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Preferences and Experiences of Google Apps in Collaborative Teaching and Learning

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Abstract

The progressive development of higher education is probably to be driven by the readiness to acclimatize and nurture with the practice of communication technologies in all teaching, learning and research areas. Google Apps for Education is an essential collection of competent applications that Google offers to all learners and educational institutions across the world. The study was intended to survey the graduate and post graduate teachers' preferences, expertise, practice, and their insights of the advantage and the challenges to use Google Applications in support of practicing teaching and learning activities. The study adapted both qualitative and quantitative methods. Findings of the study exhibited that 155 (41.33%) participants were intermediate users of Google applications while 86 (22.93%) respondents conveyed that they have expert knowledge and remaining 25% testified having little or meagre experience in applying cloud computing technology. Majority of the study respondents opined that they use these Google Apps for the communication purpose and sharing and retrieval of information, to access teaching learning materials and they also revealed that these apps are most appreciated means of advanced education and learning. It was also observed from the findings that there were some challenges such as inexperience and awareness in usage of these Apps, lack of knowledge and deficiency in collaborating and integrating ICT skills.

Keywords: Google Apps, Teaching, Learning, Teachers, Learners, Undergraduate

Introduction

Google is not just a search engine it is more than that, there is lot more to explore. It can be incorporated and applied in all academic activities beyond the four walls of the conventional classrooms integrating ICT into teaching and learning. Google Applications is a cloud-based bundle of information services that can offer any educational institution with a complete innovative technique to execute digitally and it is just not the application of e-mail and one-to-one conversation, nevertheless carrying out live audio-visual sessions, meetings, interactions and discussions, social networks, real-time executions and much more.

It's a commanding cloud computing tool that works for all academic activities irrespective of geographical area, space, time and the tool that you are using to access information. These Google apps allow users to work virtually on the cloud using their own set of documents, projects and presentations. This kind of communication interface unlocks networks of interaction and collaboration to online learning educational organizations, service providers and students of all ages and groups.

Google is offering number of applications where both teachers and students can practice it within the four-wall settings and beyond. Google Documents, Gmail, Google Drive, Google Maps, Google Chrome, Google Slides, Google Plus, Google Scholar, Google Calendar, Google Docs, Google Slides, Google Sheets, Jamboard, Blogger, Podcasts, YouTube, Translate and Google Meet are some of the popular applications accessible to the open world and 77% of the study participants were aware of these Google Apps. It is one of the best-known cloud computing applications which has gained lots of acceptance and popularity that can be effectually adapt in teaching and learning for the exchange of information among the teaching and student community.

The study observed about the mounting interest in integrating web-based applications into academics. MOODLE, Talent LMS, Screencastify, Edmodo, Canvas, Blackboard, Google classroom are some of the popular learning management system tools available on the web. Google is offering much more flexibility and applications that can be easily synchronised into academics. "Google Apps is one of the best-known applications available educational tool that includes Gmail, Google Sites, Google Calendar, Hangouts, Google Sheets, Google Drive, Google Slides Google Docs and Google Meet". (Google, 2015 & Mansour, 2013) And these

applications can offer a wide variety of properties and facilities that comprise information communication, backing up of documents, developing Websites, by creating and editing by collaborating with the documents and presentations. (Aishwaier, 2012)

Review of Literature

It is observed from the earlier literature that integration of Google applications in teaching and learning has the influence to augment academic activities by enabling an operative, easily blending and collaborative learning atmosphere that supports the societal theories of learning**.** (Cahill, 2014)

Ravi Shankar (2012) stressed on the online platforms that have been intended to offer free and versatile access to education, one best example is, massive open on-line course with the main objective of offering education to all potential learners irrespective of distance, time geographical area, physical space limits.

Another instructional benefit to the use of Google Apps is enhancing collaboration and sharing content**. (**Lakshminarayanan, et.all, 2013). Google Applications for teaching and learning is a cluster of web-enabled cloud computing tools that will always running on a web enabled browser, without purchasing or installation of a particular software. By a simple login with the e-mail address to the services, any learner can effortlessly access number of services and tools from any internet connected system (Educause Learning Initiative, 2008)**.**

Fawzi and Aburezeq (2016) examined pre-service teachers' use of Google Apps to support teaching and learning in UAE. The study results exhibited that majority i.e., 63% of the participants were progressive and experts in Google applications, whereas 24% respondents reported that they had transitional experience and only 13% testified in the study having little or no experience (Fawzi & Ibtehal. 2016).

