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The Influence of Institutional Type and Maternal Employment on Smartphone Usage Among B.Ed. and D.El.Ed. Students

Navneet Kaur[1], Dr. Yogita Sarwal[2]

[1]M.Ed Student, Govt. College of Education, Patiala
[2]Assistant Professor, Govt. College of Education, Patiala

Abstract

Smartphone usage has become a ubiquitous aspect of daily life, influencing various facets of education. For teacher education students, smartphones can serve as powerful tools that provide access to valuable educational resources, potentially enhancing academic performance. However, they can also pose significant distractions. Therefore, it is crucial for future educators to strike a balance between leveraging smartphones for educational purposes and maintaining focus on their studies. This study examines the patterns of smartphone usage among Bachelor of Education (B.Ed.) and Diploma in Elementary Education (D.El.Ed.) students in the Patiala district. Specifically, the study aims to explore differences in smartphone usage across two key groups: government versus private institution students and students with working mothers versus those with non-working mothers. By investigating these variables, the research seeks to provide insights into how institutional type and maternal employment status may influence students' smartphone usage patterns. A quantitative research design was employed, surveying 160 students enrolled in both B.Ed. and D.El.Ed. programs. The research utilized the Smartphone Dependence Scale (SDS) developed by Dr. Yogita Sarwal and Dr. Hardeep Saini (English version) as the primary measurement tool. The findings reveal no significant difference in smartphone usage between students attending government and private institutions. However, a significant difference was observed between students of working and non-working mothers, with those of working mothers demonstrating higher levels of smartphone usage.

Keywords: Smartphone Usage, Teacher Education, Government and Private Institutions, Maternal Employment

INTRODUCTION

Smartphone usage has become deeply embedded in modern life, transforming how individuals access information, communicate, and engage in learning. For students in teacher education programs, smartphones offer significant opportunities to enhance academic success and enrich their learning experiences. These devices provide instant access to a wealth of educational resources, research materials, and specialized applications that can help students stay organized, deepen their understanding of course material, and improve academic performance. Whether through using online platforms for collaborative projects, accessing digital textbooks, or participating in virtual discussions, smartphones can help students engage more actively with their studies and extend their learning beyond the traditional classroom setting.

For teacher education students, smartphones offer the ability to quickly access information, enhancing their learning experiences. Educational apps and online courses provide flexible learning opportunities, while virtual collaboration tools foster teamwork and communication with peers. Additionally, smartphones can support organization by allowing students to manage their schedules, set reminders, and keep track of deadlines, ensuring they stay on top of their academic responsibilities. This ease of access and efficiency can significantly enhance both the learning process and academic outcomes for teacher education students.

However, while smartphones bring numerous benefits, they also introduce challenges. One of the most significant concerns is the potential for distraction. With social media, games, and entertainment apps readily accessible, students may find it difficult to stay focused on their academic tasks. These distractions can detract from time spent studying, ultimately affecting academic performance. Furthermore, constant smartphone usage can lead to a decline in face-to-face interactions with peers, instructors, and colleagues, limiting opportunities for meaningful discussions, group learning, and the development of essential social and communication skills that are central to teacher education programs.

To effectively navigate these challenges, teacher education students must find a balance between using smartphones for educational purposes and avoiding distractions. This involves being intentional with smartphone use by focusing on tasks like taking notes, accessing online resources, and communicating with peers and instructors. Students must also exercise discipline by limiting time spent on non-educational apps and setting boundaries for smartphone usage, especially in academic settings. By practicing mindful smartphone usage, future educators can model responsible technology use for their future students, demonstrating how to integrate technology in a way that enhances learning without compromising academic focus. In conclusion, smartphones can be powerful tools for teacher education students, but they require careful management to ensure they serve educational goals. By adopting a balanced approach, students can harness the full potential of these devices to enhance their learning experience and develop the skills needed to use technology effectively in their future classrooms.

The significance of this study, lies in their potential to uncover crucial insights into the patterns and influences surrounding smartphone usage among students from diverse backgrounds. By examining the differences in smartphone usage between government and private Bachelor of Education (B.Ed.) and Diploma in Elementary Education (D.El.Ed.) students, the study aims to highlight how factors like institutional setting and socio-economic status may shape digital engagement. Additionally, exploring the difference in smartphone usage between students of working and non-working mothers can provide valuable information on how family dynamics and maternal employment impact children's access to and reliance on smartphones. These findings can inform educational policies, parental strategies, and future research on digital behavior among students.

Review of Related Literature

Shruthi C.S. and Indiramma B.S. (2019) discovered that every student in their study had access to at least one smartphone. Most students began using smartphones when they entered college, with usage peaking in the afternoon or evening and predominantly occurring at home. Their findings showed that students mainly used smartphones for socializing and connecting with others through various applications.

