

A COMPARATIVE STUDY ON THE COMPETENCE BASED APPROACHES OF ICT IN RELATION TO TEACHER EDUCATORS OF GOVERNMENT AND SELF-FINANCED COLLEGES

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Abstract

The study was undertaken to find out the level of competence based on ICT (Information and Communication Technology) among the teacher educators where comparative perspective had been the primary focus. The relational parameters were government and self-financed teachers' training colleges, and male as well as female teacher educators. In favor of descriptive survey method, 207 male and female teacher educators from two different types of colleges were considered through random sampling. The study revealed significant level of competence on ICT among the teacher educators. But dissimilarity was observed among the male teacher educators in terms of level of competence based on ICT, whereas no significant difference was found among the female teachers educators belonging to both government and self-financed teachers' training colleges. Significant difference was also not found among the male and female teacher educators from two different types of colleges regarding the level of competence based on ICT.

Keywords: Information and Communication Technology, Teacher Educators, Competence.

I. INTRODUCTION

Education has always been the life sustaining aspect since age old days. It accompanies people like lodestar in every stages of life, providing a proper insight into various aspects and progressing towards destiny. Starting from nature oriented education, it can be well observed that technology had been in collaboration with education. They are like two faces of one coin. Technological involvement within education improved interaction process between teacher and students which is one of the strong factor for effective learning, apart from having appropriate knowledge. Without technology it seems that education is nothing rather a tree without blossoms. Up gradation of society leads to evolution of technology and its upliftment has fastened the modification of strategies in classroom teaching process. This, in turn, paves the path for the development of techno-pedagogical skills on the part of teachers who are the artifact of teacher educators. So the teacher educators are required to be well equipped in technology in terms of techno-pedagogical skills. Various competencies in technology are the measuring stick for the techno-pedagogical skill. And the competence on ICT is one of these measuring instruments of techno-pedagogical skill. It only possible when one uses the technology with maturity and competency.

Information and Communication Technology (ICT) is being considered as the technology of having greater impact on the field of education. Knowledge and skills in handling various electronic machines like telephone, cellular phones, fax, radio, television, video, computer, e-mail satellite systems, videoconferencing, etc are taken into consideration for exchanging information verbally as well as non verbally. Rapid expansion of knowledge and accessibility of varied information to students anywhere anytime has now become a challenge for the teachers. Therefore, teachers are required to meet the changing demand of the modern education and adapt themselves as per the needs of the learners. As teacher education is primarily focusing on preparing quality teachers. That's why, the quality of teacher education programme becomes the determinant of developing trainee teachers' abilities and skills. The National Curriculum Framework (2005) has also highlighted the importance of ICT in school education and it also states that "ICT if used for connecting children and teacher with scientist working in universities and research institutions would also help in demystifying scientist and their work". On the other hand National Curriculum framework for Teacher Education, 2009 states that 'it needs to also equip teachers with competence to use ICT for their own professional development'. It is universally accepted that ICT can and will empower teachers and learners to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills which in turn leading step towards modernization of teaching learning process.

Teaching with ICT is used to enhance learning as well as make teachers comfortable in using it to ensure that students get the full advantages of educational technology. Unlike typical teaching, teaching with technology needs teachers to be trained in how to plan, create, and deliver instruction within a technological setting. For that different pedagogical approach is the basic requirement. According to Geer, and Sweeney (2012) in B.Ed. course the teachers were not only needed to be trained in regard to the use of technology for the development of good understanding on it but also required opportunities to practice effective technology integration strategies in a helpful contexts along with to learn about new technologies and ways to integrate them effectively in their classroom situation. The International Society for Technology in Education (2012) has conveyed about the technology isolation problem with utmost seriousness and has recently released a set of revised teacher technology standards. Rajasekar, and Dineshan (2013) accredited that to simplify teaching-learning process in the field of education ICT served as a magic stick for using technological devices. As a consequence it could be assumed that the teacher educators must acquire fresh knowledge of ICT before they could prepare their teacher trainees to meet the demands and challenges of the 21st century.

Ministry of Human Resource development, Government of India (GOI), has initiated scheme named The National Mission on Education through Information and Communication Technology (2016) emphasises to aware the educationist about potential of ICT in teaching and learning for improving Indian Higher education system. However, Proper competence on ICT helps to catalyze the cause and achievement the goals of teachers in the field of their own area of teaching. Teachers' competencies must be reviewed so that teachers' competencies should be redefined depending on the development of the whole life of man and education.

II. RATIONALE OF THE STUDY

ICT is a powerful tool for problem solving, conceptual development and critical thinking that helps to make the learning process much easier for the teacher trainees. Effective ICT contribute solutions to the problems in the daily classroom teaching. Conversely, as a teacher the need of ICT knowledge is very much required for B.Ed. and M.Ed. students in order to carry out the process of teaching and learning smoothly. But today one of the greatest challenges faced by the school of education is about the preparing of good quality of teachers along with techno-pedagogical skills through different teachers' training programmes which is also measured as the key components in any system of teacher education.

