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Opportunities and Challenges of Using ICT in Teaching and Learning–Teachers' Perception

D. Ashlin Melbha*
C.L. Jeba Melvin**

Covid-19 pandemic creates lot of changes in teaching and learning mechanism. In the last two years, the teachers are facing challenges due to the change in the mode of education system. Teachers are not able to control the students in virtual classroom and not able to give exercises and cannot able to monitor the students'progress. As a learner, he/she is not able to understand new application software and not aware about new online courses in teaching and learning activities. This situation createschallenge for the teachers to cope up with the change in Information and Communication Technology (ICT) in educational system. So, the researcher wants to study the challenges faced by the teachers by using ICT in teaching and learning. This study focuses in Kanyakumari District, India. Both Government aided college teachers and Self-finance college teachers of Arts and Science colleges are selected for the study.

Keyword: *ICT tools, Teaching and learning, Challenges, opportunities, online education.*

1 INTRODUCTION

Information and communication technology is an important part of learning today. Due to covid -19, the teachers are forced to adopt ICT to teach their students as well as to equip their knowledge through learning. Because of this situation, the teachers are facing challenges regarding get more knowledge

* Assistant Professor, Nesamony Memorial Christian College, Marthandam, Affiliated to Manonmaniam Sundaranar University, Tirunelveli, India.

** Associate Professor and Head of Research Centre, Nesamony Memorial Christian College, Marthandam, Kanyakumari District, India. E-Mail ID: ashlinmelba123@gmail.com

about the application software, the change in teaching methodology (online), classroom management and so on. Sometimes the teachers are not getting proper support from the institution regarding their learning aspects. It is the duty of every teacher to learn the change and act accordingly to improve the wellbeing of the students as well as the society especially in this pandemic scenario.

2 REVIEW OF LITERATURE

Maria del Carmen Ramirez-Rueda*et al.* (2021)[1] The study focus on analysing the perception of teachers and parents in relation to the use of ICT in teaching-learning process in three dimension include attitude, usage and beliefs. The results revealed that the parents and teachers are more favourable towards the usage of ICT in teaching. The usage of ICT in education creates more interest among the teachers and students. Some parents perceived that overuse of ICT impact some negative consequences in their children like deterioration in interpersonal skills or physical welfare and exposure to inadequate contents.

Henderson (2020)[2] The study explains the benefits of information and communication technology in education. Technology has both positive and negative effect. In the positive side, using ICT in classroom improves students' engagement, knowledge retention, encourages individual learning, encourages collaboration, learn life skills through technologies. Lack of software problem, lack of sufficient training, Lack of knowledge, lack of learning equipment tools and resources, teachers' reluctance to new technology are some of the challenges of using ICT in education.

Alkahtani (2017)[3] The study gives an insight of the challenges faced by the teachers using ICT tools in teaching. Lack of training and lack of working equipment are the two aspects analysed in this study. Further lack of understanding between students and teachers of how equipment functions, lack of mastery of ICT teaching techniques, lack of training to bridge the gap and lack of mastery of electronic equipment are some of the problems faced by the teachers while using ICT in teaching.

Ghavifekr *et al.* (2016)[4] In this study, the authors select 100 secondary school teachers in Melaka, Malaysia. The study shows that the key challenges are significant in the below mentioned area ie. limited accessibility and network connection, limited technical support from the institution, lack of effective training, limited time and lack of teachers' competency. The result revealed that the male teachers are using ICT more than the female teachers in Melaka, Malaysia.

Noor-Ul-Amin (2013)[5] The study stated the importance of ICT in education through literature review. National and international level strategies and initiatives related to measuring and demonstrating the effective use of ICT for education

with regard to the teaching learning process; ICT and quality and accessibility of education; ICT and learning motivation, ICT and learning environment, and ICT to enhance the scholastic performance.

3 OBJECTIVES OF THE STUDY

1. To know the opportunities and challenges of using ICT in teaching by the arts and science college teachers in Kanyakumari District.
2. To analyse the opportunities and challenges of using ICT in learning by the arts and science college teachers in Kanyakumari District.
3. To identify the arts and science college teachers' perception towards implementation of the ICT tools in teaching and learning.