Purpose of The Study

We can see number of studies on the application of Google Apps but there is a research gap in the literature related to the perception and application of Google Apps by the Undergraduate Teachers of Karnataka State**.** Visualising the future of the teaching community

who will play a substantial role in synchronising technologies in colleges, this research was carried out to examine undergraduate teachers' perceptions and applications of Google Apps as a tool of teaching and learning. Predominantly, this study explored undergraduate teachers' competency in exploiting Google Apps in academic activities and their insights of the assistances and challenges to the usage of Google Applications. It is very much necessary to study and understand the adoption of Google application in education as an innovation and using these apps has become an essential fragment of teaching and learning communities.

Objectives of the Study

Some of the major objectives of the study are

1. To examine the Karnataka state college teachers, use and attitudes towards application of Google apps in higher education institutions

2. Awareness of Google Apps and its implementation in classroom teaching and learning among the teachers of Karnataka State

Research Methodology and Data Analysis

The study sample consists of 375 undergraduate and post graduate teachers working in 95 colleges that comes under Department of Collegiate Education of Karnataka state. To simplify and for the ease of involvement of the participants, simple random sampling method was adopted. Data collection was done through distributing the online questionnaire using Google form. 450 questionnaires were distributed out of which 375 questionnaires were completely filled and accurate. Regular follow up's and through frequent telephonic calls, the study was able to get maximum filled in questionnaires back. In this study number of faculties who completed the questionnaire was 375 with a successful return rate of 83.3%, out of 375 teachers, 224 (59.73%) were males, and 151 (40.27%) were females. The participants age ranged between 26 to 59 years. A description of participating teachers by their gender and speculative subjects/streams is presented in Table 1.

To accomplish the objectives of the study, a mix of methods and with the strategic approach was applied. It's a method which is dependent on knowledge base that prerogative

on rational grounds such as situation oriented and problem centered.[9]. With this strategic approach, the study underwent with the quantifiable questionnaires to simplify the outcomes of the study of sample population.

Table 1: Gender Wise Distribution of Participants by Their Academic Specialization

Subject	Gender		Total	Percentage
	Male	Female		
Arts	**63**	**41**	**104**	**27.73%**
Commerce & Management	**86**	**51**	**137**	**36.54%**
Science	**57**	**77**	**134**	**35.73%**

In the above table 1, it is observed from the study that 104 (27.73%) participants are from Arts subject, 137 (36.54%) from Commerce & Management subject and the remaining 134 (35.73%) are from Science stream.

Use of Computers, laptops, smartphones and its features by the Teacher's in Teaching and Learning

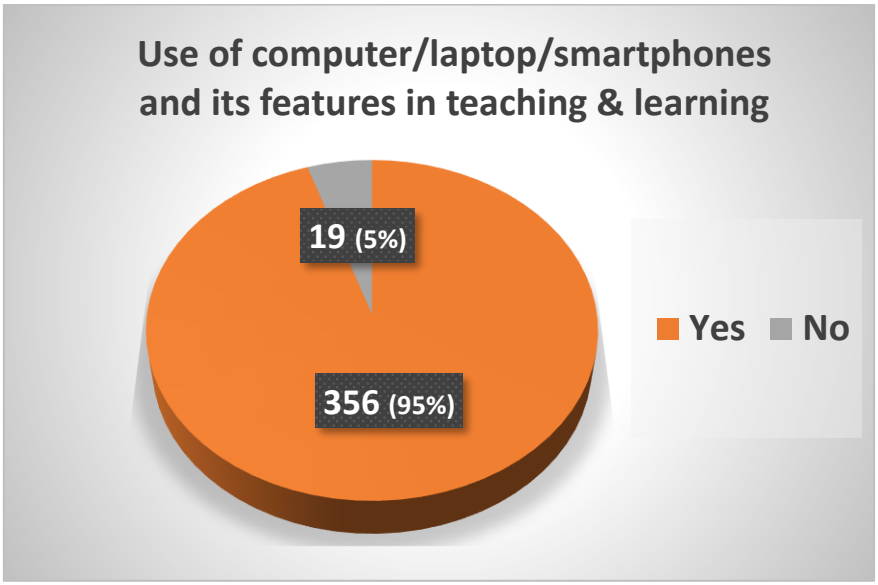

Figure 1: Usage of Computer/laptop/smartphones and its features by Teacher's

The above figure 1 shows the findings of the study that majority, i.e., 356 (95%) respondents agreed that they use computer, laptops or smartphones in one or the other academic activities and only 19 (5%) participants rarely or not much used the electronic gadgets.

