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Exploring Knowledge about Using Smart Classroom among Prospective Teachers

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Abstract

This study explores the level of knowledge about using smart classrooms among prospective teachers pursuing the two-year Bachelor of Education (B.Ed.) programme in Kancheepuram District, Tamil Nadu. Employing a survey method, data were collected from a randomly selected sample of 300 prospective teachers across 10 educational colleges. The research aimed to assess the general level of knowledge and examine whether significant differences exist based on gender, educational qualification (UG/PG), computer skills, and residential background (rural/urban). Descriptive and differential statistical techniques were applied for data analysis. Findings reveal that the overall knowledge about smart classrooms among prospective teachers is average. Furthermore, no significant differences were observed in smart classroom knowledge scores based on gender, academic qualification, computer proficiency, or area of residence. The study highlights the need for targeted interventions and practical exposure to enhance technological preparedness among future educators, especially in the context of growing emphasis on digital pedagogy in teacher education.

Keywords: *Smart Classroom, Prospective Teachers.*

1. Introduction

In the 21st-century educational landscape, the integration of technology into teaching and learning has become not only essential but also transformative. The concept of the smart classroom characterized by the use of digital tools such as interactive whiteboards, projectors, learning management systems, and internet-enabled teaching resources has redefined the roles of both prospective teachers. For future educators, particularly Knowledge about using smart classroom, acquiring knowledge about smart classroom technologies is crucial to meeting the demands of modern pedagogy. The study focuses on Knowledge about using smart classroom in Kancheepuram District, a region that is gradually embracing digital transformation in teacher education institutions.

Knowledge about using a smart classroom refers to the awareness, understanding, and

practical ability of a teacher or teacher trainee to effectively operate and integrate digital technologies and tools within the teaching-learning process. This includes proficiency in using interactive whiteboards, projectors, multimedia content, learning management systems (LMS), internet resources, and other digital teaching aids to enhance classroom engagement and instructional efficiency.

2. Significance of the Study

The present educational landscape is rapidly evolving with the growing integration of technology in the classroom. As future educators, Knowledge about using smart classroom must not only acquire content and pedagogical knowledge but also develop technological competencies to meet the demands of 21st-century learners. The need for this study arises from the increasing emphasis on digital tools such as smart boards, projectors, and learning management systems in teacher education institutions. However, many prospective teachers still lack adequate knowledge and hands-on experience in using these smart classroom technologies effectively. Specifically, in Kancheepuram District where many institutions are transitioning towards tech-integrated classrooms this research can support the professional readiness of pre-service teachers, ensure quality instruction, and promote student-centered digital pedagogy.

3. Statement of the Problem

The problem under taken by the investigator restated as "Exploring Knowledge about using smart classroom among Prospective Teachers".

4. Review of Literature

The integration of smart classroom technologies in teacher education has transformed traditional pedagogical approaches, emphasizing the need for both technical proficiency and effective communication. **Kaur and Bansal (2022)** highlighted that teachers' readiness to use smart classroom tools significantly influences their pedagogical strategies and communication competence. The study emphasized that knowledge of digital tools enhances the clarity and engagement of teacher-student interactions. Supporting this view, **Raja and Nagasubramani (2018)** asserted that modern educational technologies contribute to more interactive and communicative teaching-learning processes, fostering improved dialogue and participation among students. **Saxena (2013)** specifically investigated the use of interactive whiteboards and found a positive impact on teachers' instructional communication, noting that technology fosters visual and auditory engagement, which reinforces verbal communication.

Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework further underscores the synergy between technology integration and teaching effectiveness, suggesting that teachers who master smart tools are better equipped to deliver content with enhanced communication techniques. Moreover, **Zhou and Brown (2015)** emphasized that the use of digital environments aligns with constructivist theories, where communication plays a central role in knowledge construction. Collectively, these studies suggest that knowledge and utilization of smart classroom technologies are closely related to the development and refinement of communication skills among prospective teachers.

