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Research Article

A Study on Digital Literacy of Prospective Teacher Educators

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ARTICLE INFO **ABSTRACT**

The significance of digital literacy is continuously and swiftly increasing among stakeholders of education particularly in their learning and teaching activities. Besides, digital literacy is highly influencing outcomes of students in their learning activities in many ways and it is largely essential skill set for teachers at school, college and university levels. The findings reveal that significant difference is prevailed amid profile of Prospective Teacher Educators and their Digital Literacy excluding Medium of Study and Father's Education. Further, Digital Literacy has positive and significant relation with Techno Pedagogical Competency of Prospective Teacher Educators. Thus, Prospective Teacher Educators should acquire required skills and knowledge and competence for using digital technologies and tools efficiently for increasing their Digital Literacy that will be useful for their improved learning and teaching activities. Faculty members of Colleges of Education must encourage their Prospective Teacher Educators to use digital tools and technologies for their class room presentations and teaching during their teaching practices. Prospective Teacher Educators should use digital tools and techniques for meaningful and efficient interaction with their faculty members, family members and also among their fellow Prospective Teacher Educators and friends. Prospective Teacher Educators must use different digital tools and techniques continuously for all their learning and teaching, personal interactions and communication that will increase their Digital Literacy. Prospective Teacher Educators should use integrated digital tools in the simplified means for their learning and teaching and communication that will improve their Digital Literacy. Besides, parents must also support and encourage their Prospective Teacher Educators for effective use of digital tools and techniques to increase their Digital Literacy.

Key Words: Digital Literacy, Prospective Teacher Educators, Techno Pedagogical Competency

1. INTRODUCTION.

Digital literacy is the capability for discovering, assessing, generating and communicating information through digital tools and technologies (Satin and Bonnet, 2019). It includes use of different digital tools and technologies efficiently and sensibly to attain desirable results (Shrivastava and Verma, 2020). Digital literacy includes skills on computer, information, media, decision making and thinking (Libago et al 2024). Digital literacy is also referring to group of competencies required for operating digital tools and using their services and accessing, evaluating and creating content in digital formats (Bansal, 2020). Digital literacy is the capacity of gathering, analyzing and efficiently using digital technologies and it is high important for people in their life as they are linked with an array of digital tools and user friendly digital technologies for their personal and academic activities(Hall et al 2013).

Nowadays, digital literacy is the fundamental requirement for overall development of individuals especially student and teaching community and also society. The significance of digital literacy is continuously and swiftly increasing among stakeholders of education particularly in their learning and teaching activities (Chan et al 2017). Besides, digital literacy is highly influencing outcomes of students in their learning activities in many ways (Kajee and Balfour, 2011) and it is largely essential skill set for teachers at school, college and university levels.

Digital literacy in India among students and teachers are gradually increasing over the time horizons(Lokesha and Kumari, 2019) and still they are facing various issues of inequality in accessing digital technologies, insufficient digital infrastructure, low interest in using digital technologies and restricted concentration on digital technologies (Kumar and Sharma, 2020) and these are obstructing the improvement in digital literacy particularly among students and teachers (Singh and Bhatnagar, 2021). Besides, poor digital literacy of school teachers or Prospective Teacher Educators is significantly influencing their Techno Pedagogical Competency and in turn it is affecting their learning and teaching efficacies. With this back drop, it is essential to study digital literacy of prospective teacher educators.

2. REVIEW OF RELATED LITERATURE

Boro et al (2024) found that most of genenration Z students had very good knowledge and skills on digital literacy and they were very familiar with internet tools and their digital literacy had positive impact on their academic atmosphere by accessing larger quantum of information and increasing their performance.
Chama and Subaveerapandiyan(2023) concluded that teachers had high degree of access to digital tools and techniques and had possessed high degree of digital literacy and they had intensively used different ICTs for their effective learning and teaching.
Naz et al (2022) revealed that university students had higher degree of digital literacy or knowledge and students with good digital literacy had performed exceptionally. Female students with good digital literacy had outperformed their male counterparts and it was varying among gender of university students.
Bansal and Misra(2021) indicated that majority of school students were holding good digital literacy and students with good digital literacy were performing well in their academics and it was varying among their gender and class.
Tomczyk (2020) showed that pre-service teachers were holding higher degree of digital literacy and they were getting knowledge from different sources to increase their digital literacy and it was differing among gender and experience. Digital literacy had positive and significant relation with their teaching efficacy.
Yazon et al (2019) found that faculty members had strong digital literacy and it had related significantly with productivity in their research activities and also with their digital competence. Digital literacy and competency were differing among gender of faculty members.
Islam and Afroze (2018) concluded that university students in first year had digital literacy at moderate degree and it was differing among their gender and place of residence and they were also moderately using different ICT and multimedia tools and it had positively related with their performance.
Ryder and Machajewski (2017) revealed that secondary school students were holding medium degree of digital literacy and it was differing among their gender and experience in use of technology. Digital literacy of students was significantly and positively related with attitude towards using ICT among them.
Tang and Chaw (2016) indicated that university students had very good digital literacy and it was differing among gender and experience in using digital tools and it had significant and positive impact on their effective learning.
Keskin et al (2015) showed that distance education students were having digital literacy at fair degree and it was varying among their gender and course of study and it hand positive and significant impact on their learning habits.

