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A Study on Computer Efficacy of Secondary School Teachers

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Abstract

According to Merriam Webster dictionary the term 'efficacy' means 'the power to produce an effect'. Teachers of third millennium require this computer efficacy to produce good result in academic endeavours. The use of computer is found in all areas of human life. AI is the next boon or bane in educational field and in the place of teachers. Today, everywhere, when teachers are recruited, computer efficacy is tested as part and parcel of interview process. Mere chalk and talk method, text-book method, and certain traditional methods are outdated today or updated today with the help of use of computers. The researcher in this study aims to find out how confident teachers are with the ability to understand, use and apply computer knowledge and skills. The study was conducted in Kallakurichi, one of the educational districts of Tamil Nadu and survey method was deployed. The sample was divided into different categories on the basis of gender, education and experience. Teachers working in the current academic year (2024-25) was selected and 100 samples were considered for the present study. This study highlights that the secondary teachers have high level of computer efficacy, and gender, level of education and experience did not bring any variation in their computer efficacy. This implies that the teacher education curriculum should be further strengthened to develop computer efficacy and make the prospective teachers as a competent and expert in adopting computer in teaching learning process.

Keywords: *Computer Efficacy, Secondary Teachers, Tamilnadu.*

1. INTRODUCTION

According to Merriam Webster dictionary the term 'efficacy' means 'the power to produce an effect'. Teachers of third millennium require this computer efficacy to produce good result in academic endeavours. Teachers of any age or subject need to equip themselves today to cope with the changes and challenges in curriculum transaction. The use of computer is found in all areas of human life. AI is the next boon or bane in educational field and in the place of teachers. Today, everywhere, when teachers are recruited, computer efficacy is tested as part and parcel of interview process. Mere chalk and talk method,

text-book method, and certain traditional methods are outdated today or updated today with the help of use of computers.

Today computer efficacy is an important psychological construct in understanding the reason people choose to pursue particular activities and the extent of effort they devote to it. It is the extent of a teacher's perceived ability to use computer. The researcher in this study aims to study how confident teachers are with the ability to understand, use and apply computer knowledge and skills. Some of the research studies show the evidence that teachers with adequate computer knowledge are better, efficient and creative in their teaching learning activities.

2. REVIEW OF LITERATURE

Afari, E., Eksail, F.A.A., Khine, M.S. et al. (2023) explored the association between computer self-efficacy (basic technology skills, advanced technology skills, and technology for pedagogy) and pre-service teachers' intentions to use technology (traditional use of technology and constructivist use of technology). They collected from 267 Bahrain Teachers College students and used to validate the questionnaires using confirmatory factor analysis. The Structural equation modeling approach was used to explore the hypothesized relationships. Mediation analysis was also performed, and the results indicated that basic technology skills and advanced technology skills mediated the relationship between technology for pedagogy and the traditional use of technology. Advanced technology skills did not mediate the relationship between technology for pedagogy and constructivist use of technology.

Admire Chibisa et. al. (2021) examined the effects of pre-service teachers' computer self-efficacy on their use of computers. The research used a quantitative design whose data were collected by using a structured five-point Likert scale questionnaire with responses ranging from 1(strongly agree) to 5(strongly disagree). Simple random sampling was used to select a representative sample of 400 participants from a population of 4000 pre-service teachers, of which 332 of them were successfully returned, yielding a response rate of 83%. The study employed the Technology-Acceptance Model with eight constructs, namely; demographic influence (DI), social influence (SI), basic computer skills (CS), access to computers (AC), perceived ease of use (PEOU), perceived usefulness (PU), computer self-efficacy (CSE), and actual computer use (AU). The findings of the study indicated that each of the identified factors in the model had a significant effect on CSE. In essence, the identified explanatory variables explained 73.7% of the variance in CSsE. The four independent variables explained 45.4% of the variance in PU of computers and 66.5% of the variance in PEOU of computer use. The CSE model also explained 60.6% of the variance in computer use. In order to develop a strong CSE for pre-service teachers, it is recommended that higher education institutions ensure that all students have access to the necessary computers, proper connectivity, and skilled technicians.

3. NEED AND SIGNIFICANCE OF THE STUDY

Though sustaining quality in school education depends on many factors, teachers' competence is the pivotal point in determining it. Teachers play a vital role in redesigning the society through the development of the child. Technology has entered in all walks of life. Education also utilizes the technology for providing learning experiences to the learners. The present technological era demands the teachers to learn the ways of integrating computer and other learning devices into teaching learning process for maintaining quality and up-to-date knowledge. Therefore the researcher took up this study to learn how far teachers are having computer efficacy.

4. OBJECTIVES OF THE STUDY

The study was undertaken having the following objectives in mind.

