

Development of a Module on Smart Classroom Teaching Competency for Primary Teacher Trainees

¹P.Palanisamy, ²Dr.AR.Saravanakumar

¹Research Scholar, Department of Education D.D.E, Alagappa University Karaikudi

²Assistant Professor, Department of Education D.D.E , Alagappa University, Karaikudi

Abstract : In today's technology-dominated world, smart educational process is a boon for both teachers and students. In order to modernize the method of teaching and increase the levels of students' attention and achievement, the integration of hard tools and innovative software technology has reached the concept of the smart classroom in the current context. Moreover, smart or digital classrooms foster creativity and an interactive environment that will help bring in more innovative ideas, more inquiries, and more solutions to teaching learning problems. The ability of educational technology to solve problems that occur in traditional classrooms has enabled it to pave a new path to real-time and scientific teaching and learning methods by integrating, optimizing and embedding appropriate technological resources such as computer-based smart technology training, phone learning and learning management system in education. Most learners are interested in learning through the smart board in any subject in the school. A teacher familiar with operating a smart board will be able to survive in any school. Teacher training students are required to undergo various training during their studies at their training institutions. Smart board training is also important for trainee teachers who want to become effective teachers in a classroom environment. The training of smart board also is important for the teacher trainees who want to become an efficient teacher. Today, teachers require techno-pedagogy competence because, the entire education system depends upon the technology and the devices provide successful learning outcomes. The term techno-pedagogy consists three domains of knowledge, that is: content, pedagogy, and technology. Saravanakumar, A. R., & Subbiah, D. S. (2011). The experimental method has been adopted as a method to the present investigation. The investigator has employed single group experimental design. Purposive Sampling Technique was adopted in the study. The investigator selected primary teacher trainees who are studying Diploma in Teacher Education in DIET at Pudukottai . The total size of the sample was 30 primary teacher trainees and the findings of this paper the calculated ' γ ' value (0.88, 0.80,0.83) is strong positive correlation. It is concluded that there is significant relationship between experimental group of pre test and post test of dimensions of motivation, knowledge, and understanding of smart class teaching competency among Primary teacher trainees.

Keywords: *Smart Class, Teaching Competency, Techno Pedagogy, Technology.*

1. Introduction

In today's technology-dominated world, smart educational process is a boon for both teachers and students. In order to modernize the method of teaching and increase the levels of students' attention and achievement, the integration of hard tools and innovative software technology has reached the concept of the smart classroom in the current context. Saravanakumar, A. R. (2018). Moreover, smart or digital classrooms foster creativity and an interactive environment that will help bring in more innovative ideas, more inquiries, and more solutions to teaching learning problems. The ability of educational technology to solve problems that occur in traditional classrooms has enabled it to pave a new path to real-time and scientific teaching and learning methods by integrating, optimizing and embedding appropriate technological resources such as computer-based smart technology training, phone learning and learning management system in education. Saravanakumar AR, Paavizhi K., & Palanisamy P. (2019). The interactive electronic whiteboard is an Edtech innovation that is able to replace the traditional teaching method of almost outdated whiteboard, chalk and overhead projectors in order to properly promote the social, emotional and physical development of students. The easily noticeable pros and cons of using a digital whiteboard in the classroom also limit and expand the teachers' ability to teach and students to learn better.

The intelligent classroom learning approach provides every inexperienced individual with all things equal and travel areas with a nine-step framework and various smart thinking tools that promote high-level understanding. Through this process, students review and build basic knowledge, process information, and redefine their learning into a product that takes advantage of what they understand and refines their learning. Formal communication and learning assessment have been carefully integrated into a method to create an educational context and improve the thinking of all learners (Saravanakumar AR, 2018). A smart classroom can be thought of as a digital classroom. The Smart Classroom replicates skills in the real classroom. Most learners are interested in learning through the smart board in any subject in the school. A teacher familiar with operating a smart board will be able to survive in any school. Teacher training students are required to undergo various training during their studies at their training institutions. Smart board training is also important for trainee teachers who want to become effective teachers in a classroom environment.

