ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 07, Issue, 08, pp.14626-14633, August, 2017

ORIGINAL RESEARCH ARTICLE

Open Access

GOOGLE DOCS: AN EFFECTIVE COLLABORATIVE TOOL FOR GRADUATES TO PERFORM ACADEMIC ACTIVITIES IN THE CLOUD

***Dr. Ashadevi, B. and Muthamil Selvi, P.**

Computer Science, M.V. Muthaiah Govt. Arts College for Women Dindigul – 01, India

ARTICLE INFO

Article History:

Received 10th May, 2017
Received in revised form
15th June, 2017
Accepted 22nd July, 2017
Published online 30th August, 2017

Keywords:

Collaborative writing,
Collaborative tools,
Google Docs,
Google Sheets,
Google Presentations,
Google Drive.

****Corresponding author***

ABSTRACT

Academic writing, individual or collaborative, is an essential skill for today's graduates. Unfortunately, managing, writing activities and providing feedback to students is very labor intensive and academics often opt out of including such learning experiences in their teaching. Successful integration of educational technology is a complicated process that is influenced by multiple factors (Levin & Wadmany, 2008; Valcke *et al.,* 2007). Recently, both within and across schools, educators have been searching for cloud-based solutions to address the challenges of integrating educational technology into their school systems ─ assessing whether these programs are affordable, accessible, and well-suited to improve learning. While the popularity of cloud-based applications among educational institutions and students is rapidly increasing due to their enhanced sharing features, accessibility, and cost-efficiency, there have been few efforts to investigate the impacts of these cloud-based applications in educational settings. The Internet giant offers a suite of Web-based productivity applications under the name Google Docs (GoDs). Google Docs is the ability to share and collaborate with others in "real time." Each user saves information to the cloud system, he or she can access the same file from anywhere. In online collaboration, multiple users can make edits to the same files at the same time. The objective of this paper is to highlight the various collaborative tools and the importance in doing the academic activities collaboratively.

Citation: Dr. Ashadevi, B. and MuthamilSelvi, P. , 2017. "Google Docs: An Effective Collaborative Tool for Graduates to Perform Academic Activities in the Cloud", *International Journal of Development Research*, 7, (08), 14626-14633.

INTRODUCTION

Although it's a relatively young industry, many companies offer cloud computing services. One of those companies is Google. The Internet giant offers a suite of Web-based productivity applications under the name Google Docs. While these applications aren't as complex or comprehensive as the leading desktop counterparts, they have other advantages over traditional software. The most obvious of these advantages is that the applications aren't tied to a specific computer. There's no need to download and install software on a particular machine. Any computer connected to the Internet can access Google Docs. Because each user saves information to the cloud system, he or she can access the same file from anywhere. Users don't have to worry about which version of a document is the most current -- it will always be saved in the Google cloud. Another advantage is that multiple users can make edits to the same files at the same time. This is called online collaboration, and it could streamline teamwork over the Web. Because Google Docs preserves earlier versions of documents, there's no reason to worry about irrevocably changing a file. Collaborating on files might mean changing the way we think about document management. But it might also mean project managers can save time and effort. Google Docs is a free Web-based application in which documents and spreadsheets can be created, edited and stored online. Files can be accessed from any computer with an Internet connection and a full-featured Web browser. Google Docs is a part of a comprehensive package of online applications offered by and associated with Google. Users of Google Docs can import, create, edit and update documents and spreadsheets in various fonts and file formats, combining text with formulas, lists, tables and images. Google Docs is compatible with most presentation software and word processor applications. Work can be published as a Web page or as a print-ready manuscript. Users can control who sees

their work. Google Docs is ideal for publishing within an enterprise, maintaining blogs or composing work for viewing by the general public. Google Docs lends itself to collaborative projects in which multiple authors work together in real time from geographically diverse locations. All participants can see who made specific document changes and when those alterations were done. Because documents are stored online and can also be stored on users' computers, there is no risk of total data loss as a result of a localized catastrophe. However, the Internet-based nature of Google Docs has given rise to concerns among some authors that their work may not be private or secure. This section will elaborate on the introduction to the study which is writing on the cloud: the use of Google documents with Schoology to assist students in improving their academic writing. Writing academic essays in a tertiary education setting can be a rather daunting task for many students. This is particularly applicable in the context of this study where the respondents of this study are facing difficulties when writing critical texts. However, this can be done by introducing the students to cloud based collaborative writing programs. Such programs are readily available online, such as Wikispaces and Google documents.

