Cloud Collaboration: Cloud-based Instruction for Business Writing Class

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Abstract

Cloud computing technologies, such as Google Docs, Adobe Creative Cloud, Dropbox, and Microsoft Windows Live, have become increasingly appreciated to the next generation digital learning tools. Cloud computing technologies encourage students' active engagement, collaboration, and participation in their learning, facilitate group work, and support knowledge or information sharing among students. With the cloud features, learning can be accessed anywhere at any time and the world can be a classroom. Students can learn from anywhere and teachers can teach from anywhere. Cloud-based app features such as convenient and on-demand network access to a shared pool of files are indeed providing support for learning and instruction. Learning is now turned into anywhere learning and collaboration, both locally and globally. This study focuses the scope of potential of these cloud technologies for future educators to develop an understanding of how they can be embraced into the instruction. This is a case-study research (n= 28) into the use of cloud-based technology, Google Docs, to support learning in a face-to-face college business writing class. Data pertaining to student Google Docs use and activities will be collected. The first section of this study summarizes the definition of cloud computing technologies with examples of cloud resources. The second section determines the effects of technology, specifically the integration of cloud computing technologies with business English writing instruction, on students' perception of teacher's role. The following section identifies the potential benefits to learning and teaching from cloud-based learning environment.

Keywords: *cloud-based instruction; collaboration; google docs*

1. Introduction

Traditionally, teaching was based on classroom face-to-face lectures and learning was based on attending classes. As the innovation of new technology is developed day by day, teaching is encouraged to embrace new technologies to meet the students' needs. E-learning is now the main trend of leading and integrating the up to date technologies in higher education. Technically, e-learning has been defined as an educational system that delivers the educational resources through the means of technologies, such as Internet, intranet, satellite broadcast and multimedia applications (Alhomod & Shafi, 2013; Urdan & Weggen, 2000). However, education has undergone significant changes with the rapidly expanding technological world in the last decade. The growth of the Internet particularly has leaded the World Wide Web as part of essential elements of e-learning. The new definition of e-learning is that it can be done anytime and anywhere (Charmonman, Brahmawong, & Vate-U-Lan, 2009). As the education becomes progressively digital, access becomes increasingly important. The era of Web 2.0 introduced a variety of cloud-based apps for free and open use, including SkyDrive, Dropbox, and Google Apps that have been developed for network access. Thus, the future delivery of education is seen through cloud-based applications providing teachers and learners with advanced access tools. In the era of Web 3.0, it becomes common for the users to access data through the cloud-based apps from their mobile devices.

This study focuses the scope of potential of cloud technologies for future educators to develop an understanding of how they can be embraced into the instruction. This is the research into the use of cloud-based technology, and particularly Google Docs, to support collaborative learning in a face-to-face college business writing class.

2. Literature Review

2.1 Cloud Computing

As e-learning becomes increasingly grow, higher education has witnessed the explosion of cloud computing or Web 2.0 technologies (Smith & Caruso, 2010). Cloud computing uses the Internet and central remote servers to maintain shared documents, files, software, knowledge, and applications through a cloud-based service that computers or mobile devices can access on demand. Cloud-based services are free for users to support learning, social interaction, publishing and collaboration. A user of cloud computing can access to stored data and applications anytime at anywhere. Cloud computing could be the future and it is indeed already used extensively in education for a wide variety of functions including documents, spreadsheets, collaboration, videoconferences, and e-mail (Slahor, 2011). Examples of cloud-based services include Google Apps, Dropbox, and YouTube.

Essentially, cloud computing is beneficial to the school administrators, educators, and learners. It is important for the educational sectors to use cloud formation with their budget restrictions. Meanwhile, the accessibility of cloud computing attracts learners to analyze their data in greater depth (Susa, 2009). It is envisioned that, in the near future, cloud computing will have a significant impact on the educational and learning environment, enabling their own users including administrators, instructors, and learners to perform their tasks effectively with less cost and more accessible cloud-based apps (Zurita, Baloian, & Frez, 2014).

2.2 Google Docs

The Google Docs application allows user to access to shared documents with others as viewers, collaborators, or publishers on the Web (Conner, 2008). It is the real time collaboration of many individuals working on the common document. During the collaboration time, the work could be accessible to anyone from anywhere (Hall, Housala, & Vines, 2010). Google Docs "supports synchronous editing and comment writing, and saves versions of the document, options that afford real-time collaborative learning" (Blau & Caspi, 2009, p. 49). Google Docs application is free for users to share and edit a document with others, offer suggestions through comment writing, or publish a document on the Web. Similar to other Web 2.0 apps, Google Docs empowers the collaboration with others in real time, creating and editing documents online (Scardamalia & Bereiter, 2006). More importantly, the users of Google Docs can also edit documents without an Internet connection. The revised work of documents is saved to the browsers as offline and saved next time connecting to the Internet.

