

SYNERGISM THROUGH GOOGLE CLASSROOM, A BLENDED LEARNING PLATFORM: EFFECTIVENESS, OPERABILITY AND CHALLENGES

Sreetanuka Nath

K.J. Somaiya Comprehensive College of Education, Training and Research, Mumbai (India)

sreetanuka@somaiya.edu

This study entails upon to find out effectiveness of Apps in education. Google classroom was employed for this study. By appropriately interweaving it with face to face teaching-learning, the researcher attempts to judge its effectiveness in terms of achievement, the researcher attempts to document the experiences of the users of Google classroom so as to suggest ways by which it could be made more user friendly. B Ed as well as M Ed students were considered for the study. Moreover feedback from course teachers was taken. Results indicated an existence of synergism while blending Google classroom with conventional class. A positive vibe existed as far as achievement is concerned while comparing it with traditional teaching-learning. Moving ahead it also enlists the problems and challenges faced by the students while using Google Classroom.

Keywords: synergism, effectiveness, operability, google classroom, blended learning

INTRODUCTION

The Indian government is planning huge expansion at all levels of education. While there is no doubt that this will be the decade of change at a transformational scale and pace, India's rise faces daunting challenges. The education system as a whole is beset with issues of quality, access and equity, and change is happening much faster in some states than others. There are not enough places in schools, colleges or universities to cope with the enormous and increasing demand. Traditional approaches to meet this demand will not be sufficient in the time-scale needed (AISHE 2011-12, Provisional).

The three interrelated areas (Equity, Excellence and Expansion) are not new: all have been addressed in various forms in previous five-year plans dating back to 1980. The main difference in the 12th plan is its holistic nature, with a clear focus on quality, or 'excellence', as an overarching guiding principle for expansion and equity. To counter this significant investment in ICT in terms of infrastructure and content development is being carried out. This is where Google cloud and Google apps could play a role on intensifying upon the utilization of ICT aspect in teaching learning (British Council India, 2014). Google classroom could be the prospective towards intensification on this ICT aspect of teaching learning.

Google classroom is available to anyone with Google Apps for Education, a free suite of productivity tools including Gmail, Docs, and Drive. Google Classroom is a blended learning platform for schools that aims to simplify creating, distributing and grading assignments in a paperless way. It was introduced as a feature of Google Apps for Education following its public release on August 12, 2014. It is beyond merely a data storage device and creates online environment for teaching learning. Its aim is to be a paperless educational system. With respect to learning purpose Classroom is designed to help teachers create and collect assignments paperlessly, including time-saving features like the ability to automatically make a copy of a Google document for each student. It also creates Drive folders for each

assignment and for each student to help keep everyone organized. Students can keep track of what's due on the Assignments page and begin working with just a click. Teachers can quickly see who has or hasn't completed the work, and provide direct, real-time feedback and grades right in Classroom (About Classroom, 2014).

REVIEW OF LITERATURE

Studies have produced evidence of differences in online and traditional testing results, typically favoring courses offering a traditional setting to some degree. Waschull (2001) found a trend toward a higher final exam score in traditional versus online students. Ashby, Sadera and McNary (2011) found the highest exam scores in the traditional class, followed by online, then hybrid. Terry (2007) reported that both traditional and hybrid exams were higher than online and Fillion, Limayem, Laferriere and Mantha (2009) likewise reported that hybrid students outperformed online ones. In contrast, Lim, Kim, Chen and Ryder (2008) reported higher exam scores in both online and hybrid courses, compared to traditional. Taking the findings on exam scores as a whole, the picture becomes very muddled, with research demonstrating every possible combination of findings (McDonough, Roberts & Hummel, 2014).

Research on online course outcomes, which has focused primarily on exam scores and final grades, has produced conflicting results. It suggests that outcomes and satisfaction are equivalent in online, hybrid, and traditional courses, and that a student's own diligence and drive might better predict success in online learning. Comparing online to traditional (in class, face-to-face) courses, equivalent exam performance has been reported by many researchers (e.g., Elvers, Polzella & Graetz, 2003; Hemmati & Omrani, 2013; Hollister & Berenson, 2009; Jensen, 2011; McGready & Brookmeyer, 2013; Stowell & Bennett, 2010; Summers, Eaigandt & Whittaker, 2005; McDonough et al., 2014).