The use of cloud based collaborative writing programs are not a miracle drug for the students to immediately have their writing skills improved. However, it could be used as a catalyst to guide them in improving their academic writing skills. This is especially true with regards to the use of certain cloud computing platforms to provide collaborative support and feedback to the students (Kafer and Center, 2013). In the context of this study, google documents may be deemed as effective when used as a collaborative writing software, however it lacks any particular place for the lecturer to provide any form of feedback. Calvo, O'Rourke, Jones, Yacef, & Reimann (2011) mentioned of the same issue in his study. However, Calvo et.al took a different approach where a new software was developed to cater to the collaborative writing in that study's context. This study supplemented the feedback element with an online learning management system (LMS) known as Schoology. The use of Schoology can compensate for the provision of feedback and can be used in tandem with google documents. This can be done when Schoology was used to post the feedback for the students on it to tell students what are their strengths and weaknesses when it comes to their essays.

Furthermore, the use of Schoology as a document archive is good as the students will be able to keep all their previous work as well as the feedback given to the students. Studies such as the one conducted by Manning, Brooks, Crotteau, Diedrich, Moser & Zwiefelhofer (2011) pointed out such benefits that the use of Schoology provides in terms of accessibility where the students are able to access their feedback with ease via Schoology. In addition, according Kafer and Center (2013) also mentioned of the use of Schoology as an avenue which provided a place where students could get feedback and support from. This could either be from the lecturer or the students. This is useful as students will not have to be in class to receive feedback as they will be able to acquire such feedback from outside the classroom. Therefore, based on the introduction, the use of Google documents can be conducted together as they both have the potential to help students in improving their writing abilities.

A. Why use Google Docs ?

Work off-site: Prepare for meetings, trainings, and work on projects

Collaborate: work easily with others by sharing the same document, e.g., prepare conference presentation, write articles, plan projects.

Control versions: no need for flash drivers, e-mailing etc. – pull up actual document from homes and other remotes locations

Simultaneous editing: collaborators can edit documents while talking on the phone and know where the latest version is.

B. Why use Google Sheets?

Price: The entire suite of Google Apps is free.

Cloud storage and Portability: automatically saved in the cloud, attached to google account, and accessible from any computer with a browser. No need to worry about another computer having the same version of Excel.

Better cross-platform support: it will work on different platform.

C. Why use Google Presentations?

Compatibility in google presentations: import and export graphics, text formats, PDFs and even Powerpoint presentations without a hassle. They can also publish their creations to the Internet quickly and easily.

Cloud based presentation creation: several different colleagues can access and modify a presentation as it is being formulated.

LITERATURE REVIEW

The concept of cloud computing has many definitions, Sultan (2010) stated that cloud computing is a platform that can be directly accessed via the internet and does not require any form of software installation. An example that Sultan (2010) gave would be that of Google apps, which consists of Google documents. Garner (2010) provides a discussion of how technologies like GD can support collaboration around information and personal knowledge management. Chu, Kennedy, and Mak assessed stu-dents' perception on the effectiveness of MediaWiki and GD in report-writing processes, and ana-lyzed usage experience, severity of potential problems and knowledge management (Chu & Ken-nedy, 2011; Chu, Kennedy, & Mak, 2009). They reported on undergraduate students in the In-formation Management Program, who found both MediaWiki and GD to be effective and enjoy-able online collaboration and management tools. In a study with a total of 1002 students on technologies that may be suited to challenge the combination of Word and email in solving a non-face-to-face collaborative writing and editing task in three-person groups and distributed in time and space, Dishaw et al. (2013) found that GD achieved high scores, much higher than TWiki, both due to its perceived usefulness and ease, and its support for collaboration (real-time up-date editing; email, real-time chat and threaded comments available

within the tool) and the clarity of the collaboration process. Brodahl et al. (2011) highlight the importance of GD and EP claiming that properties and characteristics of the tools provide opportunities for multiple users to work on the same document and afford meta-communication. Oguilve et al. (2012) found that use of GD increased motivation in writing tasks for academic purposes depending on how efficiently students used the tool. Blau and Caspi (2009a) did research on education and psychology students sharing their written assignment for suggestions or editing via GD. "They found differences in psychological owner-ship, perceived quality of the document, but not in [students'] perceived learning, and believe that a collaboratively written document might have higher quality than a document written alone" (Brodahl *et al.,* 2011, p. 79). They conclude that relation between perceived ownership and per-ceived learning is mediated by perceived quality of the written product (Caspi, & Blau, 2011) and improvement suggestions preferred over editing one another's writing (Blau, & Caspi, 2009a, 2009b).

