EFFECTIVENESS OF TECHNO PEDAGOGY TO ENHANCED BLENDED LEARNING AMONG BIOLOGY TEACHERS AT HIGHER SECONDARY LEVEL

By

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Abstract

Techno-pedagogical skills play an important role to make accessible and affordable quality education to all. It related to hybrid teaching style in which ICT is used to teach and learn in a classroom setting to enhance the blended learning. Blended learning is regarded as a combination of face-to-face learning and online learning and emphasizes the use of Internet-based technologies, such as emphasizing the role of online activities in expanding and developing face-to-face learning. The researcher used purposive survey method was employed. A sample of 25 Higher secondary teachers from 5 Govt. Higher Secondary Schools were selected as sample or the present study. Likert type with 4 point scale (often, always, sometimes, never), was used to assess the awareness in using techno pedagogical skills, and thereby check list and observation were used to assess the teaching competency. This present study revealed that there is no significance difference among higher secondary Teachers in the improvement of their Teaching competency with the use of technological devices with response to their gender, areas, subjects, and experience.

Keywords: *techno pedagogical skill, higher secondary teachers, blended learning, technological devices, ICT.*

Introduction

There currently is an abundant knowledge based to inform us that in schools, Teachers play the critical role in students learning and achievement. Competencies are the skills and knowledge that enable the teachers to be successful. The development of new technologies has raised a new questions and also played a vital role in learning achievements of the children. In particular, the researchers who follow mobile learning theory believe that mobile learning contributes to the students learning in two ways. First Technological devices influence the access to educational outcomes (visser& west 2005), Motlik 2008) Second , they improve the quality and types of instructional methods (Kukulska- Hulme &Traxler 2007, PP- 184-186 Traxler 2007 P-7).

In general, at present, the technological devices plays a vital role to enhancing the techno pedagogical skills in teaching and learning process. Therefore, the investigator

took a stern efforts to find out how far Higher secondary teachers use technological devices during their teaching and also this study made an attempt to make the teachers use technological devices so as to improve their blended learning in teaching competencies of their regular class room teaching.

Need for the study

At present, the learning and teaching have been brought into the optimum level in terms of technical, technological with wide and variety of knowledge. The technology, especially information and communication technology has been playing a chief role in the instructional purpose especially at the level of Higher Secondary schools. The Higher secondary teachers may not aware of using even QR Code given in text books. Even after the supply of free laptop to higher secondary teachers by Government they fail to use lap top to collect information to tune up their teaching competencies. The present study made an attempt to find out the awareness of teaching competencies of teachers with the use of Electronic white boards, Flipped Learning Desktops and Laptops, Projectors, Video-Conferencing classroom technologies, mobile learning, dhiksha and moodle. In this juncture, the investigator, investigated to find out the level and also to assess the role of higher secondary teacheres (Arts and Science) in using Technological devices whenever they teach the content in their classrooms.

Objectives of the Study

1. To find out the level of higher secondary teachers in using Techno pedagogical skill.
2. To find out significant difference in awareness of higher secondary teachers in using techno pedagogical skill with relation to variables (Gender, Area, Subject , Experience and Age) selected for the study.
3. To find out the improvement of Teaching competency of higher secondary teachers in using Techno pedagogical skill with relation to variables (Gender, Area, Subject , Experience and Age) selected for the study.

Hypotheses

1. The level of Higher secondary teachers in using Techno pedagogical skill for teaching may be average.
2. There will be significant difference in awareness of Higher secondary teachers in using Techno pedagogical skill with relation to selected variables (Gender, Area, Subject, Experience and Age) for the study.
3. There will be significant difference in improving teaching competency of Higher secondary teachers with relation to selected variables (Gender, Area, Subject, Experience and Age) for the study.

Method of Study

In order to realize the above said objectives, purposive sampling method was employed.

A sample of 25 Higher secondary teachers from 5 Govt. Higher Secondary Schools in Sivagangai District, were selected as sample or the present study. Likert type with 4 point scale (often, always, sometimes, never), was used to assess the awareness in using technical devices and thereby check list and observation were used to assess the teaching competency. For the analysis of the data, Statistical Techniques such as mean, Standard Deviation and 't' values were applied.

