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VODCAST INSTRUCTION IN LEARNING MATHEMATICS AMONG 'BACHELOR OF EDUCATION' STUDENTS

Dr. K. Thiyagu
Assistant Professor
Department of Education, School of Education
Central University of Kerala, Kasaragod 671 123
Mail: thiyagusuri@gmail.com; Mobile: 9486812800

Abstract

The main aim of the research is to find out the level of gain scores of control and experimental group students and to find out the effectiveness of Vodcast in learning mathematics among the B.Ed., Trainees. The investigator followed the experimental method for conducting the present research. The investigator has chosen 48 Bachelor of Education students from Dr.Sivanthi Aditanar College of Education, Tiruchendur, Tuticorin District for the study. According to the scoring of pre-test, 24 students were chosen as control group and 24 students were chosen as experimental group. The investigator has used the following tools for her research: Video Podcast for the selected content; Achievement test in Mathematics (Pre-test and Post-test). The following statistical techniques were used in the study: Mean (m) and standard deviations (SD) and 't' test. The major findings which have emerged from the study are as follows: 37.5% of the control group students have low level, 58.3 %of them have moderate level and 4.2 %of them have high level of the gain scores. Among the experimental group students 8.3 % of them have low level, 58.3 %of them have moderate level and, 33.3 %of them have high level of the gain scores. Experimental group student is better than control group students in their gain scores. There is significant difference between control and experimental group students in post-test mean scores. According to the t-test result the experimental group is better than the control group. The experimental group performed better than the control group in the learning objectives of post test.

Keywords: Vodcast, Mathematics, Effects, Learning Experience, B.Ed., Students.

Introduction

Technology continues to affect educational communication in a variety of ways. Podcasts and other media content can be obtained and adapted for classroom use (Palitha, Chiara. 2007). This has incredible implications for the ways in which teachers and students communicate today. The purpose of this study is to examine the efficacy of video podcasting as a learning tool and its effects on student retention of technical classroom material (Swan, Kathy & Hofer, Mark. 2011). The literature suggests that podcasting research focuses predominantly on audio-only podcasts. With recent technological advancements, the ability to deliver dynamic interactive content has grown (Crispin Dale, 2007). Video podcasting (vodcasting) that simulates a classroom setting for viewing anywhere can now be created. The general goal of this study is to test the assumption that students who are exposed to video podcasts will retain information more effectively than they would through traditional lecture alone (Thiyagu. 2016). Mathematics contains lot of difficult terms and new vocabularies to understand and to learn. In addition to that the syllabus is so vast to and more theoretical for one year duration of B.Ed., teacher trainees. In order to overcome these practical difficulties, we could adapt the technique of Vodcasting for Instructing Mathematics. Since Vodcasting technique helps the teacher trainees to

retain their attention during instruction. This will provide opportunities for B.Ed., teacher trainees to learn at their own pace as easy as possible. So the investigator decided to find out effectiveness of Video Podcast in Learning Mathematics among the Secondary Teacher Education Trainees.

Operational Definitions of Key Terms

Vodcast: Video Podcast (sometimes called "Vodcast") is a term used for the online delivery of video video clip content on demand . A vodcast can be defined as a video file that is distributed over Internet, normally with the option of subscription, for playing on a portable media device or personal computer.

Bachelor of Education Students: Students who are undergoing secondary school teacher preparation programs in India.

Objectives

To find out

1. the level of gain scores of control and experimental group students— i.e., those who have been taught by vodcast.

2. compare the mean of the control and experimental group students in their gain scores.

3. compare the mean of the control and experimental group students in their gain scores for attainment of knowledge, understanding and application objectives.

4. whether there is any significant difference between control and experimental group students in their pre-test.

5. whether there is any significant difference between control and experimental group students in their post test.

6. whether there is any significant difference between the control and experimental group students in attainment of knowledge, understanding and application objectives in post test.

7. whether there is any significant difference between pre-test and post-test scores of the experimental group students in their attainment of knowledge, understanding and application objectives.

HYPOTHESES

In the light of the above objectives, the following null hypotheses are framed.

There is no significant difference between

1) the control and the experimental group students in their gain scores.