1.1 Uses of the smart board in the primary classroom

There are many ways in which the smart board can be used in the classroom. First, there are many different tools that accompany the software on the smart board. Some of these tools include the camera tool, the drawing tool, the split tool, and many more. The camera tool will allow the teacher to take a picture of the screen. This can be useful if class time is on, the teacher can take a screenshot of where they are in the lesson and then start at that place the next day. The drawing tool can also be very useful. It allows teachers and students to draw shapes or objects that may become useful for a geometry lesson. The split tool also allows teachers to split the screen into two screens.

This can be useful in a math class where the teacher can show a problem on one side and then also work on the other side of the screen without having to tap back and forth between screens. These are just three examples of some of the tools Smart Board offers. There are many things teachers can explore and find ways to use in their classrooms. One feature of the smart board is that fractions are presented to younger students in the elementary grades. The teacher sets up an interactive activity where the students have to go up to the board to identify the different fractions. Students can then take turns walking up to the board and demonstrating their knowledge to the class. All students will then be excited to interact with the board and practice their skills.

Another class activity that includes a smart board, which the teacher can use in the middle classroom setting, will be the Frog Anatomy app. This app shows a frog on the board with all the tools and materials needed to complete the anatomy. The teacher can prepare the lesson by teaching the students the different terms and procedures for frog anatomy. Then instead of having to buy frogs for dissection, students can actually do it. The app allows for frog exploration and dissection, just as an actual frog allows. This is a good way to bring reality into the classroom with smart boards. Students will still have the same opportunities to learn, only with new technology. It can provide students with a rich learning experience by displaying the visual elements. It also makes differentiated learning a lot easier because teachers are able to accommodate different learning styles. Visual learners can observe the whiteboard, while tactile learners can learn by touching the board. The SMART panels in particular are smart choices because they offer a big picture for fast learning. Connected to computers, it provides group access to colorful educational websites, powerful assessment software, and teacher-created materials tailored to the needs of the class. (Giles, R. M., & Shaw, E. L. (2011)

