

USING "NetTutor" FOR CONDUCTING ONLINE INTERACTIVE OFFICE HOURS

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Background:

Teaching mathematics has never been easier until I used "NetTutor" in one of my Calculus courses. NetTutor is a collaborative distance learning tutorial environment. An ideal software for online interactive mathematics tutoring as it contains click-able buttons for mathematical operations, symbols and Greek letters. Besides lecture hours, most of the schools require that the instructors be available for few hours to help students. The instructors set these hours according to their convenience - during free time between classes. These hours fall during peak hours of classes and students cannot get helped. I have been helping my students during the office hours and off the office hours. Those instructors who hold extra help sessions in Calculus very well know that number of the students show up for this is more than those who come to office during office hours for help. This clearly shows that the conflict is in time. I had always dreamed for a tool/software/environment with features like "NetTutor". Soon after coming across this, I managed to get it and decided to use it in one of my Calculus courses.

The Software:

NetTutor is a web-based collaborative software that can be used for online interactive tutoring and for holding group discussions. It resides at a centrally located server that all the participants can access, and tutoring/discussion takes place on a common screen called WWWhiteboard (Figure 1). Though other software can be used to hold tutoring/group discussions, NetTutor is the one that I know of, has buttons with Greek Alphabet and Mathematical symbols/operations. The software allows meaningful interaction both in synchronous (real-time) and asynchronous (anytime) modes. This tool accomplishes its tasks using few convenient centers: Virtual Classroom, Question and Answer Center, Message Center, Archive Center, Management Center. Besides these centers, Users/Reference Manual is always only a click away from the users. The features for students and tutors differ in each centers. Tutors of course have more privileges than students [Figures 2 & 3]. By activating virtual classroom interactive Tutorial-sessions or online group discussion can be hold in real-time. Activation of a virtual classroom lets a WWWhiteboard pop-up. In case of a tutorial the tutor can interact with one student at a time in sequence - in the order the students have submitted the problems. Whereas, in the absence of a tutor, the student who begins the WWWhiteboard can lead the discussion. Soon after the tutor joins, he or she becomes the leader of the discussion session. The leader controls the discussion - controls the WWWhiteboard, and participation of other group members. Both students and tutors have access to this WWWhiteboard 24-hours a day and 7-days a week. They may choose to meet in a virtual

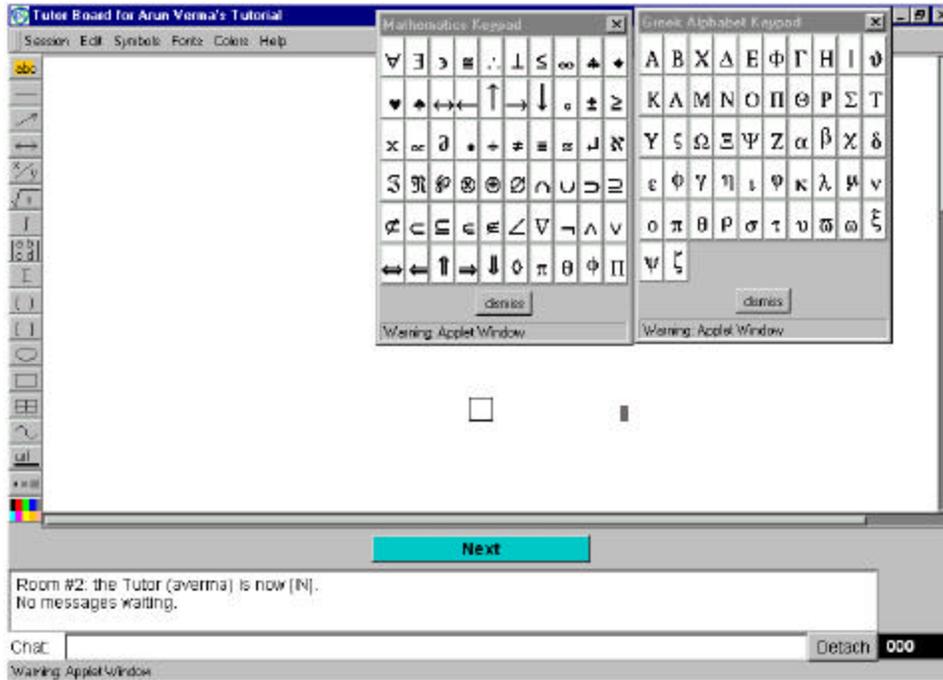


Figure 1: WWWhiteboard with Greek Alphabet and Mathematics Pop-up Menus



Figure 2 : Screen Shot of Live Classroom Interface for Tutor



Figure 3 : Screen Shot of Live Classroom Interface for Students



Figure 4 : Screen Shot of Archive Center Interface with "Bulletin Board Archive"

classroom anytime. Students always have the option of e-mailing the questions (asynchronous) and collect the reply later.

All the tutorials and group discussions held in Virtual Classroom are saved and can be archived after post-processing. Using the Archive Center [Figure 4] a member of the group can access all these archived sessions. Using the Message Center [Figure 5] one can start a threaded discussion using its "Post a Bulletin Board" feature. These are also archived and can be browsed through Archive Center. The members can send e-mail to other group members and share URLs with them. Using Management Center, a tutor can give access to any member to his/her group. The names and other details of a member can be entered either individually or in Batch. Figure 6 is a screen shot of Management Center with "Batch Import New Users". This center can also be used to see the statistics of users using this site - who logged in from which IP address, for how long and had how many hits etc.

The features of this software are numerous and has tremendous power if used smartly. One has to use this tool to know its capabilities and describing the ease and fun working with this environment is hard.

Using NetTutor:

I used this software in one of my Calculus courses. Link-Systems International gave me access to their server and opened an account for me as a tutor (a group administrator). Then it was very easy for me to setup accounts for each student. With 50-minutes of orientation most of the students were ready to go. In this age of technology, students are more prepared than tutors. In software/tool, they are the ones who figure out first what works and what does not. I used to conduct these tutorials from my living room Sunday evenings. Students joined the session using any browser (Internet Explorer or Netscape) and I understand using Windows 95/98. No student ever complained and I never had to deal with the issue of browser or platform. Sometimes no student would log on where as the night before a test they kept me busy till late. Some students never asked me any question online whereas a few were frequent visitors - they would ask me anything related to course, just for the sake of asking. The only thing they did not like in this software is retrieving their answers using code. (When students send a problem using e-mail, they are assigned a code that they need to retrieve the answer, most of the time they would lose the code). In a group discussion, it was really fun to watch as students join and leave the virtual classroom area and as they join the discussion they were assigned different colors to write with. We could download image files and write/discuss on it. We never had opportunity of downloading a sound file on the WWWhiteboard. Overall everybody enjoyed the software.

Acknowledgments:

I would like to extend my heartiest thanks to the entire team of Link-Systems International, Inc. (<http://www.link-systems.com>) especially to Todd, Vince, Ed, Ken, Zhou and Dr. Strayer. They not only allowed me to use software of my dreams, but also they were available, willing and ready to help me anytime I needed - A wonderful team - A great Company to deal with.



Figure 5 : Screen Shot of Message Center with "Share a URL" window



Figure 6 : Screen Shot of Management Center with "Batch Import New Users" window