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IMPACT OF GENDER AND TRAINING MODES ON TEACHING COMPETENCIES AND ATTITUDES: AN ANALYTICAL STUDY OF B.ED. TRAINEES IN INDIA

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ABSTRACT

This study explores the impact of gender and training modes on teaching competencies and attitudes among Bachelor of Education (B.Ed.) trainees in India. Using a quantitative approach, the research analyzes survey data from 400 trainees (179 males and 221 females) enrolled in either traditional classroom-based or distance education programs. Descriptive and inferential statistics, including independent t-tests, reveal no statistically significant differences in teaching competencies or attitudes based on gender. The findings suggest that current teacher training programs effectively promote equity, with both genders demonstrating similar pedagogical skills and professional attitudes. Despite these results, the study highlights the potential for optimizing distance education by integrating more experiential and interactive elements to ensure parity with formal training. This research contributes to understanding gender inclusivity in teacher education and emphasizes the need for gender-sensitive and context-specific practices in developing competent educators. Key insights from this study have implications for policy development, aiming to create more equitable and effective teacher training frameworks.

Keywords: Teacher education, gender dynamics, B.Ed. trainees, teaching competencies, teaching attitudes, distance education, formal education, gender equity, quantitative analysis, pedagogical development.

1. INTRODUCTION

Teacher education in India has become increasingly multifaceted, incorporating diverse gender dynamics and various training modes to prepare educators for contemporary academic challenges. Bachelor of Education (B.Ed.) programs are central to this developmental process, as they aim to instill both pedagogical competencies and constructive teaching attitudes in future educators. In today's landscape, the focus on gender in education stems from a broader acknowledgment of how gender roles and biases influence professional opportunities and approaches to teaching. Additionally, there is growing interest in understanding the impact of different educational delivery modes—traditional classroom-based learning versus distance education—on the effectiveness of teacher training. Given the unique advantages and constraints of each mode, it is crucial to evaluate their implications for the pedagogical development of teachers. This study, therefore, seeks to analyze the influence of gender and training modes on teaching competencies and attitudes among B.Ed. trainees, hypothesizing that these factors may or may not significantly affect trainees' professional preparedness and outlooks. The findings are expected to provide valuable insights for the development of equitable and effective teacher education programs, helping shape policy and inform best practices in the field.

2. LITERATURE REVIEW

OVERVIEW OF TEACHER TRAINING AND PEDAGOGICAL COMPETENCIES

The role of teacher training programs in shaping pedagogical competencies has been a subject of extensive research, with particular emphasis on how well these programs prepare educators for the demands of real-world teaching environments. Darling-Hammond et al. (2017) emphasize that effective teacher training integrates both theoretical knowledge and practical skills, enabling trainees to manage classrooms, engage students, and deliver content effectively. Constructivist theories highlight the importance of experiential learning, where trainees gain hands-on experience to apply teaching methodologies in various educational settings. The comparison between formal and distance learning methods is particularly relevant in the Indian context, where the accessibility and flexibility of distance education must be weighed against the comprehensive, interactive nature of formal classroom training (Loyalka et al., 2019).

GENDER DYNAMICS IN TEACHER EDUCATION

Research on gender and education has revealed nuanced insights into how male and female teachers approach pedagogy differently. Alam (2022) found that gender biases often shape the professional experiences and expectations of male and female teachers, with women generally exhibiting higher engagement and empathy in educational roles. These findings are echoed by Jimenez and Menendez Alvarez-Hevia (2021), who explored humanistic aspects of teacher training and highlighted how societal norms influence teaching styles and attitudes. In contrast, male teachers are often perceived as stricter and more disciplinarian, reflecting traditional gender roles in authority and discipline. However, the extent to which these gender-based differences manifest in teaching competencies remains unclear, necessitating further investigation.

COMPARATIVE STUDIES ON TRAINING MODES

The effectiveness of traditional and distance education has been a focal point in educational research. Keiler (2018) argues that formal classroom-based education often results in better pedagogical outcomes due to direct mentorship, peer collaboration, and real-time feedback. In contrast, distance education, while providing flexibility and accessibility, may lack the hands-on components that are critical for skill development. Nortvig et al. (2018) conducted a literature review indicating that while distance learning can be effective in delivering content, it often falls short in fostering interactive and practical teaching experiences. The integration of digital tools and virtual simulations has been suggested as a potential solution to this gap (Bykov & Leshchenko, 2016). Yet, there remains a dearth of research on the long-term impacts of these training modes, particularly in developing countries like India, where cultural and infrastructural challenges also play a role.

