Overhead Projector Usability Issues

Stephanie M. Pratt, Wendy Baccus, & Allison Sleeman

Overhead projectors are commonly used in the academic world to share information during lectures. They are also used for meetings when editing documents in order to share the screen to everyone in the room. It is easy to say that overhead projectors are a piece of technology that we have come to rely on in many instances. With that said, overhead projector systems should be made to be highly usable. However, this may not necessarily be the case.

When needing to determine a system to analyze for a course project, the discussions begun. It was decided to examine the system of the overhead projector in a commonly used room in the Arch Lab at George Mason University. There were a large amount of complaints from faculty, staff, and students regarding this projector. Such complaints included issues turning the projector on/off, connecting to the projector, the display getting cut off, and trouble adjusting the display. For that reason, there was definitely something wrong with this system, and it was our quest to determine how to solve these issues.

Over the progress of the semester, we asked faculty, students, and staff who used the projector to fill out a questionnaire. This gave us further insight into the problems that many were complaining about. Through the feedback from the 11 participants in the survey, we chose to focus on the three common problems: adjusting the display, connecting to the projector, and fixing the display being cut off.

We then hunted down the user manual to this particular projector. This assisted us in learning to adjust the display and the proper way to connect to the projector. Through this investigation, we learned that the room's VGA chord was missing a prong which caused the connection to lack a particular shade of blue. Thus, we had discovered a solution to two of the

three problems that users were complaining of. However, we were still not able to solve the problem of the display getting cut off.

During the time the projector kept us from figuring out why the display was getting cut off, a colleague of ours found the solution. During a spring cleaning event, the said colleague

Figure 1. Wall Panel

happened to find a panel on the wall (as seen in Figure 1). When we tested it out, we found that the "horizontal position" button was the solution to the problem! You press the right button to make the screen move to the right, and the left to make it move to the left. What a great design! Except for the fact that it is not part of the projector and it is located where many people may have knocked it and adjusted the display without realizing.

Once we had learned of all the solutions to the common problems, we chose three individuals (two faculty members and one graduate student) to observe and interview. This was done while they connected to the projector and attempted to get it to a condition that they would be okay to start the lecture. Of course, with us being interested in how they attempted to fix the problems, we made the projector to be in need of fixing.

Through these interview observations, we gained a lot of insight. First, not one single individual looked at the wall panel for assistance (noting the bad placement). Second, each individual had errors in trying to solve the problems – the exact problems are hard to identify. One of the individuals actually stated that he never would use the help menu on the projector, but did it for the observation. This help menu on the projector is the only way to adjust the display with the projector (see **Error! Reference source not found.**, a portion of our Hierarchical Task
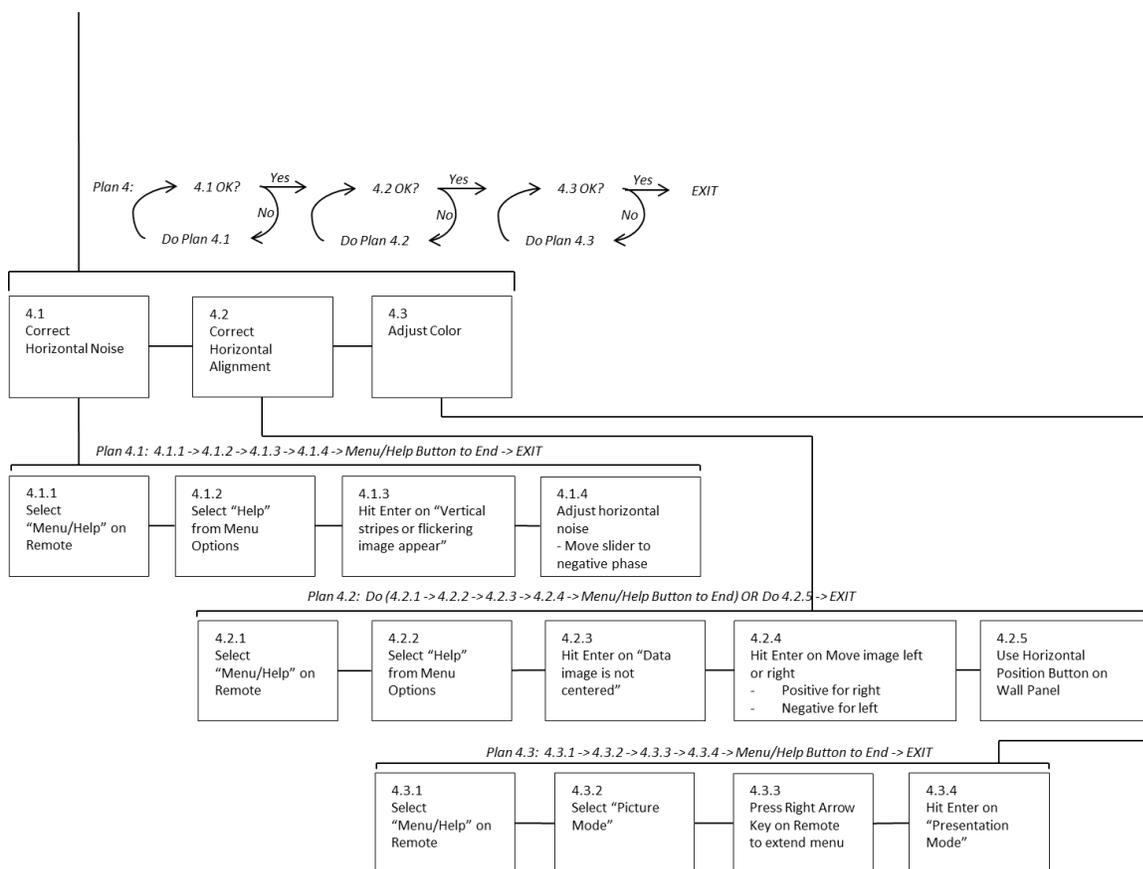