2) the control and the experimental group students in their gain scores for attainment of knowledge, understanding and application objectives.

3) the control and the experimental group students in their pre-test.

4) the control and the experimental group students in their posttest.

5) the control and the experimental group students in attainment of knowledge, understanding and application objectives in posttest.

6) the pre-test and post-test scores of the experimental group students in their attainment of knowledge, understanding and application objectives.

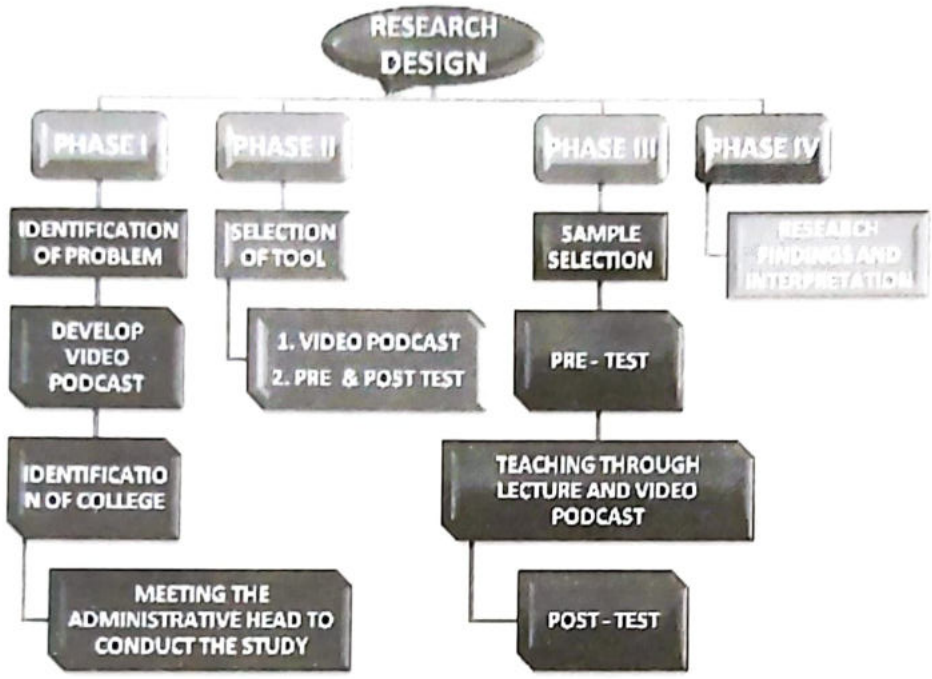
Method

The investigator followed the experimental method. Experiment always deals with the cause and effect relationship. The experimental group is exposed to the influence of the treatment under supervision and the control group is not exposed to the conventional method.

Sample

48 Bachelor of Education students from Dr.Sivanthi Aditanar College of Education, Tiruchendur, Tuticorin District, were the sample[Year?]. Based on the pre-test scores 24

FIGURE
FLOW CHART - RESEARCH DESIGN



students were chosen as control group and 24 students were chosen as experimental group-matched for Mean and Standard Deviation

TOOLS USED

1. Vodcast for the selected content
2. Achievement test in Mathematics (Pre-test and Post-test)

Validity of the Vodcast

The Video Podcast for B.Ed., students to overcome Mathematics hardness possess content validity. Content validity shows how adequate are the content of the self instructional video podcast about each reference to be made. A logical examination of content and presentation of the Video Podcast was done by the panel of experts from Education, Mathematics and Computer Science department. Their suggestions were incorporated to enhance the content and quality of the Video Podcast.

The following are the Uniform Resource Locator Address of the Vodcast:

- http://thiyagusurimathematicians.blogspot.in/
- http://thiyagumathmicroteaching.blogspot.in/
- http://thiyagumath.blogspot.in/
- www.youtube.com/watch?v=WxhCrQGTTDs;
- ww.youtube.com/watch?v=WRePyJ-WqVk;
- www.youtube.com/watch?v=IB7Gq-0ltqQ;

Establishing Reliability of the Achievement Test

The Split-half method is considered to be one of the best methods for measuring reliability because all the data for computing reliability are obtained by one testing. The obtained data from 10 B.Ed., students were administered for establishing reliability. The achievement test was divided into two equivalent halves by pooling the odd number and even numbered items. The obtained r-value is high (0.78) indicating the reliability of the achievement test used in the study.

