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Enhance student engagement and fair marking of group work using collaborative writing

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Abstract

The second year computing group project in the Department of Computing at the University of Northampton typically involves three or four students on the same course. It consists of two main parts - software development and group report. While version control software (e.g., SVN) can be used to monitor individual contribution to software development, current practice lacks an effective way for monitoring individual contribution and fair assessment of the group report. Google Docs is a free collaborative writing tool, and very rich in features. It allows tracking of individual work and real time communication within a team. The proposed project uses Google Docs for group report writing, aiming at better student engagement and fair marking of submitted group work.

1. Introduction

The students enrolled on all the different pathways within the computing department of the University of Northampton are divided into different groups for the second year group project. This project is considered to be the most important and the most difficult piece of assessment for the students during their second year, and also forms a good platform to help students develop various much needed soft skills such as highly developed communication skills, team working abilities, inter-personal and professional attitude. The group project also gives an insight to the students about their final year dissertation will be like.

Currently, some students use email attachments to share their own work, and this approach has been proven very inefficient. Other students use cloud-based shared software (e.g., Dropbox [1]) to ensure reliable storage and to avoid inefficient email circulation. However, it is not very intuitive to view changes (and the person who made the changes) in different versions of the same work in Dropbox. Another main issue of using Dropbox for shared storage and teamwork is that there can easily be conflicted copies, particularly when many people are working on the same document. One of the compromised solutions is to save the document as soon as some changes have been done. Another solution for avoiding conflicting copies is to use a label/marker (e.g., a text file or empty folder named *xxx-working-now*) when working on a document and change it to (*xxx-idle-now*) [4] - this solution can avoid conflicts in a document, however since only one person can work on the document at a time, this approach is not strictly collaborative writing, hence not efficient.

Google Docs [2] is a free web-based office suite offered by Google within its Google Drive service. It uses a clever way for real-time collaborative writing. It integrates a messaging service that enables group members to have real-time discussion. What makes Google Docs a very useful collaborative writing tool is its use of various colors to differentiate individual work. It provides group members a sense of ownership, which will encourage them to contribute more. Using Google Docs increases the productivity as team members could work on different portions of the document at the same time without fearing the loss of any updates since all collaboration is done in real time and documents are saved and shared with ease. Google Docs is currently used for group project

proposal, meeting minutes (including attendance records, details of discussion, task allocation) and final group project report.

Peer assessment is part of the existing assessment method for the group project. Group members are usually asked to confidentially give a fair assessment to everyone in the group (including themselves). Peer assessment can result in argument on contribution and various problems such as positive discrimination (where some students mark their friends better than they deserve) and negative discrimination (where some students mark against a particular student). Using Google Docs for the group work eliminates dispute, as individual contribution becomes crystal clear to the module tutor, therefore fair marking can be guaranteed. Module tutor created separate documents and shared them with different groups. As the owner of the documents, the tutor could perform various activities, (such as making comments on the group work, controlling access to shared documents e.g., disable access after the deadline, etc.), which will help in better management of the group project.

1.1 Google Docs Features

Further research was carried out into the features of Google Docs to point out some of the features [5], which were found useful and relevant for collaborative writing.

- *Sharing and Commenting for Collaboration and Immediate Response* - document sharing and comments provide students with opportunities to receive immediate feedback in the 24/7 classroom. Since the documents are stored online, students can work on their documents from any location with an Internet connection. To insert a comment, the user just has to highlight some text in the body of the document and the comment will appear on the right side of the page. The comments disappear after the issue has been addressed by the author. In addition to this, Docs also provides a provision for a virtual mini-conference for students and teachers where they can have a discussion.
- *Research Tool* - perhaps the most impressive Google Docs writing support to date is an integrated research tool that's available right on the page. A basic search yields results relevant to the document and displays a variety of types of information beyond text. Search can be narrowed to find only images, scholarly information and quotations. This powerful research tool provides students with convenient access to information in manageable chunks that are ready for use.
- *In-built Dictionary* - Google Docs offers a built-in dictionary and thesaurus, which supports 12 languages and allows user to look up words without having to leave the document to search in a separate window or browser.
- *Revision History & Autosave* - any changes made to the document are automatically saved to the Google Docs. This could practically eliminate the need to save the document manually. Revision history can be used to review, compare, or revert to a prior version of the document at any time.

