



An Experimental Study to Compare the Effectiveness of Teaching through Web-Conferencing and Messaging-app on Achievement of Pupil Teachers

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Abstract

Web-conferencing and messaging-app are means of communication that can be easily accessed from anywhere. Purpose of the study is to find effective teaching communication technology for online teaching between Web-Conferencing And messaging-app for pupil teachers. For this study fifty B.Ed. Ist year pupil teachers of S.D.(P.G.) College, Ghaziabad were purposively selected. Experimental and control groups were taught the Vth unit of subject 'Growing up as learners' for 25 days for 45 mins. Pupil teachers' achievements were measured through a test made by the investigator. The study revealed that teaching through web-conferencing and messaging-app are effective mediums of teaching for teaching pupil teachers. It reveals that teaching through web-conferencing is comparatively more effective than that of messaging-app. The study clarifies the confusion of selection of communication technology in times of necessity to use an online tool . Henceforth, web-conferencing should be selected as first preference over messaging-app.

Keywords: web-conferencing, messaging-app, communication, online, mobile-assisted learning, pupil teacher, achievement

Introduction

The 21st century is the age of Information and Communication Technology. The education system in India has undergone radical changes due to the advancement in technology. In tune with the time, access to high speed internet at reasonable cost has made the distances so small that the whole world seems within the reach of human beings within seconds. It has enabled students to have a device for accessing information in their hands. This has a great impact on the teaching learning process. India is second among the top 10 users of the internet using 12% of the global internet according to Mary Meeker(2019) and most of these users are students. Users of social networking are continuously increasing in India from the last 10 years. There is a remarkable increase in the number of users on social networking.

The Teacher Education System in India is facing enormous challenges in different areas like quality teaching, evaluation and teaching professional growth etc. It needs special attention in present day society, where different kinds of situation's force shut down educational institutions completely. These conditions create emergencies to develop a parallel system of education that supports learning and teaching effectively. These factors are the prime movers resulting in the innovation of various aspects of a high education including remarkable changes in the teaching learning process. A number of researches has shown that the internet provides a number of benefits in various fields.

From 2019 the whole world is facing a pandemic named '2019 Novel Coronavirus'. Due to the spread of COVID-19 the Government of India ordered a lockdown from 25 March 2020 which was extended in 4 phases. It restricted movements of people. Education sector was suddenly interrupted since India was not having a parallel system of education which could work in place of face to face teaching and communication. A UNICEF report on the impact of Covid-19 reported that in India, school closures have impacted 247 million children enrolled in elementary and secondary education and 28 million children who were attending pre-school education in anganwadi centres. This situation forced educators to think of alternate means of communication that could be accessed from home. Online education emerged as a boon; via various apps like WhatsApp, Zoom, YouTube etc. Technologies being used for social networking become educational platforms. Teachers were suddenly encountered with various technologies and techniques of online teaching and forced to teach using them. It was a difficult situation for a teacher to select suitable technology for effective teaching. Students too had to adjust to the new technological medium for learning. This situation aroused curiosity in investigators to compare the effectiveness of web-conferencing and messaging-app in teacher education programmes.

Objectives Of The Study

This study attempts to achieve following objectives:

1. To study the effectiveness of teaching through web-conferencing on achievement of B.Ed. Ist year pupil teachers.
2. To study the effectiveness of teaching through messaging-app on achievement of B.Ed. Ist year pupil teachers.
3. To compare the effectiveness of teaching through web-conferencing and messaging-app on achievement of B.Ed. Ist year pupil teachers.

Hypothesis Of The Study

1. There is no significant difference between mean scores of pre-test and post-test of pupil teachers when taught through web-conferencing.
2. There is no significant difference between mean scores of pre-test and post-test of pupil teachers taught through messaging-app.
3. There is no significant difference between mean scores of post-test of pupil teachers when taught through web-conferencing and messaging-app.

Review Of Related Literature

There are many studies related to teaching through video conferencing and messaging-app. Candarli & Yuksil (2011) found students' perceptions of video-conferencing within the of the second and third year students from English Language Teaching Department at Yildiz Technical University attended a videoconferencing class delivered by a native speaker of English related to their field for about thirty minutes. Pre-session and post-session surveys which included both short-answer and likert-scale type of questions were used. The results indicated that students tend to have a negative attitude towards having videoconferencing in their classes at the university.

Paderanga (2014) examined effectiveness and attitude towards classroom teaching with video conferencing in peace education by quasi experimental research design on 222 students who were selected randomly out of 21 sections of Iligan City National High School. Achievement level was compared between control and experimental group by pre-test and post-test by researcher made test. The findings of the study suggest that CVC increases the efficiency and effectiveness of teaching peace education.

