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## TEACHING & LEARNING THROUGH ICT IN TEACHERS' TRAINING COLLEGES

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### Abstract

**Purpose:** ICT is currently considered as an integral part of the teaching and learning process. In the current age of technology, the use of ICT is very common in the field of education. The present study is conducted to the perception of teachers and trainee-teachers in teaching and learning process through ICT of teachers' training colleges and the perception is based on understanding the content, mindful lesson, and curriculum development. Through ICT, the teaching and learning process is conducted in a flexible manner.

**Methodology:** The researchers have taken descriptive survey method for this study. The sample has consisted 100 teachers and 100 trainee-teachers from 10 teachers' training colleges which are selected randomly to complete this quantitative study based on survey questionnaire. A self-structured closed ended questionnaire with 5-point Likert type scale has used to collect data. Data collection process has done from primary and secondary sources both. The researchers have collected data by the respondents through e-mails, social sites, and telephonic conversations for this study. Collected data is analysed by various statistical techniques both as descriptive statistics and inferential statistics through Microsoft Excel 2007 software.

**Findings:** It is found that no significant difference has revealed between the teachers and trainee-teachers' perception towards understanding the content, mindful lesson, and curriculum development through ICT. Teachers and trainee-teachers are able to better comprehend the teaching and learning process through ICT. Trainee-teachers are a bit more motivated than teachers to understand the content through ICT, moreover, trainee-teachers are more affected than teachers in the case of mindful lesson, and on the other hand, teachers tend to have a more lively-spontaneous attitude than trainee-teachers when it comes to curriculum development through ICT in teaching and learning process.

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**Conclusion:** This is given as the conclusion of the study, nowadays, it is very necessary to recitation through ICT along with our formal education. It is very easy to make the learning topics meaningful and engaging. The assertion for conducting teaching and learning through ICT in teachers' training colleges is increasing day by day. There is no substitute for ICT in making the subject-matter meaningful, fascinating, and appreciable in a short period of time in the classroom environment. It continues to encourage the teachers and trainee-teachers to move beyond traditional education and embrace technology-based thinking and today they are constantly feeling the need for it.

**Keywords:** ICT, perception, teachers & trainee-teachers, teaching & learning, technology

## INTRODUCTION

Several studies and reports in recent years have highlighted the potential and benefits of ICT to improve the quality of education. With the evolution of the post-industrial society, the development of ICT has brought about a massive change in the world. ICT integration has a positive impact on both teaching and learning process in education and also it helps to motivate learners by providing new opportunities and creating a rich learning environment for both teachers and trainee-teachers (Bindu, 2016). The quality of education depends upon the quality of teachers and trainee-teachers, which in turn depends upon the quality of teaching and learning process (Jadhav, 2011). Learners access knowledge and information through internet application, computer, mobile phone, teleconferencing, Learning Management System (LMS), audio/video tape, interactive television, radio, digital media, cable

network, internet and social media i.e. facebook, whatsapp, telegram, twitter, linkedin, line, wechat etc., and other to develop teaching and learning approach. ICT learning plays an important role in making the teaching and learning process effective. It helps both teachers and trainee-teachers to improve pedagogical practice and access, analyse, interpret, and disseminate information for the use of computer technologies with knowledge and skills. At present, most of the teachers' training colleges are in the process of teaching and learning through ICT but the colleges in remote areas have to face some infrastructural difficulties. Furthermore, it helps in improving the quality of education, acquiring basic skills, imparting learning experience through a teaching and learning centric atmosphere. Technology helps learners to control the learning process and collects a variety of information that teachers cannot provide (Lam & Lawrence, 2002). Through ICT, a wide variety of content catch in the eyes of the reader in a very mercurial formed by which the interior subject can be easily accessed. Through ICT, as a versatile instrument, teachers and trainee-teachers have the potential to solve complex problems not only by engaging them in teaching and learning instruction but also by enhancing their cognitive skills (Jonassen & Reeves, 1996, as cited in Habibu, Mamun-Al-Abdullah, & Clement, 2012). Due to those points of view the researchers are trying to reveal the perception of teachers and trainee-teachers towards ICT in teaching and learning process. ICT has become a necessary tool especially in the context of contemporary technological era for the development of education.