4 STATEMENT OF THE PROBLEM

Information and communication technology is an integral part of teaching and learning environment during this pandemic situation. Digitally literate teachers can integrate ICT in students learning. The teachers working in developing district like Kanyakumari are not much familiar to ICT. Sudden change from the physical black board to digital board, classroom control (virtual), teacher-learner digital communication and so on are new challenges to the teachers in teaching environment. In addition to this, the teachers have to attend online course and equip their knowledge through various digital platform is another challenge. So the researcher made an attempt to study the "Challenges of using ICT in Teaching and Learning – Teacher's Perception" in Kanyakumari District, Tamilnadu, India.

5 METHODOLOGY

The present study is an empirical study. The present research paper attempts to understand the challenges of using ICT in teaching and learningfrom the teacher's perception and the study area is Kanyakumari District, Tamilnadu, India. The study is mainly focus on primary data and secondary data also used for this study.

Primary data was collected through the structured questionnaires using Google form from different location of Kanyakumari District and secondary data was collected from books, journals, periodicals, articles and internet. The researcher used t-test, one-way ANOVA and percentage analysis for analyzing the data. The sample size selected was 153.

6 DATA ANALYSIS

Descriptive Statistics

Descriptive statistics of the study is given under this title. Both male

(45.1%) and female (54.9%) higher education teachers are selected for the study. Most of the respondents' designation is Assistant Professor (82.4%). 44.4% respondents getting the salary in between 20,001 to 40,000 only. Most of the respondents having ten to fifteen years (34.6%) of teaching experience. 76.5% respondents are having the pre-requisite qualification set by UGC. 75.8% respondents can control students in both online and offline mode of education.

Comparison of opportunities and challenges faced by teachers in teaching and learning with gender of the respondents

These are classified into two gender groups and t-test is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachersin teaching and learning with different gender group respondents.

Null Hypothesis: There is no significant difference between Male and Female higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 1: Comparison of opportunities and challenges faced by teachers in teaching and learningwith gender of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	Gender				t value	p value
	Male		Female			
	Mean	SD	Mean	SD		
Offline Mode of Teaching	42.25	2.34	42.69	2.06	0.597	0.037*
Both online and offline Mode of Teaching	36.53	2.64	38.47	4.28	3.028	<0.001**
Professional Learning	21.55	2.82	20.90	3.18	1.351	0.686
Self-Learning	26.31	3.25	24.63	2.68	3.429	0.001**
Difficulties in teaching	21.55	3.29	18.45	4.92	4.657	0.014*

Source: Primary data

Note:** denotes significant at 1% level

* denotes significant at 5% level

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to both online and offline mode of teaching and self-learning. Hence there is significance different between male and female with regard to both online and offline mode of teaching and self-learning. Based on Mean score, female teachers have more control over both online and offline teaching and male teachers have more self-learning than female teachers.

Since p value is less than 0.05, the null hypothesis is rejected at 5% level, with regard to offline mode of teaching and difficulties in teaching. Hence there is significance different between male and female with regard to offline mode of teaching and difficulties in teaching. Based on Mean score, female

teachers have more control over offline teaching and male teachers find more difficulties in teaching.

There is no significant difference between male and female teachers with regard to professional learning since p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level with regard to professional learning.

Comparison of opportunities and challenges faced by teachers in teaching and learning with designation of the respondents

These are classified into two designation groups and t-test is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachers in teaching and learning with different designation group respondents.

Null Hypothesis: There is no significant difference between the designation of higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 2: Comparison of opportunities and challenges faced by teachers in teaching and learning with designation of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	Designation				t value	p value
	Assistant Professor		Associate Professor			
	Mean	SD	Mean	SD		
Offline Mode of Teaching	42.42	2.06	42.50	2.64	0.083	0.018*
Both online and offline Mode of Teaching	37.03	3.68	41.58	1.77	8.064	0.002**
Professional Learning	21.16	3.19	21.30	2.23	0.267	0.052
Self-Learning	25.52	3.17	24.67	2.39	1.576	0.009**
Difficulties in teaching	19.81	4.44	19.81	5.06	0.005	0.178

Source: Primary data

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to both online and offline mode of teaching and self-learning. Hence there is significance different between assistant professor and associate professor with regard to both online and offline mode of teaching and self-learning. Based on Mean score, associate professors can have more control over both online and offline teaching and assistant professors have more self-learning.