Another study by Al-Zoube (2009) defined cloud computing as a tool for educational institutions that may not possess any technical knowledge in computing to successfully implement these tools smoothly. Sultan's (2010) and Al-zoube's (2009) elaboration of course is derived from a more technical point of view, on the other hand, other definitions are more contextualized to the context of a language classroom. This is seen in Al-zoube's (2009) further elaboration of cloud computing where Al-Zoube (2009) specifies that cloud computing consists of several tools or applications that can be used in a classroom to share, edit as well as collaborate to produce content. Aside from that, Al- Zoube (2009) adds that these tools are low-cost, web-based and easily accessible by the students as long as there is a constant internet connection via a variety of mobile devices and computers. This is concurred by Johnson, Levine, Smith & Smythe (2009) who defines the use of cloud computing as an application that can be used in the classroom situation for collaborative work as well as store data. On the other hand, Johnson, Levine, smith and Smythe (2009) also further elaborates that the use of cloud computing is gradually seeing its feasibility in several classroom situations. Based on the aforementioned studies, cloud computing in education share certain features with both Google documents and Schoology. For example, Google documents and Schoology both are web based software that do not require any form of installation.

In addition, both Google documents and Schoology can be accessed via a variety of mobile devices which includes laptops and smartphones as concurred by the aforementioned studies above. Finally, a similar feature that Google documents and Schoology share that is similar to most cloud computing software that is used in education would be that it is used to collaborate, share and edit the work of the students. Cloud computing's feasibility in education has been investigated in several studies. Wood (2011) investigated the use of cloud computing in the classroom where students collaborated to produce a report. According to Blue & Tirotta (2011) the use of cloud computing has become more and more widely used in the classroom environment due to its efficiency in the creation of materials and facilitating work amongst students. Blue & Tirotta's (2011) sample were a group of teacher trainees and thus they deduced that teacher trainers and trainees become more accustomed to such tools, they can be implemented in future classrooms more efficiently, especially when the teacher trainees have their own classes in the future. Furthermore, Schneckenberg, Ehlers & Adelsberger (2011) conducted a study using cloud computing in the class to facilitate publishing of reflections on wikis, collaborative brainstorming activities as well as peer evaluation. Schneckenberg et.al took an approach where constructivism was incorporated into the cloud computing class. Since students are required to construct knowledge from what they know or they will need to have adequate prior knowledge in order for the students to construct the necessary knowledge for the lesson. Schneckenberg et.al (2011) mentioned of the convenience of cloud computing where the students were able to access and find out about the necessary prior knowledge Schneckenberg et.al (2011) also reported a positive feedback from the students, in favor of the use of the use of cloud computing as part of the class. Based on the studies by Schneckenberg *et al.* (2011), Wood (2011) and by Blue & Tirotta (2011), the effectiveness of cloud computing as a learning tool to guide the students in learning is undeniable especially since it facilitates collaboration, constructivism as well as its efficiency in creating materials. However, another aspect of cloud computing that will be investigated in this study would be the use of a cloud computing as a form of learning management system.

Google Docs

Collaborative tools can serve as a knowledge platform for a community of practice where members of the community can share their knowledge with the group, post information, work together, and critically discuss issues (Cattafi & Metzner, 2007). The use of col-laborative tools is characterized by some of the elements fundamental to a community of practice, including an online presence, a variety of interactions, communication, partici-pation, relevant content, and relationships to a broader subject field of interest. Collabora-tive tools can be used to facilitate computer-supported collaborative learning, i.e., the de-velopment of collaboration by means of technology to enhance learning. In addition, col-laborative tools can enhance peer interaction and group work, facilitate sharing and dis-tributing knowledge and information among a community of learners (Lipponen, 2002). Finally, an essential element of collaborative learning is that learners should be encour-aged to reflect on their knowledge. Collaborative tools allow this reflection to be done collaboratively, moving closer to a fully social constructivist mode of learning. (Brodahl *et al.,* 2011, p. 77)

A. Google Docs

Google Docs brings documents to life with smart editing and styling tools to help you easily format text and paragraphs. Choose from hundreds of fonts, add links, images, and drawings.

