

Executive Summary

The following report presents the findings of our investigation of effective methods for improving usability of the XO laptop for teachers. Through interviews with teachers, administrators, and researchers using or involved with the laptops in the US and in Uruguay, we discovered three key issues that are plaguing the XO in the classroom:

1. Lack of administrative support—teachers are not provided with any form of sponsorship that encourages the use of the laptop in class.
2. Unsatisfactory instruction – teachers are not being taught how to use the laptop.
3. Difficulty adapting to new technology – teachers experience difficulty learning the laptop through exploration and self-teaching.

Based on these findings and recommendations from our interview, we make the following recommendations for any activity, program, or materials that may result from this project.

1. Provide an instructional manual of the product for teachers to inform them of every facet of the activity.
2. Provide suggestions for integration of the product into a classroom curriculum to increase awareness of the potential and usefulness of the activity.
3. Integrate training into the activity to address the lack of instruction teachers receive and empower them to use and understand the activity.

Progress and Recommendation Report: The XO Laptop and Usability Issues

For the second half of this foundational semester for the Owl Jr. Project, our group was tasked with an investigation. Previous research showed that the XO laptop may not be effective in every classroom because of a disconnect between teachers and developers. In short, teachers did not receive ample instruction on how to use and integrate XOs into their classrooms. Along with issues of durability and generational divides, there are number of stumbling blocks that prevent the XO from reaching its full potential in classrooms. This report will present the information we received from interviews with several teachers, administrators, and professionals who are deeply familiar with the everyday work of the XO. It culminates in recommendations for the Owl Jr. project that will increase its effectiveness in the classroom.

Methodology

To thoroughly comprehend the problems ailing the XO, we sought to conduct interviews with teachers having experience with the laptop and administrators of XO deployments in their respective regions. Because the XO is primarily intended for nations outside the US, we believed that an international perspective was necessary to learn of the difficulties that teachers may experience. Accordingly, we conducted interviews not only with people within the US but also in Uruguay. However, due to the difficulty of international communication (and connectivity issues from those in both Argentina and Uruguay), we were only able to speak to one person in Uruguay, but we had 4 accompanying interviews in the US. Across both regions, there was consensus of the problems the XO laptop was encountering, which are discussed below.

Difficulties Preventing Effective Use of the XO Laptop

Our interviews suggest that the XO laptop and Sugar system face many difficulties in the classroom. Prothaniel Harris, an elementary school teacher in Birmingham, Alabama, revealed that the failure to properly train teachers how to use the Sugar operating system created an environment of animosity toward the laptops. Overworked in overcrowded classrooms and underfunded to effectively perform their jobs, teachers argued that they did not have the time to learn the new operating system. There was little, if any, support from administration, and the teachers did not know how they could modify the curriculum to integrate the XO effectively. Additionally, the students who had been exposed to Windows struggled to learn the XO laptop and the Sugar system, and the teachers did not have the knowledge to teach them.

This case alone perfectly exemplifies the root issues that teachers across the globe identify as limiting the success of the XO laptops. Teachers both in the US and abroad in South America acknowledge the same problems preventing the XO from exceling. These issues are a lack of administrative support, unsatisfactory instruction, and adaptation difficulty in adapting to this different technology.

A Lack of Administrative Support

A key issue plaguing the XO laptops across the western hemisphere is a lack of administrative support. The example of Birmingham has already been stated, but an interview with Ana Cichero, a high school teacher in Uruguay, revealed the same problem. In fact, her experience suggests the problem may be much deeper. Uruguay's XO program is integrated with an effort called Project Ceibal, a federal initiative to bring technology to

every elementary and secondary student with a perfect 1-to-1 ratio. As it is entirely controlled by the government, it is mandatory in most schools to utilize technology (namely the XO) in classes. However, Cichero reveals that the government conducts no assessment, quality control, or systematic check to determine how or even if technology is being used. Furthermore, besides providing the laptops themselves, neither the government nor the schools provide the teachers any additional funding or other resource to aid them. The result in Uruguay is the same as in Birmingham—a climate of resentment or apathy in which the XO falls to the wayside.