Figure 2. Adjust the Display Portion of HTA Developed from User Manual

Analysis).

In discussing with our participants in our interview observations, we also learned that the labeling was unclear on the remote. One participant mentioned that the menu/help button was actually called something else in the help menu, so it took him a while to understand which

button to press. Also, they all stated that once they connected to the projector, they would have

no idea how to sync to it without past knowledge that pressing the enter button in the center of

the remote would sync the displays. These small observations suggest a design issue in this
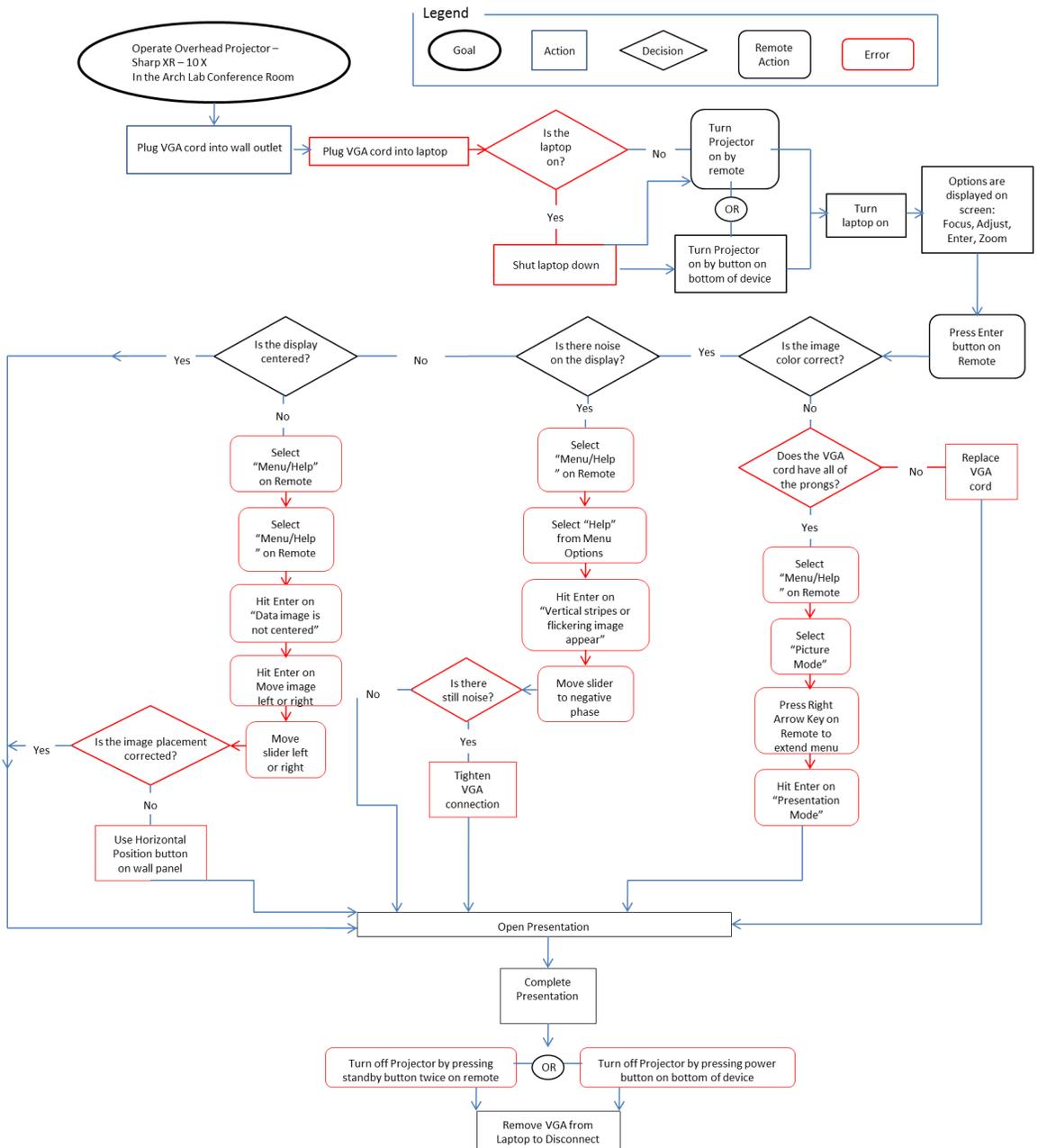

Figure 3. Decision Action Diagram

system. Finally, it was noted, that the users also tried to manipulate the powerpoints slides or the

way the screen was displayed directly from their computer once they failed to correct the

problems with the projector help menu. If the display was cut off, one of the users stated that the easiest (though annoying) fix would be to just move all of the text over to the left so that it would still be displayed when the right side of the screen was cut off.

To examined the information we received from the interview observations, we created a decision action diagram (see Figure 3). We modified the DAD to highlight places where the participants had errors (which we did so in red boxes). We did not count these errors, we just noted where the users, overall, deviated from the task flow. Also, the boxes with curved edges were interactions with the remote – this shows how reliant on the remote a user has to be when interacting with this system.

