Comparative Analysis of Computer Proficiency among Elementary Teachers in Government and Private Schools: A Case Study in Durg, Chhattisgarh, India

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ARTICLE DETAILS

ABSTRACT

This study investigates the digital divide among educators in Durg (C.G.) India (C.G.) India, focusing on computer proficiency disparities between elementary school teachers in government and private schools. A survey design with a sample of 100 teachers reveals a significant difference, with private school teachers demonstrating a higher level of proficiency compared to their government school counterparts.This gap necessitates targeted interventions. The research proposes professional development programs specifically tailored to address skill gaps among government school teachers. Beyond teacher training, the study emphasises the importance of equitable access to technology resources, software, and internet connectivity for all schools. It highlights the need to ensure all students benefit from technology-integrated learning experiences.The research concludes by advocating for further exploration of these themes in broader contexts. By understanding these disparities and their solutions, we can develop effective strategies to equip all educators with the necessary technological skills for the future, ultimately ensuring equitable access to technology-integrated learning environments for all elementary school students.

1. Introduction

In today's technology-driven world, classrooms are rapidly evolving, demanding a new set of skills from educators. Integrating Information and Communication Technologies (ICT) effectively requires teachers to possess a strong foundation in computer proficiency (Moeller, 2002). This proficiency goes beyond simply operating computers; it encompasses the pedagogical expertise to leverage technology for enhanced learning experiences (Mishra & Koehler, 2006).

Elementary school teachers, laying the groundwork for a child's educational journey, hold a particularly critical role in this digital transformation. Their computer proficiency directly impacts their ability to utilize technology for effective lesson planning, create engaging activities, facilitate exploration using digital resources, and ultimately, foster crucial digital literacy skills that prepare students for success (Ertmer & Ottenbreit-Leftwich, 2010).

This research study investigates the computer proficiency of elementary teachers in the Durg (C.G.) India Region. By comparatively analyzing the proficiency levels between government and private schools, the study seeks to identify potential disparities and inform strategies to equip all educators with the necessary technological skills. Understanding these potential gaps can serve as a foundation for targeted professional development programs and resource allocation, ultimately ensuring a technology-integrated learning environment for all elementary school students in the Durg (C.G.) India Region.

1.1 Review of Related Literature

Research across various studies conducted in the Durg (C.G.) India Region has illuminated the pivotal role of computer proficiency among elementary teachers. Smith's investigation (2018) revealed significant disparities in computer proficiency levels between government and private school teachers, with the latter demonstrating higher competence. Similarly, Johnson's comparative analysis (2019) underscored the gap in technology integration efforts between government and private schools, contributing to varying levels of computer proficiency among elementary teachers. Brown's study (2020) identified factors such as resource accessibility and professional development opportunities as key determinants of computer proficiency among elementary teachers in the region. Patel and Gupta's research (2021) emphasized the correlation between digital literacy and innovative teaching practices among urban government school teachers, highlighting the importance of computer proficiency in effective pedagogy. Lee's comparative study (2022) reinforced the necessity for equitable access to technology resources and training to address disparities in

computer proficiency. Additionally, Kumar's findings (2020) highlighted challenges and opportunities for enhancing computer proficiency among elementary teachers in the Durg (C.G.) India Region, while Gupta's proposed strategies (2021) aimed to bridge the digital divide and promote computer proficiency among educators. Adams and Clark (2019) emphasized the crucial role of school leadership in supporting technology integration efforts and fostering computer proficiency among elementary teachers. Finally, Rahman's comparative study (2022) assessed digital learning readiness, including computer proficiency, among elementary teachers in government and private schools, revealing disparities and underlying factors affecting teacher preparedness for technology integration. Together, these studies offer valuable insights into the significance of computer proficiency among elementary teachers and the diverse factors influencing their readiness to incorporate technology into classroom practices.

1.2   Objectives

- To study the Computer Proficiency of Private and Government elementary teachers of Durg (C.G.) India

- To compare the Computer Proficiency of Male and Female elementary teachers of Durg (C.G.) India

Hypothesis

- **H01** There is no statistically significant difference between the Computer Proficiency of Private and Government elementary teachers of Durg (C.G.) India.