1. Academic Activities

Annotated Bibliography

By the time a student reaches the later years of high school, and certainly by the time she's gotten to college, it's likely that she'll be required to write an annotated bibliography, a list of resources that not only includes the bibliographical information of each source, but also a short paragraph summarizing the resource and reflecting on its usefulness for a given project. Usually an annotated bibliography is required as

a part of a larger research paper, but it could stand alone as an assignment that tasks students with seeking out and evaluating sources just for the practice of doing so. And the research tools in Google Docs allow students to locate, read, and cite their sources all in one place. To learn more, see this guide from Cornell University Library on How to Prepare an Annotated Bibliography.

2. Book Review

Instead of a book report, have students write a book review instead. This is certainly not a new idea, but publishing the work electronically allows students to enhance the final product with the book's cover image, a link to the book's page on Amazon, and even links to other titles the author has written or articles on related topics. For models and inspiration, elementary and middle school students can read student-written reviews on sites like Spaghetti Book Club. Older or advanced students might work toward more sophisticated, nuanced review styles like book reviews written on Oprah.com.

3. Collaborative Story

Because Google Docs is cloud-based, multiple people can work on a Doc at the same time. So students can work together on a story, a script for a play, or any other kind of group writing project. They can use the comments feature to give each other feedback and make decisions together. And because students can work from any location with an Internet connection, collaboration isn't restricted to school hours; each group member can work on the project from any location whenever they have time.

4. Media-Rich Research Paper

Any kind of research paper can be given a big boost when done in a Google Doc, because students can insert images, drawings, and links to other relevant resources, like articles and videos. Using the research tools built into Docs, students can research their topics and include in-text citations with footnotes.

5. Super Simple Blog

If you don't want to mess with actual blogging platforms, but want students to be able to experience writing blog posts that contain images and hyperlinks to other websites, this could be accomplished easily in a single running Google Doc.

Class Jobs

	Hand Out Papers	Door Duty	Clean-Up Monitor	Messenger	Librarian	Tech Support
Aug 1-5	Kim	Danny	Leisha	Jai	Kelvin	Mandy
Aug 8-12	Mandy	Kim	Danny	Leisha	Jai	Kelvin
Aug 15-19	Kelvin	Mandy	Kim	Danny	Leisha	Jai
Aug 22-26	Jai	Kelvin	Mandy	Kim	Danny	Leisha

Instead of creating a job chart yourself, have students build it from scratch!

6. Table

Being able to organize information visually is an important skill, and students who understand how to build a table in Google Docs will have a skill for presenting all kinds of information in the future. They can be used as a compare and contrast exercise, to display data from an experiment, or even put together a schedule. Yes, you could do these things yourself, print them, and have students fill them out, but why not have STUDENTS practice learn how to create the tables themselves?

7. Slides : Choose-Your-Own-Adventure Story

Because slides can contain hyperlinks to other slides, students could build a whole story where the reader chooses different options at key points in the story, leading them down completely different paths. The reader would consume the content as a slideshow, clicking on the links themselves as they go through. This could be a pretty massive undertaking, but we all know students who would be totally up for the challenge.

8. E-book

These could take a variety of forms: mini-textbooks, children's books, cookbooks or how-to manuals, personal art or writing portfolios, even yearbook-style memory books. To learn more about the possibilities, see my post from earlier this year on Student E-Books.

