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Technological Dependency In The Study Materials Of Postgraduate Students Of Raiganj University And University Of Gour Banga

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Abstract

This research examines the technological dependency of postgraduate students on their study materials, focusing on gender and geographic location differences. A quantitative approach was employed, involving 100 postgraduate students from Raiganj University and the University of Gour Banga in West Bengal. Data were collected using structured questionnaires and analyzed through statistical methods, including independent samples t-tests. The results revealed no statistically significant differences in the technological dependency between male and female students ($p = 0.279$) or between rural and urban students ($p = 0.176$). Both groups demonstrated similar mean scores, indicating that technological tools benefit all demographics equally by improving access to resources, fostering flexible learning, and enhancing academic engagement. These findings emphasize the equitable potential of technology in higher education, highlighting its role in creating inclusive learning environments. The study provides actionable insights for educational policymakers and institutions to optimise the integration of digital tools, ensuring enhanced academic performance across diverse student populations.

Keywords: Technological Dependency, Study Materials, Postgraduate Students, Gender Differences, Rural-Urban Divide

Introduction

Technology is now a major factor in determining many facets of life, including education, in the ever-changing world of today. Postgraduate students, who are often at the forefront of academic inquiry and innovation, have particularly benefited from the involvement of technology in their study routines (Verma & Singh, 2020). Digital tools, online resources, and e-learning platforms have fundamentally transformed traditional study materials, offering new ways to access information, manage time, and engage in flexible learning environments (Aggarwal & Choudhary, 2017; Das & Mandal, 2021). The study of how the technological dependency shapes postgraduate students' study materials is crucial, as it reveals how digital tools enhance learning and how students from diverse backgrounds, urban and rural, male and female, interact with and benefit from these resources (Sarkar & Sen, 2021). The use of technology in higher education helps close information access gaps and fosters more inclusive learning environments, especially in developing areas like West Bengal, India (Basu & Pal, 2019; Gurung & Sharma, 2018). To comprehend the disparities in technology use according to gender and geography, the study focuses on postgraduate students from Raiganj University

and the University of Gour Banga in West Bengal, India. The research also seeks to determine whether technological dependency equally benefits students from both urban and rural areas or whether there are disparities in access and use (Choudhury & Ghosh, 2020). Moreover, it examines whether male and female students perceive and use this technology in similar ways (Kumar & Singh, 2022; Mitra & Das, 2019). The primary objective of this study is to investigate how technology might improve the study habits of postgraduate students and to find any significant differences by gender and region. This study examined data from 100 postgraduate students using a quantitative methodology to determine how much technology has changed their study habits. The results demonstrated the benefits of using technology in higher education.

Literature Review

Verma & Malviya (2010) studied "The Impact of Internet and Digital Media on Reading Habit". The findings of this study indicated that traditional libraries and digital libraries supple each other to meet the needs of various kinds of readers and reading. Krishna & Adwani (2010) studied "Digital Information Access and its Impact on Reading Habit of Users". The findings of this study analyzed data from 188 users on reading habits and characteristics and results include frequency of library use, types of reading material, and user satisfaction with e-resources. Loan (2011) studied "Impact of Internet on Reading Habits of The Net Generation College Students. The results of this study indicated that the reading habits of the new generation of readers are transitioning, showing a shift from restricted access to unrestricted access, local sources to worldwide sources, print to online sources, local languages to English, individual to participative reading, and more time spent on reading relevant material. The study highlights the need for hybrid collections, better access to online books, and more digital content in local languages. Das et al. (2019) studied "Mobile Reading Habit in the Digital Era: A Case Study of Graduate Students, Tripura, India". The findings of this study showed that Govt. Degree College, Khumulwng: The highest number of respondents are female (53, 64.63%), Ramakrishna Mahavidyalaya: The highest number of respondents are male (64, 80.00%). And the majority of respondents from both colleges belong to rural areas. Most respondents from both colleges use their phones for 1-3 hours and 3-5 hours daily. Govt. Degree College, Khumulwng: 67 respondents (81.71%) use their phones for reading. Ramakrishna Mahavidyalaya: 68.75% of respondents use their phones for reading. Govt. Degree College, Khumulwng: 45 respondents (54.88%) read on their phones daily for 30-60 minutes. Ramakrishna Mahavidyalaya: 35 respondents (43.75%) read on their phones daily for 30-60 minutes. Haneefa & P (2020) studied "Factors Influencing Digital Reading Behaviour of Students: A Study in Universities in Kerala. The main findings of this study showed that the majority of students indicated that the availability of laptops, mobile phones, and the Internet has increased their digital reading and there were significant gender differences in students' opinions about digital reading features. Male students reported a higher influence of e-resources on their reading practices compared to female students.

