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Technology Application Paper
January 27, 2007
INST 6380

Graphing and interpreting data is a fundamental skill taught and learned in any science program. For centuries teachers and students have made observations, recorded phenomena, and plotted that information on graph paper to see trends. With the rapid advance in technology has come a significant change in the way that data is taken, recorded, and graphed. Logger Pro is a computer program that will take data observations, put them into a computer, and form graphs of any kind for interpretation. Logger Pro has been around for multiple years, but has recently added a video analysis program to analyze video data and synchronize it to a graph. This report will cover the use of LoggerPro in distance education, including what is needed to use and teach LoggerPro, who is currently using LoggerPro and for what, issues that could arise from using this program, and the future of LoggerPro from my perspective.

What is involved?

The first and major issue with using LoggerPro in the distance education field is the requirement for all users to have the software on their own computers. This would be a fairly simple task as Vernier, the makers of LoggerPro, have a very cheap and liberal site license of \$159. This gives you permission to install the program on all students' computers as well as on any computer in the school. CD's would need to be mailed out to students with installation instructions and instructions on how to find help online.

The second issue is class time. Class time will need to be spent, or online tutorials will need to be created to teach the students how to use the program. LoggerPro has a

very effective help menu and there are some resources currently on the internet to aid in learning how to use the program. Students will need to have a decent grasp of the process of using LoggerPro before they are asked to learn from it.

The last issue is that students will need a digital camera, or know how to download and insert video into the program. This is a simple process, but any time you ask students to learn and operate new software, there are bound to be some struggles. These struggles are no different than our current difficulties with WebCT in this class. They are unfortunate, but usually fixable with time and patience.

Who is using this technology?

Currently LoggerPro is used in college lab classes as well as in many high schools around the nation. LoggerPro's primary role in this setting is to use Vernier probes to collect data in a laboratory and analyze it. In the distance education role, students would not need to purchase these expensive probes to do analysis; they would use the video analysis tool to analyze their own experiments or experiments that have been recorded. (See example video for a greater understanding of this application of LoggerPro.)

I could not find in my research of LoggerPro an example of how it is being used in the distance education field. I do not feel that this means there is no use for it, just that the field has not been sufficiently explored.

What teaching and learning issues are associated with using LP?

Many of the issues covered in the first section apply here as well. Students will have to understand how to use the program before any significant learning can take place.

This learning will come most likely at the expense of class time. It is my feeling that this will not be time spent, but invested. As students start to design and record their own experiments, they will learn in an inquiry-based manner. Inquiry is the current hot topic in science instruction. Any tool that can help a student learn through inquiry at a distance is a great tool to invest in.

One other issue is the rare but probable student who has limited access to a computer. Accommodations will need to be made for this student, or they may want to take a different course if available.

What is the future direction of this technology?

From my perspective, the future for LoggerPro in the distance education field is one of growth. As technology continues to advance, there will be many ways to give students authentic laboratory experiments without them ever entering a real college laboratory. Other programs such as Virtual Chem Lab, which gives student the opportunity to do chemistry experiments, and Frogguts.com which is a virtual dissection website, will lead the other sciences into the distance education world. It is my opinion that the future of LoggerPro is to do this for physics.

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