- To find out the computer efficacy of secondary teachers.
- To find out if there is any significant difference between male and female teachers in their computer efficacy.
- To find out if there is any significant difference between undergraduate and post-graduate teachers in their computer efficacy.
- To find out if there is any significant difference between teachers with experience above and below 10 years in their computer efficacy.

5. HYPOTHESES OF THE STUDY

The computer efficacy of secondary teachers is high.

- There is no significant difference between male and female teachers in their computer efficacy.
- There is no significant difference between undergraduate and post-graduate teachers in their computer efficacy.
- There is no significant difference between teachers with experience above and below 10 years in their computer efficacy.

6. METHOD OF STUDY

The study was conducted in Kallakurichi, one of the educational districts of Tamil Nadu and survey method was deployed. The sample was divided into different categories on the basis of gender, education and experience.

7. SAMPLE OF THE STUDY

Covering the entire population is not possible for the present study. Teachers working in the current academic year (2024-25) was selected and 100 samples were considered for the present study.

8. TOOL USED IN THE PRESENT STUDY

Computer Self-Efficacy scale developed and standardized by Thangarasu and Swatntra Devi (2011) was used for the present study.

9. RELIABLITY AND VALIDITY OF THE TOOLS

The reliability of the tool was established by split-half method and it was found to be 0.88 which is reliable. The content validity of the tools was established by getting opinion from the experts in educational research.

10. STATISTICAL TECHNIQUES USED IN THE STUDY

For analyzing data mean, standard deviation and 't' test analyses were used in the present study.

11. ANALYSES OF DATA

Table-1: Mean and SD of Computer Efficacy Score of Secondary School Teachers

Variable	Number	Mean	SD
Computer Efficacy	100	169.05	19.63

The maximum score of the test is 250 and the minimum score is 50. A score of 150 and above indicates high computer efficacy and below 150 indicates low computer efficacy. It is evident from the above table that the calculated mean value (169.05) is higher than 150 and hence it is inferred that the secondary school teachers have high level of computer efficacy. Therefore the hypothesis that 'the computer efficacy of secondary teachers is high' is accepted.

Table-2: Mean, SD, t-value based on gender for Computer Efficacy of Secondary School Teachers

Gender	Number	Mean	SD	t-value	Significant Level
Male	55	168.79	2027	0.21	Not Significant
Female	45	169.36	19.11		

In order to find out the significant difference between male and female teachers in their computer efficacy, 't' value was calculated. The calculated 't' valued (0.21) is less than the table value at 0.05 level of significance. Hence the hypothesis that 'there is no significant difference between male and female teachers in their computer efficacy' is accepted.

Table-3: Mean, SD, t-value based on level of education for Computer Efficacy Of Secondary School Teachers

Level of Education	Number	Mean	SD	t-value	Significant Level
Undergraduate	48	169.46	19.52	0.28	Not Significant
Postgraduate	52	168.67	19.92		

In order to find out the significant difference between undergraduate and postgraduate teachers in their computer efficacy, 't' value was calculated. The calculated 't' valued (0.28) is less than the table value at 0.05 level of significance. Hence the hypothesis that 'there is no significant difference between undergraduate and post-graduate teachers in their computer efficacy' is accepted.

Table-4: Mean, SD, t-value based on experience for Computer Efficacy of Secondary School Teachers

Year of Experience	Number	Mean	SD	t-value	Significant Level
Below 10 years	59	167.53	19.56	1.21	Not Significant
Above 10 years	41	17.0.90	19.77		

In order to find out the significant difference between teachers with below and above 10 years of experience in their computer efficacy, 't' value was calculated. The calculated 't' valued (1.21) is less than the table value at 0.05 level of significance. Hence the hypothesis that 'there is no significant difference between teachers with experience above and below 10 years in their computer efficacy' is accepted.

12. FINDINGS OF THE STUDY

- The computer efficacy of secondary teachers is high.
- There is no significant difference between male and female teachers in their computer efficacy.
- There is no significant difference between undergraduate and post-graduate teachers in their computer efficacy.
- There is no significant difference between teachers with experience above and below 10 years in their computer efficacy.

13. EDUCATIONAL IMPLICATIONS OF THE STUDY

In today's context a teacher has to give multiple learning experiences to students. The classroom climate has changed drastically due to technology development. The classroom is furnished with smart board, projector and smart computers. If a teacher has no knowledge of computer he or she becomes inefficient, incompetent, unskilled and outdated today. This study throws light on the high level of computer efficacy of secondary school teachers. It is a necessity for a teacher today. In order to enhance the computer efficacy of teachers, educational institution shall conduct every now and then orientation programme, workshops and computer literacy programme.

14. CONCLUSION

This study highlights that the secondary teachers have high level of computer efficacy, and gender, level of education and experience did not bring any variation in their computer efficacy. This implies that the teacher education curriculum should be further strengthened to develop computer efficacy and make the prospective teachers as a competent and expert in adopting computer in teaching learning process.

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