2. Teacher's Techno Pedagogical Competency

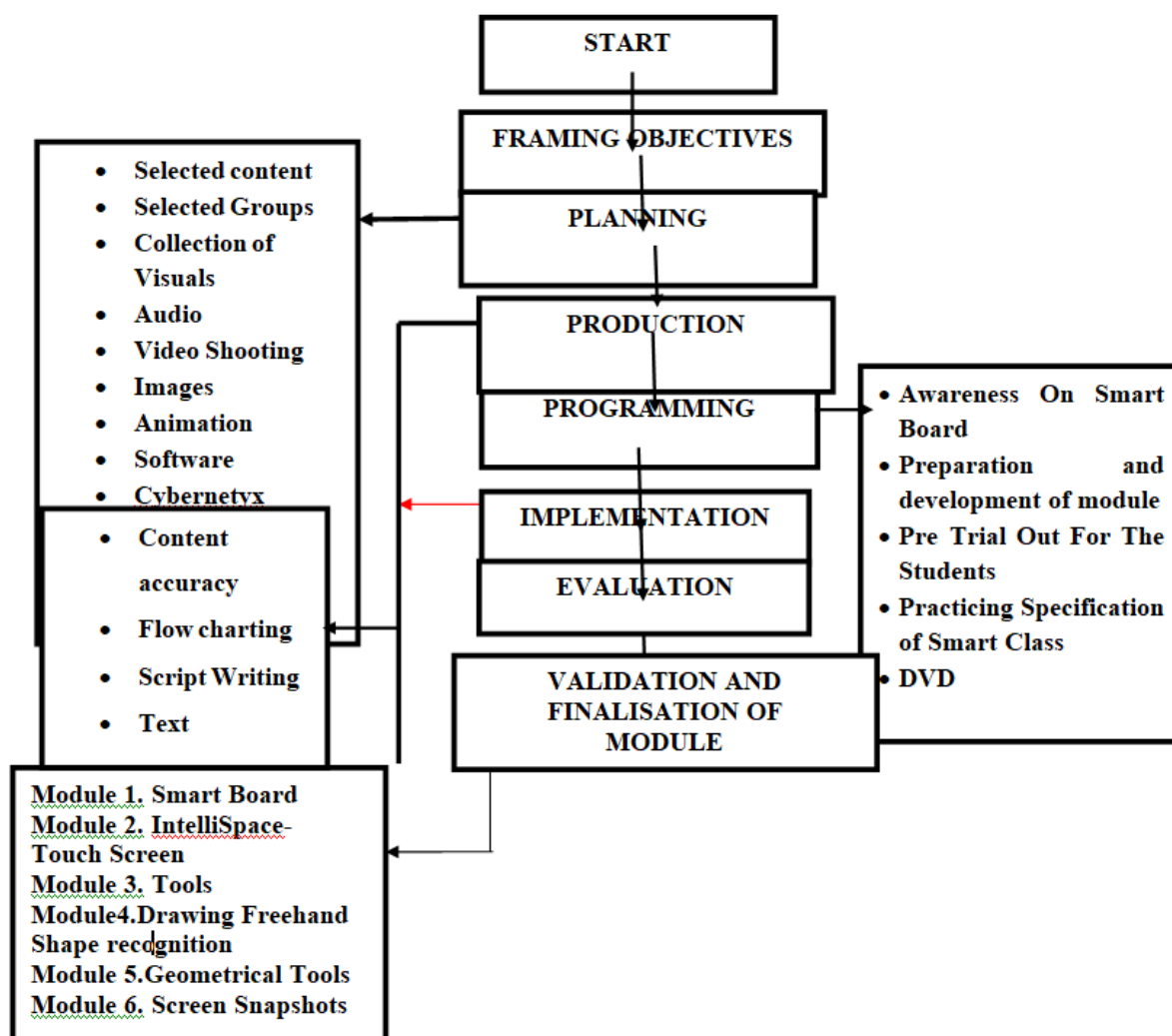
Today, teachers require techno-pedagogy competence because, the entire education system depends upon the technology and the devices provide successful learning outcomes. It is nothing but the potential to make use of technology efficiently in teaching. The term techno-pedagogy consists of three domains of knowledge, that is: content, pedagogy, and technology. The Content is the subject matter compiling different concepts that is to be taught. Pedagogy depicts the practices, processes, strategies, procedures, and methods of teaching -learning. It also includes knowledge about the instructional objectives, assessment, and student learning. Technology comprises modern technologies for instance computer based utilities, internet, digital video and usually used classroom technologies including overhead projectors, white boards, and different study materials. So techno

pedagogical competency covers the knowing of pedagogical affordances and variety of technological devices as they describe and relate to academically and developmentally proper pedagogical devices and strategies (Koehler, and Mishra, 2009).

3. Preparation and Development of a Module

The investigator has developed the module on the basis of overall operational activities of smart classrooms. A separate module was given to the D.T.Ed teacher trainees before the treatment through the subject oriented smart classroom teaching competency. Moreover, the investigator gave time for running the programmes in the form of teaching, explaining and giving examples for the selected content in Physics. Finally the summarizing part was given at the end of the module. The developed module comprises audio, video and different animations related to the selected content of the subject. The investigator explained in detail about the entire functional activities of smart classroom teaching competency for the D.T.Ed teacher trainee students to enhance their basic skills related to smart classroom teaching competency. It enables them to update their skills and improve their competency related to their concern subject through utilization of smart board classroom

Preparation and Development of Smart Classroom Teaching Competency Module



4. Objectives of the Study

1. To identify the suitable content in for Developing Module of Smart class teaching among primary teacher trainees.
2. To develop and validate Module of Smart class for teaching among primary teacher trainees.
3. To find out effectiveness Developed Module of smart class for teaching competency for primary teacher trainees.
4. To find out the significant difference if any between the pre-test and post test mean scores of the experimental group.
5. To find out significant difference between pre and post test in experimental group for improving smart class teaching competency with respect to gender
6. To find out significant relationship between pre and post test in experimental group for improving dimensions wise smart class teaching competency

5. Hypotheses of the Study

The following were hypotheses of the study

1. There is no significant difference between pre and post test in experimental group for improving smart class teaching competency.
2. There is no significant difference between pre and post test in experimental group for improving smart class teaching competency with respect to gender
3. There is no significant relationship between pre and post test in experimental group for improving dimensions wise smart class teaching competency

6. Research Method

The single group experimental method has been adopted in this study.