2 Design of Survey Questions

This paper investigates into using Google Docs as a collaborative writing tool, and how it can enhance the performance of the students and help the tutor in fair marking of the work produced by the group. To find out the usability of Google Docs as such, a questionnaire was developed. It contains a variety of questions ranging from asking the user how often they use the service, to what features they use and how it is helpful to them. The purpose of the questionnaire was to form an understanding of how the end user group currently perceives the use of Google Docs as a collaborative writing tool. By doing so, it could be established as a whole whether Google Docs is a viable solution to the problems presented in this paper, if yes, how can the performance and usability improved if there is any need.

The questionnaire was conducted in one of the groups participated using an online student response system called *Socrative* [6], which allows the real-time interaction between the teachers and the students. The target audience contained five second year computing students, who are currently working on their group project. The questions and their answers are listed in Table 1.

Table 1. Survey results

Questions	Ans 1	Ans 2	Ans 3	Ans 4	Ans 5
Did you ever use Google Docs before using it for the group project?	Yes	Yes	Yes	Yes	Yes
How often do you use Google Docs?	Regularly	Regularly	Regularly	Regularly	Regularly
On a scale of 1 to 5, 1 being not easy at all and 5 being very easy, how easy is it to use google docs for real time collaborative writing?	5	5	5	4	5
On a scale of 1 to 5, 1 being not useful at all and 5 being very useful, how useful do you think Google Docs is, as a collaborative writing tool?	4	5	5	5	4
On a scale of 1 to 5, 1 being not helpful at all and 5 being very helpful, how helpful do you think it is to make collective real time changes on the same document with your entire group?	5	5	5	4	5
Do you often make use of the chat function while collaboration of your group project meeting minutes for better communication between team members?	No	No	Yes	Yes	No
Do you think it Google Docs provides a fair way of keeping track of everyones progress during group work?	Yes	Yes	Yes	Yes	Yes
Do you think using Google Docs has increased the efficiency of the working together as a team?	No	Yes	Yes	Yes	Yes
Do you think Google Docs could be used to collaborate the Group Project report as well?	Yes	Yes	Yes	Yes	Yes
What other features do you use in Google Docs?	Spreadsheet, word docs Presentations	Starred documents	Just use it to share work and ideas	Comments	Many different features

3 Project Evaluation

3.1 The survey results

From Table 1, it can be seen that all involved students had Google Docs experience before it was used for the group project. It eliminates the need of training students to use the software. Since it is adapted from the versions of Microsoft Word and uses almost the same editing and document creation, students find it is really straightforward to use the basic features of Google Docs (see Figure 1). However, it might still be helpful to give them a quick guidance of how to use the important features that might not be easily identified.

Since using Google Docs as a collaborative writing tool is the main focus of this study, when students are asked, a very positive response was received. Every student also mentioned that not only is Google Docs very useful for the purpose, but it is a very helpful tool for real time collaboration with the entire group, hence in a way boosting group performance for the group project (Figure 2, 3).

The students were asked if Google Docs was an intuitive way of keeping track of everyones progress and all the students answered affirmatively. This shows that everyone in the group welcome the idea of tracking group members' progress. This in turn also helps the tutor oversee everybody's progress, and leads to fair marking of the

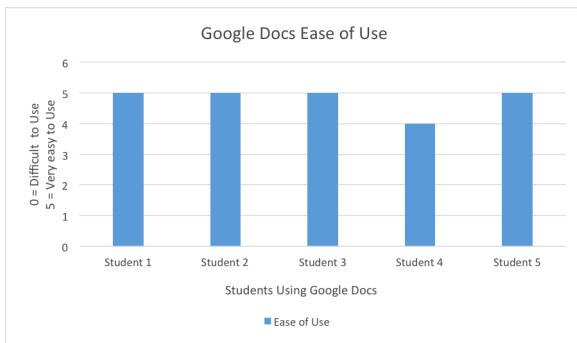


Figure 1. Students' perspective of ease of use of Google docs.

