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# Attitudes of Secondary School Students' towards Smart Classroom Teaching: An Explanatory Study

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## ABSTRACT

Now a day, Smart Classroom teaching is seen as a great solution for modern education. It uses technology and electronic devices to change how lessons are taught in classrooms. Making this program successful depends on many things, like having the right devices, trained teachers using them well, and the attitudes of both teacher and students. A recent study looked at how secondary school students in Nayagarh and Kandhamal districts in Odisha feel about this kind of teaching. It involved 800 students and used some statistical methods to analyze the data. It used methods like calculating averages (Mean), measuring how much the data varied (SD), and a statistical test called t-test. These methods helped analyze the data concerning gender; location related to smart classroom teaching. The study found that the gender and training of the students didn't make a difference in how they felt about smart classroom teaching in these districts. Interestingly, students in urban areas seemed to have a more positive attitude compared to those in rural areas. Also, there wasn't a significant difference in attitude when comparing Nayagarh and Kandhamal districts. In simple terms, the study showed that students' gender and training didn't impact their feelings about Smart Classroom teaching in these areas. Urban students tended to have a more positive view, but overall, there wasn't much difference between the two districts.

*Keywords: Smart Classroom Teaching, Attitude, Secondary School Students, Technology*

## Introduction

In today's 21st-century classrooms, students find relief from the burdens of crowded classes and packed syllabi, thanks to the integration of modern technology. This shift has been significantly highlighted during challenging times like the recent COVID-19 pandemic. While administrative hurdles once hindered the adoption of technology in education, it has now become essential for meaningful and progressive learning. However, despite the removal of traditional blackboards and chalk, many students still feel pressured. Yet, within the classroom, the use of audiovisual aids and integrated software and hardware has transformed education, making it more engaging and fruitful than before. It's evident that no technology can substitute a student's presence for quality education. The key lies in effective teaching driven by students who possess excellent communication skills, extensive knowledge, and adeptness with modern teaching devices. Teaching now involves interactive sessions with PowerPoint presentations, internet resources, and web-based applications. It's the amalgamation of these tools with a student's expertise that paves the way for effective and purposeful learning experiences.

## Objective of the study

To compare the attitudinal difference of secondary school students of Nayagarh and Kandhamal districts of Odisha towards smart classroom teaching in relation to location and gender

## Research Question

a)  What are the attitudes of secondary school students' of Nayagarh and Kandhamal districts towards Smart Classroom teaching?

b)  How the level of attitude differ among the students of two districts i.e Nayagarh and Kandhamal with reference to gender and location?

## Hypothesis of the study

The researchers have formulated the following hypothesis as per the objectives of the study.

- $H_{01}$: There doesn't exist any significant difference in the attitude of secondary school students of Kandhamal and Nayagarh districts towards smart class teaching with  respect to gender.

- $H_{02}$: There doesn't exist any significant difference in the attitude of secondary school students of Kandhamal and Nayagarh districts towards smart class teaching with  respect to location.

## Methodology

- **Method:** For the above study, the investigators has adopted descriptive cum survey method of educational research as the study based on existing phenomenon.

- **Population:** In the present research, the investigator obtained responses from a total of 800 secondary school students, with 400 students selected from each district, Nayagarh and Kandhamal, in Odisha. The focus of the study was on districts where the smart classroom project has been implemented. Nayagarh district has 92 secondary schools participating in the smart classroom project, while Kandhamal district has 83 such schools. The research encompassed 628 students from Nayagarh and 330 students from Kandhamal district, ensuring a comprehensive representation of both districts in the study.

- **Sample and sampling:** In this study, data was gathered from a total of 40 schools spanning both districts. To assess the attitudes of secondary school students towards smart classroom teaching, a sample of 800 students from these districts was carefully chosen using the random sampling technique. This method ensured a representative and unbiased selection of students, contributing to the reliability and validity of the study's findings.

- **Tools used in the study:** In assessing the students' attitudes for this study, a specially crafted attitude scale comprising 30 items was employed to elicit responses during the data collection phase. The attitude scale, meticulously developed by the investigator, consisted of 30 statements tailored to gauge the students' perspectives. To construct the attitude scale, the investigator intentionally included 13 positive statements and 17 negative statements for students to respond to. This deliberate inclusion of both positive and negative statements aimed to capture a nuanced and comprehensive understanding of the students' attitudes towards smart classroom teaching. The construction of the scale was methodically aligned with various dimensions related to different variables associated with smart classroom teaching. These dimensions were carefully chosen to ensure a thorough exploration of the multifaceted aspects involved in students' attitudes toward smart classroom initiatives.

- **Variables Used in the Study**

**a. Dependent variable**

1. Attitude

**b. Independent variable**

   i.  Smart classroom

   ii.  Secondary school

   iii.  Gender

   iv.  Location

## Analysis and Interpretation of the Data

To explore the sentiments of secondary school students in Nayagarh and Kandhamal districts, the researcher gathered student responses using a custom-designed attitude scale. The collected data underwent analysis through inferential statistical methods to fulfill the primary objectives of the study. Statistical tools such as Mean, Standard Deviation (SD), and t-test were employed for a comprehensive examination.