Statement of the Problem

Technological Dependency in the Study Materials of Postgraduate Students of Raiganj University and University of Gour Banga

Objectives of the Study

O_1: To know the difference between male and female students regarding the technological dependency in the study materials of postgraduate students.

O_2: To know the difference between rural and urban areas regarding the technological dependency in the study materials of postgraduate students.

Hypotheses of the Study

H_01: There is no significant difference between the male and female students regarding the technological dependency in the study materials of postgraduate students.

H_02: There is no significant difference between rural and urban areas regarding the technological dependency in the study materials of postgraduate students.

Methodology

Design of the study

A quantitative approach was utilised to thoroughly examine this technological dependency.

Population and Sample

The target population for this study consists of 100 postgraduate students enrolled at Raiganj University and the University of Gour Banga across various disciplines, including arts, language, and science in West Bengal. This approach guarantees a diverse representation of academic fields and varying levels of technological engagement. A stratified random sampling technique was employed. Stratification was based on gender, geographic location (rural vs. urban), and field of study to ensure balanced representation.

Variables

Independent Variable: In this study, the independent variable was technological dependency.
Dependent Variable: The dependent variable in this study was the study materials of postgraduate students.
Categorical Variables: The categorical variables in this study included gender (categorized as male and female) and location (categorized as rural and urban).

Tool of the study

A structured questionnaire was developed, comprising 28 items aimed at collecting quantitative data regarding technology usage, study habits, and academic performance. This self-report questionnaire utilized a 3-point Likert scale for responses, where 1 indicates disagreement and 3 indicates agreement. No items were negatively phrased. The scores for each dimension were calculated by averaging the responses for the relevant statements, resulting in a minimum score of 1 and a maximum score of 3 for each dimension.

Data Collection and Organization Techniques

The online survey was administered through Google Forms to gather data from a larger number of students efficiently. Responses from the questionnaires were coded and entered into statistical software, such as Microsoft Excel and SPSS, for analysis. Descriptive statistics was employed to summarize the data, while inferential statistics, specifically the independent t-test, was used to test hypotheses and explore the relationships between the identified variables.

Delimitations of the Study

The study was delimited to:

1. Students from Raiganj University and the University of Gour Banga in West Bengal.
2. One hundred postgraduate students as a sample.
3. Include only self-reported responses.
4. The technological dependency such as digital tools, online resources, and e-learning platforms.
5. Gender (male/female) and geographic location (rural/urban).

Data Analysis and Interpretation

For O_1: The difference between male and female students regarding technological dependency in the study materials of postgraduate students.

Table No.-1 Mean, SD, and SEM of the technological dependency in the study materials of postgraduate students Based on Gender

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Male	50	79.3000	2.99148	.42306
	Female	50	80.0200	3.59416	.50829

The analysis of study materials scores reveals that female students (mean = 80.02) have a slightly higher average score compared to male students (mean = 79.30), suggesting they may benefit more from technological dependency. Male students show a moderate spread in scores (SD = 2.99148), while female students exhibit greater variability (SD = 3.59416), indicating a wider range in how technological dependency shapes their study materials. The smaller standard error for male students (SE = 0.42306) suggests a more precise estimate of their mean score, whereas the larger standard error for female students (SE = 0.50829) indicates less precision in estimating their mean score.

Table No.-2 Difference in the technological dependency in the study materials of postgraduate students Based on Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	.747	.390	-1.089	98	.279	-.72000	.66132	-2.03236	.59236
	Equal variances not assumed			-1.089	94.874	.279	-.72000	.66132	-2.03290	.59290

An independent samples t-test with a 95% confidence interval was used to compare the scores between male students (n = 50) and female students (n = 50). Levene's test for equality of variances was non-significant (F = 0.747, p = 0.390), indicating that equal variances can be assumed for both groups. The calculated t-value was -1.089 with 98 degrees of freedom, which is less than the critical t-value of 1.99 for a two-tailed test at the 0.05 significance level. This result indicates that the difference in scores between male and female students is not statistically significant (p = 0.279). Consequently, we cannot reject the null hypothesis, suggesting that there is no significant difference in the scores between male and female PG students regarding technological dependency in their study materials.

For O_2: The difference between rural and urban areas regarding the technological dependency in the study materials of postgraduate students.

Table No.-3 Mean, SD, and SEM of the technological dependency in the study materials of postgraduate students Based on Residential Location

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Rural	50	79.2200	3.49513	.49429
	Urban	50	80.1200	3.08809	.43672

The analysis of mean study materials scores reveals that urban students (mean = 80.12) have slightly better study materials than rural students (mean = 79.22), potentially due to greater access to technology and resources. Rural students show more variability in their study materials (SD = 3.49513), likely due to diverse access to technological resources and socio-economic differences. In contrast, urban students have less

variability (SD = 3.08809), suggesting more consistent access and support. The larger standard error for rural students (SE = 0.49429) indicates a less precise estimate of their mean study materials, while the smaller standard error for urban students (SE = 0.43672) suggests a more accurate estimate of their mean due to more uniform technological dependency.