INTERSECTION OF GENDER AND TRAINING METHODS

The intersection of gender and training methods presents a complex dynamic that influences teaching outcomes. Studies by Alimmudin and Basuki (2022) reveal that female trainees often adapt more readily to collaborative and participative teaching strategies, which are more prevalent in formal education settings. However, distance education programs have made strides in incorporating gender-sensitive approaches, as demonstrated by the work of Hartono et al. (2018), which examined character education through a humanistic lens in Indonesia. Despite these advancements, the impact of training modes on gender-specific competencies and attitudes remains underexplored, particularly in the Indian context. This gap in the literature underscores the need for empirical studies that examine these variables in tandem.

GAPS IN EXISTING RESEARCH

While extensive research has been conducted on the general effectiveness of teacher training programs, there are notable gaps in understanding how gender and training modes interact to influence teaching competencies and attitudes. Much of the existing literature focuses on Western contexts, with limited studies addressing the unique cultural and educational landscape of India. Additionally, there is insufficient evidence on how distance education programs can be optimized to provide the same quality of experiential learning as formal education. This study aims to fill these gaps by analyzing survey data from a diverse sample of B.Ed. trainees, exploring the impact of gender and training modes on their professional development. The findings will contribute to the growing body of literature advocating for gender-sensitive and context-specific teacher education practices.

3. METHODOLOGY

STUDY DESIGN

The research adopts a quantitative study design that leverages descriptive and inferential statistical analyses to examine the differences in teaching competencies and attitudes among Bachelor of Education (B.Ed.) trainees in India. The study focuses on two critical variables: gender (male and female) and training mode (traditional classroom-based education and distance learning). The data were collected through structured surveys designed to measure both teaching competencies and attitudes, providing a comprehensive understanding of how these variables interact.

PARTICIPANTS

The study sample consists of 400 B.Ed. trainees, with an intentional balance between gender and training modes to ensure a representative analysis. The breakdown of the participants is as follows:

- **GENDER DISTRIBUTION**: The sample includes 179 male trainees (44.8%) and 221 female trainees (55.2%), reflecting the gender demographics typically observed in teacher training programs in India.
- **TRAINING MODES**: Participants are nearly evenly divided between training modes, with 219 trainees (54.8%) engaged in formal classroom-based education and 181 trainees (45.3%) participating in distance learning programs. This balanced distribution allows for a robust comparison of the two educational methods.

The selection of participants aimed to capture a diverse range of experiences and backgrounds, ensuring that the findings would be applicable to the broader population of B.Ed. trainees in India. The sampling strategy employed ensures that both gender and mode of education are adequately represented, making the analysis more comprehensive.

DATA SOURCES

Data were collected using structured survey instruments designed to gather both demographic and educational information. The survey included questions related to:

- **DEMOGRAPHICS**: Age, gender, and the mode of training.
- **TEACHING COMPETENCIES**: Measured using a series of Likert-scale questions assessing participants' self-perceived skills in classroom management, content understanding, and student engagement.
- **TEACHING ATTITUDES**: Assessed through Likert-scale questions evaluating trainees' perspectives and beliefs about the teaching profession, student relationships, and overall job satisfaction.

HYPOTHESIS TESTING METHODS

To test the research hypotheses, the study employs independent t-tests to compare the mean scores of male and female trainees across both teaching competencies and attitudes. This method is appropriate for assessing whether there are statistically significant differences between two independent groups. The hypotheses are defined as follows:

- **HYPOTHESIS: TEACHING COMPETENCIES**
  - **NULL HYPOTHESIS (H0):** There is no significant difference in the teaching competencies of male and female B.Ed. trainees, regardless of the training mode.
  - **ALTERNATE HYPOTHESIS (H1):** There is a significant difference in the teaching competencies of male and female B.Ed. trainees, regardless of the training mode.
- **HYPOTHESIS: TEACHING ATTITUDES**
  - **NULL HYPOTHESIS (H0):** There is no significant difference in the teaching attitudes of male and female B.Ed. trainees trained through distance versus traditional classroom settings.
  - **ALTERNATE HYPOTHESIS (H1):** There is a significant difference in the teaching attitudes of male and female B.Ed. trainees trained through distance versus traditional classroom settings.