Use of cloud-based Google applications among the Teachers

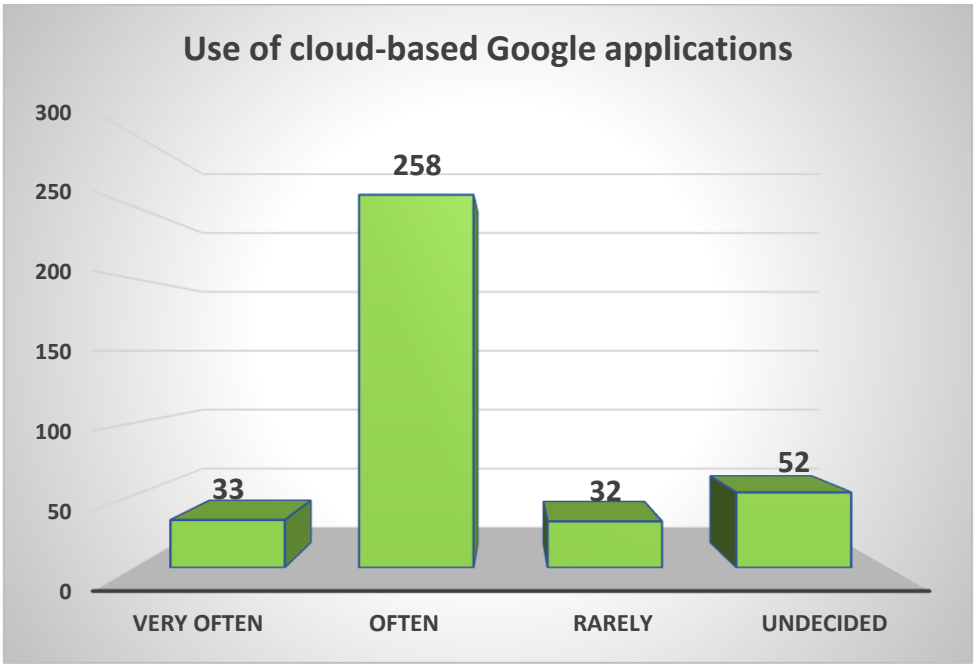

Figure 2: Use of cloud-based Google applications among the Teachers

In the above figure 2, 258 (68.8%) respondents opined often, about the use of Google Apps in their day-to-day life either for academic or personal purposes, 52 (13.8%) teachers were undecided as they were uncertain about the frequency of usage, 33 (8.8%) used very often and 32 (8.53%) respondents rarely used.

Use of Google Apps by the Teachers

Table 2: Use of Google Apps by the Teachers

Feature/Function	Rarely		Occasionally		Frequently		Always	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Send & Receive Information	15	4%	22	5.86%	186	49.60%	152	40.54%
Creating and Editing Documents	45	12%	62	16.53%	124	33.07%	144	38.40%
Collecting, sharing and Analysing Data	77	20.53%	89	23.73%	92	24.54%	117	31.20%
Storing and Backing Up of Information	110	29.33%	92	24.53%	98	26.13%	75	20%
To Access Teaching/ Learning Materials	20	5.33%	68	18.13%	214	57.08%	73	19.46%
To Conduct Audio /Video Chat	41	10.93%	62	16.55%	145	38.66%	127	33.86%
Develop Sites or Blog	95	25.33%	171	45.60%	68	18.14%	41	10.93%
Online Classroom	201	53.65%	110	29.33%	35	9.32%	29	7.70%
Online Collaboration with Documents and Assignments	91	24.26%	145	38.66%	65	17.33%	74	19.73%
Creating and Managing Learning Groups	37	9.86%	64	17.06%	125	33.33%	149	39.75%
Assessment and Evaluation	110	29.33%	145	38.66%	52	13.86%	68	18.15%

In the above table 2, when the respondents asked about the use of Google Apps, it is found that 186 (49.60%) participants used it frequently to send and receive information related to academics and also for personal use, 152 (40.54%) respondents always used it for academic purpose, 22 (5.86%) participants used it occasionally and the remaining 15 (4%) respondents rarely use the Google Apps, Gmail was one of the popular application which was widely used for most of the communication purposes in terms of sending and sharing information as it was very user friendly and most popular when compared to other e-mail

applications such as yahoo, Rediff mail, outlook. Google Scholar was also used extensively when compared to ResearchGate and Academia to share their research work to the knowledge community across the globe. The study found the cloud computing applications in terms of creating and editing the documents, it is observed that 144 (38.40%) participants always used, 124 (33.07%) frequently used, 62 (16.53%) occasionally used and remaining 45 (12%) participants rarely used this app. Google Docs was the app that was used by many of the respondents.