2.3 Collaboration

Collaboration is defined as individuals working together in groups towards to the shared goal collectively. Learners learn best when they actively involved in the learning process through social interaction with the immediate learning environment (Vygotsky, 1978; Woo & Reeves, 2008). They are encouraged to discover their own solutions and to try out ideas and hypotheses. The responsibility of the instructor is to facilitate the students' learning process as a facilitator so that students can exercise their capabilities in knowledge formation (Doolittle & Hicks, 2003). Macdonald (2003) studied online collaborative environment and concluded that the quality of the product was actually higher when composed in an online environment. Study (Tsay & Brady, 2010) also support that cooperative learning is an active pedagogy that fosters higher academic achievement. Five important components elements identified in cooperative learning include positive interdependence, individual accountability, group processing, social skills, and face-to-face interaction (Johnson & Johnson, 1989).

In addition, studies (Wang, Yu, & Wu, 2013; Wang, 2013) showed that the integration of social networking sites into instruction could actually promote students' collaborative learning and enhance students' learning as well. Wang (2013) studied mobile assisted social e-learning and concluded that students perceive better quality of learning in a socially connected Web 3.0 learning environment. In collaborative language learning, interaction is the key element as a means of identifying quality of learning for improving performance and developing language skills (Dippold, 2009). Indeed, there are clear benefits particularly on interaction from the use of Web 2.0/3.0 technologies in education.

2.4 Purpose of the Study and Research Questions

The aim of this study was to gather information about college students' learning impacts and their learning experiences of the business writing class through the use of Google Docs app in a collaborative e-learning environment. The study focused on the impacts of sharing or collaboratively working on common documents using Google Docs on perceived collaborative learning in a college English Business Writing class.

(1) What students do on Google Docs activities?

(2) What effects does cloud-based instruction have on the academic grades of students in a business writing class?

(3) What are the impacts on teaching and learning using cloud-based instruction?

(4) What benefits do the students can obtain from Google Docs use in the business writing class?

3. Method

3.1 Participants

A total of 28 undergraduate seniors (80% females) from the Department of Applied Foreign Languages at the National Formosa University of Taiwan received two academic credits for participation in this research. The mean age of the participants was 22.1 years. None of the participants had experiences of using Google Docs before, but all reported that the application was easy to use (Mean= 3.6, scale of 5-point).

3.2 Group Project and Individual Assignments

A group project was a major assignment in this course. Each group was comprised of 3-4 students and required to design a business proposal project. Students were asked to complete the business proposal and submit their projects within 6 weeks. The mission of group project was to enhance students to learn from each other, and collaborate with others. The group project also provided students with opportunities to recognize how to work with their peers in cloud learning environments. The primary course objective was to encourage students to collaborate with others and provide an easy-to-access data Web 3.0 tool between classes.

Throughout the semester, students participated in this course were required to complete reading tasks, processes of peer feedback, sharing, editing, and cloud collaborative tasks. A total of 6 homework was assigned and everyone was required to complete and submit his/her homework within 2 weeks. The purpose of these individual assignments was to encourage students to share or obtain suggestions with/from their peers on document editing through the Google Docs collaborative tool.

3.3 Instruments

For the purpose of this study, a survey including 26 close-ended questions was developed regarding the students' perspectives of effectiveness of cloud-based collaborative learning environment. The first section of the survey obtains students' background information, including (1) demographics, (2) where to access cloud, and (3) frequency of using Google Docs activities. The second section examines students' collaboration which is divided into 5 subscales including positive interdependence, individual accountability, group processing, social skills, and face-to-face interaction. The final section investigates what benefits students can obtain from the use of Google Docs. Responses in the last two sections are complete on a five-point Likert scale ranging from "definitely agree" to "definitely disagree". The researcher piloted the instrument with an E-learn expert and five students who were not participated in this study to ensure that the questions would be interpreted correctly. Based on the feedback, the survey was modified and clarified for the internal validity. The internal reliability in this study was good; Cronbach's α= .82.