Table No.-4 Difference in the technological dependency in the study materials of postgraduate students Based on Residential Location

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	1.726	.192	-1.365	98	.176	-.90000	.65958	-2.20891	.40891
	Equal variances not assumed			-1.365	96.535	.176	-.90000	.65958	-2.20916	.40916

An independent samples t-test with a 95% confidence interval was used to compare the scores between rural students (n = 50) and urban students (n = 50). Levene's test for equality of variances was non-significant (F = 1.726, p = 0.192), indicating that equal variances can be assumed for both groups. The calculated t-value was -1.365 with 98 degrees of freedom, which is less than the critical t-value of 1.99 for a two-tailed test at the 0.05 significance level. This result indicates that the difference in scores between rural and urban students is not statistically significant (p = 0.176). Consequently, we cannot reject the null hypothesis, suggesting that there is no significant difference in the scores between rural and urban postgraduate students regarding the technological dependency in their study materials.

Findings & Discussion

For O_1: Gender Differences in the technological dependency in the study materials of postgraduate students.

An independent samples t-test showed no statistically significant difference in the technological dependency in the study materials of male and female postgraduate students. Both genders have similar mean scores, indicating that both perceive the benefits of technological dependency. An independent samples t-test was conducted with 100 postgraduate students (50 males and 50 females) to compare the technological dependency in the study materials of postgraduate students. The results indicated no statistically significant difference between the two groups, showing that both male and female students perceive similar benefits from technological tools. These findings are consistent with studies by Krishna & Adwani (2010) and Haneefa & P (2020), which also reported no significant gender differences in using digital resources for study habits. This suggests that technological dependency in an educational context is broadly beneficial across genders, enhancing study materials and academic engagement equally for both male and female students.

For O_2: Rural vs. Urban Differences in the technological dependency in the study materials of postgraduate students.

An independent samples t-test showed no significant difference between rural and urban postgraduate students regarding the technological dependency in their study materials, indicating similar benefits and challenges for both groups. The independent samples t-test have showed no significant difference between rural and urban postgraduate students regarding the technological dependency in their study materials, indicating that both groups experience similar benefits and challenges. Studies, including those by Loan (2011) and Verma & Malviya (2010), support the view that technological dependency has transformed study materials by providing broader access to resources. While urban students might have better access, rural students increasingly use digital tools, as noted by Das et al. (2019). Both groups benefit from flexible study schedules and repeated access to materials. Overall, the benefits of technological dependency were broadly experienced across different settings.

Significance of the study

The significance of this study lies in its exploration of how technological dependency shapes the study materials of postgraduate students, with a particular focus on gender and geographic location differences. As technology increasingly becomes a vital part of higher education, understanding its role in shaping academic practices is essential for improving educational outcomes.

- This study highlights how digital tools, e-learning platforms, and online resources have transformed traditional study habits, making education more flexible, accessible, and efficient for postgraduate students. These findings underscore the need for educational institutions to continue integrating technology into academic curricula to support independent and self-paced learning.
- By examining gender and geographic location (urban vs. rural) as variables, the study brings attention to the equitable use of technology in education. Although no significant differences were found between male and female students or between rural and urban students, the research emphasizes that technology offers similar advantages across these groups. This challenges stereotypes about digital access gaps and promotes the idea that students, regardless of their background, can equally benefit from technological dependency.
- The study's conclusions offer insightful information to educational researchers who want to create technologically enhanced learning settings. Evidence shows that students from both urban and rural areas experience similar benefits, especially in underserved regions. The research serves as a guide to designing policies that ensure all students, regardless of geographic location or gender, can leverage technology to improve their study materials and academic performance.

Conclusion

The findings suggest that there are no statistically significant differences in how male and female students, or rural and urban students, benefit from the technological dependency in their study materials. Both groups demonstrated similar mean scores in terms of study habits, indicating that the advantages of technology, such as access to a wide array of digital resources, flexible learning environments, and efficient time management, are perceived equally by students across different demographics. These results align with previous studies, further supporting the idea that technology is a universally beneficial tool in academic contexts, promoting equitable access to information and enhancing learning outcomes. This study highlights the transformative potential of technology in higher education and underscores the importance of ensuring all students have access to digital resources. By bridging the gap between urban and rural students and promoting gender equality in educational opportunities, technology plays a vital role in fostering inclusive learning environments. These insights are valuable for educational policymakers and institutions seeking to optimize the integration of digital tools in academic practices, ultimately improving academic performance for diverse student populations.

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