5. Objectives of the Study

- To find out the knowledge about using smart classroom among prospective teachers.
- To find out whether there is any significant difference in the knowledge about using smart classroom among prospective teachers with respect to
  - Gender (Male/ Female)
  - Educational Qualification (UG / PG)
  - Computer skills(known/unknown)
  - Location of the college (Rural / Urban)

6. Hypotheses

- The level of knowledge about using smart classroom is low among prospective teachers.
- There is no significant difference in knowledge about using smart classroom among prospective teachers with respect to
  - Gender (Male/ Female)
  - Educational Qualification (UG / PG)
  - Computer skills(known/unknown)

- ❖ Location of the college (Rural / Urban)

7. Method of study

- ➢ This study was conducted by survey method.
- ➢ **Location:** The present study was conducted in Kancheepuram District, Tamilnadu.
- ➢ **Sample:** The present study was conducted on a representative sample of 300 prospective teachers studying 2-year B.Ed. course in the Educational Colleges located in Kancheepuram District.
- ➢ **Sampling Technique:** The sample were selected by random sampling technique from 10 colleges from the location of the study.
- ➢ **Statistical Technique:** Descriptive and Differential techniques were applied in data analysis.
- ➢ **Tool:** The investigator has used "knowledge about using smart classroom test constructed and validated by the investigator.

8. Descriptive analysis based on knowledge about using smart classroom

Table-1: The mean and standard deviation of knowledge about using smart classroom of Knowledge about using smart classroom

S. No.	Variables	Category	Sample	Mean	Standard Deviation
1	Gender	Male	117	111.67	10.21
		Female	183	113.33	9.02
2	Educational Qualification	UG	54	112.11	9.68
		PG	246	112.80	9.50
3	Computer skills	known	157	111.80	9.37
		unknown	143	112.78	10.14
4	Location of the college	Rural	147	112.05	9.22
		Urban	153	113.28	9.80
Total			**300**	**112.75**	**9.45**

The mean and standard deviation of knowledge about using smart classroom score of entire sample are scores of are 112.75 and 9.45 respectively. One can get a maximum sample of 300 for knowledge about using smart classroom Knowledge about using smart classroom. The mean scores of all categories lay in between (M±σ) value i.e., in between 103.30 and 122.20. So, it is concluded that the Knowledge about using smart classroom are having average knowledge about using smart classroom.

8.1. Gender wise analysis

The knowledge about using smart classroom mean scores of male Prospective teachers is 111.67 and standard deviation is 10.21. The knowledge about using smart classroom mean scores of female Prospective teachers is 113.33 and standard deviation is 9.02. The mean values lay in between (M±σ) i.e., in between 122.35 and 103.30. So, it is concluded that male and female Prospective teachers are having average level of knowledge about using smart classroom.

8.2. Educational qualification wise analysis

The knowledge on knowledge about using smart classroom mean scores of UG Prospective teachers is 112.11 and standard deviation is 9.68. The knowledge about using smart classroom means score PG Prospective teachers is 112.80 and standard deviation is 9.50. The mean values lay in between (M±σ) i.e. in between 122.30 and 103.30. So it is concluded that UG and PG Prospective teachers are having average knowledge about using smart classroom.

8.3. Computer skills wise analysis

The knowledge about using smart classroom mean scores of known computer skills is 111.80 and standard deviation is 9.37. The knowledge about using smart classroom mean scores of unknown computer skills is 112.78 and standard deviation is 10.14. So, it is concluded that are having average level of knowledge about using smart classroom.

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8.4. Locality of the college wise analysis

The knowledge about using smart classroom mean scores of rural area Knowledge about using smart classroom is 112.05 and standard deviation is 9.22. The knowledge about using smart classroom mean scores of urban area Knowledge about using smart classroom is 113.28 and standard deviation is 9.80. The mean values lay in between (M ± σ) i.e., in between 123.08 and 103.30. So, it is concluded that rural college Prospective teachers and urban college Prospective teachers are having average level of knowledge about using smart classroom.