3. OBJECTIVES OF THE STUDY

1. To study difference amid Digital Literacy of Prospective Teacher Educators and their gender, subject group and type of college.
2. To examine difference amid Digital Literacy of Prospective Teacher Educators and their locality of college, medium of study and father's education.
3. To study relation amid Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators.

4. HYPOTHESES OF THE STUDY

1. There is no significant difference amid Digital Literacy of Prospective Teacher Educators and their gender, subject group and type of college.
2. There is no significant difference amid Digital Literacy of Prospective Teacher Educators and their locality of college, medium of study and father's education.
3. There is no significant relation between Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators.

5. RESEARCH METHODOLOGY

Chennai and Kancheepuram districts of Tamil Nadu state are chosen for carrying out the current study. Prospective Teacher Educators are selected by adopting random sampling method and data are received from 825 Prospective Teacher Educators by using structured questionnaire. Digital Literacy Scale (DLS) had

developed and standardized by Investigator and Research Supervisor in the year 2022 and Techno Pedagogical Competency Scale (TPCS) had developed and standardized by Dr. S. Rajasekhar and K. Sathyaraj in the year 2013 are used in this study. Percentages, mean, standard deviation t and ANOVA tests and correlation analysis are used to study objectives and test hypotheses.

6. RESULTS

6.1. PROFILE OF PROSPECTIVE TEACHER EDUCATORS

The profile of Prospective Teacher Educators is shown in Table-1. The results explain that 54.55% of Prospective Teacher Educators are females, while, 45.45% of them are males, 66.79% of them are in science group, while, 33.21% of them are in arts group and 60.12% of them are studying in self-finance colleges, while, 12.49% of them are studying in Government colleges.

Table-1. Profile of Prospective Teacher Educators

Profile	Frequency(N=825)	%
Gender		
Male	375	45.45
Female	450	54.55
Subject Group		
Arts	274	33.21
Science	551	66.79
Type of College		
Government	103	12.49
Government Aided	226	27.39
Self-Finance	496	60.12
Locality of College		
Urban	518	62.79
Rural	307	37.21
Medium of Study		
Tamil	311	37.70
English	514	62.30
Father's Education		
Informal	100	12.12
School	241	29.21
College	484	58.67

The results also demonstrate that 62.79% of them are studying in urban colleges, while, 37.21% of them are studying in rural colleges, 62.30% of them are in English medium, while, 37.70% of them are in Tamil medium and 58.67% of their fathers are having college education, while, 12.12% of their fathers are having informal education.

6.2. PROFILE OF PROSPECTIVE TEACHER EDUCATORS AND DIGITAL LITERACY

6.2.1. Gender and Digital Literacy

The difference amid Gender of Prospective Teacher Educators and their Digital Literacy is shown in Table-2.

Table-2. Gender and Digital Literacy

Gender	N	Mean	SD	t-value	Significance
Male	375	183.27	29.57	6.207	0.01
Female	450	171.54	24.19		

Male Prospective Teacher Educators (Mean=183.27) are having higher level of Digital Literacy than Female Prospective Teacher Educators (Mean=171.54). The t-value of 6.207 elucidates that significant difference is found amid Gender of Prospective Teacher Educators and their Digital Literacy in 1% level.

6.2.2. Subject Group and Digital Literacy

The difference amid Subject Group of Prospective Teacher Educators and their Digital Literacy is shown in Table-3.

Table-3. Subject Group and Digital Literacy

Subject Group	N	Mean	SD	t-value	Significance
Arts	274	172.08	27.64	3.572	0.01
Science	551	179.26	26.97		

Prospective Teacher Educators in Science group (Mean=179.26) are having higher level of Digital Literacy than Prospective Teacher Educators in Arts group (Mean=172.08). The t-value of 3.572 elucidates that significant difference is found amid Subject Group of Prospective Teacher Educators and their Digital Literacy in 1% level.

