Attitude of Pre-service B.Ed. Trainee Teachers towards Digital-Inclusion in Purulia and Bankura District: A Comparative Study

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***Abstract*—In this tech-savvy generation, most children and adults are attached or addicted to digital devices. But also, another part of society is detached from technological advancement and digitally divided; they mainly come from the deprived and underprivileged society. The goal of digital inclusion is to reduce the gap between those classes. In this study, the researcher wants to evaluate the attitudes of B.Ed. Trainee teachers toward Digital Inclusion in the Purulia and Bankura districts of West Bengal. The researcher collected data based on the students' gender, locality, semester, and caste, totalling 200 B.Ed. Trainee teachers responded in this study. The analysis indicated that the overall attitude of B.Ed. Trainee teachers from Purulia and Bankura districts were at a moderate level and suggested that their perceptions were neither strongly favourable nor unfavourable towards Digital Inclusion. Moreover, this study found no significant differences in attitude when categorized by gender, locality, semester of study, and caste.**

***Index Terms*—Digital Inclusion, Digital Divide, Trainee Teachers, B.Ed. Programme**

I. INTRODUCTION

The goal of Digital Inclusion is to end the digital divide within the society. The modern information and communication and technology can be divided the entire generation into two types: those who have access and the capability to use modern information technology, and those who do not have adequate knowledge about using digital technologies. Digital Inclusion has the potential to close the gap between developed and less developed countries, promote democracy and mutual understanding and empower marginalised individuals, such as the poor, the disabled and the unemployed. An increasing number of digital equipment and software companies have digital inclusion programs. The purpose of the Digital Inclusion initiative is to bridge the gap between technology-empowered and technology-excluded groups worldwide by making it financially viable to do so.

Through this study researchers explore the relationship between digital inclusion and its contribution to promoting the use of ICT to overcome exclusion and improve economic performance, employment opportunities, quality of life, social participation, and social cohesion (Almuwil et al., 2011). Bjekic et al. (2014) found that e-learning and e-teaching plays an important role in digital educational applications across various educational contexts. E-learning technology can promote the inclusion of students with multiple disabilities in education. Hollier, S., & Murray, L. (2006). The evolution of the personal computer has had a profound impact on the education of people with disabilities. This paper also highlights the historical repetition of prioritizing innovation over digital inclusion. Silva, P., Matos, A.D., and Martinez-Pacino, R. (2017) observed that logistic regression analysis demonstrates the impact of welfare systems and public policies on the likelihood of internet use, thereby reinforcing the importance of developing public policies to foster e-inclusion among senior citizens. Vinaras Abad et al. (2017) demonstrate that the acceptance of using electronic resources for routine and simple tasks is due to the speed and

convenience they offer, while simultaneously promoting the autonomy and empowerment of older people. However, several points hurt their use that must be addressed to promote greater digital inclusion among this age group; these are addressed in the discussion of this proposal. Vitolina (2015) found that the Digital Inclusion model predicts the Digital Inclusion degree of a person, as well as the Digital Inclusion risk factors for a person, such as the use of inappropriate e-learning materials, lack of interest in learning, dissatisfaction with the e-learning environment etc. Yu et al. (2018) found that the Chinese migrant workers were partially e-included in the digital society. However, they encountered material, cognitive, motivational, and social access limitations due to the lack of financial, material, educational, psychological, interpersonal, and mental resources, which caused them to experience a digital divide. Findings support the use of the integrated model as a potential analytical framework for understanding and addressing digital inequalities.

Digital inclusion refers to the use of digital technology. Digital inclusion can be understood within the context of a broader set of debates surrounding the capabilities and accessibility of modern information technology. We recognize that teachers play a significant role in society's development; therefore, they should continually update their knowledge and skills to ensure their effectiveness. Due to the advancement of digital information and technology, everyone must acquire basic knowledge and skills related to modern information technology. The researcher conducted an extensive review and identified a research gap in the attitude of B.Ed. Research on digital inclusion is limited, with very few studies conducted in this field, especially in the Indian subcontinent. Researchers attempt to assess the positive or negative attitude of B.Ed. Students. Student towards Digital Inclusion. In this paper, the researcher aims to investigate the attitudes of pre-service B.Ed. Train trainee teachers in digital inclusion in Purulia and Bankura districts.