The attitude scale, comprising 30 items, focused on the evaluation of the smart classroom teaching project implemented in the specified districts of Odisha. A total of 800 student responses were collected, with 400 students from each district. The examination of attitudes was conducted with consideration for the gender variable. This study aimed to gauge the opinions and perspectives of secondary school students towards smart classroom teaching initiatives in Nayagarh and Kandhamal districts. The utilization of inferential statistics allowed for a nuanced analysis of the collected data, providing insights into the students' attitudes and perceptions regarding the implemented smart classroom projects. The incorporation of the gender variable in the analysis aimed to discern potential variations in attitudes based on gender differences among the student population.

The comprehensive approach to data collection and analysis contributes to a more profound understanding of how students in these districts perceive and engage with smart classroom initiatives. The findings of this study have the potential to inform educational strategies and policies, ensuring a more tailored and effective implementation of smart classroom projects in the future.

**Table no 1**: **To find out the Attitudinal Difference of the Students of Secondary Schools of   Nayagarh, Kandhamal districts of Odisha towards Smart Classroom teaching with reference to Gender.**

| District | Variable | Sub-category | N | Mean | SD | SE$_d$ | df | 't' Value | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Nayagarh | Gender | Male | 210 | 104.11 | 6.99 | 0.70 | 398 | 0.38 | Not Significant |
|  |  | Female | 190 | 103.84 | 7.14 |  |  |  |  |
| Kandhamal | Gender | Male | 191 | 104.36 | 5.99 | 0.63 | 398 | 1.08 | Not Significant |
|  |  | Female | 209 | 103.67 | 6.58 |  |  |  |  |
| Total | Gender | Male | 401 | 104.23 | 6.53 | 0.47 | 798 | 1.00 | Not Significant |
|  |  | Female | 399 | 103.75 | 6.85 |  |  |  |  |

**Interpretation:** Table no.1 presents a comparative analysis of the attitudes of secondary school students in Nayagarh and Kandhamal districts towards Smart Classroom teaching, considering the gender variable in both districts. The data indicates notable distinctions in the attitudes of boys and girls in these districts. Remarkably, the mean score for boys in both Nayagarh and Kandhamal districts is 401, reflecting a higher attitude towards Smart Classroom teaching compared to girls in the same districts. This suggests a discernible gender-based difference in how students perceive and engage with smart classroom initiatives.

Upon conducting further analysis based on the gender variable, the computed 't' value is found to be 1.09. It is crucial to note that this value is lower than the critical 't' value of 1.96 at a 0.05 level of significance with degrees of freedom being 798. As a result, the formulated null hypothesis, which posits that there is no significant difference in the attitude of secondary school students in Nayagarh and Kandhamal districts towards smart class teaching concerning gender, is accepted as not significant.

This statistical finding underscores that the observed differences in attitudes between boys and girls are not statistically significant. In other words, the variation in attitudes towards Smart Classroom teaching in Nayagarh and Kandhamal districts can be attributed to factors beyond gender. Additional factors such as individual preferences, exposure to technology, or teaching methods might contribute to the variations observed in the attitudes of students.

**Table no 2**: **To find out the Attitudinal Difference of the Students of Secondary Schools of   Nayagarh, Kandhamal district of Odisha towards Smart Classroom with reference to Location.**

| District | Variable | Sub-category | N | Mean | SD | SE$_d$ | df | 't' Value | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Nayagarh | Location | Rural | 260 | 103.8 | 7.43 | 0.74 | 398 | 0.71 | Not Significant |
|  |  | Urban | 140 | 104.33 | 6.32 |  |  |  |  |
| Kandhamal | Location | Rural | 292 | 104.12 | 6.27 | 0.71 |  | 0.59 | Not Significant |
|  |  | Urban | 108 | 103.69 | 6.41 |  |  |  |  |
| Total | Location | Rural | 552 | 103.97 | 6.84 | 0.51 | 798 | 0.16 | Not Significant |
|  |  | Urban | 248 | 104.05 | 6.36 |  |  |  |  |

**Interpretation:** Table no- 2 illustrates the divergence in attitudes among secondary school students in Nayagarh and Kandhamal districts regarding Smart Classroom teaching, with respect to the variable of location within both districts. Notably, students residing in urban areas of Nayagarh and Kandhamal exhibit a more positive attitude towards Smart Classroom teaching, as indicated by a higher mean score of 104.05 compared to their rural counterparts. Upon further analysis based on the location variable, the computed 't' value is determined to be 0.16. It's crucial to note that this value is lower than the critical 't' value of 1.96 at a 0.05 level of significance, considering 798 degrees of freedom. Consequently, the initially formulated null hypothesis, asserting that there is no significant difference in the attitudes of secondary school students in Nayagarh and Kandhamal districts towards smart class teaching concerning location, is accepted as not significant.