Yashpreet Kaur (2020) conducted a cross-sectional study on the smartphone usage behavior and dependence of management students across three institutions in Tricity. Her results indicated moderate to high levels of dependence on smartphones, with the study underscoring the important roles that teachers

and parents could play in promoting healthier smartphone usage among students.

Yuen Fook, Chan; Narasuman, Suthagar; Aziz, Norazah Abdul; Mustafa, Sharifah Muzlia Syed; Han, Cheong Tau (2021) revealed that students reported using smartphones without compelling reasons, and often found emotional stability through this use. Although students seemed somewhat addicted to smartphones, they did not utilize them for academic purposes.

Dr. V. Vishnukanth Rao, Mawada Abdullah Alwaaili, Zainab Juma Al-abdali, and Fakhari Suliman Alshaaili (2023) discovered differences in respondents' perceptions and the hindrance factors related to smartphone usage in students' learning activities. Their study suggested that future research should expand to address social and family-related factors to gain a fuller understanding of smartphone use and its impacts on students.

Objectives of the Study

- To explore the differences in smartphone usage between government and private students enrolled in B.Ed. and D.El.Ed. programs.
- To assess the variation in smartphone usage levels between students with working mothers and those with non-working mothers.

Hypotheses of the Study

- There is no significant difference of smartphone usage between Government and Private Students of B.Ed. and D.El.Ed. colleges.
- There is no significant difference in the level of smartphone usage among students of working mothers and students of non-working mothers.

Research Methodology

Universe of the Study and Sample

The sample for the present study consisted 160 students from five educational colleges in the Patiala district, selected through random sampling. This sample included students from two government colleges and three private colleges, with 80 students from B.Ed. colleges and 80 students from D.El.Ed. colleges. The sample was further stratified to include 40 male students and 40 female students from each group.

Table. 1: Distribution of the sample

Total	Students			
160	B.Ed.		D.El.Ed.	
	Government	Private	Government	Private
	40	40	40	40

Research Tool used

Smartphone Dependence Scale by Dr. Yogita Sarwal and Dr. Hardeep Saini (SDS) (English)

Statistical Techniques used

To obtain the objectives of the investigation, collected data was arranged in tabular form for the statistical analysis. The data was analyzed and interpreted by using various statistical techniques namely Mean, Standard Deviation (SD), t- test and Analysis of Variance (ANOVA).

Analysis and Interpretation of Data

The present study aims to investigate the differences in smartphone usage among students enrolled in the D.El.Ed. and B.Ed. programs across government and private institutions. Additionally, the study explores variations in smartphone usage between students whose mothers are employed and those whose mothers are not. To analyze these differences, T-tests and ANOVA were employed to assess the impact of institutional type (government vs. private) and maternal employment status (working vs. non-working) on smartphone usage patterns.

Smartphone Usage between Government and Private Students of B.Ed. and D.El.Ed.

A sample of 40 students from Government and 40 from Private D.El.Ed. colleges, as well as 40 from government and 40 from private B.Ed. colleges, was selected for the study. To assess the significance of the difference in smartphone usage between government and private students in both D.El.Ed. and B.Ed. colleges, ANOVA was applied. The results are presented in Table 2.

Table 2: Summary of Smartphone usage Between Government and Private Students of D.El.Ed. and B.Ed. Colleges

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
GOVERNMENT B.Ed.	40	5618	140.45	480.05
PRIVATE B.Ed.	40	5456	136.4	321.48
GOVERNMENT D.El.Ed.	40	5639	140.98	386.79
PRIVATE D.El.Ed.	40	5293	132.33	734.64

Table 2 shows that the total smartphone usage for Government B.Ed. students is 5618, with an average of 140.45 and a variance of 480.05. For Private B.Ed. students, the total usage is 5456, with an average of 136.4 and a variance of 321.48. In the Government D.El.Ed. group, the total usage is 5639, with an average of 140.98 and a variance of 386.79. Finally, Private D.El.Ed. students have a total usage of 5293, with an average of 132.33 and a variance of 734.64. Variance is a statistical measure that indicates how much individual data points differ from the mean of the group. A higher variance suggests greater variability in smartphone usage within that group. These values indicate that Government D.El.Ed. students have the highest average smartphone usage (140.98), while Private D.El.Ed. students have the lowest (132.33). Private D.El.Ed. also exhibits the highest variance (734.64), signifying more variability in smartphone usage in this group compared to the others. To further investigate these differences, a Welch's ANOVA was performed, accounting for unequal variances across groups.

Table 3: Welch's ANOVA Result of Smartphone Usage between Government and Private Students of D.El.Ed. and B.Ed. Colleges.