6.2.3. Type of College and Digital Literacy

The difference amid Type of College of Prospective Teacher Educators and their Digital Literacy is shown in Table-4.

Table-4. Type of College and Digital Literacy

Type of College	N	Mean	SD	F-Value	Significance
Government	103	193.11	37.45	24.595	0.01
Government Aided	226	177.99	25.01		
Self-Finance	496	172.99	24.60		

Prospective Teacher Educators studying in Government colleges (Mean=193.11) are having higher level of Digital Literacy than Government Aided (Mean=177.99) and Self-Finance colleges (Mean=172.99). The F-value of 24.595 elucidates that significant difference is found amid Type of College of Prospective Teacher Educators and their Digital Literacy in 1% level.

6.2.4. Locality of College and Digital Literacy

The difference amid Locality of College of Prospective Teacher Educators and their Digital Literacy is shown in Table-5.

Table-5. Locality of College and Digital Literacy

Locality of College	N	Mean	SD	t-Value	Significance
Urban	518	173.19	24.71	5.099	0.01
Rural	307	183.09	30.44		

Prospective Teacher Educators studying in Rural colleges (Mean=183.09) are having higher level of Digital Literacy than Prospective Teacher Educators studying in Urban colleges (Mean=173.19). The t-value of 5.099 elucidates that significant difference is found amid Locality of College of Prospective Teacher Educators and their Digital Literacy in 1% level.

6.2.5. Medium of Study and Digital Literacy

The difference amid Medium of Study of Prospective Teacher Educators and their Digital Literacy is shown in Table-6.

Table-6. Medium of Study and Digital Literacy

Medium of Study	N	Mean	SD	t-Value	Significance
Tamil	311	176.70	20.60	0.140	0.05
English	514	176.98	30.79		

Prospective Teacher Educators studying in English Medium (Mean=176.98) are having slightly higher level of Digital Literacy than Prospective Teacher Educators studying in Tamil Medium (Mean=176.70). The t-value of 0.140 elucidates that significant difference is not found amid Medium of Study of Prospective Teacher Educators and their Digital Literacy.

6.2.6. Father's Education and Digital Literacy

The difference amid Father's Education of Prospective Teacher Educators and their Digital Literacy is shown in Table-7.

Table-7. Father's Education and Digital Literacy

Father's Education	N	Mean	SD	F-Value	Significance
Informal	100	176.04	30.19	0.053	0.05
School	241	176.95	25.00		
College	484	177.00	27.97		

Prospective Teacher Educators with Father's Education of college education (Mean=177.00) are having slightly higher level of Digital Literacy than school (Mean=176.95) and informal educations (Mean=176.04). The F-value of 0.053 elucidates that significant difference is not found amid Father's Education of Prospective Teacher Educators and their Digital Literacy.

6.3. RELATION AMID DIGITAL LITERACY AND TECHNO PEDAGOGICAL COMPETENCY OF PROSPECTIVE TEACHER EDUCATORS

The correlation analysis is applied to study relation amid Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators and the result is shown in Table-8.

Table-8. Relation amid Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators

Particulars	Coefficient of Correlation
Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators	0.519**

** Significant in 1% level

The coefficient of correlation amid Digital Literacy and Techno Pedagogical Competency of Prospective Teacher Educators is 0.519 and it reveals that they are positively, substantially and significantly related with each other in 1% level.

7. CONCLUSION

The outcomes of this study reveal that significant difference is prevailed amid profile of Prospective Teacher Educators and their Digital Literacy excluding Medium of Study and Father's Education. Further, Digital Literacy has positive and significant relation with Techno Pedagogical Competency of Prospective Teacher Educators. Thus, Prospective Teacher Educators should acquire required skills and knowledge and competence for using digital technologies and tools efficiently for increasing their Digital Literacy that will be useful for their improved learning and teaching activities. Faculty members of Colleges of Education must encourage their Prospective Teacher Educators to use digital tools and technologies for their class room presentations and teaching during their teaching practices. Prospective Teacher Educators should use digital tools and techniques for meaningful and efficient interaction with their faculty members, family members and also among their fellow Prospective Teacher Educators and friends. Prospective Teacher Educators must use different digital tools and techniques continuously for all their learning and teaching, personal interactions and communication that will increase their Digital Literacy. Prospective Teacher Educators should use integrated digital tools in the simplified means for their learning and teaching and communication that will improve their Digital Literacy. Besides, parents must also support and encourage their Prospective Teacher Educators for effective use of digital tools and techniques to increase their Digital Literacy.

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