In terms of collecting, sharing and analysing data, the study found that 117 (31.20%) teachers always used this app, 92 (24.54%) frequently used, 89 (23.73%) occasionally used and remaining 77 (20.53%) rarely use this app. Google form was most frequently used app for this application. For storing and backing up of data, Google Drive for document storing/backing up and Google Photos for photos storing and sharing was frequently used. It is seen from the study that 110 (29.33%) rarely used, 98 (26.13%) frequently used, 92 (24.53%) occasionally used and remaining 75 (20%) always used these apps. And to access teaching learning materials 214 (57.08%) respondents frequently used Google Apps followed by 73 (19.46%) always, 68 (18.13%) occasionally and the remaining 20 (5.33%) opined rarely.

Google was the most used search engine to find teaching learning materials on the web and YouTube for academic related videos. To conduct audio-visual chat 145 (38.66%) participants frequently used this app, 127 (33.86%) always used followed by 62 (16.55%) occasionally and only 41 (10.93%) respondents rarely used this app. Google Meet, Hangouts and Duo were the known applications for video calls, online meet and audio-visual chats.

The study found that 171 (45.60%) respondents occasionally used Google App for developing websites and blogs followed by 95 (25.33%) participants who rarely used, 68 (18.14%) frequently used and only 41 (10.93%) teachers always used. Google Sites and blogger were the known apps by the respondents for developing websites and blogs. When the respondents were asked about the awareness and perceptions about online classroom, 201 (53.65%) respondents rarely used these app followed by 110 (29.33%) occasionally, 35 (9.32%) frequently and only 29 (7.70%) participants were aware of these apps. About 17% of the total sampling were aware about the Google Meet. Online classes were handled and conducted by the participants during the lock-down period due to COVID-19 from August

2020 till January 2021. Many of the teachers were unaware and inexperienced in handling the online classrooms using Google Meet. It was understood from the study that offline classes seem to be far better than the online classes as the teachers felt that conducting classes face-to face with the students makes the learning very effectively and transfer of knowledge and learning stays at the maximum level, and this seems to be very effective when compared to online classes. Whatever the technology is, learning will be more effective only when teacher and learner comes within in the four walls of the academic settings. Anyhow online classes may only supplement the offline classes by integrating ICT's into teaching and learning.

In terms of online collaboration with documents and assignments it is observed that 145 (38.66%) participants occasionally used this app, 91 (24.26%) rarely used, 74 (19.73%) always used followed by 65 (17.33%) frequently used these app. And when the teacher participants asked about creating and managing learning groups among the students it is found that 149 (39.75%) teachers always used, 125 (33.33%) frequently used, 64 (17.06%) occasionally used and only 37 (9.86%) respondents rarely used this app in an online environment. And in terms of assessing and evaluating the student's community majority of the participants rarely and occasionally used these app, as many of them were unaware and were not exposed to these applications in online environment.

