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Research Article

A Study on Self-Efficacy in Ict and Attitude Towards Digital Self Learning Materials of Prospective Teachers

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ABSTRACT

In the education sector, Self-efficacy of teachers and students in ICT is playing a crucial role in technology-oriented teaching and learning atmosphere and it had improved their use of ICT techniques and tools. Besides, it is encompassing confidence of teachers in their ICT abilities and their self- beliefs in using ICTs for teaching activities. Individuals with higher Self-efficacy in ICT are largely successful in their academic activities and they are ready to bear more responsibilities and those individuals are very unwrap and squeeze innovative and modern technologies and are highly interested in experimenting with new teaching and learning methods which are integrating ICTs. The outcomes explicate that difference prevailed amid profile of Prospective Teachers and their Self-efficacy in ICT is significant. Self-efficacy in ICT is having significant, positive and substantial relation with Attitude towards Digital Self Learning Materials of Prospective Teachers. Therefore, Faculty Members of Colleges of Education must encourage their Prospective Teachers to use different ICTs and digital tools for their learning and teaching practices for enhancing their Self-efficacy in ICT. Faculty Members of Colleges of Education should give all kinds of assistance and ideas to their Prospective Teachers for improving their Self-efficacy in ICT. Family members must provide all sorts of support for increasing Self-efficacy in ICT of their Prospective Teachers. Faculty Members of Colleges of Education should use different ICTs in their classroom teaching and communication with their Prospective Teachers that can improve Self efficacy in ICT among them. Prospective Teachers must increase their Self-efficacy in ICT through attending suitable trainings and programmes. Faculty Members of Colleges of Education should give ICT integrated learning activities in classroom to Prospective Teachers for increasing their Self -efficacy in ICT and all these suggestions will improve Attitude towards Digital Self Learning Materials amongst Prospective Teachers.

Key Words: Attitude, Digital Self Learning Materials, ICT, Prospective Teachers, Self-Efficacy

1. INTRODUCTION.

The notion of Self-efficacy in ICT is emerged from Self-efficacy in Computer and it is referring to assessment of capacities of individuals by themselves for accomplishing an activity or task by using computers (Scherer and Siddiq, 2015). With the continuous progress of technologies, ICT is increasingly and efficiently used by students and teachers for their learning and teaching activities. Self-efficacy in ICT is confidence of individuals on their competencies in selecting and using ICT for their learning and teaching activities (Moreira-Fontan et al 2019). Self-efficacy in ICT is the judgement of teachers on their abilities in using technologies namely, computer, internet and multimedia for their teaching purposes (Wang and Zhao, 2021). Self-Efficacy in ICT is the mixture of Self-efficacy in Internet and computers and it is having critical role in Leaning activities of students and teaching processes of teachers (Aesaert and van Braak, 2014). Self-Efficacy

in ICT is the beliefs of learners on their abilities and competencies to implement internet and computer linked tasks or activities. The notion of Self-efficacy in ICT is the self- beliefs, capacities and skills of individuals in efficient use of ICTs for carrying out any activities particularly academic activities of teachers and students. Teachers and or students are using ICTs for their academic activities effectively and they are not suffering from anxiety in using ICTs and it is the view of individuals on their own capacities in applying ICTs for their learning (Kerckaert et al 2015).

In the education sector, Self-Efficacy of teachers and students in ICT is playing a crucial role in technology oriented teaching and learning atmosphere (Hatlevik and Hatlevik, 2018) and it had improved their use of ICT techniques and tools (Ye et al 2022). Besides, it is encompassing confidence of teachers in their ICT abilities and their self-beliefs in using ICTs for teaching activities. Individuals with higher Self-efficacy in ICT are largely successful in their academic activities and they are ready to bear more responsibilities(Teo et al 2018)and those individuals are very unwrap and squeeze innovative and modern technologies and are highly interested in experimenting with new teaching and learning methods which are integrating ICTs (Celik and Yesilyurt, 2013).