## REVIEW OF RELATED LITERATURE

Kennewell, Parkinson, and Tanner (2000) found that ICT environment develops the experience of both teachers and students so, that they could utilise the teaching and learning time effectively. Oliver (2000) highlighted that nowadays, teachers facilitate the dissemination of knowledge based on the ICT contemporary curriculum to create relevant and integrated learning experiences for their students. The study conducted by Al-Alwani (2005, as cited in Habibu et al., 2012) argued that despite the strong desire and enthusiasm of teachers to integrate ICT in the field of education, they faced many obstacles. Dixit and Kaur (2015) revealed that teachers trainees had favourable attitude towards ICT teaching. Furthermore, Sekar and Lawrence (2015) explored that the B.Ed. students had favourable attitude towards ICT and there was no significant mean difference observed between them. Qasem and Viswanathappa (2016) also found that the impact of the blended learning environment on teacher perceptions was greater than the impact of traditional learning environment on teacher perceptions. On the other hand, Alam and Halder (2017) found that there was significant mean difference in the attitude of pre-service and in-service trainee-teachers towards the use of ICT in classroom interaction. But, there is a lack of the study on the perception of both teachers and trainee-teachers towards understanding the content, mindful lesson, and curriculum development through ICT in teaching and learning process of teachers' training colleges.

### **SIGNIFICANCE OF THE STUDY**

This study will help to know the teachers and trainee-teachers' perception towards ICT in teaching and learning process. Perception of teachers and trainee-teachers towards ICT has

shown through this study to get additional information about the contribution of ICT in the modern age. It can be a learning paradigm in teachers' training colleges enhance the teachers and trainee-teachers' knowledge, skills through the digital technologies. The importance of teachers and trainee-teachers' perception towards ICT in the teaching and learning process has discussed in the light of various research literatures. Hence, the main aim of this study is to find out the perception of the teachers and trainee-teachers towards ICT in teaching and learning process.

### **OBJECTIVES**

The following objectives have mentioned in the present study:

- O1. To analyse the perception of the academes towards understanding the content in teaching and learning process through ICT.
- O2. To examine the perception of the academes towards mindful lesson in teaching and learning process through ICT.
- O3. To investigate the perception of the academes towards curriculum development in teaching and learning process through ICT.

### **•HYPOTHESES**

On the basis of above objectives, the researchers have formulated following hypotheses:

- $H_0$ 1. There is no significant difference between teachers and trainee-teachers' perception towards understanding the content in teaching and learning process through ICT.

$H_02$ . There is no significant difference between teachers and trainee-teachers' perception towards mindful lesson in teaching and learning process through ICT.

$H_03$ . There is no significant difference between teachers and trainee-teachers' perception towards curriculum development in teaching and learning process through ICT.

### DELIMITATIONS

The delimitations for the study are as followed:

- The present study has delimited to the teachers and trainee-teachers of self-financed teachers' training colleges at Bachelor of Education (B.Ed.) level.
- The study has also delimited to the West Bengal University of Teachers' Training, Education Planning and Administration (WBUTTEPA) only.

### METHODOLOGY OF THE STUDY

Descriptive survey method and quantitative research design has adopted for this study.

#### Population

The teachers and trainee-teachers of teachers' training colleges affiliated to WBUTTEPA are treated as the population of the present study.

**Table 1. Item scoring process**

Response	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Item score	5	4	3	2	1

**Sources of Data:** Data has collected from two different sources, these are:

#### Sample

The researchers have selected 100 teachers and 100 trainee-teachers of 10 self-financed B.Ed. level teachers' training colleges to collect the sample of the present study.

#### Sampling Technique

The researchers have used simple random sampling technique for this study.