Competency of skills as a user of Google apps and its services

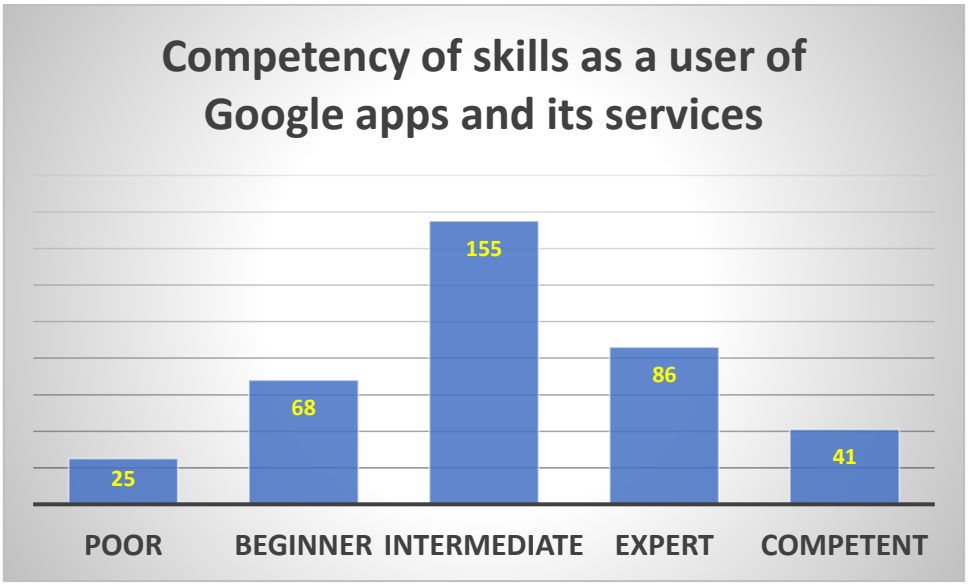

Figure 3: Competency of skills as a user of Google apps and its services

The above figure 3 shows the results about the Competency of skills as a user of Google apps and its services in teaching and learning, and it is observed that 155 (41.33%) teachers were intermediate in terms of competency, 86 (22.93%) were expert, 68 (18.13%) were beginners 41 (10.95%) were competent and only 25 (6.66%) were poor in utilising the Google Cloud applications.

The research data also exhibited that respondents were exposed and experienced with Google Applications. However, majority of the teachers conveyed that they are intermediate ion using Google applications and few were more competent in using some apps when compared to others. On the whole, respondents had a good level of perceived proficiency in using Google Apps to access teaching and learning materials, to send & receive information, to conduct audio-visual chat, to create learning groups, data sharing and for communication purposes

Teachers Perceptions of Advantages of using Google Apps in Teaching & Learning

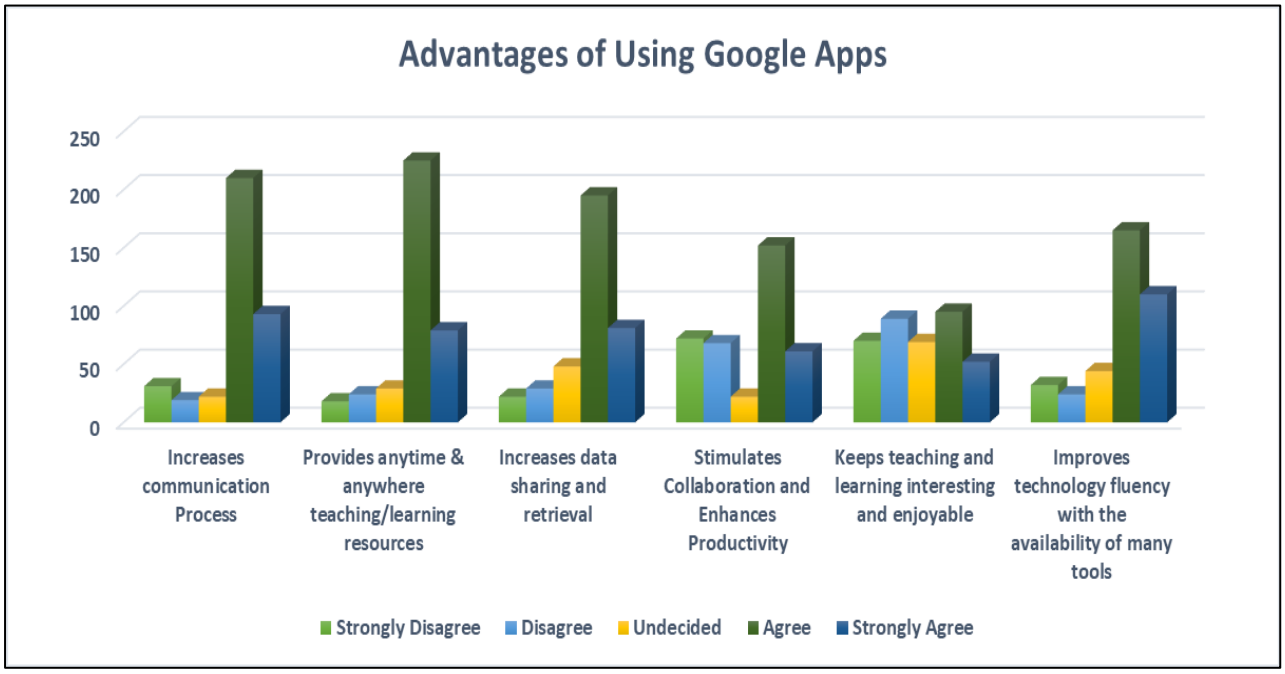

Figure 4: Teachers Perceptions of Advantages of using Google Apps in Teaching & Learning

The practice of using of Google Apps in teaching and learning might take away lots of educational benefits. One of the significant beneficial components of Google Apps is

intellectual exchanging of information, as it allows both the teachers and learners to come together to have a simultaneous interaction and communication instantly. It provides the worldwide platform in conducting virtual meetings, discussions and exchange of information seamlessly. In the above figure 4 the study results showed that 210 (56%) respondents agreed that it increases communication process, followed by 93 (24.80%) teachers strongly agreed. And when it comes to the perceptions and experiences of providing anytime and anywhere teaching, learning with variety of teaching resources it is observed that 225 (60%) agreed to the statement and 79 (21.06%) participants strongly agreed.