Welch's ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***

Between Groups	1950.525	3	650.175	1.352	0.2586	2.673
Within Groups	74995.25	140	480.74			
Total	76945.775	143				

Table 3 summarizes the results of the Welch's ANOVA test conducted to examine smartphone usage among Government B.Ed., Private B.Ed., Government D.El.Ed., and Private D.El.Ed. students. The between-group sum of squares (SS) is 1950.525, with 3 degrees of freedom (df), resulting in a mean square (MS) of 650.175. The calculated F-value is 1.352, and the associated P-value is 0.2595, which is greater than the 0.05 significance level. The critical F-value is 2.673. The within-group sum of squares (SS) is 74995.25, with 140 degrees of freedom, yielding a mean square (MS) of 480.74. The total sum of squares is 76945.775, with 143 degrees of freedom.

Since the F-value (1.352) is smaller than the critical F-value (2.673) and the P-value (0.2586) exceeds the 0.05 threshold, the null hypothesis is not rejected. This means that the analysis suggests there is no statistically significant difference in smartphone usage between the four groups (Government B.Ed., Private B.Ed., Government D.El.Ed., and Private D.El.Ed.).

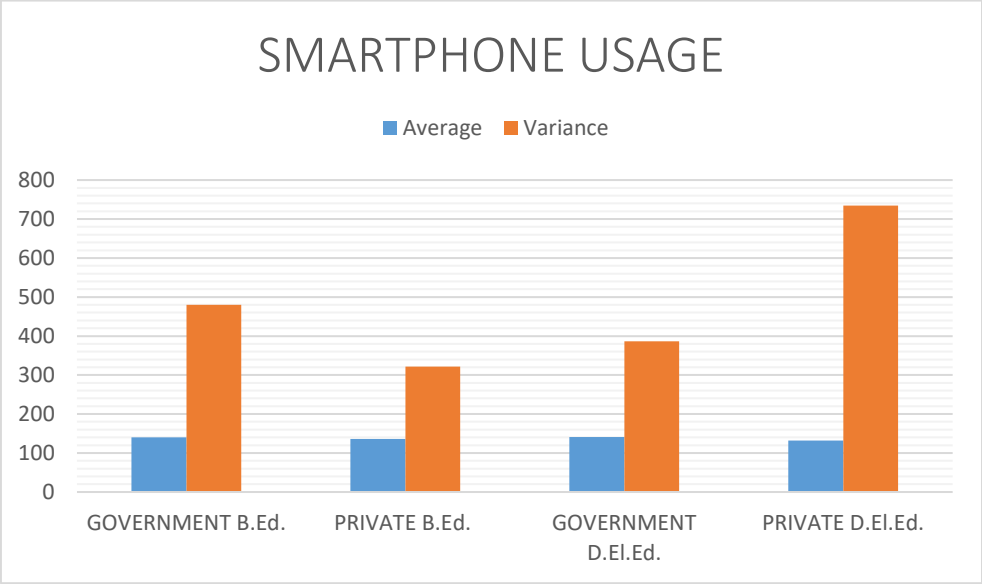

Figure 1: Comparison between Girls and Boys of D.El.Ed. and B.Ed. Students in Smartphone Usage

Figure 1 presents a comparison between the Average and Variance of smartphone usage for Government and Private Students of D.El.Ed. and B.Ed. colleges. The Average and Variance of smartphone usage for Government B.Ed. colleges were 140.45 and 480.04 respectively whereas Average and Variance for Private B.Ed. colleges were 136.4 and 321.47 respectively, while the Average and Variance were 140.97 and 386.79 for Government D.El.Ed. Students and for D.El.Ed. Private colleges, Average and Variance were 132.32 and 734.63 respectively. The graph indicates that there is minimal difference between the Average of smartphone usage of both Government and Private students of D.El.Ed. and B.Ed. colleges. Therefore, the difference in smartphone usage between Government and private student of D.El.Ed. and B.Ed. colleges is not statistically significant.

Hence, the null hypothesis, "There is no significant difference of smartphone usage between Government and Private Students of B.Ed. and D.El.Ed. colleges." is accepted.

Level of Smartphone Usage among Students of Working Mothers and Students of Non-Working Mothers.

The sample of 48 Students of working mother and 112 students of non-working mothers was taken for the study. To find out the significance of difference in Smartphone usage between students of working mothers and students of non-working mothers, T- test was applied. The values are as shown in Table 4.

TABLE 4: Smartphone Usage between Students of Working Mothers and Students of Non-Working Mothers.