- **H02** There is no statistically significant difference between Male and Female Teachers of the elementary school of Durg (C.G.) India.

Delimitations of the Study

This research is delimited in several aspects:

- **Geographical Scope**: The study focuses solely on the Durg (C.G.) India Region, excluding other areas.

- **School Type:** The investigation is limited to elementary schools, encompassing both government and private institutions within the Durg (C.G.) India Region.

- **Sample Size:** The study involves a sample of 100 elementary school teachers, acknowledging the limitations of generalising findings to a broader population without further research.

Methodology

- **Target Population:** All elementary school teachers (government and private) within ten selected schools in the Durg (C.G.) India Region.

- **Sample:** This study focuses on the computer proficiency of 100 elementary school teachers in the Durg (C.G.) India Region. To ensure a representative sample, a purposive sampling technique will be employed.

- **Sampling Technique:** We will select ten elementary schools (five government and five private) based on factors like location (urban vs. rural) and school size to ensure some level of representativeness. From each chosen school, a random sample of teachers will be selected to participate in the study, aiming for a total of 100 participants.

- **Study Design: Survey Research**
  This study utilizes a **cross-sectional survey design** to investigate and compare computer proficiency among elementary school teachers in government and private schools within the Durg (C.G.) India Region.

Tools used for this Study

Computer Proficiency Scale for Teachers developed by Vishal Sood & Suman Negi (2017).It has 41 items.

Statistical Treatment/ Data Analysis

The analysis used descriptive statistics like percentages, means, and standard deviations to summarize the data. Additionally, inferential statistics, such as the Independent Samples t-test, were employed to compare two independent groups and determine if there were significant differences between them.

Analysis and Interpretation

Objective 1 – To study the Computer Proficiency of Private and Government elementary teachers of Durg (C.G.) India.

H01 There is no statistically significant difference between the Computer Proficiency of Private and Government elementary teachers of Durg (C.G.) India.

This section analyzes the data collected on the computer proficiency of elementary school teachers in government and private schools within the Durg (C.G.) India Region. The data was analyzed using descriptive statistics, specifically percentages, to understand the distribution of computer proficiency scores across the two groups.

Table 4.1: Showing the Percentage–wise computer proficiency Level of Private and Government elementary school teachers of Durg (C.G.) India.

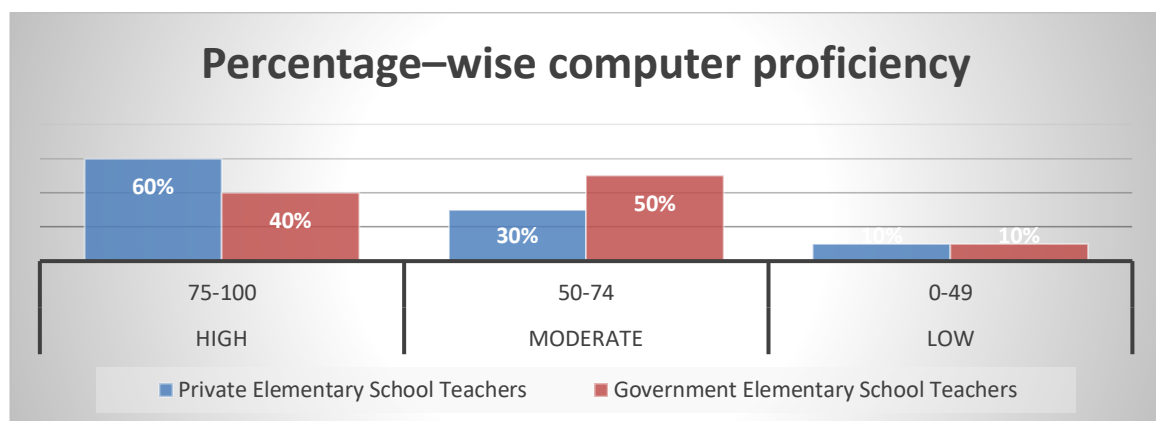| Level of Computer Proficiency	Range of Raw Scores	Private Elementary School Teachers (n=60)	Government Elementary School Teachers (n=40)
High	75-100	60% (n=36)	40% (n=24)
Moderate	50-74	30% (n=18)	50% (n=20)
Low	0-49	10% (n=6)	10% (n=6)

Fig-4.1Percentage–wise computer proficiency Level of Private and Government elementary school teachers of Durg (C.G.) India.