9. Magazine

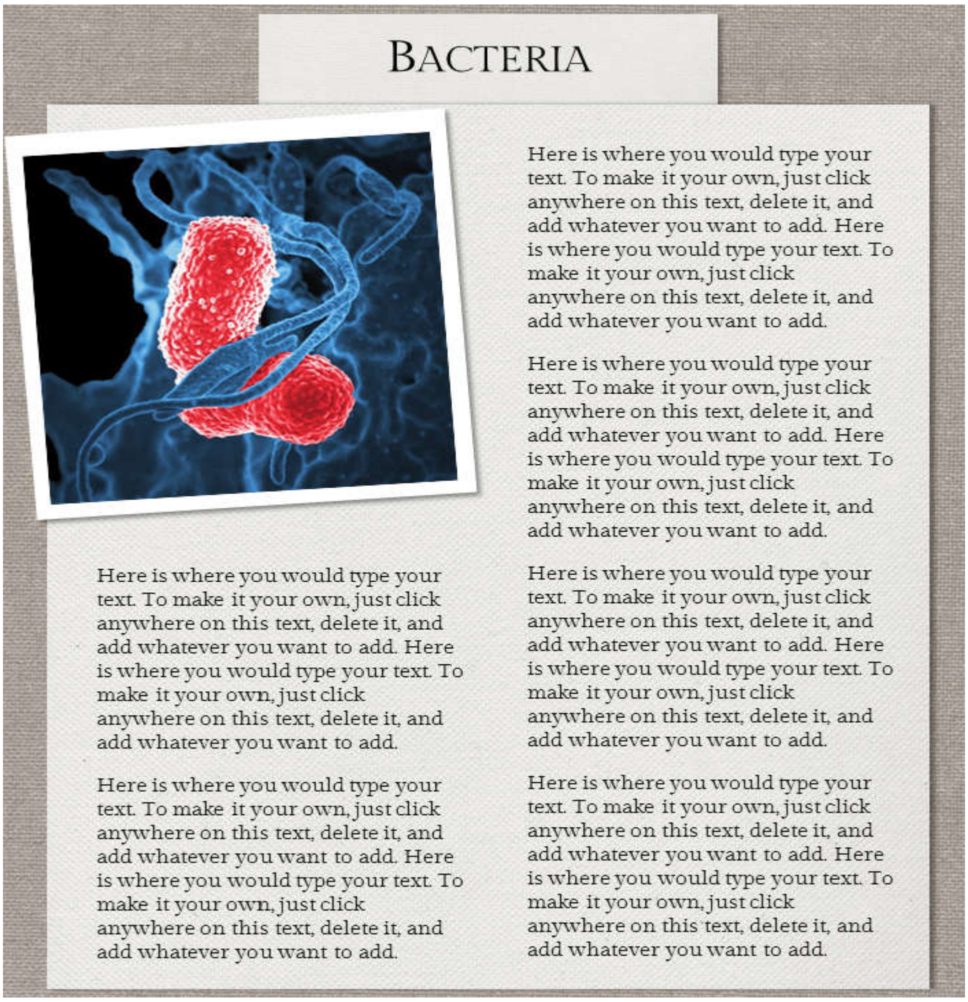
Along the same lines as an e-book, students could use a similar template to create a PDF magazine or newsletter that is shared online on a regular schedule. The possibilities here are endless, useful for student clubs or sports teams, classroom or grade-level newsletters, or magazines put out by groups of students who share a common interest, like gaming systems, soccer, or books.

10. Museum Kiosk

Imagine if we could enhance science fair projects with a looping video display that provides the audience with vivid visuals and text about our topic. Or imagine an art show, where a self-running informational slideshow could be placed beside an art display to share the story behind the piece and photos of the work in progress? This is possible and EASY in Google Slides: Simply create a slideshow, then use the "Publish to the Web" feature to create a slideshow that auto-advances and has no need for a presenter. Pop that up on an iPad or laptop and you're all set. This mock-up of a slideshow on Coral Reefs shows you what it could look like (click the image to open in a new window).

11. Short Film

Students can upload their own images and add text boxes to a slideshow to create an animated story, then record the slideshow with a Google extension called Screencastify. They can either record their own voice as narration, add background music, or both. There are so many different kinds of films students could produce: illustrated stories or poems, final reflections for a 20 Time or Genius Hour project, video



Click the image above to watch a sample Museum Kiosk in action!

textbooks on content-related topics, or news-like feature stories of school or community events. In this quick sample, I added music from YouTube's library of royalty-free music that anyone can use to enhance their recordings:

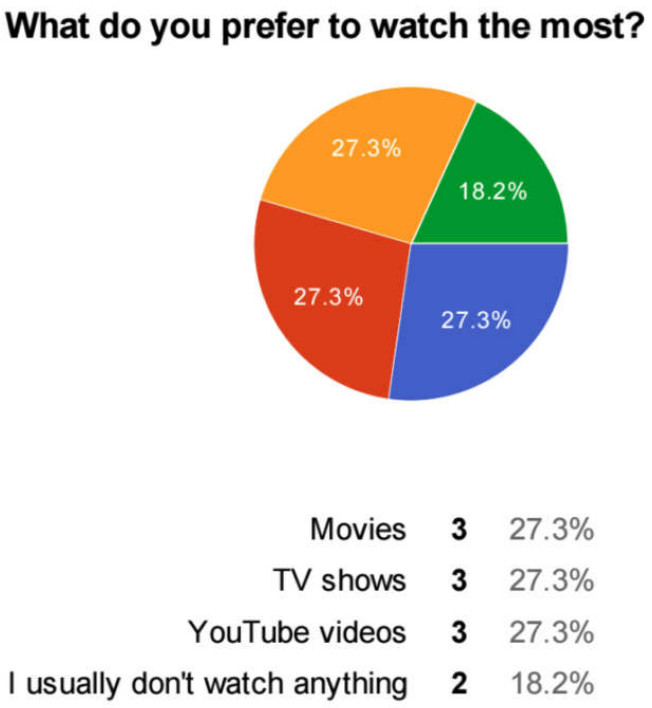
12. Video Tutorial

Using the same screencasting software mentioned above, students could also create their own video tutorials by creating a Slides presentation on their topic (such as "How to Open a Combination Lock"), then recording the slideshow with narration.