Smartphone Usage	Mother Working or Non-Working	N	MEAN	SD	t-value	df	Level of Significance	Interpretation
	Working	48	148.10	20.56	-4.18	158	0.05	Significant
	Non-Working	112	133	21.07				

Table 4 shows the mean smartphone usage scores for students of working mothers and students of non-working mothers were 133.01 and 148.10, respectively. The standard deviations for smartphone usage were 21.07 for students of working mothers and 20.56 for students of non-working mothers. The calculated t-value was -4.18, with 158 degrees of freedom (df). The critical t-value for a two-tailed test at the 0.05 significance level is 1.975. Since the calculated t-value (-4.18) is less than the critical t-value (±1.975), the null hypothesis is rejected. This indicates that there is a significant difference in smartphone usage between students of working mothers and students of non-working mothers.

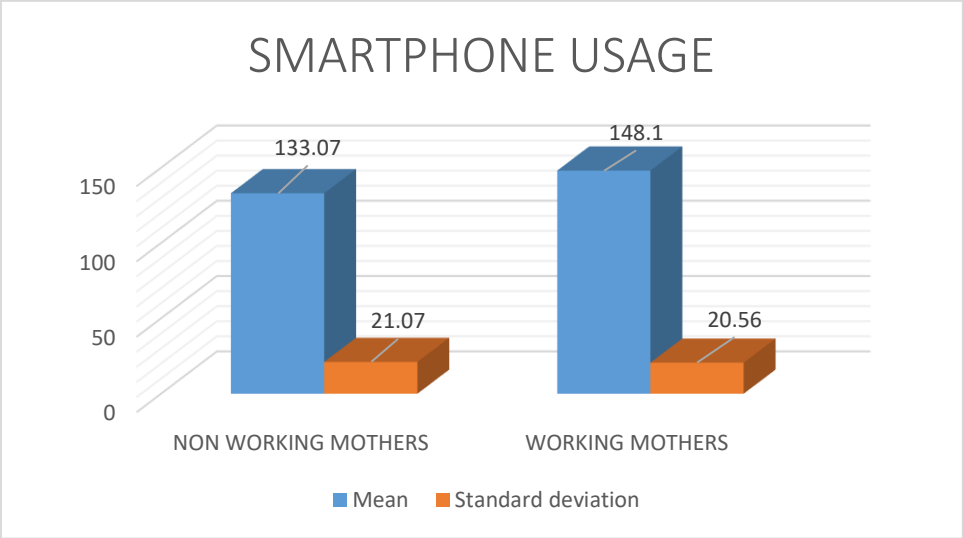

Figure 2: Comparison between Students of Working Mothers and Students of Non-Working Mothers in Smartphone Usage

Figure 2 presents a comparison between the mean and standard deviation of smartphone usage among students of working mothers and students of non-working mothers. The mean smartphone usage scores

for students of working and non-working were 148.1 and 133.07, respectively, while the standard deviations were 20.56 and 21.07, respectively. The graph indicates that there is noticeable difference between the smartphone usage among students of working mothers and students of non-working mothers. Therefore, the difference in smartphone usage between students of working mothers and students of non-working mothers is statistically significant. The level of smartphone usage is high in students whose mother working as compare to those whose mother is non-working.

Hence, the null hypothesis "There is no significant difference in the level of smartphone usage among students of working mothers and students of non-working mothers." is rejected.

Findings of the Study

In the present study, the investigator aims to examine the significant differences in smartphone usage among students enrolled in the B.Ed. and D.El.Ed. programs at government and private institutions. Additionally, the study aims to explore variations in smartphone usage between students whose mothers are employed and those whose mothers are not employed. Upon the analysis and interpretation of the data, the following conclusions are drawn:

1. There is no significant difference of smartphone usage between Government and Private Students of B.Ed. and D.El.Ed. colleges.
2. There is significant difference in the level of smartphone usage among students of working mothers and students of non-working mothers.

Educational Implications

The research could motivate educational institutions to design policies that address the digital divide, ensuring that both government and private institutions provide equal opportunities for students to integrate smartphones into their learning process effectively.

The study might highlight the importance of parental involvement in regulating smartphone usage, suggesting that schools provide guidance to parents, especially those who are not employed, on how to support balanced and productive smartphone usage among students.

The findings may prompt the inclusion of digital literacy programs in teacher training curricula, focusing on responsible smartphone usage and its impact on students' academic performance and well-being.

The research could lead to the development of strategies that encourage working mothers to actively engage with their children's use of smartphones, ensuring that their children benefit from digital tools without becoming overly dependent on them.

Conclusion

In conclusion, the study reveals that there is no significant difference in smartphone usage between students enrolled in B.Ed. and D.El.Ed. programs at government and private institutions, indicating that institutional affiliation does not influence smartphone usage patterns. However, a significant difference was observed in smartphone usage between students whose mothers are employed and those whose mothers are not, suggesting that maternal employment status plays a role in shaping students' smartphone usage behaviors. This finding highlights the potential impact of family dynamics, particularly maternal employment, on the way students engage with technology.

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