The independent t-tests analyze the mean differences and assess statistical significance, using a threshold of $p<0.05p < 0.05p<0.05$. Additionally, effect sizes (Cohen's d) are calculated to determine the practical significance of the observed differences. This rigorous analytical framework ensures that the study's findings are both statistically sound and relevant for informing educational practices and policies.

4. ANALYSIS AND RESULTS

4.1 DEMOGRAPHIC INSIGHTS

Table 4.1.1: Gender of Participants

Variable	Frequency (Total)	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Male	179	44.8	44.8	44.8
Female	221	55.2	55.2	100.0
Total	**400**	**100.0%**	**100.0%**	**100.0%**

The gender breakdown among the 400 trainees shows a female majority, with 221 participants identifying as female (55.2%) and 179 identifying as male (44.8%). This slight gender disparity reflects broader trends in education, where females often represent a higher proportion in teaching professions. This difference may also underscore the societal expectations and career inclinations influencing men and women differently in education-related fields. With a significant portion of participants identifying as female, this could have implications for gender dynamics in training approaches, particularly in fields where gender may affect teaching style and classroom management expectations.

Table 4.1.2: Age Group of Participants

Variable	Frequency (Total)	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
20–25 years	111	27.8	27.8	27.8
26–30 years	97	24.3	24.3	52.0
31–35 years	83	20.8	20.8	72.8
36–40 years	61	15.3	15.3	88.0
41 years+	48	12.0	12.0	100.0
Total	**400**	**100.0%**	**100.0%**	**100.0%**

The age distribution among the trainees is notably varied, with the majority falling within the 20–25 years range (27.8%), followed closely by the 26–30 years group at 24.3%. As age increases, participation decreases, with 12% of trainees being over 41 years old. This age variation points to a mix of recent graduates and older professionals entering teacher training. Younger trainees may bring fresh academic perspectives, while older participants may contribute work experience from other fields, potentially influencing their competencies and teaching styles. This diversity in age groups is significant for understanding the range of needs and adaptability across trainee cohorts.

4.2 COMPETENCY AND ATTITUDE COMPARISON

Table 4.2.1: Teaching Competencies – Descriptive Statistics by Gender

Gender	N	Mean Score	Standard Deviation	Standard Error	95% CI Lower Bound	95% CI Upper Bound
Male	180	74.8	8.2	0.61	73.6	76.0
Female	220	75.9	7.7	0.52	74.8	77.0
Total	**400**	**75.35**	**7.95**	**0.56**	**74.2**	**76.5**

The analysis of teaching competencies across gender, as detailed in Table 4.2.1, reveals that both male and female B.Ed. trainees exhibit similar levels of competency. Male trainees (N = 180) have a mean competency score of 74.8, with a standard deviation of 8.2 and a standard error of 0.61, while female trainees (N = 220) score slightly higher at 75.9, with a standard deviation of 7.7 and a standard error of 0.52. The 95% confidence interval for males ranges from 73.6 to 76.0, and for females, it spans from 74.8 to 77.0, indicating a close overlap. These results suggest that gender does not substantially influence teaching competencies, as evidenced by the overall mean score of 75.35 and a combined standard deviation of 7.95. The small difference in mean scores implies that both male and female trainees have comparable pedagogical skills, despite any existing gender stereotypes or societal expectations. Furthermore, the independent samples t-test in Table 4.3.1 supports this observation, yielding a t-value of 1.34 and a p-value of 0.182, which is above the 0.05 significance level. This indicates that the null hypothesis cannot be rejected, affirming that the observed differences in teaching competencies between male and female trainees are not statistically significant. The effect size, calculated as Cohen's d = 0.14, reinforces the minimal practical difference, suggesting that gender plays a negligible role in the development of teaching competencies among B.Ed. trainees. These findings are critical as they highlight the importance of equitable training practices that cater to both genders equally, without favoring one over the other. The similarity in competencies may be attributed to standardized training curricula and equal opportunities provided within both formal and distance education settings, promoting gender inclusivity in teacher training.

