



# BENEFITS AND CHALLENGES OF ICT ENABLED LEARNING: A STUDY AMONG HIGHER SECONDARY STUDENTS IN KOZHIKODE AND MALAPPURAM DISTRICTS OF KERALA

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**Abstract:** Education is one of the important concerns in the UN Sustainable Development Goals. Moreover, it is also a right for every student in India from constitutional point of view. However, it is necessary for the nation as well as the states in the nation to ensure the development in education over years and its impact on the outcomes of education. Information Communication Technology (Hereafter mentioned as ICT) enabled Education is such a scheme which was launched in December 2004 in the country. The primary goal of this system is to promote the computer and technology based skills among secondary students as well as to make them learning process effective using such skills. The present study is to know about the perception towards benefits and challenges of ICT enabled learning among higher secondary students in Kozhikode and Malappuram Districts of Kerala. The study was conducted among 120 students who are pursuing their first year and second year higher secondary course. Non probability sampling technique of Convenient Sampling was used by the researcher to select the students from the schools in both districts. The results showed that the students have stronger perception towards benefits of ICT enabled learning than its challenges.

**Keywords:** ICT enabled learning, Higher Secondary education, Perception towards ICT enabled learning, Benefits of ICT enabled learning, Challenges of ICT enabled learning

**INTRODUCTION:**

Education is a lifelong process that builds, develops and sustains one's ability, knowledge, personality, competency, behaviour, even psychology and other essential characteristics. According to the opinion of various experts, it serves a definite purpose for each individual. Considering the fact 'Efficiency and Equality in Education', the present competitive world requires enhancement in the learning process for betterment in education. ICT enabled learning is considered as a milestone in the history of growth of education sector in India. It is the system which comprise of a wide variety of products capable of being stored, retrieved, manipulated and transformed electronically through a digital platform (*Abilasha R, 2016*). ICT enabled system is a collective usage of electronic facilities which was targeted to address the needs of remote villages in the nation (*Muthukumari, 2017*) One of the important motivations for this system was to overcome the obstacles of traditional education, which has certain limitations. The changing scenario in the education systems accentuated to the implementation of ICT enabled learning nationally as well as globally (*Bhawana Sharma, 2019*). There are different factors- both internal as well as external, some of which have positive effect on education, while some others have adverse effect. Various theoretical publications and researchers suggest that ICT enabled learning or ICT enabled education can become the solution for the problems arising out of adverse effects. Recently, the Covid-19 outbreak in the year 2020 and the subsequent mutations and lockdowns, made the situation so worse in such a way where the entire education system witnessed a severe shift for teachers and students towards ICT enabled learning.

**STATEMENT OF THE PROBLEM:**

Malappuram and Kozhikode districts stood top in the highest number of schools in Kerala. The recent statistics revealed that Kozhikode District in Kerala records highest overall pass percentage in higher secondary examination. Quality of education found to be a concern among the students and educational institutions in Kerala, since the state maintains the status of highest literate state in the country for years. The authorities emphasize the importance of higher secondary education since the results of higher secondary education have significant impact on getting admission for higher studies. ICT enabled learning is quite popular in almost all schools of different districts of Kerala, even before the Covid-19 outbreak. While other states confine ICT education only to learning computer basics, education system in Kerala frame subject wise content along with use of multimedia animations and videos, to make the learning better (*Ranjusha and Dr. K.P. Meera, 2022*). However, it is found necessary for the researcher to analyze to what extent the higher secondary students in Kozhikode and Malappuram districts perceive towards the benefits and challenges of ICT enabled learning in their respective schools.

The present study is an attempt to the analyze the perception of Higher Secondary students in Kozhikode and Malappuram districts of Kerala towards benefits as well as challenges of ICT enabled learning.

**REVIEW OF RELATED LITERATURES:**

**Lalitha (2007):** According to 150 teacher educators from Vishakhapatnam, Vizianagaram, Srikakulam, East Godavari and West Godavari districts in Andhra Pradesh, ICT enabled teaching has positive significant impact on performance of teachers. It was also found that there exist a high positive correlation between teaching performance and ICT environment in colleges.

**Dang Hoang Tri and Nhung Hong Thi Nguyen (2014):** Majority of the students showed strong positive attitude towards benefits of English learning through ICT. The participants also opined the frequent use of ICT in English teaching in classrooms. The study was conducted among 149 English major students from five classes at Hoa Sen University in Vietnam. The data was collected through questionnaires among second year students pursuing different courses like Advanced English Writing, Phonetics & Phonology, Academic Writing, Reading and Grammar.