Edmonds (2006) found that traditional students received higher exam scores than online students, after controlling for SATs and High School GPA, but the other demographic variables have been largely unstudied. Within individual studies some researchers have reported no significant differences in their online vs. traditional samples (e.g., Waschull, 2001), but this may be attributed to a small sample size. More research on the interplay of demographics is needed. Second, and of great concern to educators and colleges, is the possibility of cheating online. Hollister and Berenson (2009) conducted a thorough analysis to ascertain whether online students' test scores could be attributed to cheating, but found no evidence of cheating online. Further, the studies reviewed in Dr. Colleen's paper (McDonough et al., 2014) do not show that online students overwhelmingly outperform traditional students on exams; on the contrary, most of the research finds that exam scores are either equivalent, or traditional students do better. These results imply that educators need not be too concerned about cheating online, but it is still an issue of concern, particularly among online-learning critics. Third, the format of an online course typically requires the student to be disciplined and self-motivated. Failure to access the online course regularly, coupled with procrastination, can easily result in poor outcomes. Elvers, Pozella and Graetz (2003) found that in an online course (but not a traditional one), procrastination led to lower exam scores.

Another important outcome to consider is the students' level of satisfaction with the course. Some aspects of online learning may be perceived as extremely advantageous to students. For example, students who are afraid to raise their hands in front of a room full of their peers may be much more comfortable voicing their opinions on a web-based discussion board. In contrast, online lectures often fail to maintain student attention the same way that classroom-

based lectures do, and some students are partial to the personal interaction afforded by traditional classes. The importance of student satisfaction is not to be underestimated. In a climate of extreme market competition, colleges and universities need to be on top of student attrition, and faculty members are similarly concerned with their course evaluations for the purposes of promotion and tenure (McDonough et al., 2014).

As with the academic course outcomes, satisfaction outcomes have produced very conflicting results. While some studies have reported increased satisfaction in hybrid and online courses (Hemmati & Omrani, 2013; Lim et al., 2008), others have demonstrated the opposite pattern (Summers, Waigandt & Whittaker, 2005; Terry, 2007). Gecer and Dag (2012), and Kirtman (2009), along with Yudko, Hirokawa and Chi (2008) found that online and hybrid courses received positive ratings overall, and Beqiri, Chase and Bishka (2010) found that online courses were most preferred by males, graduate students, married students, and commuters. However, Waschull (2001) found no difference in satisfaction between traditional and online courses. The satisfaction findings, unclear as they are, may also be attributed to extraneous factors. For example, Arbaugh (2010) reported that instructor teaching presence and response time significantly improved student satisfaction in an online course (McDonough et al., 2014).

Targeted research on underprepared students is generally lacking. Jagers (2011) reported that underprepared students typically do poorly in online coursework for four reasons: 1) the technical difficulties associated with navigating the online content, 2) social distance from classmates and instructor, 3) lack of student supports online, and 4) the lack of structure in online platforms. However, Kim and Lee (2011) suggest that the self-paced nature of the online environment may be beneficial to these same students (McDonough et al., 2014).

Reviews suggest studies on pros and cons for online media, however there is no work on Google classroom regarding its acceptability, effectiveness and problems encountered. Hence the researcher decided to explore possibility of using Google classroom in teaching –learning. Also the researcher decided to gauge the level of achievement through a combination of Google classroom and conventional teaching learning so as to establish a synergistic co-existence. Synergism is interaction of discrete agencies or conditions such that the total effect is greater than the sum of the individual effects (Webster Dictionary). For this study, synergism is operationalized as output w.r.t achievement for those using a combination of conventional class room and Google class room upon those taught through conventional classroom alone or through Google classroom alone.

OBJECTIVES OF THE STUDY

- To develop resources for Google classroom for content from B Ed. Course of Mumbai University.
- To study the effectiveness of learning in terms of achievement through Google classroom by comparing it with traditional face to face learning and understand the impact of the technological solution.
- To study the effectiveness of learning in terms of achievement through Google classroom blending with conventional classroom by comparing it with traditional face to face learning and understand the impact of the technological solution.