Table 4.2.2: Teaching Attitudes – Descriptive Statistics by Gender

Gender	N	Mean Score	Standard Deviation	Standard Error	95% CI Lower Bound	95% CI Upper Bound
Male	180	79.4	8.5	0.63	78.2	80.6
Female	220	80.7	8.1	0.54	79.6	81.8
Total	**400**	**80.1**	**8.3**	**0.58**	**79.0**	**81.2**

Table 4.2.2 presents descriptive statistics for teaching attitudes by gender, showing mean scores of 79.4 for male trainees (N = 180) and 80.7 for female trainees (N = 220). Male trainees have a standard deviation of 8.5 and a standard error of 0.63, while female trainees have a slightly lower standard deviation of 8.1 and a standard error of 0.54. The 95% confidence intervals for male and female trainees overlap, ranging from 78.2 to 80.6 and 79.6 to 81.8, respectively, suggesting no significant difference in attitudes toward teaching based on gender. The overall mean attitude score is 80.1, with a standard deviation of 8.3, indicating generally positive attitudes across the cohort. The independent samples t-test results in Table 4.3.2 further substantiate this, with a t-value of 1.74 and a p-value of 0.082, which exceeds the 0.05 significance threshold. Consequently, the null hypothesis is not rejected, and it is concluded that there is no statistically significant difference in teaching attitudes between male and female trainees. The effect size, Cohen's d = 0.20, is small, implying that any practical difference in teaching attitudes is minimal. These findings are important as they demonstrate that both male and female trainees approach teaching with a similar level of enthusiasm and commitment, regardless of whether they are enrolled in distance or formal education programs. This consistency in attitudes can be linked to shared pedagogical training and a common understanding of the teaching profession's values and responsibilities. The absence of significant gender differences in teaching attitudes underscores the success of teacher training programs in fostering a unified professional outlook among future educators, which is crucial for maintaining quality and consistency in teaching practices.

4.3 HYPOTHESIS TESTING SUMMARY

HYPOTHESIS

- **NULL HYPOTHESIS (H0):** There is no significant difference in the teaching competencies of male and female B.Ed. trainees, regardless of the training mode (distance or formal).
- **ALTERNATE HYPOTHESIS (H1):** There is a significant difference in the teaching competencies of male and female B.Ed. trainees, regardless of the training mode (distance or formal).

Table 4.3.1: Independent Samples t-Test for Teaching Competencies by Gender

Statistic	Value	p-value	95% CI Lower Bound	95% CI Upper Bound	Effect Size (Cohen's d)	Significance (α = 0.05)
t	1.34	0.182	-0.5	2.7	0.14	Not Significant
Degrees of Freedom (df)	398					
Mean Difference	1.1					

The hypothesis testing for teaching competencies between genders provides further insight into the minimal role gender plays in shaping these skills. The null hypothesis posited that there is no significant difference in teaching competencies between male and female B.Ed. trainees, irrespective of their mode of education (distance or formal). The t-test results in Table 4.3.1, which present a t-value of 1.34 and a p-value of 0.182, indicate that this hypothesis holds true. Since the p-value exceeds the 0.05 level of significance, the null hypothesis is not rejected, confirming that any observed differences are statistically insignificant. The mean difference of 1.1 between genders is relatively minor, and Cohen's d = 0.14 suggests a very small effect size, reinforcing that gender does not significantly influence teaching competencies. This outcome is crucial for understanding that both male and female trainees are equally capable in pedagogical performance, regardless of gender biases or societal perceptions. It also highlights the effectiveness of current teacher education programs in providing equal opportunities for both genders to acquire and demonstrate essential teaching skills. The findings advocate for continued efforts to ensure gender equality in teacher training and support the development of teaching competencies through inclusive and unbiased educational practices.

HYPOTHESIS

- **NULL HYPOTHESIS (H0):** There is no significant difference in the teaching attitudes of male and female B.Ed. trainees trained through distance versus traditional classroom settings.
- **ALTERNATE HYPOTHESIS (H1):** There is a significant difference in the teaching attitudes of male and female B.Ed. trainees trained through distance versus traditional classroom settings.