3.4 Procedure

This research was conducted in Business Writing class, one-semester course work which met in two 50-min lecture sessions with a once-a-week, at the National Formosa University, a vocational 4-year college in central Taiwan. At the beginning of the study, the participants (n= 28) were introduced to the course content and to the cloud learning environment. During the second week of the semester, the students were introduced to the Google Docs app and received an hour-long training session on how to use Google Docs working or co-write a group project together. Therefore, during the training session, those who did not have a Google Gmail account were asked to create a free Google account in order to open (login to) the Google Docs website. All students were asked to create their first document, save and retrieve the file as they would do on a Microsoft Word application. Then they were taught how to tag and share a document with another reader. Meanwhile, they were given an opportunity to view their peers' document and a permission to edit and co-write the document. A variety of course activities along with Google Docs include in this study were described in Table 1.

Table 1. Google Docs Activities

Feature	Class Activity
Reading	Reading the assignment instructions;
	Reading others' documents
Editing	Editing one's own document;
	Editing others' documents
Suggesting	Providing suggestions on others' documents
Sharing	Posting and sharing one's own documents

During the study, each of the students was asked to read the academic materials as different business scenarios in the cloud and was required to write six different writing styles of documents with up to 300 words as his/her individual assignments, including inquiry email letter, requesting email letter, invitation message, concerning payment, memo and fax, and complaint letter. After students were getting more familiar with Google Docs app, at the week five they were assigned a term project, designing a business proposal. The students were highly encouraged to work in groups, using Google Docs to collaborate with whom they gave permission to edit and work with. The focus of this feature was to encourage students to continue their work and share accomplishments anywhere and anytime in cloud. While working with others, the students also interacted with their instructor regularly in the cloud. The instructor edited the phrases, sentence structures, and posted his comments and shared compliments in this cloud-based learning environment both to their individual and group assignments. Though Google cloud has a perfect track record, the instructor still recommended his students to store their documents both online and on hard-copy. At the end of the study, a survey was administered during face-to-face class session. Participation was voluntary and students were not required to provide any personal information such as name or contact number in the survey.

4. Results

4.1 Google Docs Activities

Research Question 1: What students do on Google Docs? Frequency of Google Docs activities was broken down into 5 categories: never (0%), rarely (25%), sometimes (50%), somewhat frequently (75%), and very frequently (100%). Drawn from the results of this study, most of the respondents (81.45%) are between the ranges of 75% to 100%, indicating they are somewhat frequently and very frequently viewing their peers' documents while only 24% of the respondents writing down their suggestions to others.

4.2 Effects of Cloud-Based Instruction

Research Question 2: What effects does cloud-based instruction have on the academic grades of students? To answer this research question, the individual assignments that participants carried out during the activities were evaluated. The means (maximum 100) of each assignment were found as shown in Table 2. The first assignment scored 75.46 at the beginning of the cloud-based instruction. The last assignment scored 78.43. The results indicate that the cloud-based instruction was effective.

Table 2. Means of Individual Assignments

Assignment	1	2	3	4	5	6
Mean	75.46	74.01	76.22	77.85	78.52	78.43

4.3 Collaboration

Research Question 3: What are the impacts on teaching and learning using cloud-based instruction? It was important to ascertain to what extend students perceived the effective cloud-based pedagogical practices in terms of collaboration. A total of 28 students completed the survey. The results showed that students experienced the cloud-based learning environment of the writing course with a mean score of 3.12 (SD= .43) as shown in Table 3. Students rated the highest on the subscale of positive interdependence (mean= 4.21, SD= .28) and the lowest on the subscale of face-to-face interaction (mean= 2.21, SD= .58).

Table 3. Students' Experiences to Collaborative Learning Environment in Cloud

Subscales of Collaboration	Number of Items	Mean	Std. Deviation
Positive Interdependence	4	4.21	.28
Individual Accountability	3	3.98	.45
Group Processing	3	3.76	.64
Social Skills	3	4.02	.21
Face-to-Face Interaction	3	2.21	.58
TOTAL	16	3.63	.43

Particularly, for the subscale of positive interdependence, a majority of the respondents (81.21%) truly believed that their efforts benefited their group towards to the group project. In addition, they (76.54%) agreed that they obtained support and encouragement in completing the assignments. Hence, along with the collaboration with others or suggestions from others, the students could speed up their learning.

4.4 Benefits from Google Docs

Research Question 4: What benefits do the students can obtain from Google Docs use in the business writing class? The mean scores and standard deviation of attitude surveys collected from the participants were tabulated in Table 4. In terms of students' attitudes toward the use of Google Docs and online collaboration, the overall mean score was 4.40, a rating indicating positive agreement about the attitudes for their benefits from Google Docs. About 72% of respondents felt that collaborating on a common document help them increase collaboration efficiency. Most of the students (82%) also reported that using Google Docs made their work easier. The data suggests that adding information or editing on a common document made the students' work easier completing their group project. The results were consistent to the previous study (Majchrzak, Wagner, & Yates, 2006) that participation on a corporate wiki made work easier.

