Peer Review Proposal

For Programmers of XO Laptops

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ABSTRACT

As part of the WRT 394: Literacy, Technology, and Civic Engagement course, taught by Dr. Dana Driscoll during the Fall Semester 2011, the class participants were tasked with researching the Sugar Operating System (Sugar OS) and XO laptops and developing programs to increase literacy. In our small group, we were tasked with proposing ideas for a peer review application that would allow for students to give each other basic formative feedback. We found that Sugar labs programmers had developed three writing programs that had potential for such feedback applications: Write, Edit, and OOo4Kids. However, none of these had a component that allowed for peer review of any sort, despite this potential. We found several programs with specific components that could be used as models to create a single component for peer review. These programs included: Google Docs (which allows for document sharing, commenting, and group chat), Microsoft Word (which has a review component that allows for comments and editing), the Moodle System (a virtual classroom, allows for class or subject organization), and Open Office (has components similar to Microsoft Word, but is open source programming). We recommend that a combination of the editing and sharing components of each of these programs be used as a model to create an application for addition to the current programs available on the XO laptops and within the Sugar OS.

INTRODUCTION

As part of the WRT 394: Literacy, Technology, and Civic Engagement course, taught by Dr. Dana Driscoll during the Fall Semester 2011, we were, as a class, set with tasks intended to (1) provide a 'face' for our project connected with Sugar Labs, One Laptop Per Child (OLPC), and XO Laptops, and (2) develop recommendations that promote the development of literacy and writing skills. Our small group of three, in particular, was set with the task of developing and proposing ideas for a "peer review" facet for Sugar programmers to develop and implement into the Sugar software on the XO laptops. Peer review of writing has been documented as a useful learning tool, for both the giver and the recipient of the feedback (Cho, 2011). As our WRT 394 class aims to advance literacy learning opportunities available on the XO Laptops, we believe that peer review (or otherwise general feedback) components should be developed and implemented for preexisting applications found on the Sugar Operating System. The feedback components we propose need not be strictly limited to peer review, but are more broadly what is termed a type of "formative evaluation" (Reese-Durham, 2005). Reese-Durham defines formative evaluation as "giving feedback that is focused on changing processes as they are happening," such as in the drafting stage, in contrast to more traditional "summative evaluations" which occur only at the end of a work, when the writing has been finished and submitted (2005).

Reese-Durham's study's findings demonstrate that, overall, "the quality of the papers from this class [which used peer review in the form of formative evaluation] was significantly higher than papers collected from previous classes" (2005). The students of

the class found the peer evaluation activity to be "meaningful and effective" and all of the participating students reported that they intended to make use of the feedback to revise their papers (Reese-Durham, 2005). In a study on the impact of peer review on undergraduate freshman science students, Timmerman and Strickland found that "... formative feedback stimulates greater learning because students can apply new ideas gained from the experience directly and immediately" (2009). They observe that "peer review improves content knowledge, *writing* [emphasis ours], and [hypothetically], scientific reasoning skills" (Timmerman & Strickland, 2009). For those who took the *Test of Scientific Reasoning*, they found that freshmen "who had engaged in 2 peer review experiences scored significantly higher (average score = 6.82, n = 61) than students who did not engage in any peer review experiences (ave. = 5.22, n = 260)" (Timmerman & Strickland, 2009).

This report details the investigation and formulation of a peer review component to supplement the XO Laptop's writing based programs. The peer review component will enable a currently nonexistent line of communication to exist between students, their peers, and their educators, while allowing and enabling students to learn through firsthand experience by editing the work of their peers. The peer review component will also allow for an educator to provide feedback through a critique of any assigned work.

METHODOLOGIES

As part of our class project, which aims to further develop programs that promote literacy for Sugar Labs and the XO laptops, our small group reviewed programs on the XO Laptops that could potentially be used for peer editing and review purposes.

Non-Sugar compatible programs that contain peer review applications were also researched and evaluated. Facets of each program were evaluated and compared to attain an idea of which specific attributes could be best adapted and implemented into the XO's existing software.