Validity of the Achievement Test

The content validity is a type of test validity in

which the content of achievement test is judged to be the representative of a large domain of content. The items in the achievement test were constructed based on the consultation of field experts. Their verification, careful examination and judgement of each item have been taken into account to enhance the content, quality and type of items. Therefore, it can be said that the achievement test used in this study possess content validity.

The Experiment

Administration of the Pre-Test: A pre-test was administered and the results were analyzed. The difference between the means of the pre-test scores of both the experimental and the control groups was not statistically significant.

Treatment: The investigator conducted this experiment through 21 days. The Experimental Group sample of 24 students was taken to the Mathematics lab. These students were taught with Video Podcast mode of instruction. Corrective feedback was given wherever necessary. After this the control group was taught in the conventional method by the investigator himself. The investigator took care to see that there was no bias on his part between the vodcast mode and the conventional mode of instruction.

Administration of the Post-Test: The same pre-test questions were given to the students of both the two groups and their results were statistically analyzed to find out if the vodcast method made for greater gain score.

STATISTICAL TECHNIQUES USED

: Mean (M) and Standard Deviations (SD) and 't' test were used for determining the significance of the difference between means of pairs of sub-groups.

To find out the *level of gain scores of control and experimental group students*

TABLE 1
LEVEL OF GAIN SCORES OF CONTROL AND EXPERIMENTAL GROUP STUDENTS

Group	Low		Moderate		High		Total
	N	%	N	%	N	%	
Control Group	9	37.5	14	58.3	1	4.2	24
Experimental Group	2	8.3	14	58.3	8	33.3	24

The above table shows that 37.5% of the control group students have low level, 58.3 % moderate level and 4.2 % have high level of the gain scores. Among the experimental group students 8.3 % o have low level, 58.3 % have moderate level and, 33.3 % have high level of gain scores.

There is *no significant difference between control and experimental group students in their gain scores.*

TABLE 2
DIFFERENCE BETWEEN CONTROL AND EXPERIMENTAL GROUP STUDENTS IN THEIR GAIN SCORES

Group	N	Mean	S.D	Calculate 't' value	'p' value	Remarks
Control Group	24	10.29	4.15	5.48	0.00	Significant
Experimental Group	24	18.83	6.40			$p < 0.05$

From the above table it is observed that all the obtained 't' values are more than the critical value at both level of significance (0.05 and 0.01 level) and hence, the null hypothesis is rejected. It means that there is a significant difference between control and experimental group students in their gain scores. That is, the experimental group students are better than the control group students in their gain scores. Hence, the way of learning video podcast is effective for the B.Ed., Students.

There is *no significant difference between control and experimental group students in their gain scores for attainment of knowledge, understanding and application objectives.*

TABLE 3
DIFFERENCE BETWEEN CONTROL AND EXPERIMENTAL GROUP STUDENTS IN THEIR GAIN SCORES FOR ATTAINING THE OBJECTIVES

Objectives	Control Group		Experimental Group		Calculated 't' value	'p' value	Remarks
	Mean	S.D	Mean	S.D			
Knowledge	1.04	2.21	4.46	3.03	4.45	0.00	Significant $p < 0.05$
Understanding	3.50	2.26	7.38	2.03	6.22	0.00	Significant $p < 0.05$
Application	5.75	2.47	7.00	3.09	1.54	0.12	Not Significant $p > 0.05$

In the above table it is observed that all the obtained 't' values are more than the critical value at .01level of significance: hence, the null hypothesis is rejected. It means that there is significant difference between the gain scores of control and experimental group students in attainment of knowledge and understanding objectives. And, it is interpreted here that the experimental group performed better than the control group in their gain scores of learning objectives knowledge and understanding.

It is also observed that all the obtained 't' values are less than the critical value at .05 level of significance for the 'Application' Objective: hence, the null hypothesis is accepted. It means that there is no significant difference between the gain scores of control and experimental group students in attainment of application objectives.

There is no significant difference between control and experimental group students in their pretest. And there is no significant difference between control and experimental group students in their posttest.

