data was used depending on the content of interaction.

FINDINGS AND DISCUSSION

Initial Reflections on Using Web Based Forum

The purpose of this study was to investigate EFL students' attitudes and reflections upon the use of computer-mediated communication (CMC) tools, of message boards in particular. The first research question was designed to explore EFL students' initial reflections on using message boards integrated into their teacher training courses. Since this was a new medium for all of them, it might shed light upon the issues we need to consider when integrating asynchronous communication tools into language teaching curricula.

Firstly, students perceived message boards as a convenient communication environment. Since they communicated with others through writing, they perceived this way of communicating as an advantage. In her reflection paper (RP), for example, Sema wrote:

“you can communicate with writing. When you write, you can write at any speed you want. You can also correct yourself while you are writing. However, there is no chance for you to correct yourself at the time of speaking as it was in writing”. Sema (RP # 4)

However, the idea of using message boards was pretty vague for some students. Moreover, this new medium also raised some concerns among students. Emel, for example, considers message boards as a discussion arena yet to be seen. She writes in her journal:

Discussing something through the Internet is a new expression for me. Since I haven't entered the webpage yet, it is a bit difficult to understand what the teacher talked about. I will try to enter this page and will see what the teacher means tomorrow (RP # 2).

She also raises her concern by saying: “The teacher said that we were going to discuss something about the course through the Internet. But I think that we couldn't find enough time or enough computer for this” (RP # 2).

In the following reflection, Emel follows up on her concern:

At the first week, I thought that the discussion through the internet was difficult and we couldn't do this. But now I see that we can do this. When I sat in front of the computer and wrote something, entered somewhere, it seemed so enjoyable. I think that I can find enough time for going Internet and discussing something through internet (RP # 3)

To conclude, initial beliefs tend to signal concerns and anxiety. However, it required some experience to understand and benefit from this tool. Students first considered this activity as an extra burden and time consuming activity. When they used the system, their concerns and anxieties faded away, and they started to enjoy using this tool.

Attitudes toward Communicating on Computers

Mean scores and standard deviations from the attitudinal Likert-type questionnaire are displayed in Table 1. An examination of these scores reveals that most participants had positive attitudes towards interacting with the Web-based forum.

Table 1: Mean Scores for the Attitudinal Likert-Type Questionnaire (n = 53)

Likert Scale: 1 = Strongly Disagree, 6 = Strongly Agree	
1. Computers are effective for communicating with other students about class related work	Mean = 5,08 SD = .79
2. Computers are effective for communicating with other students about non-course related subjects	Mean = 5.11 SD = .70
3. Computers are effective for communicating with instructors about non-course related subjects	Mean = 4.7 SD = 1.07

4. Computers enable me to interact more with instructors Mean = 4.3 SD = 1.3
5. Communicating with computers (e.g. e-mail) makes it easy to maintain relationship. Mean = 5.2 SD = .93
6. Computers provide a non-threatening way to communicate Mean = 4.85 SD = 1.18
7. Computers allow me to communicate with people I would not normally be able to communicate with Mean = 4.97 SD = 1.34
8. The use of e-mail gives me an easier access to instructors. Mean = 4.74 SD = 1.1
9. Communicating with professors by e-mail is generally gratifying. Mean = 4.7 SD = 1.04
Overall Mean = 43,70* SD = 5,1977
<i>*The highest possible score is 54</i>

The results indicate that students tend to be strongly agree with using CMC tools to maintain relationships with their peers about course and non-course related topics ($\bar{x} = 5.08, 5.11$ respectively). It is also noticeable that they have positive attitudes toward communicating with people they would not normally be able to communicate with ($\bar{x} = 4.97$).

However, they tend to barely agree with the idea of interacting more with instructors through computers ($\bar{x} = 4.3$). This finding is understandable in that the instructors are available in the building, and there is no geographic barrier for students to see the instructor. As Eda puts it in her reflection paper, they may further question why they write on the computer where they can actually see the instructor.

since we come together on this line, we all know where everybody is visiting. Then, let's have a face to face communication (RP # 7)

As a follow up to the attitude questionnaire, a Mann-Whitney U test was conducted to test for significant differences in attitudes towards communicating on computers categorized by perceived access differences. Twelve students expressed that they couldn't access the message board on the web outside the school. These students did not have access to the Web in their homes and had no access or had limited access to the web. When students' attitudes were compared with those who had an easier access, no significant differences ($p > .05$) in their attitudes towards using message boards were found (Table 2).

Table 2
Access to a Networked Computer Outside School and Attitudes

Computer Access	N	Mean Rank	Sum of Ranks	U	Z	P
Yes	41	27,23	1116,50			
No	12	26,21	314,5	236,5	-.20	.83
Total	53					

Some researchers asserted that easy access to computers might turn the networked environments into convenient places (i.e., Anderson & Harris, 1997) to promote computer mediated communication. Honey and Henriquez (1993) also reported that inadequate access to telecomputing facilities from school buildings was among the most frequently cited barriers to using networks in schools. Moreover, it has also been reported that the lack of convenience would just be a barrier to using an electronic network (White, 1997; Zimmerman & Greene, 1988). The findings in this study, however, suggest the idea that accessing to a networked computer either at school or outside school do not make a significant difference in students' attitudes toward communicating on computers. In other words, they do not perceive it as a barrier to keep them from using the web based forum system for communication purposes.