Analysis and Interpretation

Analysis of data is the most skilled task of all stages of research and thus, the present study carefully interpreted the collected data as follows:

Table 1. **The awareness of using technological devices among higher secondary teachers in response to variables selected as whole.**

Technological Devices used	No.of Participants	Percentage of respondents
QR Code /dhiksha	25	60
Laptop / Desktop	25	40
Video-conferencing like google meet / teams	25	12
Online recourses	25	20
Smart board	25	36
LMS	25	15

The table 1 shows that in connection with usage of technological devices shows that, 60% percentage of teachers has entertained the children with QR code in Dhiksha usage whereas 15% of teachers used LMS for online teaching. It is also found that 40% Video conferencing like Google meet and Teams is 12% and online recourses was used by 20% and 36% of Post graduate teachers used smart board respectively.

The study revealed that most of the laptops in schools remained not in function. It is also further inferred that there has been no network coverage in the location of schools which are in rural areas. It was also found that 40% of QR code in text cannot be downloaded.

Table 2. **Significance difference in using techno pedagogical skills to enhance the blended learning among the higher secondary teachers with respect to selected variables.**

Variables	Category	Mean	SD	N	't' value	Table Value	Significance at 0.05 level
	Male	71.80	9.82	10	0.34	1.96	NS

Gender	Female	73.56	9.82	15			
Areas	Rural	68.74	7.2	12	2.35	1.96	S
	Urban	46.62	11	13			
Subject	Botany	68.73	7.6	15	4.20	1.96	S
	Zoology	76.06	9.11	10			
Experience	Below 5 years	74.64	11	9	0.92	1.96	NS
	Above 5 years	77.03	9.13	16			
Age	Below 30 years	74.67	10	8	0.95	1.96	NS
	Above 30 years	76.35	9.12	17			

Table 2 shows that the calculated 't' values 0.34 (Gender) 0.92 (Experience) 0.95 (Age) are lesser than that of Table value 1.96 and it is inferred that null hypothesis is accepted. Hence, there is no significance difference in using technological devices for their teaching in relation to Gender, experience and Age.

The 't' values 2.35 (Areas), 4.20 (Subject) are higher than the table values 1.96. So the null hypothesis is rejected. Hence there is significant influence in using technological devices among the higher secondary teachers with response to their areas and subjects.

Table 3. Significant difference in using techno pedagogical skills to improve teaching competency with response to selected variables.

Variables	Category	Mean	SD	N	't' value	Table Value	Significance at 0.05 level
Gender	Male	74.66	9.76	10	0.94	1.96	NS
	Female	72.56	9.78	15			
Areas	Rural	74.68	9.7	12	1.59	1.96	NS
	Urban	71.52	9.55	13			
Subject	Botany	73.02	9.62	15	0.68	1.96	NS
	Zoology	72.58	9.99	10			
Experience	Below 5 years	74.62	10.9	9	0.93	1.96	NS
	Above 5 years	77.21	9.10	16			
Age	Below 30 years	74.62	11	8	0.93	1.96	NS
	Above 30 years	77.06	9.10	17			

Table 3 shows that the 't' values (0.94, 1.59, 0.68, 0.93 and 0.93) for samples given in the table are lesser than Table Value 1.96. Hence, it is found that there was no

significance difference among higher secondary Teachers in the improvement of their Teaching competency with the use of technological devices with response to

their gender, areas, subjects, and experience.

Findings of the Study

- 60% of Higher secondary teachers used QR Code given in text yet few QR code could not be downloaded.

- The least percentage (12%) of Higher secondary teachers used in Video conferencing tool like Google meet and Teams.

- Maximum number of schools were located in rural areas and so there has been no net coverage. Thus, 36% of Higher secondary teachers involved in using smartboard.

- Electronic white board facilities were not available in most of Higher Secondary Schools.

- Means scores 72.56 (Female), 68.74 (rural) 72.56(Arts), 77.03 (Above 5 years experience) 76.05 (Above 30 years age) have more knowledge to use technological devices in classroom teaching.

- Mean scores 74.66 (Male) , 74.68 (rural) 73.02 (Botany),72.58 (Zoology) 77.21 (Above 30 years age) have improved more in their teaching competency.

Suggestions

The present study can be extended to the students and the teachers at High school level. In addition, another study may be conducted among B.Ed trainees and their Lecturers towards the usage of technological devices in their regular teaching.

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