Research Tool

The following tools used in this study (i) Smart Class room Teaching Competency Assessment Scale (ii) Module

Sample

The investigator was selected 30 primary teachers in DIET, Pudukkottai and purposive sampling techniques was used in this study

Statistical Techniques Used for the study

The following statistical techniques used

- (i) Descriptive analysis (ii) Differential Analysis

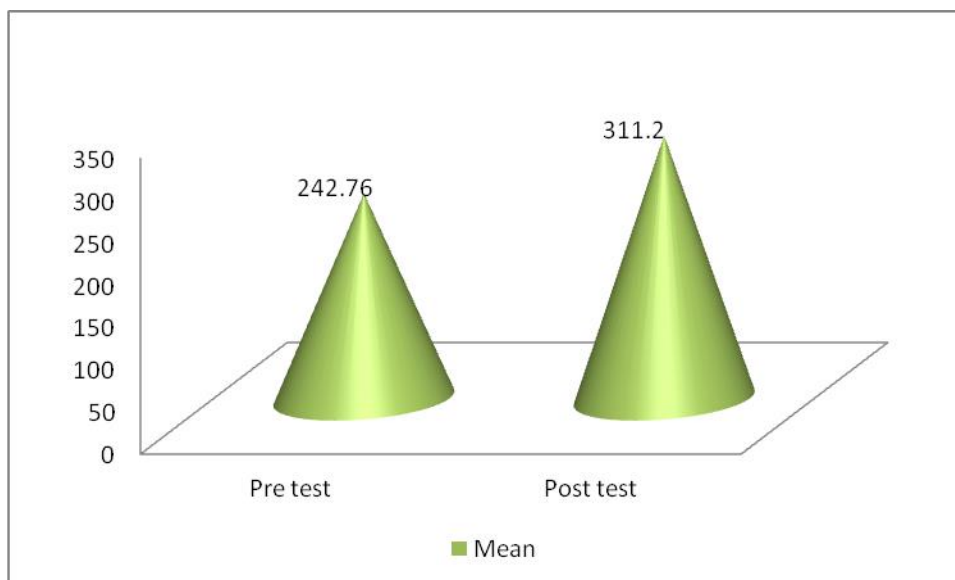
Data Analysis

Test	N	Mean	SD	't'	Level of significance
Pre test	30	242.76	20.57	12.88	S
Post test	30.	311.2	20.50		

Table-1:Significance difference between pre and post test in experimental group for improving smart class teaching competency.
Significant at 5% le.vel 1.99

Table-1 shows that the mean scores of post test (311.2) is greater than the pre test mean score (242.76). The calculated 't' value 12.88 is greater than the table value 2 df 58 significant at 0.05 level. Hence the hypothesis is rejected. It is concluded that there is significant difference between pre and post test in experimental group for improving smart class teaching competency.