In case of data sharing and retrieval, it is seen that 195 (52%) agreed and 81 (21.06%) strongly agreed. And 152 (40.53%) participants agreed that it stimulates collaboration and enhances productivity with 61 (16.28%) strongly agreeing for this issue. When it comes to teaching and learning interesting and enjoyable there was even responses where 95 (25.33%) agreed, 89 (23.73%) disagreed, 70 (18.66%) strongly disagreed and 52 (13.88%) strongly agreed and 69 (18.40%) participants were undecided. For improving technology fluency with the availability of many tools on single platform, 165 (44%) respondents agreed and 110 (29.34%) strongly agreed. Overall, there was a least score for disagree and strongly disagree responses as many respondents felt that Google Apps play a significant role teaching and learning activity and in all corners of individual life.

It is found from the study that Google Apps was used as an available collaborative augmenting means by the students in the collective and shared knowledge practices that extends the learning beyond the four walls of a classroom. And it is also It was observed from the study that this advanced approaches in learning commanded to constructive transformation among the learning students' practices, and also it helps in contributing to the development of digital attitudes towards knowledge acquittance and expertise.

The study examined the teacher participants' use of Google cloud applications and they were invited to evaluate their usage and practice of Google functions and features in their teaching learning associated work. In the table 2, results show that the recognized Google Application features as most used to retrieve information related to teaching and learning, to send & receive information, to chat, to create knowledge groups, to download, upload educative content/videos to develop blogs/websites, calendar for marking the important events, Google Drive one of the amazing platforms to store, backing up information and for

communication purposes. Google Chrome was one of the widely used web browser by the respondents when compared to Internet Explorer, Mozilla Firefox and Microsoft Edge.

During the lock-down period due to COVID-19, many teachers and students have found a way of finding the information resources and platforms in teaching and learning which are of low cost and no cost. There are number of cloud computing applications on the web, but Google Apps is one of the cloud computing applications that has become more popular and common and it is widely believed that it can be used very efficiently in all our academic purposes. As one of the cloud computing services, Google Apps are very much customised and ease to use, productive, dependable and convenient augmenting academic communications in higher education institutions involving both tutor and learner, whereas Google Apps cloud services can be reached anywhere and at any time by connecting your device through the cyberspace.

Many colleges and universities in India have been using Google platform as an effort to meet the challenges of the post pandemic issues of 2020 as well as to adapt ICT. As these cloud computing applications offers us a productive solutions and feasible options in teaching and learning.

Issues and Challenges Using Google Apps by the Teachers

It was found from the study that there was a dearth of access to reliable technology and internet connection, due to work load many participants felt that they could not explore many features of Google. Many participants had lacked the collaboration and integration skills in applying the cloud computing solutions. Many of them had raised the limited formatting and editing features of Google in preparing the documents. There was deficiency of offline technical support to the teachers. Teachers unwillingness in effectively collaborating and sharing knowledge with each other. Many teachers had the deficiency of knowledge and skills of operative incorporation of Google Applications in support of teaching and learning.

Conclusion

The study tries to provide a consideration of Google cloud applications and the probable influence, preferences and experiences of the teachers and also tried to explore the pertinency

of Google Applications in the classroom environment. Google cloud applications has meaningfully enhanced the way teachers and learners come together offering a shared combined collective platform that effectively provides all the vital applications and technology tools that are needed in this dynamic ever-changing world, in one single platform on the web, in a cost-effective way. Moreover, Google Apps has the limit of reproducing and it is both cost beneficial and easy on the available settings. Application of Google and its adoption could support and enhance the process of teaching and learning. Though the study had some intrinsic limitations, it may assist as a benchmark for further studies. This study gives the basic considerations of Google Apps, in addition to that, its significant role facilitates teaching and learning. As a constructive cloud-computing services, that would work for both teachers and learners any time wherever they are and if implemented and used efficiently the associations among the teachers and students will a have a significant advancement in teaching and learning activities,

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