Danner, and Pessu (2013) observed in their study that students of teacher training institution had low ICT competence as they had less accessibility in the formal education process. The study also concluded that the lack of access to computers and internet connectivity within the faculty present a serious issue affecting staff and students' use of ICT applicability. On the other hand Sain, Kaware, and Douglas (2014) had brought into light that there was a significant difference in regard to teaching competency among novice and veteran teachers irrespective of type of school, type of management and gender. Subsequently significant difference between male and female teachers in regard to their ICT awareness as well as perception about ICT integrated classroom teaching in reverence to type of school, type of area had been found out (Ghavifekr, Kunjappan, Ramasamy, & Anthony, 2016; Ghavifekr, & Rosdy, 2015; Nurhabibah, Setiawan, Yanti, Miraj, & Yannuar, 2018). Whereas, Thakur (2014) established that the overall level of awareness on ICT was poor among the trained teachers and he also did not find any significant difference among the male and female trained teachers in regard to the level of ICT awareness. Similarly, Agarwal (2016) revealed no significant difference between the theoretical and application awareness in the concept of ICT among the male and female teacher trainees. Almerich, Orellana, Suarez, and Garcia (2016) found in their study that the ICT competence was an amalgamation of technological competence and pedagogical competence in which technological competence had influence on pedagogical competence and also contextual and personal factor had an impact on the competencies subsets. Conversely Obaydullah, and Rahim (2019) studied that deprived technological pedagogical content knowledge, technical supports as well training of teachers were keen factors for poor competence on ICT.

Therefore, unless they were trained we could not expect any qualitative change to come out of the system of teacher education. In regards to the said study engrossed after going through the review of related literature, there was comparatively less effort had been made to conduct a comparative study on the ICT based competence towards the teacher educators in West Bengal. Hence, the present study was an attempt to find out the compare of competence based approaches of ICT among the teacher educators in West Bengal.

2.1. STATEMENT OF THE PROBLEM

The present study was stated as

“A COMPARATIVE STUDY ON THE COMPETENCE BASED APPROACHES OF ICT IN RELATION TO TEACHER EDUCATORS OF GOVERNMENT AND SELF-FINANCED COLLEGES.”

2.3. OPERATIONAL DEFINITION

2.3.1. Information and Communication Technology (ICT)

It complies with three different words such as Information, Communication and Technology.

Information deals with the various kinds of knowledge like- facts, incident, event, episode, opinions, any textual, statistical or graphical data, story etc.

Communication is the procedure by which information transfer from a sender to a receiver with the exercise of a medium.

Technology is the machinery, equipment or tools developed from the application of scientific knowledge.

Information and Communication Technology (ICT) refers to the exchange of information in terms of facts, incident, event, episode, opinions, any textual, statistical or graphical data, story etc by electronic machine such as telephone, Fax, radio, T.V. and Video, computer, e-mail etc. through Internet, wireless networks, cell phones, and other communication mediums.

2.3.2. Competence

The word competence means the capability of an individual to do something successfully or efficiently in a specific field. In this study competency played a pivotal role dealing with ICT and leading to the analysis of level of skillfulness of teacher educator.

2.3.3. Teacher Educators

Teacher educators are those educational professionals who vigorously facilitate the prescribed teaching to the student teachers as well as teachers.

III. OBJECTIVES OF THE STUDY

The study was conducted to achieve the following objectives:

1. To study the level of competence based approach on ICT among the teacher educators of Government and Self-financed teachers' training colleges.
2. To compare the level of competence based on ICT among the teacher educators of Government and Self-financed teachers' training colleges.

- To compare the level of competence based on ICT among the male teacher educators belonging to Government and Self-financed teachers' training colleges.
- To compare the level of competence based on ICT among female teacher educators belonging to Government and Self-financed teachers' training colleges.
- To compare the level of ICT based competence among the male and female teacher educators of Government and Self-financed teachers' training colleges.

IV. HYPOTHESES

The researcher had formulated following hypotheses:

- There would have significant level of competence in relation to ICT among the teacher educators of Government and Self-financed teachers' training colleges.
- There would have no significant difference in the level of competence based on ICT among the teacher educators of Government and Self-financed teachers' training colleges.
- The male teacher educators of Government and Self-financed teachers' training colleges would have no significant difference in relation to the level of competence based on ICT.
- No significant difference would be there between Government and Self-financed teachers' training colleges related female teacher educators in regard to the level of competence based on ICT.
- There would have no significant difference in the level of competence based on ICT among the male and female teacher educators belonging to the Government and Self-financed teachers' training colleges.