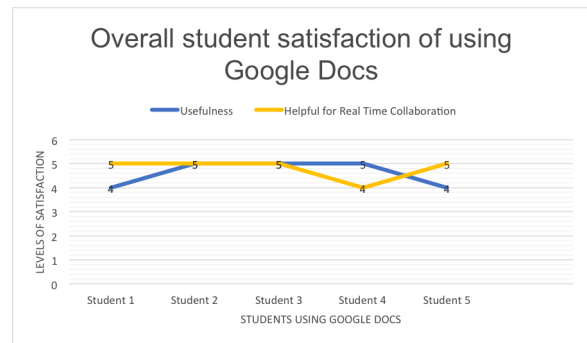


Figure 2. Student overall satisfaction of using Google Docs for the group project.

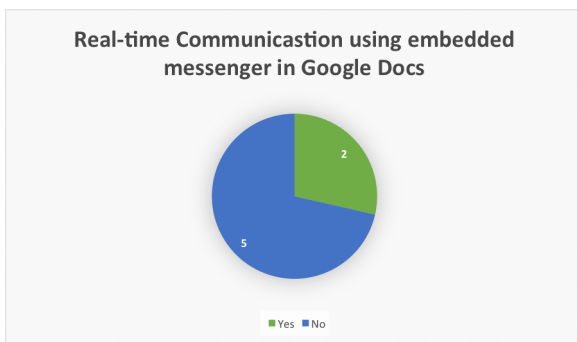


Figure 3. Real time communication using embedded messenger in Google Docs.

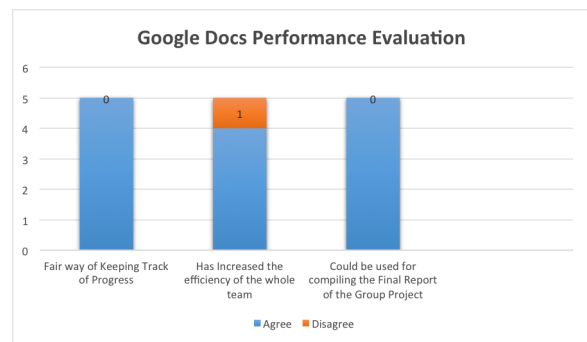


Figure 4. Performance evaluation of Google Docs.

group work. It was also found that students agreed that using Google Docs hence increased the productivity of the team. Since all the progress of each student is completely transparent, it encourages each student to keep working towards the project, hence increasing productivity of the team (Figure 4).

3.2 Student Interview

In addition to the questionnaire, a face-to-face interview with all the students present in the class has also been conducted to get an understanding of students experiences of using Google Docs. The overall feedback from the students were very positive, however, there were some identified issues as below.

The most widespread issue with Google Docs reported so far is the limited *Edit* options available to students. The Google Docs interface allows the students to copy and paste their work into a word document, which holds the formatting but the vice versa completely changes the formatting making it difficult for students and making it more time consuming. Conversion between word documents and Google docs is available. Editing and inserting tables has very few options. Also, inserting and formatting images into a Google Docs is particularly time-consuming.

On an iPhone, the Google Docs application does not allow the user to edit a table. The user can view a table but not edit them. This issue on android has not been tested yet, but is likely to have the same outcome as an iPhone. Also, on Android phone, editing work is difficult. For Example: It is difficult to choose which line to edit (placing the cursor).

3.3 Discussion

There is a desktop version of Google Drive, which allows the user to directly access Google docs from directory of the computer instead of a web browser. Unlike the counterpart of Dropbox, the desktop application of Google

Drive stores only the links of the files (instead of the actual files), backup (e.g., using time machine) only stores the links. However, files in Google Drive can be backed up automatically using software such as Cloudpull [3] or downloaded and backed up manually when needed.

4. Conclusions

Google Docs is proposed in this paper for collaborative writing and fair assessment for the second year computing group project due to its rich features (such as real-time communication between group members and progress checking of individual contribution). Our studies show that Google Docs is fairly popular amongst the students and is welcomed as a tool for collaborative writing. Students are currently using it with ease and also exploring many other exciting features as well. The evaluation results suggest that using Google Docs for group project helps student engagement and improves the productivity of group work.

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