Upshaw (2019) researched the effects of video conferencing on listening comprehension and perceptions in the high school spanish II classroom. No significant difference was found in the effects of video conferencing on perceptions of cultural diversity when comparing males and females. Results were not statistically significant on the level of English proficiency and the mean change on perceptions of other cultures.

Al-Samarraie (2019) compared the potential of three different forms of videoconferencing systems: desktop videoconferencing (DVC), interactive videoconferencing (IVC), and Web videoconferencing (WVC). A classification of the videoconferencing paradigms from the constructivism and cognitivism perspectives was provided. The results suggest that current policy and teaching strategies are not ready to provide an accessible and comprehensive learning experience in DVC and IVC. This study offers specific learning opportunities, outcomes, challenges that emerge when using certain videoconferencing systems in both learning and teaching situations.

Amry (2014) examined the impact of using WhatsApp mobile learning activities on the achievement and attitudes of online students at the university. This study compares an independent sample of 15 students whose e-learning process was based on whatsapp activities with a control group of 15 students who received face to face learning in the classroom. The t-test was used to compare the differences between the experimental and control groups. The results of the experimentation show that the group taught through mobile instant messaging performed better.

Cetinkaya (2017) examined the usefulness of whatsapp and the opinions of students. The analysis was that the traditional environment supported by whatsapp was more effective. Moreover , a positive attitude was found in students towards whatsapp usage.

Lyngdoh & Kharkongor (2019) explored the effectiveness of Facebook and WhatsApp for teaching-learning undergraduate students of Martin Luther Christian University in two phases. The results from the study showed a positive impact on the use of Facebook and WhatsApp on teaching-learning undergraduate students. The study found that the experimental group made effective learning progress compared to the control group in both the phases.

Ahmed (2019) explored WhatsApp as mobile-assisted language learning applications in developing motivational levels of Yemeni EFL learners to develop reading, vocabulary, grammar and writing skills. Twenty EFL undergraduate students of Aden University joined a WhatsApp English-medium chat group where they chatted, shared and commented on news articles in English for two months. Participants took a pre-test and a post-test and responded to a questionnaire at the end of the study. Findings revealed that WhatsApp was a very effective application in developing students' motivation to improve their reading and writing skills.

It was found that there was no research done to compare the effectiveness of whatsapp and video conferencing on pupil teachers.

Methodology

Present study compares the effect on achievements of pupil teachers when they are taught through different online technological mediums such as video conferencing and messaging-app. Keeping in view the objectives and hypothesis of the study research method used was an experimental method.

Research Design

In the present study pre-test post-test control group quasi experimental design was used.

Group	Before Experiment	Experimental Process	After experiment
Experimental Group	Pre-test	Teaching Through Video conferencing	Post-test
Control Group	Pre-test	Teaching through messaging-app	Post-test

Both the groups were taught the Vth unit of subject 'Growing up as learners' for 25 days for 45 mins. Pupil teachers' achievements were measured by a researcher-made test.

Identification of variables

i. Dependent variable

Achievement of pupil teachers on the test constructed by the researcher.

ii. Independent variable

Teaching through web-conferencing including text ,video and voice conferencing.

iii. Control variable

Teaching through messaging-app including text and voice messaging.

Sample And Sampling Technique

Growing up as a learner is a compulsory subject in B.Ed. Ist year in C.C.S. University, Meerut. For this study B.Ed. Ist year pupil teachers of S.D.(P.G.) College, Ghaziabad were purposively selected. Out of fifty(50) pupil teachers twenty-five(25) were randomly selected as an experimental group i.e. teaching through web-conferencing.

Data Collection Tool

In the present study, the instrument used to collect data was the achievement test constructed by the investigator. It was administered in an experimental and control group before as well as after the treatment. Initially 30 items were constructed for the test, but 5 were removed after taking expert opinion and tryout. Final test consisted of 25 multiple choice type items from the unit taught. 1 mark was awarded to each correct answer.

Statistical technique

To analyse the collected data following statistical technique were used

- i) Mean and Standard deviation
- ii) t test

Treatment

Students were taught in two groups as experimental and control groups for 24 periods of 40 mins each. Experimental group was taught face to face through web-conferencing (zoom). Control group was taught by audio and sharing images through a messaging-app (whatsapp). Teacher-student as well as student-student interaction was involved in both the groups.