Since p value is less than 0.05, the null hypothesis is rejected at 5% level, with regard to offline mode of teaching. Hence there is significance different between assistant professor and associate professor with regard to offline mode of teaching. Based on Mean score, associate professors have more control over offline teaching.

There is no significant difference between assistant professor and associate professor with regard to professional learning and difficulties in teaching since p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level.

Comparison of opportunities and challenges faced by teachers in teaching and learning with qualification of the respondents

These are classified into qualified and not qualified groups and t-test is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachers in teaching and learning with qualification of respondents.

Null Hypothesis: There is no significant difference between the qualification of higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 3: Comparison of opportunities and challenges faced by teachers in teaching and learning with qualification of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	Qualified				t value	p value
	Yes		No			
	Mean	SD	Mean	SD		
Offline Mode of Teaching	42.42	2.06	42.50	2.64	0.083	0.018*
Both online and offline Mode of Teaching	38.30	3.52	35.54	4.10	3.129	0.965
Professional Learning	21.68	2.56	19.56	3.85	3.112	0.002**
Self-Learning	25.36	3.01	25.36	3.22	0.011	0.694
Difficulties in teaching	19.76	4.89	19.97	3.17	0.304	0.387

Source: Primary data

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to professional learning. Hence there is significance different between qualified and not qualified teachers with regard professional learning. Based on Mean score, qualified teachers have more professional learning.

Since p value is less than 0.05, the null hypothesis is rejected at 5% level, with regard to offline mode of teaching. Hence there is significance different between qualified and not qualified teachers with regard to offline mode of teaching.

There is no significant difference between qualified and not qualified teachers with regard to both online and offline Mode of Teaching, Self-Learningand difficulties in teaching since p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level.

Comparison of opportunities and challenges faced by teachers in teaching and learning with Income of the respondents

These are classified into four income groups and one-way ANOVA is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachers in teaching and learning with Income of the respondents.

Null Hypothesis: There is no significant difference between the income of higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 4: Comparison of opportunities and challenges faced by teachers in teaching and learningwith Income of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	Income				F value	p value
	Below 20,000	20,001 - 40,000	40,001 - 60,000	Above 80,000		
Offline Mode of Teaching	42.25 (2.34)	43.91 (1.04)	40.00 (0.00)	-	7.804	0.002**
Both online and offline Mode of Teaching	34.75 (2.49)	38.69 (3.67)	43.00 (0.00)	38.63 (3.05)	18.350	<0.001**
Professional Learning	20.16 (3.62)	21.67 (2.48)	20.00 (0.00)	14.69 (7.76)	6.949	<0.001**
Self-Learning	25.32 (3.19)	25.13 (2.72)	24.45 (0.52)	27.19 (4.31)	2.436	<0.001**
Difficulties in teaching	20.43 (3.97)	20.46 (3.59)	20.00 (0.00)	14.69 (7.76)	8.792	0.067

Source: Primary data

Note: The value within bracket refers to SD

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to offline mode of teaching, both online and offline mode of teaching, professional learning and self-learning. Hence there is significance different between Income of college teachers with regard to offline mode of teaching, both online and offline mode of teaching, professional learning and self-learning. Based on Mean score, teachers have the income of Rs. 20,001 to 60,000 can able to control offline and both online and offline mode of teaching and the teachers earn Rs.20,001 to 40,000 can have more professional learning and teachers earn above Rs.80,000 have more self-learning.

There is no significant difference inincome of teachers with regard to difficulties in teaching since p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level.

Comparison of opportunities and challenges faced by teachers in teaching and learning with teaching experience of the respondents

These are classified into five groups and one-way ANOVA is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachers in teaching and learning with teaching experience of the respondents.