The extent of self- belief and competent are important for individuals to integrate ICTs with their teaching and learning methods and practices (Sang et al 2010). Besides, easy to use, social influence and usefulness are also influencing use of ICT and Self-efficacy in ICT is having positive effect on utilization of ICTs among students and teachers (Baydas and Goktas, 2017). Self-efficacy in ICT is the base for increasing motivation, accomplishment of personal objectives and professional development of teachers in the technologically situation (Barni et al 2019) and is having high and positive learning atmosphere in classroom (Alt, 2018) and it is highly important for their teaching activities and it is also connected with Attitude towards Digital Self Learning Materials of students. Hence, it is necessary to examine relation amid Self-efficacy in ICT and Attitude towards Digital Self Learning Materials of Prospective Teachers.

2. REVIEW OF RELATED STUDIES

Caeli et al (2025) found that eighth grade students had moderate level of self -efficacy in ICT and it was significantly differing with regarding to their gender

Tanet al (2024) concluded that undergraduate education students had high degree of self-efficacy in utilizing ICT and it had significant and positive relation with their technology-based teaching styles.

Ozturk and Turgut (2023) revealed that the intensity of self-efficacy in ICT amongst prospective teachers was at high level and it had significant and positive relation with their mathematics learning and it was significantly related with their online teaching competencies.

Reddy and Madhumathi (2022) showed that major proportion of B.Ed. students had moderate degree of self-efficacy in computer usage and significant difference was existed in self-efficacy in computer amongst gender of B.Ed. students and not among their graduation.

Sahoo and Panda (2021) indicated that majority of teacher educators had exhibited moderate degree of self-efficacy in computer use and it was differing significantly amongst their gender.

Artiningsih et al (2020) found that majority of teacher education students hold higher intensity of ICT self-efficacy and it was significantly influenced by their ICT literacy and they had high and positive opinion on it.

Gudek (2019) concluded that music teacher candidates hold moderate degree of insights on computer self-efficacy and it was varying among their gender, owning of computer and duration of usage of computer and it had positively related with their attitude for digital technology.

Hatlevik and Hatlevik (2018) explained that self-efficacy of teachers for applying ICTs for their teaching had positive and significant relation with their utilization of ICT and cooperation with colleagues was positively associated with their teaching practices and self-efficacy in ICT was highly important for their educational purposes.

Raphael and Mtebe (2017) stated that pre-service teachers had moderate degree of self-efficacy in ICT and easiness to use, expected performance, support and social influence had significant and positive influence on their ICT self-efficacy.

Yamamoto and Yamaguchi (2016) demonstrated that teachers working in primary schools had moderate degree of self-efficacy in ICT and it was positively and significantly relating with their activities and attitude for ICT oriented instruction.

3. OBJECTIVES OF THE STUDY

1. To examine difference amid Self-Efficacy in ICT and Gender, Subject Group and Type of College of Prospective Teachers.
2. To scrutinize difference amid Self-Efficacy in ICT and Location of College, Medium of Instruction and Father's Education of Prospective Teachers.
3. To investigate relation amid Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials of Prospective Teachers.

4. HYPOTHESES OF THE STUDY

1. There is no significant difference amid Self-Efficacy in ICT and Gender, Subject Group and Type of College of Prospective Teachers.
2. There is no significant difference amid Self-Efficacy in ICT and Location of College, Medium of Instruction and Father's Education of Prospective Teachers.
3. There is no significant relation amid Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials of Prospective Teachers.

5. RESEARCH METHODOLOGY

Chennai, Kancheepuram and *Tiruvallur* districts in Tamil Nadu state are opted for the current study. Prospective Teachers are randomly chosen and data are received from 910 of them by using structured questionnaire. Self-Efficacy in ICT Scale (SEICTS) and Attitude towards Digital Self Learning Materials Scale (ATDSLMS) designed and validated by the Investigator (Ms. **I. Thenmozhi**) and Research Supervisor (**Dr. V. Sharmila**) in the year 2024 are used in the study. Percentages, t and ANOVA tests and correlation analysis are used for analysis of data.