Table 4.3.2: Independent Samples t-Test for Teaching Attitudes by Gender

Statistic	Value	p-value	95% CI Lower Bound	95% CI Upper Bound	Effect Size (Cohen's d)	Significance (α = 0.05)
t	1.74	0.082	-0.2	2.8	0.20	Not Significant

Degrees of Freedom (df)	398					
Mean Difference	1.3					

This hypothesis testing focused on whether there is a significant difference in teaching attitudes between male and female B.Ed. trainees, trained through either distance or formal classroom education. The null hypothesis stated that no significant difference exists, and the analysis supports this claim. The t-test results in Table 4.3.2 show a t-value of 1.74 and a p-value of 0.082, indicating that the p-value is above the 0.05 significance level. Consequently, the null hypothesis is not rejected, suggesting that gender does not significantly impact teaching attitudes among the trainees. The mean difference of 1.3 between male and female trainees is not substantial, and the effect size, Cohen's d = 0.20, reflects a small practical difference. These results suggest that teaching attitudes are relatively stable across genders, emphasizing that both male and female trainees exhibit similar levels of enthusiasm and commitment to the teaching profession. The consistency in attitudes can be attributed to the shared values instilled during teacher training, which focus on the importance of education and the role of teachers in shaping student outcomes. This finding is significant as it highlights that gender does not influence professional attitudes, supporting the notion that teacher training programs are successful in promoting a cohesive and positive outlook on teaching, irrespective of gender. It also suggests that future research and training initiatives should continue to focus on pedagogical content and teaching practices rather than on gender-specific approaches, ensuring that all trainees are equally prepared for their roles as educators.

5. DISCUSSION

The results of this study provide a nuanced understanding of the role gender and training modes play in shaping the teaching competencies and attitudes of Bachelor of Education (B.Ed.) trainees in India. First, the analysis of teaching competencies revealed no significant gender differences, as indicated by a p-value of 0.182 and a negligible effect size (Cohen's d = 0.14). These findings are consistent with prior research, such as that of Alam (2022), which emphasized that structured and inclusive teacher education programs can equalize skill development across genders. The small difference in mean scores between male and female trainees suggests that both genders have similar pedagogical abilities, likely a result of standardized and well-implemented training curricula (Darling-Hammond et al., 2017).
Similarly, the analysis of teaching attitudes also demonstrated no statistically significant gender differences (p-value = 0.082), with a small effect size (Cohen's d = 0.20). This consistency in attitudes across genders aligns with the work of Jimenez and Menendez Alvarez-Hevia (2021), who argued that intrinsic motivations and shared values in teaching contribute to a unified outlook among educators. The implications of these findings are significant, suggesting that teacher training programs have been successful in promoting equity and minimizing gender disparities in both competencies and attitudes. However, these results also underscore the need for continuous gender-sensitive training practices, as societal perceptions and traditional roles can still subtly influence career trajectories and teaching styles (Alimmudin & Basuki, 2022).

While the lack of significant differences supports the effectiveness of existing programs, it also highlights the potential to optimize distance education. Incorporating more interactive and experiential elements, as suggested by Bykov and Leshchenko (2016), could bridge the minor gaps in teaching competencies observed. Additionally, considering the work of Nortvig et al. (2018), there is scope to integrate digital simulations and virtual collaborations that mimic classroom experiences, ensuring distance learners receive comparable training to their classroom-based peers.

6. CONCLUSION

This study concludes that gender does not have a statistically significant impact on the teaching competencies or attitudes of B.Ed. trainees in India, regardless of whether they are trained through traditional or distance education programs. The small differences observed in mean scores underscore the effectiveness of equitable training practices currently implemented in teacher education. These findings advocate for policies that continue to emphasize inclusivity and equal opportunity in pedagogical development. Furthermore, the results highlight the potential for improving distance education through the integration of experiential learning tools to match the hands-on benefits of formal classroom settings. As India continues to expand and diversify its teacher training programs, a continued focus on gender inclusivity and the optimization of training modes will be crucial to producing competent and motivated educators. Future research should explore the long-term classroom impacts of these training differences and consider additional cultural and regional factors that might influence educational outcomes.

CONFLICT OF INTERESTS

None.

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