This would make a nice final product for a unit on informational writing or a way for students to demonstrate their learning at the end of a unit in science ("How to Take Care of Lab Equipment"), social studies ("How to Measure Distance on a Map"), or math ("How to Multiply Fractions"). Student-made tutorials could even be created to teach classroom procedures. And any tutorials students make could be stored for later, so other students can also benefit from them. Learn more about how Screencastify works right inside Chrome.

13. Forms: Peer Survey

Whenever students need to gather data to support an argumentative essay or speech, let them gather data quickly and easily by creating a survey with Google Forms. Links to the survey can be sent out via email, QR codes, or through a post in a learning management system like Edmodo or Google Classroom. When results come in, students can use them to support whatever claim they are trying to make in their argument, or make adjustments based on what they discover in their research.



14. Feedback Form

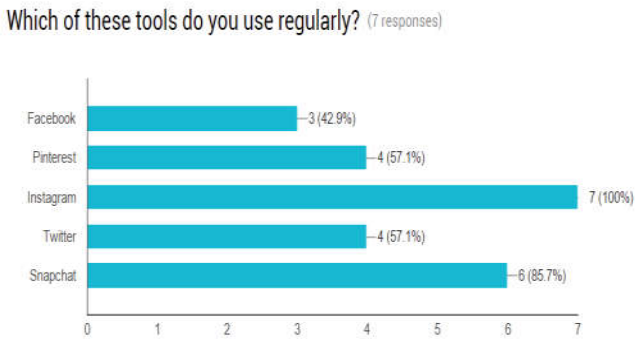
Have students provide feedback to each other's presentations, speeches, even videos using Google Forms. Here's how it would work: Each student creates her own form, asking for the kind of feedback she wants on the project. As other students view or the project, they can be sent to a form to offer praise or constructive criticism, which the creator would then be able to view privately and use to improve the project. Students could even use their feedback to write a reflection on their process after the project is done.

15. Quiz

One great way to learn material is to create a test or quiz over the content. Have students use Google Forms to create their own multiple-choice, True/False, fill-in-the-blank, or open-ended quizzes on the content they are learning.

16. Visual Representation of Data Sets

Whenever people enter responses to a Form, Google allows the form creator to view responses in charts and graphs. Have students gain a better understanding of how data can be represented visually by accepting responses (or entering their own fake ones) into a Form, then looking at how the numbers are represented in graphs. This could work well as a series of math lessons.



17. Dictionary

If you're halfway through writing a report and realize you don't remember the difference between "compose" and "comprise," select Dictionary from the drop-down menu and enter one of the words in the search box. You'll be supplied with definitions and synonyms from sources around the web.

18. Personal

Sometimes the information you need is not out on the Web but rather buried somewhere in your Google Drive account. In that case, use this search option. Select Personal from the drop-down menu and enter your search term and the research tool will return results from your Docs, Sheets, and Slides, as well as images from your Picasa account and posts from your Google+ stream. Click Preview to glance at the content, and Insert Link to insert the item's URL and title. Click Cite to add a footnote citation with the link (documents only). In the case of presentations, you can click Import Slides to choose slides to insert into your current presentation.

B. Google Docs : Tools

1. MobiSystems Office Suite (Android, iOS and Windows)

Office Suite is a long time favorite for many people. The app has changed a lot from its early days. Currently, the developers seem to be transitioning the suite into something closer to Google Drive or Microsoft OneDrive. The idea is to have a cloud storage hub from which to work. Most of the basic features are available in the free version and that's good news. The paid version allows for PDF scanning, a font pack that's compatible with Microsoft, a spell checker, and additional document support. It's one of the better run-of-the-mill office apps. It is also among the most expensive.

2. Documents To Go (Android and others)

Docs to Go is an older app that's been around for quite some time. However, it's still receiving new features and updates. It has the basics, such as word processing, spreadsheet editing, and presentation editing. It does an excellent job of letting you do these things without too much of a setup. The paid version unlocks password-locked files, saving to (and loading from) cloud storage sites, and file syncing with your desktop. It's not great in every situation, but it's one of the more solid office apps.