Null Hypothesis: There is no significant difference between the teaching experience of higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 5: Comparison of opportunities and challenges faced by teachers in teaching and learning with teaching experience of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	Teaching Experience					F value	p value
	Below 5 years	5-10 years	10-15 years	16-20 years	More than 20 years		
Offline Mode of Teaching	-	41.13 (1.50)	44.50 (0.53)	42.50 (2.64)	-	11.719	<0.001 **
Both online and offline Mode of Teaching	36.00 (1.34)	36.48 (3.44)	37.91 (4.83)	39.50 (1.57)	38.95 (2.91)	2.718	0.033*
Professional Learning	20.36 (1.57)	20.96 (3.37)	20.57 (3.29)	22.36 (1.84)	22.50 (2.56)	2.701	0.033*
Self-Learning	26.64 (1.57)	25.06 (3.22)	25.68 (3.40)	25.18 (1.10)	24.75 (3.65)	0.953	0.436
Difficulties in teaching	22.64 (1.57)	20.15 (3.58)	17.85 (6.17)	22.00 (2.05)	20.25 (1.52)	5.519	<0.001 **

Source: Primary data

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to offline mode of teaching and difficulties in teaching. Hence there is significance different between experience of college teachers with regard to offline mode of teaching and difficulties in teaching. Based on Mean score, teachers have 10 to 15 years of experience can control offline mode of teaching and the teachers have below 5 years of experience have more difficult to handle class.

Since p value is less than 0.05, the null hypothesis is rejected at 5% level, with regard to both online and offline mode of teaching and professional learning. Hence there is significance different between experience of college teachers with regard to both online and offline mode of teaching and professional learning. Based on Mean score, teachers have 16 to 20 years of experience can control both online and offline mode of teaching and the teachers have more than 20 years of experience have more professional learning.

There is no significant difference of experience with regard to self-learningsince p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level.

Comparison of opportunities and challenges faced by teachers in teaching and learning with ICT experience of the respondents

These are classified into three groups and one-way ANOVA is prepared to study the significance of difference that exists among the opportunities and challenges faced by teachers in teaching and learning with ICT experience of

the respondents.

Null Hypothesis: There is no significant difference between the ICT experience of higher education teachers with respect to opportunities and challenges faced by teachers in teaching and learning.

Table 6: Comparison of opportunities and challenges faced by teachers in teaching and learning with ICT experience of the Respondents

Opportunities and challenges faced by teachers in teaching and learning	ICT Experience			F value	p value
	Little Experience	Well Experienced	Little experience before Covid and well experience after Covid		
Offline Mode of Teaching	-	42.25 (2.34)	42.68 (2.06)	0.346	0.560
Both online and offline Mode of Teaching	40.44 (2.56)	36.63 (3.05)	38.29 (4.68)	7.845	0.001**
Professional Learning	20.63 (0.96)	22.22 (2.81)	19.76 (3.18)	20.377	<0.001 **
Self-Learning	24.63 (0.50)	26.06 (3.31)	24.52 (2.83)	12.722	0.008**
Difficulties in teaching	20.63 (0.50)	21.48 (3.19)	17.00 (5.54)	4.939	<0.001 **

Source: Primary data

Since p value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to both online and offline mode of teaching, professional learning, self-learning and difficulties in teaching. Hence there is significance different between ICT experience of college teachers with regard to both online and offline mode of teaching, professional learning, self-learning and difficulties in teaching. Based on Mean score, teachers have little ICT experience can control both online and offline mode of teaching and the teachers have well ICT experience have professional learning, self-learning and have more difficult to handle class.

There is no significant difference of ICT experience with regard to offline mode of teachingsince p value is greater than 0.05. Hence the null hypothesis is accepted at 5% level.

Frequency Distribution of Difficulties faced by Higher Education teachers using ICT in learning

The following table clearly depicts the difficulties faced by higher education teachers while professional learning and self-learning.