#### Selection of Tool

For the collection of data researchers have used a self-structured closed ended questionnaire, including fifteen items. The questionnaire has validated after checking by the experts. These items are based upon three different aspects i.e. understanding the content, mindful lesson, and curriculum development. The researchers have done the reliability, which is quite satisfactory for this study, after that they have proceeded for further works. Regarding measurement the perception of teachers and trainee-teachers 5-point Likert type scale is used ranging from 5 'strongly agree' to 1 'strongly disagree'. The responses scoring are given below in table 1.

### **Primary sources**

Primary data has collected from teachers and trainee-teachers both of teachers' training colleges and their individual responses have taken through validated questionnaire.

### **Secondary Sources**

Secondary data has collected from selected books (including edited books), journals (including e-journals), proceedings paper, and scholarly articles which are written by the great authors.

### **Variables**

In the present study, the researchers are considered two types of variables, these are given below:

#### **1. Major variables**

- i. Independent Variable: Teaching & learning process through ICT
- ii. Dependent variable: Perception towards ICT

#### **2. Categorical Variable**

Academe (teacher & trainee-teacher)

#### **Procedure of Data Collection**

The researchers have collected data

by the respondents through e-mails, whatsapp messengers, facebook messengers, and telephonic conversations for this study.

#### **Procedure of Data Analysis**

Data has analysed by the quantitative as per objectives and Microsoft Excel 2007 software of this study. Inferential statistics like *t*-test has applied to find out the results and inference.

### **DATA ANALYSIS & INTERPRETATION**

#### **Testing of Null Hypotheses**

For testing the null hypotheses ( $H_01$ ,  $H_02$ , &  $H_03$ ) researchers have decided to analyse the perception scores of 200 teachers and trainee-teachers towards understanding the content, mindful Lesson, and curriculum development through ICT are collected, tabulated, and suitable statistics such as mean, standard deviation, standard error of mean, and sample variance are calculated and presented below in table 2, 4, & 6. The significance of difference between the means of perception towards understanding the content, mindful lesson, and curriculum development through ICT of teachers and trainee-teachers are calculated and presented below in table 3, 5, & 7.

### **Testing of $H_01$**

**Table 2. Results of Descriptive Statistics for Perception towards Understanding the Content through ICT**

Subject	Academe	N	Mean	Std. Deviation	Std. Error of Mean	Sample Variance
Understanding the Content_ICT	Teacher	100	3.76	.5341	.0534	.2853
	Trainee-teacher	100	3.78	.5788	.0579	.3350

**Table 3. Results of t-test: Two-Sample Assuming Equal Variances for Perception towards Understanding the Content through ICT**

Subject	t-test for Two-Sample Assuming Equal Variances				
	t value	df	p value (2-tailed)	Mean Difference	Std. Error Difference
Understanding the Content_ICT	-.2540*	198	.7998	-.02	-.00446

\*t value is not significant at .05 level of significance (2-tailed)

### **Interpretation**

Table 2 reveals that mean value of perception towards understanding the content through ICT of teachers is 3.76 with standard deviation, standard error of mean, and sample variance are .5341, .0534, & .2853. The mean value of perception towards understanding the content through ICT of trainee-teachers is 3.78 with standard deviation, standard error of mean, and sample variance are .5788, .0579, & .3350.

Table 3 depicts that obtained  $t(198)$  value is  $-.2540$ , which is not significant at .05 level of significance because  $p$  value is  $.7998$  ( $p > .05$ ). So, it can be stated that there is no significant mean difference between teachers and trainee-teachers in their perception towards understanding the content through ICT of teaching and learning process.

### **Testing of $H_0$**

**Table 4. Results of Descriptive Statistics for Perception towards Mindful Lesson through ICT**

Subject	Academe	N	Mean	Std. Deviation	Std. Error of Mean	Sample Variance
Mindful Lesson_ICT	Teacher	100	5.07	.8675	.0868	.7526
	Trainee-teacher	100	5.15	.8805	.0881	.7753

**Table 5. Results of t-test: Two-Sample Assuming Equal Variances for Perception towards Mindful Lesson through ICT**

Subject	t-test for Two-Sample Assuming Equal Variances				
	t value	df	P value (2-tailed)	Mean Difference	Std. Error Difference
Mindful Lesson_ICT	-.6472*	198	.5183	-.08	-.0013

\*t value is not significant at .05 level of significance (2-tailed)

### Interpretation

Table 4 reveals that mean value of perception towards mindful lesson through ICT of teachers is 5.07 with standard deviation, standard error of mean, and sample variance are .8675, .0868, & .7526. The mean value of perception towards mindful lesson through ICT of trainee-teachers is 5.15 with standard deviation,

standard error of mean, and sample variance are .8805, .0881, & .7753.