9. Differential analysis based on the knowledge about using smart classroom

Hypothesis 2a (Gender)

There is no significant difference between the mean knowledge about using smart classroom scores of male and female Prospective teachers.

Table 2: Showing the Significant difference between the mean knowledge about using smart classroom scores of male and female Prospective teachers

Variable	Gender	N	Mean	S.D	't' value	Level of Significance
Knowledge about using smart classroom	Male	157	111.80	9.37	0.04	Not Significant
	Female	143	112.78	10.14		

From the above table, the computed 't' value is found to be 0.04 which is not significant at 0.05 level. Hence, the null hypothesis is accepted. It is inferred that there is no significant difference between the mean knowledge about using smart classroom scores of male and female Prospective teachers.

Hypothesis 2b. (Educational Qualification)

There is no significant difference between the mean knowledge about using smart classroom scores of UG and PG qualification Prospective teachers.

Table-3: Showing Significant difference between the mean knowledge about using smart classroom scores of UG and PG qualification Prospective teachers.

Variable	Educational Qualification	N	Mean	S.D	't' value	Level of Significance
Knowledge about using smart classroom	UG	54	112.11	9.68	0.48	Not Significant
	PG	246	112.80	9.50		

From the above table, the computed 't' value is found to be 0.48 which is not significant at 0.05 level. Hence, the null hypothesis is accepted. It is inferred that there is no significant difference between the mean knowledge about using smart classroom scores of UG and PG Prospective teachers.

Hypothesis 2c. (Computer skills)

There is no significant difference between the mean knowledge about using smart classroom scores of computer skill known and unknown Prospective teachers.

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Table-4: Showing the Significant difference among the mean knowledge about using smart classroom scores of computer skills known and unknown.

Variable	Computer skills	N	Mean	S.D	't' value	Level of Significance
Knowledge about using smart classroom	Known	54	112.11	9.68	1.54	Not Significant
	Unknown	246	112.80	9.50		

From the above table, the computed 't' value is found to be 1.54 which is not significant at 0.05 level. Hence, the null hypothesis is accepted. It is inferred that there is no significant difference among the mean knowledge about using smart classroom scores between computer skills known and unknown prospective teachers.

Hypothesis 2d. (Location of the college)

There is no significant difference between the mean knowledge about using smart classroom scores of rural and urban area Prospective teachers

Table-5: Showing Significant difference between the mean knowledge about using smart classroom scores of rural and urban Prospective teachers

Variable	Gender	N	Mean	S.D	't' value	Level of Significance
Knowledge about using smart classroom	Rural	147	112.05	9.219	1.12	Not Significant
	Urban	153	113.28	9.798		

From the above table, the computed 't' value is found to be 1.12 which is not significant at 0.05 level. Hence, the null hypothesis is accepted. It is inferred that there is no significant difference between the mean knowledge about using smart classroom scores of rural and urban area college Prospective teachers.

10. Findings of the Study

- The level of knowledge about using smart classroom among prospective teachers is average
- There is no significant difference in knowledge about using smart classroom scores between male and female prospective teachers.
- There is no significant difference between the mean knowledge about using smart classroom scores of UG and PG qualification prospective teachers.
- There is no significant difference in knowledge about using smart classroom scores between prospective teachers with known and unknown computer skills.
- There is no significant difference between the mean knowledge about using smart classroom scores of rural and urban area prospective teachers

11. Conclusion

The findings of the study indicate that the level of knowledge about using smart classrooms among prospective teachers is only average, suggesting a need for further emphasis on digital literacy and pedagogical training in teacher education programmes. The absence of significant differences in knowledge across variables such as gender, academic qualification, computer skills, and residential background implies that the limited knowledge is a widespread concern rather than confined to specific subgroups. This underscores the necessity for uniform and comprehensive integration of smart classroom training into the B.Ed. curriculum. Equipping future teachers with the skills and confidence to effectively use smart technologies is essential to meet the demands of 21st-century classrooms and to foster interactive, student-centered learning environments.

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