TABLE 4
DIFFERENCE BETWEEN CONTROL AND EXPERIMENTAL GROUP STUDENTS IN THEIR PRE-TEST AND POST-TEST

Objectives	Control Group		Experimental Group		Calculated 't' value	'p' value	Remarks
	Mean	S.D	Mean	S.D			
Pre-test	20.00	3.93	20.29	3.48	**0.27**	0.78	Not Significant $p > 0.05$
Post-test	30.29	4.20	39.12	5.63	**6.15**	0.00	Significant $p < 0.05$

From the above table it is observed that all the obtained 't' values are less than the critical value at 0.05 level of significance: and hence, the null hypothesis is accepted. It means that there is no significant difference between control and experimental group students in their pretest.

From the above table it is observed that all the obtained 't' values are more than the critical value at 0.05 level of significance: and hence, the null hypothesis is rejected. It means that there is significant difference between control and experimental group students in their posttest. And, it is interpreted here that the experimental group performed better than the control group in their posttest.

There is *no significant difference between the control and experimental group students in attainment of knowledge, understanding and application objectives in post test.*

TABLE 5

DIFFERENCE BETWEEN CONTROL AND EXPERIMENTAL GROUP STUDENTS IN ATTAINMENT OF OBJECTIVES IN POST TEST

Objectives	Control Group		Experimental Group		Calculated 't' value	'p' value	Remarks
	Mean	S.D	Mean	S.D			
Knowledge	7.79	1.71	11.17	2.51	**5.42**	0.00	Significantp <0.05
Understanding	10.38	2.41	14.25	2.11	**5.92**	0.00	Significantp < 0.05
Application	12.12	1.48	13.71	2.11	**3.00**	0.00	Significantp < 0.05

From the above table it is observed that all the obtained 't' values are more than the critical value at0.05 level of significance: hence, the null hypothesis is rejected. It means that there is significant difference between the control and experimental group students in attainment of knowledge, understanding and application objectives in posttest. And, the experimental group has performed better than the control group in all the three learning objectives.

There is *no significant difference between pre-test and post-test scores of the experimental group students in their attainment of knowledge, understanding and application objectives.*

TABLE 5

DIFFERENCE BETWEEN PRE-TEST AND POST-TEST SCORES OF EXPERIMENTAL GROUP STUDENTS ON THE THREE LEVELS OF OBJECTIVES

Experimental Group	Objectives	Pre-test		Post-test		't' value	'p' value	Remarks
		Mean	S.D	Mean	S.D			
	Knowledge	6.71	1.6	11.17	2.5	**7.19**	0.00	Significant p < 0.05
	Understanding	6.88	1.6	14.25	2.1	**17.71**	0.00	Significant p < 0.05
	Application	6.71	2.1	13.71	2.1	**11.08**	0.00	Significant p < 0.05
	Total	20.29	3.4	39.12	5.6	**14.40**	0.00	Significant p < 0.05

All the obtained ' t' values are more than the critical value at 0.05 level of significance: and hence, the null hypothesis is rejected. It means that there is significant difference between pre-test and post-test scores of the experimental group students in their attainment of knowledge, understanding and application objectives. And it is interpreted here that the experimental group who underwent Mathematics in Video Podcast Lessons registered gains in all the three levels of learning objectives after exposure to the experimental treatment.

Summary

The 't' test result shows that the experimental group students are better than the control group students in the gain scores.

The 't' test result also shows that the experimental group students are better than the control

group students in attainment of knowledge and understanding level objectives in the gain score. However, the difference is NOT significant in the case of the application level objectives. This merits further exploration.t.

Video Podcasts have also been earlier found to be effective in developing students' understanding, reflective thinking, self- confidence and reducing the learning anxiety (Thiyagu, K. 2012).

Conclusion

Though vodcasting may not fully replace lecture-style teaching, it certainly does enable students to control and focus on specific questions in their own rhythm of learning (Glanville, Y. J.2010). This technology is relatively new and is constantly changing in style, distribution, professionalism, and technique (Najmeh Farshi. 2013). Further use and research will provide for a greater understanding of the ways in which this medium can give student teachers a better mastery of this instructional technology.

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