6. RESULTS

6.1. PROFILE OF PROSPECTIVE TEACHERS

The profile of Prospective Teachers is disclosed in Table-1.

Table-1. Profile of Prospective Teachers

Profile	Frequency(n=910)	%
Gender		
Male	403	44.29
Female	507	55.71
Subject Group		
Arts	318	34.95
Science	592	65.05
Type of College		
Government	108	11.87
Government Aided	285	31.32
Self-Finance	517	56.91
Location of College		
Urban	490	53.85
Rural	420	46.15
Medium of Instruction		
Tamil	361	39.67
English	549	60.33
Fathers' Education		
Informal	104	11.43
School	302	33.19
College	504	55.38

The results explained that 55.71% of Prospective Teachers are females, whilst, 44.29% of them are males, 65.05% of them are in science group, whilst,34.95% of them in arts group and 56.91% of them are studying in self-finance colleges, whilst, 11.87% of them are studying in Government colleges.
The results also demonstrated that 53.85% of them are studying in colleges located in urban area, whilst, 46.15% of them are studying in colleges located in rural area, 60.33% of them are in English medium, whilst, 39.67% of them are in Tamil medium and 55.38% of their fathers are having college education, whilst, 11.43% their fathers are having informal education.

6.2. PROFILE OF PROSPECTIVE TEACHERS AND SELF-EFFICACY IN ICT

The difference amid profile of Prospective Teachers and their Self-Efficacy in ICT is disclosed as below.

6.2.1. Gender and Self-Efficacy in ICT

The difference amid gender of Prospective Teachers and their Self-Efficacy in ICT is disclosed in Table-2.

Table-2. Gender and Self-Efficacy in ICT

Gender	N	Mean	SD	t-value	Level of Significance
Male	403	129.03	21.56	12.999	0.01
Female	507	147.66	21.42		

Female Prospective Teachers (Mean=147.66) are having higher level of Self-efficacy in ICT than Male Prospective Teachers (Mean=129.03). The t-value of 12.999 elucidates that difference amid gender of Prospective Teachers and their Self-efficacy in ICT is significant in 1% level.

6.2.2. Subject Group and Self-Efficacy in ICT

The difference amid subject group of Prospective Teachers and their Self-efficacy in ICT is disclosed in Table-3.

Table-3. Subject Group and Self-Efficacy in ICT

Subject Group	N	Mean	SD	t-value	Level of Significance
Arts	318	133.99	21.19	5.195	0.01
Science	592	142.32	23.99		

Prospective Teachers in Science group (Mean=142.32) are holding higher level of Self-Efficacy in ICT than Prospective Teachers in Arts group (Mean=133.99). The t-value of 5.195 elucidates that difference amid subject group of Prospective Teachers and their Self-Efficacy in ICT is significant in 1% level.

6.2.3. Type of College and Self -Efficacy in ICT

The difference amid type of college of Prospective Teachers and their Self-Efficacy in ICT is disclosed in Table-4.

Table-4. Type of College and Self-Efficacy in ICT

Type of College	N	Mean	SD	F-value	Level of Significance
Government	108	148.66	30.71	13.208	0.01
Government Aided	285	141.01	22.12		
Self-Finance	517	136.60	21.70		

Prospective Teachers studying in Government Colleges (Mean=148.66) are possessing higher level of Self-Efficacy in ICT than Government Aided (Mean=141.01) and Self-Finance Colleges (Mean=136.60). The F-value of 13.208 elucidates that difference amid type of college of Prospective Teachers and their Self-Efficacy in ICT is significant in 1% level.

6.2.4. Location of College and Self-Efficacy in ICT

The difference amid location of college of Prospective Teachers and their Self-Efficacy in ICT is disclosed in Table-5.

