Table Top SEM Evaluation Report
Task 3: User Friendliness
8/7/2007

Overall, the Phenom is an intuitive instrument to use. I can spend twenty minutes and demonstrate two to three samples and by then the teacher is comfortable using the machine on their own. Students seem to pick it up almost as fast, once they get over the fear of doing something wrong that will break it.

The touch screen interface is a fantastic idea, although the specific screen is lacking. It takes a harder touch than anybody expects when they are first trying to use the machine. Even when one has become accustomed to the force necessary the screen seems to only detect about half of the attempted touch interactions. There are consumer electronics available that feature more sensitive and accurate touch screens.

The interface layout is very good. People seem to understand and learn to jump between screens fairly quick. The only problem with the interface that I have noticed is switching between auto and manual for the focus and contrast/brightness. When pressing the button it is difficult to tell if it's been long enough for it to switch between the different modes. It is difficult because the finger covers the auto/manual symbol when it is pressed. Some alternate method for switching between manual and auto should be investigated.

Navigating using any of the three images available is an excellent idea. When at low magnification, the device is very good at centering at the exact spot where you touched the screen. However, once you are at any magnification significantly higher than the minimum, navigation becomes more difficult. When one touches the screen the stage is not adjusted in the right direction. It is not just a rotation because it often does not move the correct magnitude either. When one is close to or at maximum magnification, navigation becomes a frustrating trial and error experience. I'm not sure if this is a problem with the software or the mechanics of moving the stage, but it should really be improved. As of now it works better to reduce magnification and try to center the key observable and then try to zoom back in.

The software stability has been an issue. There have been quite a few interface crashes. Most of the time a soft reboot (pen into the recessed button in the back) is sufficient. There have been a few times when a hard reboot (power off for ten seconds, then back on) has been necessary. It may just be random, but there have been more of the hard reboots needed since the last software update.

Loading and removal of the sample for the Phenom works well. The only problem was the sample holder not holding the stub tightly, but with the latest change to the sample holder this problem has been eliminated.

In my opinion the Phenom has a lot of potential to be a really useful teaching device, and it already is quite good at what it does. An improved touch screen and more stable software would go far in making the Phenom great at what it does.