II. OBJECTIVES OF THE STUDY

a) To ascertain the attitude of B.Ed. Trainee teachers for the Digital Inclusion of Purulia District and Bankura District in West Bengal.

I. To ascertain the attitude of B.Ed. Trainee teachers for the Digital Inclusion of Purulia District in West Bengal.
II. To ascertain the attitude of B.Ed. Trainee teachers for the Digital Inclusion of Bankura District in West Bengal.
III. To ascertain the attitude of B.Ed. Trainee teachers for the Digital Inclusion of Purulia District and Bankura District in West Bengal.

b) To find out the difference between the attitude of B.Ed. Trainee teachers towards Digital Inclusion with reference to their District (Purulia and Bankura), gender, locality, and semester.

c) To find out the difference among the attitudes of B.Ed. Trainee teachers towards Digital Inclusion with reference to their caste.

III. HYPOTHESES OF THE STUDY

H_{o1}: There will be more unfavourable attitudes towards Digital Inclusion among B.Ed. Trainee teachers of Purulia district and Bankura District in West Bengal.

i. The B.Ed. Trainee teachers of Purulia District will have a more unfavourable attitude towards Digital Inclusion.
ii. The B.Ed. Trainee teachers of Bankura District will have a more unfavourable attitude towards Digital Inclusion.
iii. The B.Ed. Trainee teachers of Purulia and Bankura District will have a more unfavourable attitude towards Digital Inclusion.

H_{o2}: There is no significant difference between the attitude of B.Ed. Trainee teachers towards Digital Inclusion with reference to their District (Purulia and Bankura), gender, locality, and semester.

H_{o3}: There is no significant difference among the attitudes of B.Ed. Trainee teachers towards Digital Inclusion with reference to their caste.

IV. METHODOLOGY OF THE STUDY

The nature of this study is descriptive cum survey type. Researchers collected data from primary sources

through questionnaire and secondary data from various secondary sources. This study is confined only to the Govt. sponsored and Self-financed B.Ed. Collages in Purulia and Bankura districts of West Bengal. The researcher collected data based on the students' gender, urban or rural background, semester, and caste.

Population of the study: All the trainee teachers of B.Ed. Collages in the Purulia and Bankura districts are considered as the population of this study.

Sample and sampling of the study: From the entire population, the researcher selected 200 trainee teachers as the sample for this study through the simple random sampling method.

Instrument: The researcher developed a self-made questionnaire, essentially a 5-point Likert-type scale to collect suitable data.

Statistical technique for analysing data: Researchers used various statistical methods for the expression and interpretation of data, such as mean, S.D., t-test, and ANOVA.

V. FINDINGS AND ANALYSIS

Testing of H_{o1}:

i) The B.Ed. Trainee teachers of Purulia District will have a more unfavourable attitude towards Digital Inclusion.

Category	N	Mean	S.D.
B.Ed. trainee teachers	100	78.03	8.39

Based on the cut-off point, the investigator verified H_1. Here, the Cut-off Point is M + 1σ. It means, Mean=78.03, N=100 and σ = 8.39. Hence, M +1 σ is 78.03 + 8.39 = 86.42. And M -1 σ is 78.03 – 8.399 = 69.64. Most of the B.Ed. Trainee teachers, i.e., 65 % of B.Ed. Trainee teachers scored between 86.42 and 69.64. Hence, it can be said that the attitude of B.Ed. Students Is Crucial. Students Is Crucial. Students Is Crucial. Trainee teachers in Purulia District are neither more favourable nor unfavourable towards Digital Inclusion.

Table 1: The attitude of B.Ed. A student in the Purulia district of West Bengal, working towards Digital Inclusion.

Score	Frequency	Percentage	Levels of Attitude
Above 86.42	18	18 %	High
Between 86.42–69.64	65	65 %	Moderate
Below 69.64	17	17 %	Low
Total	100	100%	

Testing of H_{o1}:

ii) The B.Ed. Trainee teachers of Bankura District will have a more unfavourable attitude towards Digital Inclusion.