Table 7: Frequency Distribution of Difficulties faced by Higher Education teachers using ICT in learning

Professional Learning	Expensive (%)	Lack of employer Support (%)	Time Limitation (%)	No Difficult (%)
Attending Seminar/ Webinar/ Conference	16.3	30.7	17.6	35.3
Orientation/ Refresher Course	17.0	23.5	30.7	28.8
MOOC Courses	16.3	14.4	34.6	34.6
Training and Workshop	19.6	17.6	20.3	42.5
Research	26.1	6.5	27.5	39.9
Self-Learning				
Reading books, Newspaper, Journals etc..	3.3	20.9	40.5	35.3
Watching educational videos	10.5	6.5	48.4	34.6
Conversation with colleagues about the teaching methodology	7.2	19.6	20.3	52.9
Publishing articles in journals and magazines	26.8	23.5	28.1	21.6
Personal experience	6.5	10.5	34.0	49.0
Visit to other colleges to learn best practices	10.5	30.1	36.6	22.9

Source: Primary data

Higher education teachers perceived that they have lack of employer support to attending seminar/webinar or conference and also publishing articles. Publishing articles and research are expensive one in the field of education. Higher education teachers are have limited time spend for professional and self-learning techniques such as orientation or refresher course, MOOC courses, research, read books, journals etc., watching educational videos, publishing articles and visit to other colleges. The teachers feels there is no difficult to attend seminar/ webinar or conference, MOOC Courses, Training and workshops, Research, Conversation with colleagues about the teaching methodologies and personal experience.

7 FINDINGS

Information and Communication Technology is now a day plays an important role in education. Teachers as well as students have to know the opportunities and challenges while using ICT in teaching and learning environment. No teachers are willing to thought students through online mode

only. Because they cannot give learning by doing exercise, network issues and wrong perception about the subject thought.

Higher education teachers who have less experience in teaching are rarely provide assignments, ask questions in between the session, praise the students for the job well done and periodic exams. Teachers who are qualified and get low income are interested in professional learning. Teachers who get higher income are interested in self-learning. Low experienced teachers have more difficulties in teaching. Well ICT experienced teachers are interested in professional and self-learning. Teachers feel research is expensive and they are not getting support from the employer while publishing paper and attending seminar, webinar and conference. To balance work and life, the teachers are not ready to spend time for learning instead of personal life.

8 SUGESSTIONS

ICT can be clubbed with offline teaching to enhance the quality of education. It cannot substitute to offline teaching completely. Offline education is essential for the students; it will reduce the difficulties of teachers in teaching. Teachers can use ICT tools in classroom, which leads to better understanding of students in the subject.

Learning is a continuous process in teaching.So the teachers should spend some quality time for learning things around them. The employer support is important in learning. Providing ICT tools for teacher and proper training will lead to get more subject knowledge to the higher education teachers.

9 CONCLUSION

This research has shown the opportunities and challenges of using ICT in teaching and learning. ICT plays an important role in day to day life. So it is important to provide ICT facilities in classroom and usage of ICT by teachers for the future generation. The study has revealed that the teachers should spend some time for equip themselves through both professional and self-learning. The employer should provide ICT tools in their institution and provide support for attending training. This will lead the higher education teachers as an asset to the institution.

REFERENCES

1. DEL CARMEN RAMÍREZ-RUEDA (M), CÓZAR-GUTIÉRREZ(R), COLMENERO(MJR), & GONZÁLEZ-CALERO(JA). Towards a coordinated vision of ICT in education: A comparative analysis of Preschool and Primary Education teachers' and parents' perceptions. Teaching and Teacher Education. 100; 2021; 103300.

2. HENDERSON(D). Benefits of ICT in Education. IDOSR Journal of Arts and Management. 1; 2020; 5.
3. ALKAHTANI(A). The challenges facing the integration of ICT in teaching in Saudi secondary schools. International Journal of Education and Development using ICT. 13, 1; 2017.
4. GHAVIFEKR (S), KUNJAPPAN(T), RAMASAMY(L), & ANTHONY(A).Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions. Malaysian Online Journal of Educational Technology. 4, 2; 2016;38-57.
5. NOOR-UL-AMIN(S). An effective use of ICT for education and learning by drawing on worldwide knowledge, research, and experience. ICT as a Change Agent for Education. India: Department of Education, University of Kashmir. 1; 2013; 13.