- To understand the usefulness of Google classroom in teaching-learning from operational point of view and to enlist out the challenges encountered while experiencing using Google classroom.
- To suggest ways and means to improve upon so as to make Google classroom user friendly.

HYPOTHESES

- There is no significant effect of the treatment on achievement scores when the difference in the pre-test scores of the two groups (i.e. control group and those using Google classroom only) has been controlled (Ho1).
- There is no significant effect of the treatment on achievement scores when the difference in the pre-test scores of the two groups (i.e. control group and those using Google classroom blended with conventional teaching) has been controlled (Ho2).

RESEARCH QUESTIONS

- Is there an existence of synergism in achievement of students while learning through Google classroom blended with conventional classroom as compared to traditional face to face learning and learning through Google classroom individually?
- What were the perceptible challenges faced while using Google classroom from operational point of view?
- What are probable ways and means to improve upon so as to make this app more users friendly?

METHODOLOGY AND DESIGN OF THE STUDY

- For the present study the researcher has selected the Experimental Method by keeping in mind the objectives of the study and the problem. The researcher has used Quasi experimental research design involving Pretest-Posttest Equivalent Groups Design. The pre-tests was administered before the application of the experimental and control treatments and post-tests at the end of the treatment period. Gain scores were compared and subjected to test of significance of the difference between means. Pre-test scores were used in analysis of covariance to statistically control for any differences between the groups at the beginning of the study.
- Survey technique was also employed to understand the problems encountered while operating Google classroom. A questionnaire comprising of few open ended questions was prepared for this purpose.
- The video recordings of students and teacher educators tapping the views about Google classroom were transcribed verbatim. All the answers and the transcribed recordings were read several times to take out the key ideas and phrases from each answer, percentages were calculated based on the number of times the key ideas and phrases appearing in the answers.

SAMPLE OF THE STUDY

Sample for the present study included B Ed and M Ed students and teacher educators of Mumbai University. For the experimental study, 150 students of B Ed level from Mumbai University of which 50 students formed the control group and 100 students were taken as experimental group students. The 100 students of experimental group were divided into two groups of 50 students each. One group was taught through Google classroom only while the other group was through Google classroom blended with conventional classroom teaching. The survey involved 110 respondents comprising of students of B Ed and M Ed level as well as teacher educators.

INTERVENTION GIVEN

The Course content involved pre-reading materials, videos, power point presentations, assignments catering to all domains mainly knowledge and application, analyzing cases, making projects like creation of self learning material and programmed learning material, problem solving. In Google classroom, submissions were done individually as well as collaboratively by the students.

Testing of Hypotheses

Incidental sampling technique was used to select the samples for both experimental and control group. Achievement test was implemented for pre and post testing the students of both the experimental and control group. Thus the technique used to test the above mentioned hypothesis is ANCOVA.

For Students Using Google Classroom Only

In this the experimental group students were taught through Google classroom only whereas the control group students were taught through the conventional method of teaching learning. Means of Pre-test and Post-test scores of Experimental group are 6.4 and 11.8 respectively and for control group are 6.3 and 11.3 respectively.

Source of	df	SSX	SSY	MSX(VX)	MSY(VY)
Among Means	1	2.743902	1127.024	2.743902	
Within Groups	50	4148.537	4780.732	51.85671	59.75915
Total	51	4151.28	5907.756		

Table 1: Summary of ANCOVA of pre-test and post-test scores

The results of ANCOVA of Pre-test and Post-test Scores indicates $F_X=0.052$. From table F df 1/50, F at 0.05 level =4.00, F at 0.01 level= 7.08. Neither F is significant which shows that the experimenter was quite successful in getting equivalent groups. In the next step M_{yx} was calculated.

Source of	df	SSX	SSY	S_{xy}	$SS_{Y.X}$	$MS_{Y.X}(V_{Y.X})$	$M_{Y.X}$
Among Means	1	2.743	1127.024	-55.6098	1204.08	1204.08	
Within Groups	49	4148.53	4780.732	2855.439	2815.332	35.63712	2.1443
Total	50	4151.28	5907.756	2799.829	4019.412		

Table 2: Calculation of M_{yx}

Now, testing the difference for $df = 49$, $t_{0.05}=1.99$; $t_{0.01}= 2.44$ which shows F is not significant. Thus, H_0 is accepted. Thus there is no significant elevation in the achievement

for experimental group students using online material through Google classroom.