Category	N	Mean	S.D.
B.Ed. trainee teachers	100	80.08	8.09

Based on the cut-off point, the investigator verified H_{o1}. Here, the Cut-off Point is M + 1σ. It means, Mean=80.08, N=100 and σ = 8.09. Hence, M +1 σ is 80.08 + 8.09 = 88.17, and M -1 σ is 80.08 – 8.09 = 71.99. Most of the B.Ed. Trainee teachers, i.e., 65% of B.Ed. Trainee teachers scored between 88.20 and 71.58. Hence, it can be said that the attitude of the B.Ed. Students Is Crucial. Trainee teachers in Bankura District are neither more favourable nor unfavourable towards Digital Inclusion.

Table 2: The attitude of B.Ed. Student in Bankura district of West Bengal towards Digital Inclusion.

Score	Frequency	Percentage	Levels of Attitude
Above 88.17	16	16 %	High
Between 88.17–71.99	67	67 %	Moderate
Below 71.99	17	17 %	Low
Total	100	100%	

Testing of H_{o1}:

iii) The B.Ed. Trainee teachers of Purulia and Bankura District will have a more unfavourable attitude towards Digital Inclusion.

Category	N	Mean	S.D.
B.Ed. trainee teachers	200	79.05	8.29

Based on the cut-off point, the investigator verified H_{o1}. Here, the Cut-off Point is M + 1σ. It means, Mean=79.05, N=200 and σ = 8.29. Hence, M +1 σ is 79.05 + 8.29 = 87.37, and M -1 σ is 79.05 – 8.29 = 70.79. Most of the B.Ed. Trainee teachers, i.e., 63.5% of B.Ed. Trainee teachers had lies between 87.34 and 70.58. Hence, it can be said that the attitude of the B.Ed. Students Is Crucial. Trainee teachers in Purulia and Bankura District are neither more favourable nor unfavourable towards Digital Inclusion.

Table 3: The attitude of B.Ed. Students in Purulia and Bankura districts of West Bengal towards Digital Inclusion.

Score	Frequency	Percentage	Levels of Attitude
Above 87.37	39	19.5 %	High
Between 87.37–70.79	127	63.5 %	Moderate
Below 70.79	34	17 %	Low
Total	200	100%	

Table 4: Distribution of t-test regarding various variables

Group/ variables	N	Mean	S.D.	SED	Mean Difference	df	t	Level of significance	
Purulia	100	78.03	8.39	1.16	2.05	198	1.75	0.05	Not Significant
Bankura	100	80.08	8.09						
Male	107	78.54	8.54	1.17	1.10	198	0.93	0.05	Not Significant
Female	93	79.64	7.99						
Urban	84	80.23	7.77	1.18	2.04	198	1.72	0.05	Not Significant
Rural	116	78.19	8.57						
2nd Semester	106	79.19	8.53	1.17	0.30	198	0.25	0.05	Not Significant
4th Semester	94	78.89	8.04						

Testing of H_{o2}:

District (Purulia and Bankura): From Table 4, it can be seen that the degrees of freedom (df) are 198. Hence, a t-test is considered significant at the 0.05 level if the p-value is 1.98 or less. Since the calculated t-value 1.75 is less than the table value 1.98 (1.75<1.98), the difference between the attitudes of B.Ed. The level of digital inclusion among trainee teachers in Purulia and Bankura districts is not significant at the 0.05 level. There is no significant difference between the attitude of B.Ed. Trainee teachers in Purulia and Bankura districts towards Digital Inclusion.

Gender (Male and Female): From Table 4, it can be seen that the degrees of freedom (df) are 198. Hence, a t-test is considered significant at the 0.05 level if the p-value is 1.98 or less. Since the calculated t-value 0.93 is less than the table value 1.98 (0.93<1.98), the difference between the attitudes of Male and Female B.Ed. The level of digital inclusion among trainee teachers in Purulia and Bankura districts is not significant at the 0.05 level. So, it is said that there is no significant difference between the attitude of Male and Female B.Ed. Trainee teachers in Purulia and Bankura districts towards digital inclusion.

Locality (Urban and Rural)

From Table 4, it can be seen that the degrees of freedom (df) are 198. Hence, a t-test is considered significant at the 0.05 level if the p-value is 1.98 or less. Since the calculated t-value 1.72 is less than the table value 1.98 (1.72<1.98), the difference between the attitudes of Urban and Rural B.Ed. The impact of training trainee teachers in Purulia and Bankura districts on digital inclusion is not significant at the 0.05 level. That analysis explores the fact that there is no significant difference between the attitudes of Urban and Rural B.Ed. Trainee teachers in Purulia and Bankura districts towards digital inclusion.