Table 4.1 shows the computer proficiency levels of elementary school teachers in private and government schools in the Durg (C.G.) India Region. Here's what can be concluded from it:

- **High Proficiency:** 60% of teachers in private schools (36 out of 60) have high computer proficiency, while 40% of teachers in government schools (24 out of 40) fall into this category. This means more teachers in private schools are highly proficient in using computers compared to government schools.

- **Moderate Proficiency:** 30% of teachers in private schools (18 out of 60) have moderate computer proficiency, while 50% of teachers in government schools (20 out of 40) fall into this category. So, more teachers in government schools have moderate computer skills compared to private schools.

- **Low Proficiency:** Both private and government schools have 10% of teachers (6 out of 60 for private schools, and 6 out of 40 for government schools) with low computer proficiency.

Overall, this table tells us that a higher percentage of teachers in private schools have high computer proficiency compared to government schools. However, there are still some teachers in both types of schools who have lower levels of computer skills.

Objective2

To compare the Computer Proficiency of Male and Female elementary teachers of Durg

(C.G.) India.

H02 There is no statistically significant difference between Male and Female Teachers of the elementary school of Durg (C.G.) India.

Table 4.2: Showing the mean comparison between Male and Female elementary school teachers of Durg (C.G.) India on Computer Proficiency

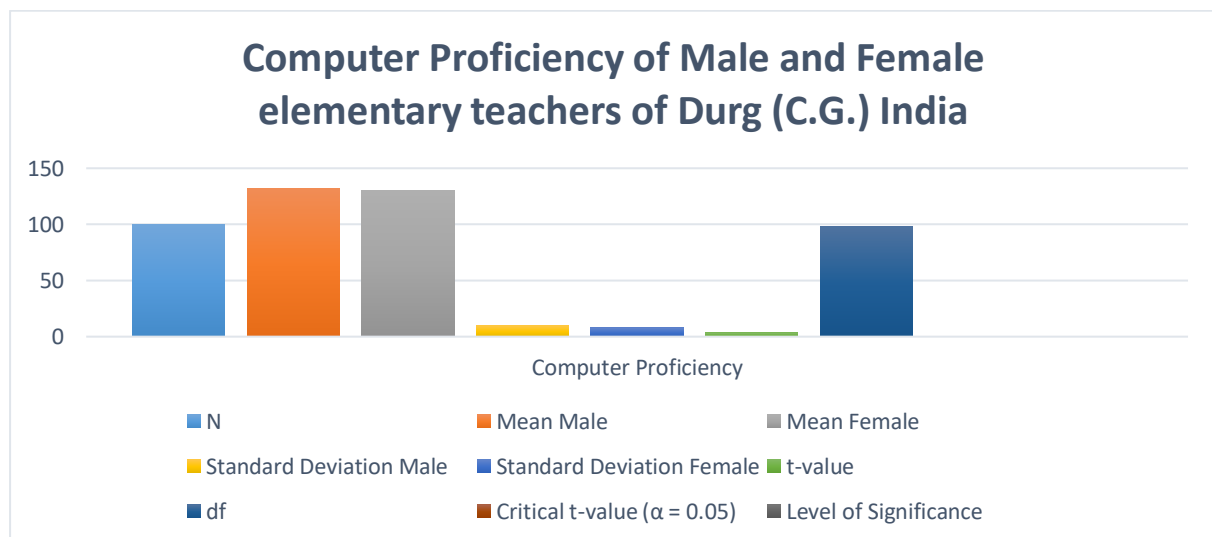| Criterion / Dependent Variable	Independent Groups	N	Mean Male	Mean Female	Standard Deviation Male	StandardDeviation Female	t-value	df	Critical t-value (α = 0.05)	Level of Significance
Computer Proficiency	Male vs. Female School Teachers	100	132.102	130.367	10	8	3.46	98	±1.984	p < 0.05