Unsatisfactory Instruction

The most common complaint teachers voice about the XO is simply that they don't know how to use it. Instruction in how to use the XO is short and typically ineffective, both in Uruguay and the US. Teachers in Uruguay for example must participate in mandatory training which informs them of the basic knowledge of Sugar with little to no knowledge of how to implement the XO into their classroom. There was no substantive discussion of what activities might work well in the classroom or in what ways. Teachers may receive a casual listing of activities that may be useful, but most often teachers are left to explore on their own to determine how exactly they might be used. Many teachers cannot take that time, like in Birmingham, or simply do not care to try, as in Uruguay. Shelia Cotton, professor of sociology at University of Alabama at Birmingham, investigated the state of the Birmingham deployment and found teachers there were too overwhelmed to learn the laptop. If the XO is to be effective in the classroom, teachers need to be informed and trained of its potential. But, unfortunately, this has not been the case.

Difficulty Adapting to New Technology

The last significant challenge the XO must overcome is the difficulty that both teachers and students experience in adapting to the Sugar Learning Environment. First, partially due to a lack of training, some teachers face a generation gap and are slow to learn the laptop. In fact, Cichero notes that in Uruguay, students are often ahead of the teachers when learning the technology, a position most teachers do not appreciate. Even teachers who are comfortable with computers find Sugar difficult and counter-intuitive compared to their everyday Windows. Outpaced by their students and sometimes uninterested in the technology in the first place, some teachers both in Uruguay and Alabama find no advantage in the laptop. According to Cichero, this creates a hit-or-miss environment in Uruguay, where the success of the laptop is often entirely dependent on the teacher's aptitude with technology. Naturally, this does not help promote effective use of the XO laptops.

Recommendations

None of this is to say that the laptop is without success. However, as we go forward with Owl Jr., it would be in the best interest of teachers and students that we keep in mind these problems. Though we cannot impact all of these areas, there are things that we can create, provide, and suggest for teachers to improve their understanding of what our materials can do and how to use them. The following recommendations attempt to accomplish that.

- Provide some sort of teacher's manual. Cichero likened this to instructor editions of textbooks. Especially with technology, teachers need to have an easy reference to recognize what the program will do. Every activity or step of whatever we create

should be outlined carefully to provide the teacher with the information needed to stay ahead of the students. Cichero noted that we would be one of the first to do such a thing and that many teachers would be grateful.

- Develop possible strategies for integration. The exact way our product (whatever it may be) can be integrated into classrooms should be easily demonstrable so that the teacher can clearly recognize the possibilities of our materials. A provided, albeit provisional, curriculum will certainly aid teachers, as Steve Skardon of the Palmetto Technology Initiative in South Carolina found.
 - One recommendation that we can offer comes from the dissertation work of Gerald Ardito at Pace University in New York. He selected a few students to serve as classroom leaders for teaching the XO activities, following the OLPC ideal of student learning, collaboration, and peer teaching. This program proved successful, as it helped alleviate some of the pressure on the teacher.
- Integrate training into our materials where needed. For anything that is not immediately comprehensible or intuitive, a sort of training stage or instructional mode would be useful to fill in the gap of instruction that teachers and students have. This would serve to reinforce the teacher's manual through hands-on learning, and it may also aid student learning as well.

Conclusion

Though the XO has much potential to empower students and better their learning environment, it fails to do so because teachers are not being supported and enabled to use the laptops. Accordingly, whatever results from this project must address these problems if

it is to be used in classrooms. We believe that utilizing the above recommendations will allow our activities to overcome these difficulties and to appeal to teachers in a way that no activity has. By reaching teachers first, we can be sure that our materials achieve their goal—reaching and teaching students.