Analysis of the Data

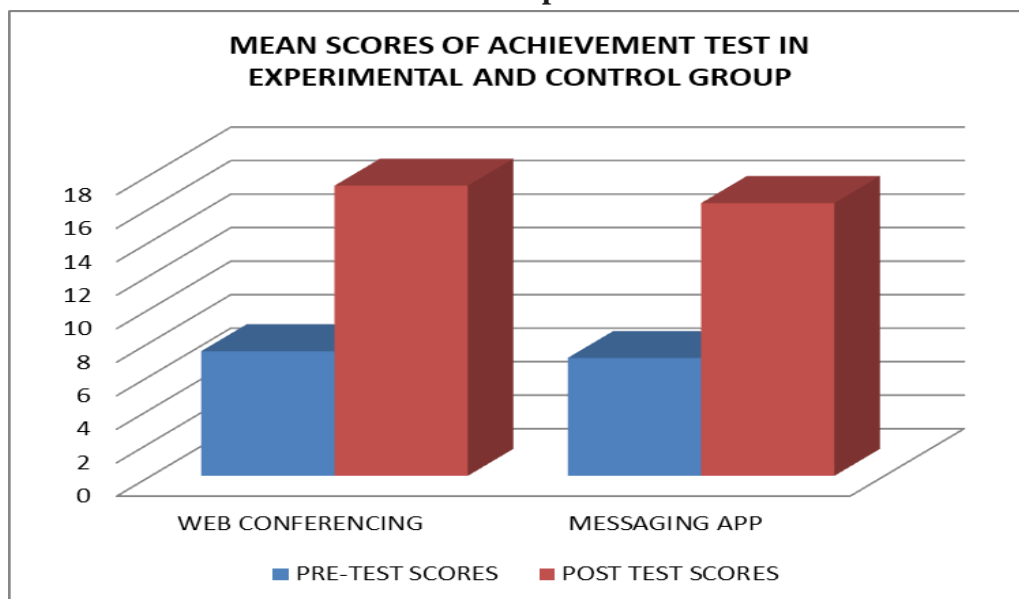
In the present study both the groups were given pre-test to check previous knowledge of both groups in the specific area.

Table 1
Pre-test scores of control and experimental group

Group	N	Mean	SD	Value of t	df	P value
Experimental	25	7.44	1.261	1.102	48	0.276
Control	25	7.04	1.306			

Table 1 shows that no significant difference was found between the means of pre-test scores of control and experimental groups since $P = .276$ which is greater than $.05$. This reflects that both the groups were equivalent hence there was no major difference in the previous knowledge.

Graph 1



Graph 1 shows the mean scores of pre-test and post-test of experimental and control groups. It can be observed that there is improvement in achievement of students after teaching through both the technological tools i.e. web-conferencing and messaging-app.

Table 2
Pre-test and post-test scores of web-conferencing

Scores	N	Mean	SD	Value of t	df	P value
Pre-test	25	7.44	1.261	-41.119	24	.000
Post-test	25	17.32	1.345			

Table 2 shows that $P = .000 < .5$ which is really a small value. Therefore, there is extremely high confidence that the difference between the means of data scores is significant. Hence teaching through web-conferencing is effective.

Table 3
Pre-test and post-test scores of messaging-app

Scores	N	Mean	SD	Value of t	df	P value
Pre-test	25	7.04	1.306	45.670	24	.000
Post-test	25	16.28	1.458			

Table 3 shows that P is $3.80437E-25$ which is really a very small number and less than .05. Therefore, the difference between the means of pre-test and post-test scores of messaging-app is highly significant. Hence, teaching through messaging-app is an effective tool.

Table 4
Post-test scores of control and experimental group

Group	N	Mean	SD	Value of t	df	P value
Experimental	25	17.32	1.345	2.621	48	.012
Control	25	16.28	1.458			

Table 4 shows that $P = .012 < .05$ therefore the null hypothesis is rejected. It interprets that the apparent difference between means of two groups is statistically significant. Hence teaching through web-conferencing is more effective than teaching through messaging-app. It can be said that teaching through web-conferencing has substantially improved the level of performance of students.

Conclusion

The findings from the study suggest teaching through both the tools i.e. web-conferencing and messaging-app as effective medium of teaching. Hence both the technological mediums can be used for teaching pupil teachers. It reveals that teaching through web-conferencing is comparatively more effective than that of messaging-app. Therefore pupil teachers should be taught by web-conferencing as it shows increased performance of pupil teachers over messaging-app. The study clarifies the confusion of selection of communication technology in times of necessity to use an online tool . Henceforth, web-conferencing should be selected as first preference over messaging-app. However this study was limited to teaching of one subject in a teacher education programme therefore more studies can be done to test effectiveness of these tools in other courses and across the discipline.

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