3. iWork (iOS)

iWork is an office suite of applications created by Apple Inc. for its macOS and iOS operating systems, and also available cross-platform through the iCloud website. It includes Keynote, a presentation program; the word processing and desktop publishing application Pages; and the spreadsheet application Numbers

4. G Suite

G Suite (formerly Google Apps for Work and Google Apps for Your Domain) is a brand of cloud computing, productivity and collaboration tools, software and products developed by Google, launched on August 28, 2006. G Suite comprises Gmail, Hangouts, Calendar, and Google+ for communication; Drive for storage; Docs, Sheets, Slides, Forms, and Sites for collaboration; and, depending on the plan, an Admin panel and Vault for managing users and the services. It also includes the digital interactive whiteboard Jamboard.

5. **Polaris Office**

Polaris Office is a lot like OfficeSuite. It used to be a good, simple office suite. The app isn't simple or small anymore. It does have a ton of features, including the basics along with note taking, document searching, encrypted files, and support for various formats. That includes PDF and Microsoft documents. The free version is serviceable. You can also get $3.99 and $5.99 per month subscriptions. That gives you additional features like the ability to use it on more than three devices along with extra cloud storage. The subscription models aren't great, but the free version is still decent. It's still one of the better office apps.

6. Office suite

Office Suite is a long time favorite for many people. The app has changed a lot from its early days. Currently, the developers seem to be transitioning the suite into something closer to Google Drive or Microsoft OneDrive. The idea is to have a cloud storage hub from which to work. Most of the basic features are available in the free version and that's good news. The paid version allows for PDF scanning, a font pack that's compatible with Microsoft, a spell checker, and additional document support. It's one of the better run-of-the-mill office apps. It is also among the most expensive.

7. Quip

Quip is one of the newer office apps on the list. It's also one of the few free ones. It has a small, but decent set of features. That includes the ability to collaborate on documents with other people. It comes in the form of a chat that you can use to talk to people while editing documents. You'll also get a support for spreadsheets, cross-device syncing, offline support, and various exporting options. It also has cloud storage support. Quip hasn't been around as long as other office apps, but it's better than many of them.

8. Smart office 2

Smart Office 2 is another one of the rare free office apps. The app used to cost money. However, at some point, they decided to let it go for free. It comes with all of the basic features as you'd expect, including support for word processing, spreadsheets, and presentations. It also comes with support for Microsoft Office documents from 2013 and back. You can also use it to view (and save) PDF files, some image files, and WMF and EMF file types. The interface is clean and simple. It's a good option for those who don't need much.

9. Soft maker Office

Softmaker has a lot of office apps. That includes a suite of free office apps. They also have a suite of paid office apps. Both of them are pretty good. There are three apps in the suite, including TextMaker, PlanMaker, and Presentations which are just funny names for word processor, spreadsheet, and, well, presentations. Unlike most, the apps are completely free. Their features include PDF support, TrueType and OpenType fonts, and support for (most) Microsoft file types. You'll have to buy the paid versions of the apps separately. On the plus side, you can only buy what you need. On the negative side, all three apps costs about $15.

10. WPS Office

WPS Office was once called Kingsoft Office. Despite the name change, it remains one of the most popular office apps on Android. With it, you can view and convert PDFs, do the basic stuff (documents, spreadsheets, presentations), and more. It also comes with support for wireless printing, support for Microsoft file types, and support for 46 languages. The app does have ads. There is no way to pay your way out of seeing those adverts. That is unfortunate. Otherwise, it's a solid app.

Conclusion

Our case study suggests that the introduction of cloud based tools was perceived by students, teachers, and district officials to make technology use more accessible and convenient, to enhance cost-efficiency and productivity, and, most importantly, to provide ample affordances for writing practice and instruction.

REFERENCES

Al-Zoube, M. 2009. E-Learning on the Cloud. *Int. Arab J. e-Technol.*, *1*(2), 58-64.

Blau, I. and Caspi, A. 2009a. What type of collaboration helps? Psychological ownership, perceived learn-ing and outcome quality of collaboration using Google Docs. In Y. Eshet-Alkalai, A. Caspi, S. Eden, N. Geri, & Y. Yair.

Blau, I. and Caspi, A. 2009b. Sharing and collaborating with Google Docs: The influence of psychological ownership, responsibility, and student's attitudes on outcome quality. In T. Bastiaens et al. Eds.), *Pro-ceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Ed-ucation 2009* (pp. 3329-3335. Chesapeake, VA: AACE.

Blue, E. and Tirotta, R. 2011. The benefits & drawbacks of integrating cloud computing and interactive whiteboards in teacher preparation. *TechTrends*,*55*(3), 31-39.