This statistical outcome underscores that the observed variations in attitudes based on location within Nayagarh and Kandhamal districts are not statistically significant. In simpler terms, the differences in attitudes between students from urban and rural areas can be attributed to factors beyond location. Other aspects such as individual preferences, exposure to technology, or teaching methodologies might contribute to the observed variations in students' attitudes.

## Result and Discussion

The comparative analysis of attitudes among secondary school students in Nayagarh and Kandhamal districts, considering the gender variable (Table 1), reveals intriguing insights. Boys in both districts exhibit a higher mean score of 401, indicating a more positive attitude towards Smart Classroom teaching compared to girls. This gender-based difference, however, is not statistically significant, as the computed 't' value (1.09) falls below the critical 't' value (1.96) at a 0.05 level of significance with 798 degrees of freedom. Therefore, the null hypothesis, suggesting no significant gender-based difference in attitudes, is accepted. The observed variations in attitudes are likely influenced by factors beyond gender, such as individual preferences, technology exposure, or teaching methods.

Turning to the analysis of attitudes based on the location variable (Table 2), students in urban areas of Nayagarh and Kandhamal districts exhibit a more positive attitude towards Smart Classroom teaching, as indicated by a higher mean score of 104.05 compared to their rural counterparts. However, the computed 't' value (0.16) is lower than the critical 't' value (1.96) at a 0.05 level of significance with 798 degrees of freedom. Consequently, the null hypothesis, suggesting no significant location-based difference in attitudes, is accepted. This implies that the observed variations in attitudes between urban and rural students are not statistically significant. Other factors, such as individual preferences, technology exposure, or teaching methodologies, may contribute to the noted differences.

In summary, while apparent differences exist in attitudes towards Smart Classroom teaching based on gender and location, these distinctions are not statistically significant. The results emphasize the complexity of factors influencing student attitudes, with individual preferences and diverse experiences likely playing a crucial role. These findings have implications for educators and policymakers, suggesting the need for tailored approaches that consider the multifaceted nature of student attitudes towards smart classroom initiatives in Nayagarh and Kandhamal districts.

## Major findings

The major findings of the study can be summarized as follows:

**Gender-Based Differences in Attitudes:**

The study indicates a noticeable difference in the attitudes of secondary school students in Nayagarh and Kandhamal districts towards Smart Classroom teaching based on gender. Boys in both districts exhibit a higher mean score, suggesting a more positive attitude towards Smart Classroom initiatives compared to girls.

**Location-Based Variations in Attitudes:**

Urban students in both Nayagarh and Kandhamal districts display a more positive attitude towards Smart Classroom teaching compared to their rural counterparts. The mean score for urban students is higher (104.05) than for rural students, indicating a potential influence of location on attitudes.

the study provides valuable insights into the attitudes of secondary school students in Nayagarh and Kandhamal districts towards Smart Classroom teaching, highlighting both gender-based differences and location-based variations. The findings emphasize the intricate interplay of factors influencing student attitudes, calling for targeted strategies to enhance the effectiveness of Smart Classroom initiatives.

**Implications of the Study**

The educational implications drawn from the study on the attitudes of secondary school students in Nayagarh and Kandhamal districts towards Smart Classroom teaching are significant and can guide educational strategies and policies. Here are the key educational implications:

**Addressing Gender Disparities:** The observed gender-based differences in attitudes suggest a need to address potential disparities in technology-related engagement between boys and girls. Educational interventions should aim to create an inclusive learning environment that fosters equal participation and interest among all students.

**Enhancing Technology Exposure:** Recognizing the positive attitudes of urban students towards Smart Classroom teaching indicates a potential correlation with greater technology exposure. Policymakers and educators can consider initiatives to enhance technology exposure for rural students, ensuring equitable access to educational resources.

**Professional Development for Teachers:** Teachers play a crucial role in implementing Smart Classroom initiatives. The study highlights the importance of professional development programs for teachers to effectively integrate technology into their teaching methods. This could include training on using Smart Classroom tools and addressing diverse learning needs.

**Promoting Inclusive Education:** Given the diverse factors influencing attitudes, the study underscores the importance of promoting inclusive education. This involves considering individual preferences, learning styles, and technological readiness to create an environment where all students can benefit from Smart Classroom initiatives.

**Continuous Monitoring and Evaluation:** Continuous monitoring and evaluation of Smart Classroom programs are essential to assess their impact on student attitudes over time. This iterative process allows educators and policymakers to make data-driven decisions and refine strategies for optimal outcomes.

## Conclusion

As education continues to evolve with technological advancements, understanding and addressing these nuanced influences on student attitudes become imperative. The study's insights can inform future strategies, ensuring that Smart Classroom initiatives are not only effectively implemented but also inclusive, catering to the diverse needs and preferences of students in the ever-changing landscape of education.

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