V. METHODOLOGY OF THE STUDY

5.1.Design

As per the demand of the study, investigator had used descriptive survey method.

5.2. Sample

In this study, randomly 207 teacher educators had been preferred who were belonging to the North 24 Parganas, South 24 Parganas and Kolkata, selected purposively.

Table-1: Distribution of sample in three districts

Name of the District	Teacher Educators from Government College	Teacher Educators from Self financed College	Total number of Teacher Educators
Kolkata	31	35	66
North 24 Parganas	33	37	70
South 24 Parganas	30	41	71

5.3. Tool

The following tool had been used for the purpose of investigation:

5.3.1.Questionnaire

Investigator had used a self developed questionnaire to collect data. It included 30 items which provided a comprehensive view about the level of competence on ICT for the teacher educators. The questionnaire had been standardized by the investigator based on the content validity and test-retest reliability co-efficient (0.79) along with split half reliability co-efficient (0.84). The questionnaire consisted of 17 positive and 13 negative items in the form of five point rating scale viz. strongly agree, agree, undecided, disagree and strongly disagree or vice versa which made the maximum score of a questionnaire to be five and minimum one. Therefore, the total maximum and minimum score was projected as 150 and 30 respectively. Based upon the scores of questionnaire i.e. 30-150, the six level of competence had been stratified by keeping 25 intervals almost in each level, these are as follows: 30 very poor, 31-55 poor, 56-80 average, 81-105 good, 106-130 very good and 131-150 excellent.

5.4. Procedure of data collection

Followed by the preparation of questionnaire, the researcher visited the stipulated colleges from various districts of West Bengal and finally administered the questionnaire.

5.5. Statistical Techniques

The collected data were then analysed with the help of application of necessary statistical techniques like percentage, mean, standard deviation (S.D.) and *t* test.

5.6. Delimitations of the study

The study was delimited to 207 teacher educators to be selected from Government and self financed teachers' training colleges of only three districts of West Bengal such as South 24 Parganas, North 24 Parganas and Kolkata.

VI. ANALYSIS AND INTERPRETATION

6.1. Hypothesis 1

To analyze the formulated hypothesis, frequency and percentage were calculated from the gain scores of teacher educators of Government and Self-finance teachers' training colleges.

Table 2: Level of competence based on ICT, Frequency and Percentage of gain frequency of teacher educators.

Sl. No.	Level of Competence based on ICT	Frequency	Percentage (%)
1	Very Poor	7	3.38
2	Poor	12	5.79
3	Average	115	55
4	Good	54	26
5	Very Good	13	6.28
6	Excellent	6	2.89

Table 2 shows that 3.38% teacher educators have very poor level of ICT based competence, poor level of ICT based competence is found within 5.79% teacher educators. 55% teacher educators have average level of ICT based competence whereas, 26% teacher educators have good level of ICT based competence. 6.28% teacher educators have very good level of ICT based competence and excellent level of ICT based competence has been calculated among 2.89 % of teacher educators.

6.2. Hypothesis 2

In order to test this hypothesis, gain scores of teacher educators in regard to Government and Self-finance teachers' training colleges were calculated.

Table 3: Mean (M_1 and M_2), Standard Deviation (SD_1 and SD_2), Standard Error of the Mean (SE_{M1} and SE_{M2}), Number of teacher educators (N_1 and N_2), Standard Error of the Difference (SE_{D1} and SE_{D2}), Degrees of Freedom (df), and t value of gain scores of Government and Self-financed teacher educators.

Teacher Educators										
Government Colleges				Self-Financed Colleges				SE_D	df	t value
M_1	SD_1	SE_{M1}	N_1	M_2	SD_2	SE_{M2}	N_2			
116.01	14.79	1.53	94	112.67	10.24	0.96	113	1.75	205	1.91

Table 3 shows that the mean score of teacher educators of Government colleges is higher than the score of teacher educators of self-financed colleges. The computed value of t with 205 degree of freedom is 1.91 which is lower than that of table value of t 1.97 at 0.05 level. Therefore, it can be said that this difference is statistically quite insignificant at 95% level of confidence. Hence, the null hypothesis is accepted and concluded that there is no significant difference in the level of competence based on ICT among the government and self financed teacher educators.

6.3. Hypothesis 3

This hypothesis had been tested by calculating the gain scores of all male teacher educators in regard to Government and Self-finance teachers' training colleges.

Table 4: Mean, Standard Deviation, Standard Error of the Mean, Number of male teacher educators, Standard Error of the Difference, Degrees of Freedom, and t value of gain scores of all male teacher educators of Government and Self-financed teachers' training colleges.