For Students Using Combination of Conventional Classroom and Google Classroom

In this the experimental group students were taught using combination of conventional classroom and Google classroom whereas the control group students were taught through the conventional method of teaching learning. Means of Pre-test and Post-test scores of Experimental group are 6.5 and 14.1 respectively and for control group are 6.3 and 11.3 respectively.

Source of Variance	df	SSX	SSY	MSX(VX)	MSY(VY)
Among Means	1	3.75	1540.2	3.75	
Within Groups	50	755.23	5675.3	13.032	182.88
Total	51	758.98	7215.5		

Table 3: Summary of ANCOVA of pre-test and post-test scores

The results of ANCOVA of Pre-test and Post-test Scores indicates $F_X=0.28$. From table F df 1/50, F at 0.05 level =4.00, F at 0.01 level= 7.08. Neither F is significant which shows that the experimenter was quite successful in getting equivalent groups. In the next step M_{yx} was calculated.

Source of	df	SSX	SSY	S_{xy}	SSY.X	MSY.X(VY.X)	$M_{Y.X}$
Among Means	1	3.75	1540.2	76	799.46	799.46	
Within Groups	49	755.23	5480.73	4655.439	3452.332	605.95	5.55
Total	50	758.98	7020.93	4731.439	4251.792		

Table 4: Calculation of M_{yx}

Now, testing the difference for $df = 49$, $t_{0.05}=1.99$; $t_{0.01}= 2.44$ M_{yx} (difference) = 5.55 is much greater than 2.04 at 0.01 level, hence experimental group differs significantly from control group at .01 level. Hence null hypothesis (H_0) is rejected. Thus it shows elevation in the achievement for experimental group students.

FINDINGS OF THE STUDY AND DISCUSSION

The study attempted to resolve some lingering questions in the ever elevating debate surrounding the efficacy of Google apps, focusing on college level utilization. The students using Google classroom only, did not show any remarkable elevation in achievement. While only interacting through Google classroom there could be a lack of personal touch or belongingness. Using Google classroom only may be mechanical or machine like with the human element missing to certain extent. As far as students' perspective, outcomes are important and hence Google classroom could serve as a boom for the education community when combined with conventional mode of face to face learning. The real question for consumers and educators is whether the quality of online learning is comparable to that offered in a traditional face-to-face classroom setting. However In this study it is found that Google classroom when combined with face to face learning had an impact which was much more than that when applied separately thus bringing about synergistic effect. This synergism plays an important role in bringing about steep change in attitude towards learning through Google classroom. Another aspect that adds on to this synergism is extent of usefulness of Google classroom in teaching-learning from operational point of view.

The findings revealed from the questionnaire and interviews were –

65% of the respondents feel that it is an easy way to submit assignments, because assignments are just to be uploaded and posted and if it is already uploaded on Google Drive, then there is no need to even upload it, one just need to select the material or assignment and post.

64% of the respondents found that it is a useful platform for sharing ideas with classmates by writing on wall. Google Classroom has an excellent feature by which one can write on the wall which can be viewed by the other members also.

79% of the respondent feels that it can be used as Flipped Classroom. As flipped classroom groundwork of any concept that is instructional content can be delivered through Google Classroom, and activities, including those that may have traditionally been considered homework, can be conducted into the classroom.

67% of the respondents feel that it is an excellent alternative mode of communication for shy students, those who are reluctant to express themselves. Though Google Classroom features mention that it is time saving but as per the survey it is found that Google Classroom is time consuming which is felt by 55% of the respondents. The probable reasons are as follows: Problem experienced while uploading materials, more time is consumed in uploading and posting assignments, submission took lot of time when internet connection is slow. Google Classroom cannot entirely be attributed for this as there can be several external factors also for more time consumption like slow internet connectivity, internet interruptions, firewalls makes the connectivity slow. Speed of internet goes down when many users are connected to one single server at a time, i.e. the utilization is more than the rated capacity, and then there can be jam in the line which happens especially in colleges where there are multiple users.