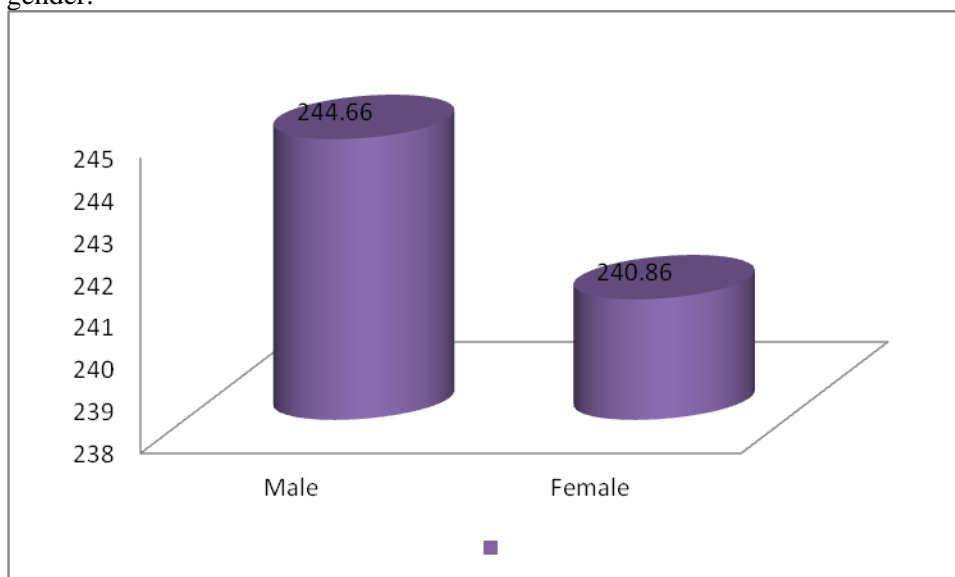
Development of a Module on Smart Classroom Teaching Competency for Primary Teacher Trainees



Gender	N	Mean	SD	't'	Level of significance
Male	15	244.66	20.65	0.50	NS
Female	15	240.86	20.31		

Table-2: Significance difference between pre in experimental group for improving smart class teaching competency with respect to gender

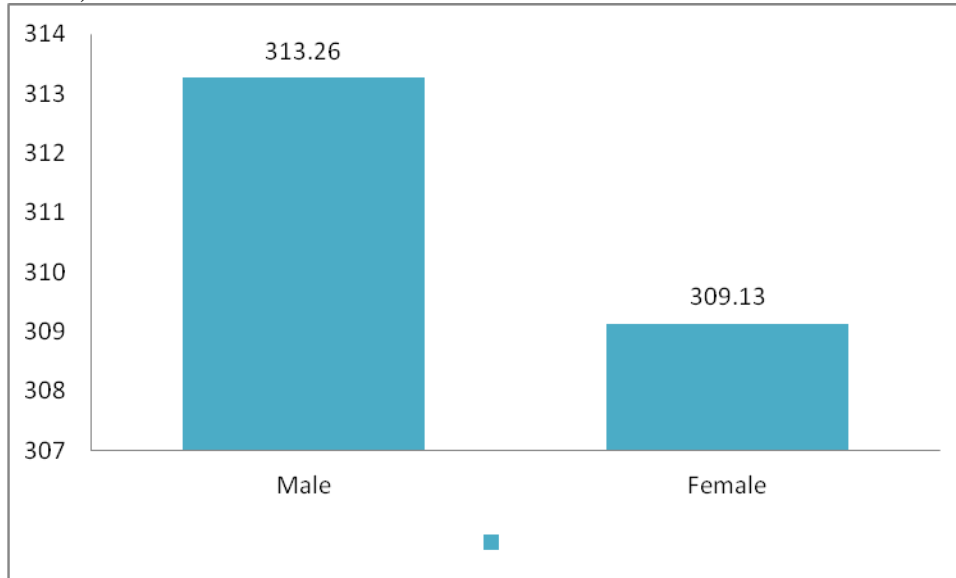
Table2 shows that the pre test mean scores of male students (244.66) is higher than the mean scores of female students (240.86). The calculated 't' value 0.50 is less than the table value 2.04 Significant at 0.05 level. Hence, the hypothesis is accepted. It is concluded that there is no significant difference between the pre test in experimental group for improving smart class teaching competency with respect to gender.