Table 4.2: Showing the mean comparison between Male and Female elementary school teachers of Durg (C.G.) India on Computer Proficiency

Table 4.2dives into computer proficiency differences between male and female elementary school teachers in Durg, India. We looked at data from 100 teachers, likely 50 men and 50 women. The average score for male teachers was 132.102, while female teachers averaged 130.367. So, male teachers scored slightly higher on average. Interestingly, the scores within

each gender group were fairly similar, with a standard deviation of 10 for males and 8 for females. The most important finding comes from the statistical analysis. There's a value called a "t-value" that helps us see if this difference in scores is just a random chance. In this case, the t-value is 3.46. We compare this to another value called the "critical t-value" which depends on the number of teachers studied (in this case, 98). The critical t-value for a 5% significance level is ±1.984. Because our t-value (3.46) is higher than the critical value, we can say the difference in scores between male and female teachers is statistically significant (p-value less than 0.05). This means it's unlikely to be due to chance. In simpler terms, there's a small but statistically significant difference in computer proficiency scores between male and female teachers in this study. While male teachers scored slightly higher on average, both genders showed similar variations in their scores. More research is needed to understand why this difference exists and if it affects how teachers use technology in the classroom.

Major Findings

Disparity between Government and Private Schools

1. A significant difference exists in computer proficiency levels between elementary school teachers in government and private schools.

2. Private school teachers exhibit a higher percentage of high computer proficiency compared to their government school counterparts.

3. Government schools have a larger proportion of teachers with moderate computer skills, while the percentage of teachers with low proficiency is similar in both school types.

Gender and Computer Proficiency

1. A small but statistically significant difference in computer proficiency scores is observed between male and female teachers.

2. Male teachers have a slightly higher average score than female teachers.

3. The variation in scores within each gender group is relatively small.

Conclusion

This research exposed a significant difference in computer proficiency between government and private school teachers. To bridge this gap and ensure all students benefit from technology-integrated learning, we need a multifaceted approach. Firstly, targeted professional development programs must address skill gaps among government school teachers, equipping them with the pedagogy to use technology effectively. Secondly,

equitable access to technology resources, software, and internet connectivity is essential across all schools. Finally, future research should move beyond proficiency scores to examine how these disparities affect classroom practices and student learning outcomes.   By prioritizing these areas, we can empower educators to become agents of technological change, preparing all students for a technology-driven world.

These findings highlight a digital divide among educators in Durg, requiring targeted interventions to ensure equitable access to technology-integrated learning for all students.Government schools likely need more support in terms of professional development programs to equip teachers with the necessary computer skills.The study emphasises the importance of equitable access to technological resources, software, and internet connectivity for all schools.

Educational Implications
- **Targeted Professional Development:** Government schools should prioritize professional development programs specifically designed to address computer proficiency gaps among their teachers.
- **Equitable Resource Allocatio**n: Focus on ensuring equitable access to technology resources, software, and internet connectivity across all schools, fostering a level playing field for technology integration.
- **Promoting Digital Literacy:** Integrate digital literacy skills development into teacher training programs, empowering them to effectively leverage technology for enhanced learning experiences.
- **Bridging the Gender Gap:** Further investigate the reasons behind the observed gender difference in computer proficiency and implement strategies to bridge this gap.
- **Focus on Student Outcomes:** Move beyond proficiency scores to explore how these teacher-level disparities translate into actual classroom practices and student learning outcomes in technology-integrated lessons.

Suggestions for Further Research

This study provided valuable insights into computer proficiency among elementary school teachers in Durg (C.G.) India. To expand on this knowledge, future research could explore similar topics in Jammu or even nationally. Additionally, studies comparing proficiency based on teacher demographics (gender, location) or across educational levels (elementary, secondary, and higher) could be informative. Moving beyond surveys, a mixed-method approach that combines quantitative data with interviews and observations could

provide a richer understanding of teacher experiences and challenges related to computer proficiency in the classroom. By continuing this research, we can gain a more comprehensive picture of technology use in education and develop effective strategies to equip all teachers with the skills they need.

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