Semester (2^{nd} and 4^{th})

From Table table-4, it can be found that the df is 198. Hence, a t-test is considered significant at the 0.05

level if the p-value is 1.98 or less. Since the calculated t-value 0.25 is less than the table value 1.98 (0.25<1.98), the difference between the attitude of the 2nd semester and the 4th-semester B.Ed. The impact of training trainee teachers in Purulia and Bankura districts on digital inclusion is not significant at the 0.05 level. The study confirmed that there is no significant difference in attitude between the 2nd-semester and 4th-semester B.Ed. Students. Students. Trainee teachers in Purulia and Bankura districts towards digital inclusion.

Testing of H_{o3}:

Table 5: The N, Mean, and S.D. of B.Ed. Trainee Teachers in relation to their Caste (General, OBC, SC, and ST)

Caste	N	Mean	S.D.
General	76	81.94	7.74
OBC	70	79.78	7.51
SC	37	74.59	7.01
ST	17	72.94	9.74
Total	200	309.25	32

Table 6: Result of one-way ANOVA for Caste

Sources of variance	df	Sum of squares	Mean square	F	Level of significance	
Between groups	3	2042.68	680.893	11.434	0.01 and 0.05	Significant at both levels
Within groups	196	11671.602	59.549			
Total	199	13714.282				

From Table 6, it can be seen that the degrees of freedom (df) are 3 and 199. Hence, the test is significant at the 0.05 and 0.01 levels if the p-value is 2.72 or less and 4.04 or less, respectively. Since the calculated F-value of 11.434 is greater than the table value. Hence, the researcher's H_3 is accepted, and H_{o3} is rejected; that is to say, there is a significant difference among the attitudes of B.Ed. Train trainee teachers in digital inclusion with reference to their caste in Purulia and Bankura Districts.

VI. DISCUSSION

This study was conducted to explore the attitudinal differences between various demographic variables of B.Ed. Trainee teachers toward Digital Inclusion in the Purulia and Bankura districts of West Bengal. A total of 200 B.Ed. trainee teachers from Govt. Sponsored and Self-financed B.Ed. colleges participated in this study. Researchers collected data using a self-made closed ended questionnaire through face-to-face interaction. The analysis indicated that the overall attitude of trainee teachers from both districts was moderate, suggesting that their attitude towards Digital Inclusion were neither strongly favourable nor unfavourable. This study also found that no statistically significant differences in attitude when categorized by gender, locality, semester of study, and caste. These findings emphasize the need for more targeted and inclusive approaches to promote Digital Inclusion within teacher education programs. The absence of significant variation among different demographic groups suggests a uniform perception, potentially influenced by common external factors such as access to digital resources, institutional support, and socio-economic challenges. The study highlights that for Digital Inclusion to be more effective, underlying issues such as financial supports, lack of infrastructure and the quality of teacher education must be addressed. So, this study concludes that current Teachers Education Program needs greater efforts to enhance digital competencies and literacy among trainee teachers.

VII. CONCLUSION

Therefore, we stated that in the technological juncture, digital inclusion plays a significant role in enhancing the usability of technological gadgets. Based on the study conducted on the attitudes of B.Ed. Among the trainee teachers in Purulia and Bankura districts of West Bengal, who are focused on Digital Inclusion, it can be concluded that there is a moderate attitude towards this concept. The findings indicate that the overall perspective is neither strongly favourable nor unfavourable. Furthermore, there were no significant differences in attitude based on gender, locality, semester of study, or caste. However, to enhance Digital Inclusion, it is crucial to address underlying issues such as financial constraints, inadequate

infrastructure, and the quality of teacher education. Efforts should be made to enhance digital literacy and technology-related competencies among trainee teachers, promoting a more inclusive and practical approach to Digital Inclusion. Researchers also identified the reasons behind unfavourable attitudes towards Digital Inclusion, including the economic conditions of the students, a lack of quality teachers to conduct Digital Inclusion, efficiency-related problems, language-related issues, infrastructure and equipment-related problems, among others.

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