In getting all the information from the system through our information gathering (questionnaire, user manual, and interview observations) as well as from our task analysis methods (HTA and DAD), we have developed a few recommendations. For this particular set up, the VGA chord definitely needs to be replaced. This would assist in allowing proper colors to be seen on the display. Secondly, future projectors should be set up with all controls in central locations (e.g., the remote and projector itself). Since the projector operation is very remote reliant (as seen in our DAD, Figure 3), if the projector were to go missing the operations can be conducted easily on the projector itself. Along these lines, the system should not include a wall panel, especially at calf height. This not only confused users, but not a single user considered using the panel to fix their problem. Finally, future projectors should have a more user-friendly remote design – the buttons should be clearly labeled and unneccessary buttons (e.g., volume) should be removed.

Overall, overhead projectors are great tools to use for lectures, interactive meetings, and watching media. However, to continue to have them be useful tools they do need to be highly

useable. As shown through our anecdotal use case with a problematic projector, there are a number of future design suggestions to take into consideration (such as a user-friendly remote, centrally located controls). When taking the user into consideration for these tools, it will make presenting information to others an easier task. Therefore, the user can have one less thing to worry about when they are preparing to lecture.

Special thanks to Jesse Eisert for finding and suggesting the wall panel as a fix to the projector's display problems.