Brodahl, C., Hadjerrouit, S. and Hansen, N. K. 2011. Collaborative writing with web 2.0 technologies: education students' perceptions. *urnal of Information Technology Education, 10*, IIP 73-103. Re-trieved from http://www.jite.org/documents/Vol10/JITEv10IIPp073-103Brodahl948.pdf

Brodahl, C., Hadjerrouit, S. and Hansen, N. K. 2011. Collaborative writing with web 2.0 technologies: education

students' perceptions. *Journal of Information Technology Education, 10*, IIP 73-103.

Calvo, R. A., O'Rourke, S. T., Jones, J., Yacef, K. and Reimann, P. 2011. Collaborative writing support tools on the cloud. *Learning Technologies, IEEE Transactions on*, *4*(1), 88-97.

Chu, S. K. W. and Kennedy, D. M. 2011. Using online collaborative tools for groups to co-construct knowledge. *Online Information Review*, *35*(4), 581-597.

Chu, S., Kennedy, D. and Mak, M. 2009. MediaWiki and Google Docs as online collaborative tools for group project co-construction. *Proceedings of the 2009 International Conference on Knowledge Man-agement* [CDROM]. Hong Kong, Dec 3-4, 2009.

Dishaw, M. T., Eierman, M. A., Iversen, J. H. and Philip, G. 2013. An examination of the characteristics impacting collaborative tool efficacy: The uncanny valley of collaborative tools. *Journal of Informa-tion Technology Education: Research*, *12*, 301-325. Retrieved from http://www.jite.org/documents/Vol12/JITEv12ResearchP301-325Dishaw0343.pdf

Garner, S. 2010. Supporting the personal knowledge management of students with technology. *Proceed-ings of Informing Science & IT Education Conference (InSITE) 2010*, pp. 237-246. Retrieved from http://proceedings.informingscience.org/InSITE2010/InSITE10p237-246Garner764.pdf

Johnson, L., Levine, A., Smith, R. and Smythe, T. 2009. The 2009 horizon report: K. *Austin, Texas: The New Media Consortium. Cover photograph:"Chapped Lips" by Vox_Efx on Flickr (http://www. Flickr)*

Journal of Information Technology Education: Research Volume 13, 2014 Cite as: Brodahl, C. and Hansen, N. K. 2014. Education students' use of collaborative writing tools in collectively reflective essay papers. *Journal of Information Technology Education: Research, 13,* 91-120. Retrieved from http://www.jite.org/documents/Vol13/JITEv13ResearchP091-120Brodahl0463.pdf

Kafer, K. and Center, E. P (2013. The Rise of K-12 Blended Learning in Colorado.

Levin, T. and Wadmany, R. 2008. Teachers' views on factors affecting effective integration of information technology in the classroom: Developmental scenery. *Journal of Technology and Teacher Education,* 16(2), 233–263.

Lipponen, L. 2002. Exploring foundations for computer-supported collaborative learning. In G. Stahl (Ed.), *Computer Support for Collaborative Learning: 2002. Foundations for CSCL community* (pp. 72-81. Hillsdale, NJ: Erlbaum

Manning, C., Brooks, W., Crotteau, V., Diedrich, A., Moser, J. and Zwiefelhofer, A. 2011. Tech Tools for Teachers, By Teachers: Bridging Teachers and Students. *Wisconsin English Journal*, *53*(1), 24-28.

Oguilve, V., Vindas, N. and Moya, M. 2012. Google docs to motivate the English writing in an ESP course for Administration. *Revista Comunicación*, *21*(2), 41-48.

Schneckenberg, D., Ehlers, U. and Adelsberger, H. 2011. Web 2.0 and competence-oriented design of learning—Potentials and implications for higher higher education. *British Journal of Educational Technology*, *42*(5), 747-762.

Sultan, N. 2010. Cloud computing for education- A new dawn?. *International Journal of Information Management, 30*(2), 109-116.

Wood, M. 2011. Collaborative lab reports with Google Docs. Physics Teacher, 49(3), 158-159.

https://www.cnet.com/how-to/10-features-of-google-docs-you-should-be-using/

https://www.cultofpedagogy.com/google-student-projects/

http://www.pcworld.com/article/2875953/google-apps/how-google-docs-research-tool-helps-you-find-manage-and-cite-data-easily.html

https://www.cultofpedagogy.com/student-e-books/

http://www.androidauthority.com/best-office-apps-for-android-281250/

****