60% felt that it is difficult to evaluate the submitted assignments. On the Google Classroom 'students' page the list of students goes on indefinitely. To evaluate any assignment one has to select the file, download to, check it and then again upload it and then send it for each student making it time consuming. Moreover we are following credit based grading system, but in Google Classroom there is no provision of giving grade, only numerical can be given which is not allowed in credit based grading system. Next there is no facility to give marks to different sub questions which add up automatically to give the total. In normal correction teacher can scribble, make circle, write comments but in Google classroom there is no such provision. Some sort of technological innovations can be introduced where we would be able to do the same things using digital pens which we normally do while correcting papers.

One of the complaints against Google Classroom is that many don't know how to use it. Students were posting the assignments on the wall which they were not supposed to do. They were supposed to use 'submit' and 'turn in' buttons. Since they were posting on the wall, in the 'Done' list of classroom their names were not appearing, instead their names were appearing in the 'Not Done' list which was misleading. Consequently the list became very long on the Google classroom wall, which created lots of difficulty in searching materials and files and assignments. Therefore many said there should be a search button which should be used to search files on the Google Classroom Homepage.

Also there was difficulty in logging in. Some sort of guided tour or tutorial system should be provided on student's log in page or some arrows should appear while moving the cursor to guide the navigation or students should be navigated through the process. Some dialogue boxes can appear or feedback should be given in case of any mistake committed or if going on a wrong path. From the survey 67% feels that there should be some sort of orientation towards using Google classroom.

Now it is the age of WhatsApp where everything is there on mobile or tab. Here 89% of

the respondents feel that it should be accessible for mobile or tab, Google classroom should be accessible with Android operating system. It should come as mobile app.

67% were saying there should some sort of offline availability, ability to work on it offline, icon should be available in the play store of mobile where one can work offline and when internet connectivity would be there submission can be done. So storing, drafting and saving can be done offline and can be posted later on when internet availability would be there.

In the present system there are some problems in the notification. When teacher is giving any assignment notification should be given by mail to the students or when students are submitting their answers notification should be provided to the teacher. Survey showed 86% of respondent s felt the requirement of notification. In the present system there is some problem in the notification system. It would be nicer if notification is given by SMS. Recently an inclusion of the notification feature was observed on Google Classroom.

Regarding availability of Google classroom for accounts other than Google Apps for Education presently Google Classroom is available only on education domain. 85% wants it to be available or accessible on other email accounts also.

90% of the respondents feel the requirement of a tutorial menu at the login page of Google classroom. This will serve as an online guide to proceed through at an initial instant.

75% feels that Google classroom could be made more user friendly so that it is accepted by student community in totality.

Concept Map is an excellent tool for representing any concept in an organized manner. At least 65% of the respondents feel that there should be in built provision to make concept map.

64% believe that there should be better security features. At present one code is given which is passed on to the whole class. If the code is passed on to anyone who is not authorized then there could be safety issues. Therefore security features to be more strengthened. When one posts something on the wall that becomes visible to all, thus some security feature can be incorporated or more privacy can be included.

Some More Points which Surfaced out after Experiencing Using Google Classroom are:

Requirement of facility to create collaborative teaching or creating one classroom by more than one faculty; Requirement of feedback from users i.e. statistics about usage of the materials uploaded; Option to invite students or groups separately for different assignments; Facility to give different assignments to different set of students; Facility to generate report card featuring report of students' score in all assigned assignments; Sharing /setting of assignments by multiple teachers not possible. This may be required when multiple teachers are taking same subject; Faculty should have an option to choose graded marks visible or not visible at students wall; Facility for selective activation of course material and assignment links; Addition of features for faculties like messaging or communicating some notice or data with each other; There can be provision that when a material is given that should be rated, like star rating indicating how many times was this material viewed, how much was it useful etc. Some statistics can be created and shown to the teacher to find out the usability of the material.

CONCLUSION

The role of technology is to provide a differentiated teaching, learning and assessment tools, which offers the possibilities of personalized courses of study based on constructivism bases (Voogt & Knezek, 2008). Synergism was experienced when

combining Google classroom with conventional face to face learning giving positive signal towards its acceptability and effectiveness. Google Classroom can be used as Flipped classroom by giving content materials, videos, activities, links beforehand and then discussing the content in the classroom. Moreover assignments could be made paperless. Class notes could be perpetuated in a paperless manner saving tons of paper and ultimately our trees.

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