Gender	N	Mean	SD	't'	Level of significance
Male	15	313.26	20.24	0.55	NS
Female	15	309.13	20.68		

Table-3: Significance difference between post in experimental group for improving smart class teaching competency with respect to gender

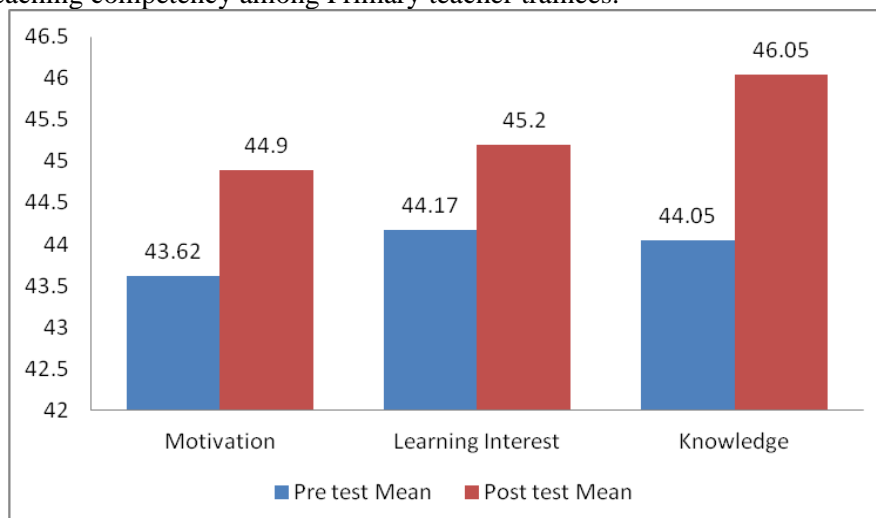
Table-3 shows that the calculated ‘t’ value 0.55 is less than the table value 2.04 Significant at 0.05 level. Hence, the hypothesis is accepted. It is concluded that there is no significant difference between the post test in experimental group for improving smart class teaching competency with respect to gender. The post test mean scores of male students (313.26) is higher than the mean scores of female students (309.13).



Dimensions	Pre test			Post test			‘r’	Level of significance
	N	Mean	SD	N	Mean	SD		
Motivation	30	43.62	2.77	40	44.90	2.54	0.88	S
Learning Interest	30	44.17	2.88	40	45.20	2.57	0.80	S
Knowledge	30	44.05	3.72	40	46.05	3.46	0.83	S

Table-4: Significant relationship between pre and post test in experimental group for improving dimension wise smart class teaching competency

Table-4 shows that the calculated ‘ γ ’ value of motivation, learning interest (0.88, 0.80, 0.83) is strong positive correlation. The P-Value is $< .00001$. The result is significant at $p < .05$. It is concluded that there is significant relationship between experimental group of pre test and post test of components of smart class teaching competency of motivation, Learning Interest and knowledge of smart class teaching competency among Primary teacher trainees.



7. Findings of the Study

1. There is significant difference between pre and post test in experimental group for improving smart class teaching competency.
2. There is no significant difference between the pre test in experimental group for improving smart class teaching competency with respect to gender.
3. There is no significant difference between the post test in experimental group for improving smart class teaching competency with respect to gender.
4. The calculated ' γ ' value (0.88, 0.80, 0.83) is strong positive correlation. It is concluded that there is significant relationship between experimental group of pre test and post test of dimensions of motivation, Learning Interest and knowledge of smart class teaching competency among Primary teacher trainees.

8. Conclusion

The present investigation result implies that the developed module on teaching competency will significantly influence and enhance the teaching competency of primary teacher trainees. This module has several theme based classifications which are under the simple and comprehensible concept orientation that promotes different components of teaching competency on smart classroom operations. As of now most of the schools are having smart classroom connectivity but the teachers are not trained properly in operation of smart classroom in their schools. The general teaching competency also differs from the smart classroom teaching competency because it is a technical skill oriented practices which requires for enriching the teaching competency in smart classroom. The present investigation has highlighted the importance of the developed module which plays a major role for developing different kinds of technical skills which are needed for effective operation of smart classroom. This module was prepared on the basis of technical skills which are required for primary teacher trainees to improve their teaching competency in operating smart boards. Hence, it is implied that the result proved the effectiveness developed module for enhancing the teaching competency exclusively for primary teacher trainees.

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