RESULTS

We have found a number of non-Sugar compatible programs which have specific components that we felt could be not only useful, but advantageous for use as part of a peer review program or as a feedback component in addition to a preexisting Sugar-compatible writing program. When we refer to non-Sugar programs, we are refering to programs that are not found on the XO laptop or are currently not compatible with the XO. These non-Sugar programs that we have found to have valuable peer review or feedback components include:

- Google Docs
- Microsoft Word
- The Moodle System
- Open Office

Google Docs - An online document builder, editor, and sharing platform that allows users to collaboratively edit, revise, and discuss shared documents. It includes a commenting component like Microsoft Word and OpenOffice, but goes above and beyond to also allow real-time editing and collaboration between users--something which could be a very valuable peer review tool.

Microsoft Word - The industry standard's word processor, Microsoft Word's main peer review component is simply the commenting option which is also available on

Google Docs and OpenOffice.

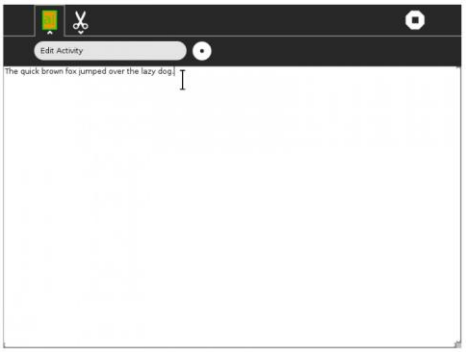
The Moodle system - A virtualized classroom environment, The Moodle system allows for different classes to be organized into forums. Students' work can be published to the forums where both teachers and other students can then provide feedback in a threaded conversation. This asynchronous online communication is similar in nature to the comment ability found in the previous word processors, except that it easily enables a more extended, lengthy conversation which can include more individuals, making it a more powerful tool with which to give and receive feedback.

OpenOffice - An open source office application suite that includes word processing, spreadsheets, presentations, graphics, and databases, all written in the C++ programming language. It includes a commenting component like the one found in Microsoft Word. The advantage that OpenOffice has over the other options is that it is free and open source in nature (similar to the OLPC's Sugar OS), which allows for easy and legal borrowing of the code that enables commenting. Adding to the ease of implementation for the Sugar OS is the "language-neutral and scriptable functionality" of OpenOffice's source code (OpenOffice, 2011).

In addition to these non-Sugar programs, we have come across several programs already available to, if not standard on, the XO laptops that hold potential for use in implementing a formative peer review component. These preexisting XO applications that have been found to have potential for peer review purposes include:

- Write
- Edit
- OOo4Kids

Write - A basic word processing application that ships standard with all the XO Laptops. “It ... supports basic tools for inserting images, creating tables, and performing basic layout operations” (Sugar Labs, 2011b), but it currently has no peer review component. Our research has found peer review components in similar word processing applications like Google Docs, Microsoft Word, and Open Office in the form of adding comments to selected portions of hypertext. Such a component could be a valuable addition to the Write application. Google Docs also has real-time collaboration components, such as being able to view and chat with other editors of a shared document, which could be a valuable peer review and feedback component.



Edit - An XO application created by ntt, it is described shortly as “a simple collaborative plain-text editor” (Sugar Labs, 2010). We have attempted to download the application to study it further, but have not succeeded.

OOo4Kids - An adaptation of OpenOffice for the XO Laptop and Sugar OS (Sugar Labs, 2011a). It could possibly already contain a component for leaving comments on others’ documents; if it doesn’t, it could possibly be easier than

the Write application to add such a component. Unfortunately, like the Edit application, we have yet to be successful in our efforts to download and investigate.

RECOMMENDATIONS & CONCLUSION

To potentially improve the learning environment of all current and future XO-using students, we encourage these programmers to develop a peer review application or component that can be integrated into existing XO programs.

We recommend that computer programmers design a component to the Write application that would allow students to leave comments on each other's documents (similar to what is possible with Google Docs, Microsoft Word, and OpenOffice). This would provide a significant feedback tool that is currently absent from the XO laptops which could potentially enhance the learning experience and improve the writing of the students who use them.

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