Male Teacher Educators										
Government Colleges				Self-Financed Colleges				SE_D	df	t value
M_1	SD_1	SE_{M1}	N_1	M_2	SD_2	SE_{M2}	N_2			
118.62	10.72	1.76	37	111.12	8.34	1.17	51	2.03	86	3.69**

**significant at 0.01 level

From the above mentioned table 4, it can be observed that the calculated t value at 86 degrees of freedom is 3.69 which is found to be higher than the standard table value of t 1.99 at 0.05 and 2.64 at 0.01 level. Hence, it is highly significant at 99% level of confidence. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. Therefore, it can be concluded that the male teacher educators of Government teachers' training colleges have more competence based on ICT than that of male teacher educators of self financed teachers' training colleges.

6.4. Hypothesis 4

The gain scores of all female teacher educators of Government and Self-finance teachers' training colleges had been calculated to test the given hypothesis.

Table 5: Mean, Standard Deviation, Standard Error of the Mean, Number of female teacher educators, Standard Error of the Difference, Degrees of Freedom, and t value of gain scores of female teacher educators of Government and Self-financed teachers' training colleges.

Female Teacher Educators										
Government Colleges				Self-Financed Colleges						
M ₁	SD ₁	SE _{M1}	N ₁	M ₂	SD ₂	SE _{M2}	N ₂	SE _D	df	t value
114.32	16.80	2.22	57	113.95	11.49	1.46	62	2.62	117	0.14

The data given in the table 5 shows that the mean score of female teacher educators of Government Colleges is slightly higher than that of female teacher educators of Self financed colleges. Although the computed t value 0.14 from the given mean scores with degrees of freedom 117 is lower than the critical table value 1.98 at 0.05 level. Consequently, it can be said that the difference is insignificant at 95% level of confidence. Hence, it is concluded that there is no significant difference in the level of competence among the female teacher educators of Government and Self Financed teachers' training colleges.

6.5. Hypothesis 5

This hypothesis was tested by calculating the gain scores of all male teacher educators of Government and Self-finance teachers' training colleges as well as gain scores of all female teacher educators of Government and Self-finance teachers' training colleges.

Table 6: Mean, Standard Deviation, Standard Error of the Mean, Number of all female and male teacher educators, Standard Error of the Difference, Degrees of Freedom, and t value of gain scores of all female and male teacher educators of Government and Self-financed teachers' training colleges.

Teacher Educators of Government and Self-Financed Colleges										
Female Teacher Educators				Male Teacher Educators						
M ₁	SD ₁	SE _{M1}	N ₁	M ₂	SD ₂	SE _{M2}	N ₂	SE _D	df	t value
114.13	14.22	1.30	119	114.27	10.07	1.07	88	1.76	205	0.083

The table 6 indicates that the computed t value is 0.083 at 205 degrees of freedom furthermore the critical table value which shows 1.97 at 0.05 level for the same degrees of freedom. Thus it is obvious that the computed value is less than the table value and it is insignificant at 95% level of confidence. Therefore, it is endorsed that there is no significant difference in competence based on ICT among the male and female teacher educators in terms of Government and Self-financed teachers' training colleges. Hence, null hypothesis is accepted.

VII. MAJOR FINDINGS

- The teacher educators had 3.38% very poor, 5.79% poor, 55% average, 26% good, 6.28% very good and 2.89% excellent level of competence based on ICT.
- There was no significant difference in the level of competence on ICT among the teacher educators of Government and Self-financed teachers' training colleges.
- There was highly significant difference in the level of competence on ICT among the male teacher educators of Government and Self-financed teachers' training colleges.
- No significant difference had been found out in the level of competence on ICT among the female teacher educators of Government and Self-financed teachers' training colleges.
- Significant difference was also not there in the level of competence on ICT among the male and female teacher educators of Government and Self-financed teachers' training colleges.

VIII. EDUCATIONAL IMPLICATIONS

- This study will help to focus the barriers and solution faced by teachers in using ICT tools in teaching and learning situation.
- The study can contribute in the revolution of the teacher education program with encouragement for various researches to develop and dissemination web based education system.
- The study will provide exposure to the environment of contemporary competence based education which will in turn lead to develop quality teaching procedure.
- The study will lead to boost up the importance of the ICT with the help various workshops, seminars, symposium for the educationists as per the necessity.
- This study will lead to plan the curriculum of teacher education program with infusion of techno-pedagogical skill based courses.
- The educational planner or policy maker can implement the study countrywide to investigate the present condition regarding the competence based on ICT.

IX. CONCLUSION

In this study, it is found that maximum teacher educators hold average ICT based competence. Various workshops, bridge courses are required to be materialized for amplifying the quantity of teacher educators in view to ICT based competence. Training courses for teacher educators can be infused with various techno-pedagogical skill based curriculum to improve their ICT based competence. Institution for teachers' training courses should be well equipped with ICT based appliances so that there can be maximum use of ICT in the teaching learning process. Evolution of technology should be adapted by the training institution to cope up with the changing society.

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