Table-5. Location of College and Self-Efficacy in ICT

Location	N	Mean	SD	t-value	Level of Significance
Urban	490	133.43	19.80	8.663	0.01
Rural	420	146.38	25.25		

Prospective Teachers studying in Rural Colleges (Mean=146.38) are owning of higher level of Self-Efficacy in ICT than Prospective Teachers studying in Urban Colleges (Mean=133.43). The t-value of 8.663 elucidated that difference amid location of college of Prospective Teachers and their Self-Efficacy in ICT is significant in 1% level.

6.2.5. Medium of Instruction and Self-Efficacy in ICT

The difference amid medium of instruction of Prospective Teachers and their Self-Efficacy in ICT is disclosed in Table-6.

Table-6. Medium of Instruction and Self-Efficacy in ICT

Medium of Instruction	N	Mean	SD	t-value	Level of Significance
Tamil	361	134.15	21.57	5.595	0.01
English	549	142.87	23.89		

Prospective Teachers studying in English Medium (Mean=142.87) are experiencing higher level of Self-Efficacy in ICT than Prospective Teachers studying in Tamil Medium (Mean=134.15). The t-value of 5.595

elucidated that difference amid medium of instruction of Prospective Teachers and their Self-Efficacy in ICT is significant in 1% level.

6.2.6. Father's Education and Self-Efficacy in ICT

The difference amid father's education of Prospective Teachers and their Self-Efficacy in ICT is disclosed in Table-7.

Table-7. Father's Education and Self-Efficacy in ICT

Father's Education	N	Mean	SD	F-value	Level of Significance
Informal	104	132.11	24.46	40.980	0.01
School	302	148.85	21.93		
College	504	135.26	22.26		

Prospective Teachers with Father's Education of School Education (Mean=148.85) are bearing of higher level of Self-Efficacy in ICT than College (Mean=135.26) and Informal (Mean=132.11) Educations. The F-value of 40.980 elucidated that difference amid father's education of Prospective Teachers and their Self-Efficacy in ICT is significant in 1% level.

6.3. RELATION AMID SELF-EFFICACY IN ICT AND ATTITUDE TOWARDS DIGITAL SELF LEARNING MATERIALS OF PROSPECTIVE TEACHERS

The relation amid Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials of Prospective Teachers was studied by employing correlation analysis and the outcome is disclosed in Table-8.

Table-8. Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials

Particulars	Correlation Coefficient
Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials	0.570**

** Significance in 1% level

The coefficient of correlation amid Self-Efficacy in ICT and Attitude towards Digital Self Learning Materials of Prospective Teachers is 0.570 and it revealed that they have significant, positive and substantial relation among them.

7. CONCLUSION

The above analysis implied that difference is prevailed amid profile of Prospective Teachers and their Self-efficacy in ICT is significant. Self-efficacy in ICT is having significant, positive and substantial relation with Attitude towards Digital Self Learning Materials of Prospective Teachers. Therefore, Faculty Members of Colleges of Education must encourage their Prospective Teachers to use different ICTs and digital tools for their learning and teaching practices for enhancing their Self-efficacy in ICT. Faculty Members of Colleges of Education should give all kinds of assistance and ideas to their Prospective Teachers for improving their Self-efficacy in ICT. Family members must provide all sorts of support for increasing Self-efficacy in ICT of their Prospective Teachers. Faculty Members of Colleges of Education should use different ICTs in their classroom teaching and communication with their Prospective Teachers that can improve Self-efficacy in ICT among them. Prospective Teachers must increase their Self-efficacy in ICT through attending suitable trainings and programmes. Faculty Members of Colleges of Education should give ICT integrated learning activities in classroom to Prospective Teachers for increasing their Self-efficacy in ICT and all these suggestions will improve Attitude towards Digital Self Learning Materials amongst Prospective Teachers.

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