Table 4. Benefits Obtained from Google Docs use

Benefit	N	Mean	Std. Deviation
Improving work processes	28	4.23	.43
Making work easier	27	4.56	.24
TOTAL		4.40	.34

5. Conclusion and Discussion

5.1 Summary of Findings

The purpose of this study was to examine to what extend Google Docs app has benefited the learners to work on academic writing work. Data gathered through student surveys were described and analyzed the impacts that Google Docs has been integrated into the instruction to improve collaboration. In response to research questions, the findings were then summarized as in Figure 1.

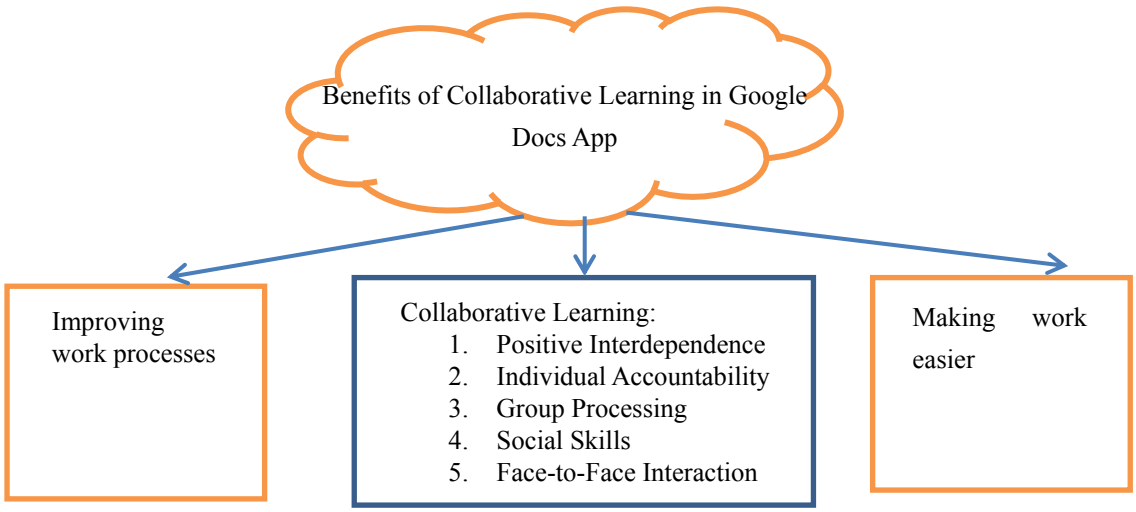

Figure 1. Benefits of Collaborating Learning in Google Docs

5.2 Discussion

Developing students' collaboration and promoting the experiential learning through effectively apply their knowledge into communicative and collaborative learning opportunity throughout the semester were the main focus in this study. Collaborative with the cloud-based teaching and learning environment among peers, the students participated in written discussion for true communication purpose; therefore, they ameliorated their communicative proficiency. The results of this study indicated that cloud-computing technologies could be an effective tool for educational use particularly when students are separated by time and place between classes. Teaching approach can be aided by Web 2.0/Web 3.0 tools as mediating mechanisms between collaborating students and between students and teachers without time and place boundary. More importantly, students learned how to effectively work and learn with/from others either by class work or group projects, thus then to encourage collaborations and would strengthen their skills of technological system research and broaden the perspectives international. The researchers also believe that teacher's role can be changed from a knowledge-provider to students' guided in their search for knowledge, and from a classroom lecturer to a coursework designer through a cloud Web environment.

Additionally, Google Docs improves the quality of the work process and collaboration efficiency. These improvements were the result of the contribution of more than one peer to a common goal through the cloud-computing technology as consistent to the previous study (Scardamalia & Bereiter, 2006). Taking advantages of easy-to-access of the cloud-computing technology, the students are able to access the documents, add information, and edit the work, 24 hours a day. This is definitely significant that learning indeed is being occurred and accessed 24/7/365 from anywhere at any time. Thus, cloud-based applications seem to be the future delivery of education with advanced access tools.

5.3 Limitations

While this study provides importance guidance toward a more holistic framework for the integration of collaborative activities in a cloud-based application learning environment, it must be noted that this study is just one preliminary investigation. All students who volunteered to participate in this study took the same class, so the students represent a distinct population within the university. As such, the sample size was very small and may not be representative of all the university students.

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