Table 5 depicts that obtained  $t(198)$  value is  $-.6472$ , which is not significant at .05 level of significance because  $p$  value is  $.5183$  ( $p > .05$ ). Therefore, it may be concluded that there is no significant mean difference between teachers and trainee-teachers in their perception towards mindful lesson through ICT of teaching and learning process.

### Testing of $H_03$

**Table 6. Results of Descriptive Statistics for Perception towards Curriculum Development through ICT**

Subject	Academe	N	Mean	Std. Deviation	Std. Error of Mean	Sample Variance
Curriculum Development_ICT	Teacher	100	5.89	.8516	.0852	.7252
	Trainee-teacher	100	5.70	1.2432	.1243	1.5455

**Table 7. Results of t-test: Two-Sample Assuming Equal Variances for Perception towards Curriculum Development through ICT**

Subject	t-test for Two-Sample Assuming Equal Variances				
	t value	df	p value (2-tailed)	Mean Difference	Std. Error Difference
Curriculum Development ICT	1.2609*	198	.2088	.19	-.0392

\*t value is not significant at .05 level of significance (2-tailed)

### **Interpretation**

Table 6 reveals that mean value of perception towards curriculum development through ICT of teachers is 5.89 with standard deviation, standard error of mean, and sample variance are .8516, .0852, & .7252. The mean value of perception towards curriculum development through ICT of trainee-teachers is 5.70 with standard deviation, standard error of mean, and sample variance are 1.2432, .1243, & 1.5455. Table 7 depicts that obtained  $t(198)$  value is 1.2609, which is not significant at .05 level of significance because  $p$  value is .2088 ( $p > .05$ ). Hence, it can be stated that there is no significant mean difference between teachers and trainee-teachers in their perception towards curriculum development through ICT of teaching and learning process.

### **MAJOR FINDINGS**

On the basis of the results and their interpretation researchers have concluded some findings, the major findings are mentioned below:

#### **1. Perception towards Understanding the Content through ICT**

There is no significant mean difference present in between teachers and train-

ee-teachers in their perception towards understanding the content through ICT. The mean value of teachers' perception towards understanding the content is (Mean = 3.76) a lower than that of trainee-teachers (Mean = 3.78).

#### **2. Perception towards Mindful Lesson through ICT**

There is no significant mean difference present in between teachers and trainee-teachers in their perception towards mindful lesson through ICT. The mean value of teachers' perception towards mindful lesson is (Mean = 5.07) lower than that of trainee-teachers (Mean = 5.15).

#### **3. Perception towards Curriculum Development through ICT**

There is no significant mean difference present in between teachers and trainee-teachers in their perception towards curriculum development through ICT. The mean value of teachers' perception towards curriculum development is (Mean = 5.89) higher than that of trainee-teachers (Mean = 5.70).

The teachers and trainee-teachers have a favourable and applicable perception towards ICT in teaching and learning process.

## DISCUSSION

Discussion is based on findings of the study, it is presented below:

- 1. The First Hypothesis ( $H_{01}$ ) shows that-** Teachers and trainee-teachers of self-financed B.Ed. level teachers' training colleges do not differed significantly in terms of their perception towards understanding the content through ICT. Because obtained  $t$  value is not significant at .05 level of significance. Hence, the null hypothesis  $H_{01}$  is not rejected. The mean score of trainee-teachers is a few little higher than teachers (*trainee-teachers > teachers*). It indicates that trainee-teachers are more attentive towards understanding the content and that's why their perception is higher than that of teachers.
- 2. The Second Hypothesis ( $H_{02}$ ) shows that-** Teachers and trainee-teachers of self-financed B.Ed. level teachers' training colleges do not differed significantly in terms of their perception towards mindful lesson through ICT. Because obtained  $t$  value is not significant at .05 level of significance. Hence, the null hypothesis  $H_{02}$  is not rejected. The mean score of trainee-teachers is little higher than teachers (*trainee-teachers > teachers*). It indicates that trainee-teachers are more active towards mindful lesson and that's why their perception is higher than that of teachers.
- 3. The Third Hypothesis ( $H_{03}$ ) shows that-** Teachers and trainee-teachers of self-financed B.Ed. level teachers' training colleges do not differed significantly in terms of their perception towards curriculum development through ICT. Because obtained  $t$  value is not significant at .05 level of significance. Hence, the null hypothesis  $H_{03}$  is not rejected. The mean score of teachers is petty higher than trainee-teachers (*teachers > trainee-teachers*). It indicates that teachers are more conscious and observant towards curriculum development and that's why their perception is higher than that of trainee-teachers.

From the present investigation, the outcomes are generalised that there is insignificant difference between the means of perception towards understanding the content, mindful lesson, and curriculum development through ICT of teachers and trainee-teachers. Similarly, Sekar and Lawrence (2015) explored that there was no significant mean difference in the attitude of B.Ed. students towards ICT. But it was contradicted with the findings of Alam and Halder (2017). On the other hand, Ndibalema (2014) found that teachers had positive attitude towards the effective use of ICTs as a pedagogical tool in education. Further the study of Rana (2012) found that most of the teacher educators had positive attitude towards the general role that ICTs could play in education and in the educational process. But the study of Al-Alwani (2005, as cited in Habibu et al., 2012) revealed that teachers faced many obstacles to integrate ICT in education.

## EDUCATIONAL IMPLICATIONS

- The following educational implications are given below:
- ICT interacts with teachers and trainee-teachers as well as help them prepare for learning and provide feedback.
- Teachers must acknowledge the usefulness of ICT in teaching; they must believe that the application of technology continues the teaching and learning process (Zhao & Cziko, 2001, as cited in Bindu, 2016).
- ICT promotes professional development and educational management as well as helps trainee-teachers in active learning (Bhattacharjee & Deb, 2016).
- ICT prepares teachers to use their skills in classroom situations and also prepare trainee-teachers for their future careers and social lives.
- One of the medium of teaching and learning is ICT. It is displayed as a practice with simulation and activation of educational networks (Bhattacharjee & Deb, 2016).
- ICT also facilities collaborative learning. ICT integration helps to increase the reception of subject-matter analysis and acquaintance within the stipulated time frame with the teaching and learning process (Cabero, 2001).

## CONCLUSION

The present study has revealed that teachers and trainee-teachers in their perception has not significantly affect on creating a dif-

ference towards ICT in teaching and learning process at B.Ed. level self-financed teachers' training colleges affiliated to WBUTTEPA. Moreover, it is found no evidence that the significant mean difference between teachers and trainee-teachers' perception towards ICT in teaching and learning process. It has concluded that teachers have not performed a considerable role than trainee-teachers in this regards. This study will help the teachers and trainee-teachers to develop their skills and knowledge through ICT in teachers' training colleges. An inspiring element for teachers and trainee-teachers is ICT enriched teaching and learning.

Thus, in a developing country like India, the ICT-enabled education system is largely the result of the democratisation of education. Effective use of ICT for educational purposes will be able to bridge the gap between digital divisions within the nation today (Bindu, 2016). Using ICT, teachers have ample opportunity to communicate and interact with trainee-teachers (Smaldino, Lowther, & Russel, 2008). ICT is an effective tool in constructivist approach of learning, where teachers can layout stimulated and tailor-made learning conditions to trainee-teachers; it is transforming the process of teaching and learning environment by including elements of validity to the learning milieu (Lebow, 1993). It is important to manage the education system through ICT to increase the spread of education (Bindu, 2016). Moreover, educational stakeholders should conduct regular seminar, workshop, project, and refreshment course for teachers and trainee-teachers in teaching and learning process through ICT of teachers' training colleges.

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