Attitude Change toward Communicating on Computers

One specific concern of this study was to observe the difference in students' attitudes after they participated in a web based discussion forum. Table 3 shows the statistical results of Mann Whitney U test.

Table 3: Pre and Post Test Mean Differences in Attitude scores (for n = 26)

Items	Mean Ranks (Pre)	Mean Ranks (Post)	U	Z	P
Item 1	23,60	29,4	262,5	1.5	.12
Item 2	19,27	33,73	150	3.78	.000*
Item 3	23.67	29.3	264.5	1.4	.16
Item 4	28.3	24.7	291	.89	.37
Item 5	24.25	28.7	279	1.17	.24

Item 6	24.3	28.7	280.5	1.11	.26
Item 7	27.1	25.9	322.5	.30	.76
Item 8	22.9	30.1	244.5	1.8	.84
Item 9	26.1	26.8	328	.19	.84
Total	23.3	29.6	255.5	1.51	.13
*p< 0.05					

A Mann-Whitney U test was conducted for each item in the questionnaire to test for a significant difference in students' attitudes toward communicating on computers. The only significant difference was found for Item 2, which was "computers are effective for communicating with other students about non-course related subjects". This difference indicates that when students gained experience more with asynchronous CMC tools, they may pursue to use of such tools into their future careers.

Moreover, it should also be noted that there is a mean increase in all other items except in item 7. While most students indicated that they would communicate with people they would not normally be able to communicate with, their experiences with the message board tend to change their attitudes in this manner.

CONCLUSION

This study was designed to determine EFL teacher trainees' attitudes and personal reflections toward using asynchronous communication tools in their learning process. Having interacted with a web based forum system, students had experienced of using a message board system for the first time. Their initial attitudes were found to be highly positive toward using CMC tools. There was found no significant differences between students' pre and post test results with regards to their attitudes toward CMC tools. Moreover, students expressed a keen interest in using such tools in their professional development; yet, they were cautious about the need of using such tools where face to face communication is more convenient.

In traditional pre-service teaching programs, most discussions and communication take place in formal settings and in classrooms. As web-based tools were integrated into teaching pedagogy, pre-service teacher trainees had the opportunity to engage in group discussions where they shared their opinions, experiences, comments, concerns, and questions. These extended activities are believed to be well-suited to promoting interaction outside of the classroom among teacher trainees as indicated by Tyan & Hong (1998) as well as promoting the idea of being reflective learners.

Students initially considered online communication as a time consuming activity. According to Wilson and Whitlock (1998), the majority of students did not become involved in extra work that was available to them because they said it was too time consuming. The students in this study also emphasized the concern of time consuming nature of tasks. With consistent and timely feedback for students' questions and comments, this process has been turned into an enjoyable interaction among participants.

Message board was a new concept for the participants in this study. Although they had never experienced communicating on the computers in such a system, they expressed positive attitudes toward it. Students' positive attitudes might also contribute their acceptance of using the system as an enjoyable tool. Moreover, as expected, there were no changes observed in students' attitudes since their attitudes were already high enough to embrace this new tool in an educational setting.

The findings of this study indicate some suggestions when considering the integration of asynchronous tools for novice users. Based on the findings of this study, some suggestions/recommendations can be made for teachers interested in adding asynchronous tools to their classes. First, enough time and clear instructions should be provided to participants during the initial messaging stage. During this stage, most participants might be resistant to participating in discussions. They tend to expect prompt and consistent feedback, especially from the instructor. Therefore, the instructors should use instructional and communication strategies to eliminate the delay in their responses.

Secondly, students' positive attitudes contribute to their acceptance of and participation in such an online learning community. These asynchronous communication systems would definitely contribute to train future teachers to be reflective practitioners and active learners. Having belonged to a professional online community, future teachers will be able to initiate such online communities where they would share their teaching experiences, problems, ideas, and pedagogical resources. Therefore, it is highly recommended to further integrate these tools into pre-service and in-service teacher training programs.

In conclusion, the integration of a message board into teaching process was "... both hard, exhausting, laborious and useful, enjoyable and fun" (Ercan, PR # 14). Such integration of multimedia and internet technologies into teaching with novice computer users is always going to be a challenge. However, positive attitudes and students' willingness and cooperation definitely support instructors and teacher training departments to utilize new technologies in their programs. Future studies including a longer period of time and the use of both synchronous and asynchronous tools are definitely needed to better understand the components of web based instruction. Such research studies will contribute to our understanding of online communication discourses and to help us develop an online community of active and reflective practitioners.

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