**Angel Rathnabhai (2014):** In a study conducted among 58 students each belonging to Mathematics stream of three B.Ed. colleges affiliated to Tamil Nadu Teachers Education University, it was identified that the ICT infused instructional design in methodology of teaching Mathematics is found to be effective in developing confidence in using ICT, ICT knowledge, attitude towards ICT and ICT skills.

**Shyam Diwakar, Rakhi Radhamani, Hemalatha, Dhanush Kumar, Nijin Nizar, Krishnashree Achuthan and Bipin Nair (2015):** The use of virtual biotechnology labs helped in improvement of academic performance when compared with traditional classroom scenario. According to the participants, the learning materials provided by virtual lab systems were easy to understand and hence they suggested the adaptability of ICT enabled techniques amongst different users. The data for the study was collected through workshops conducted among different universities all over India in the year 2014-15, which include 400 students and 100 teachers.

**Abilasha R (2016):** A study was conducted among 120 teachers from 12 colleges in 6 districts of rural and semi urban areas in Tamil Nadu and it was found that ICT enabled teaching has significant progress in developing communicative competence in English of Engineering students. However, it was found that there is lack of full participation in ICT enabled teaching. Moreover, internet connectivity is found to be major hindrance in ICT enabled teaching.

**Silin Yang and David Kwok (2017):** Majority of the students enjoyed the factors like Engagement followed by Efficiency and then Information Gathering in using ICT. Usability, followed by Internet Connectivity and then Technical Issues are the factors which students felt difficulties in using the ICT. The study was conducted through a cross sectional survey among 737 first year polytechnic students in Singapore.

**Bhawana Sharma (2019):** A study was conducted to know the use of ICT in enhancement of teaching learning process in professional universities of Punjab. The data for the study was gathered among 60 learners and 60 teachers each in Punjab University of Chandigarh, Punjab University of Patiala and Guru Nanak Dev University in Amritsar. It was found that learners in Punjab University of Chandigarh are satisfied in ICT enabled teaching-learning while the learners in other universities are not satisfied up to the level. Teachers from Punjab University of Chandigarh use ICT enabled learning to connect with learners after working hours. According to the responses of the participants, ICT has significant role in enhancement of teaching-learning process and it is capable of making learners more skilful and competent. However, it was also found that the teaching became more content centred than learner centred in ICT learning system.

**Eva Gonclaves and Louis Capucha (2020):** In an attempt to analyze how teachers and students from Veterinary programs in Portugal adapted to digital environment due to Covid-19 outbreak, it was found that the cancellation of hands-on sessions has weakened the students' education. Moreover, the participants opined the importance of investment in teaching and learning practices enabled by ICT's future. The study was conducted among teachers, students and members from Professional order in five higher education institutions in the Academic Federation of Veterinary Medicine in Portugal.

**Abdul Gafar, Adesina Lukman, Yusuf Imam-Fulani, Omenogo, Nasir Faruk, Musbaun Dogo Abdurrahman, Lukman, Abdul Karim and Nuzrat (2022):** The study was examined to the analyze the challenges and prospects of ICT in teaching and learning process among Alamjiri children's education in Nigeria. The study was conducted among 164 Alamjiri children, 41 parents and 39 teachers from each major town belonging to different states in Nigeria. The teachers and parents were more familiar with ICTs like mobile phones, television and computers, while the Alamjiri children were more familiar with ICTs like mobile phones and television, among whom very few use computers. The participants suggested the need of usage of indigenous languages in ICT enabled learning as well as facilities like smart computers, multimedia teaching aids and projectors in Alamjiri education system.

## RESEARCH GAP:

The researcher has undergone some of the previous studies relating to the ICT enabled education in national as well as international level. Even though there had been many studies conducted on the prospects and challenges of ICT enabled learning among students and teachers, several gaps have been identified by the researcher. Studies on ICT enabled teaching have been conducted more among teachers when compared with that of students. There is no study specifically conducted among higher secondary students in Kozhikode and Malappuram districts of Kerala, where numbers of schools are high compared to other districts. According to *Economic Review 2017 of State Planning Board*, Malappuram District has largest number of schools (1558), followed by Kannur (1308) and Kozhikode (1283). Most of the previous studies were conducted in the pre covid-19 era. Hence, it is necessary to know the perception towards benefits and challenges of ICT enabled education in the present situation where students spent significant span of time through e-learning. So, by considering all these identified gaps, the researcher felt the need of conducting a

study on present perception of students towards ICT. Hence, the present study was an attempt by the researcher to analyze the perception of higher secondary students in Kozhikode and Malappuram districts in Kerala towards benefits and challenges of existing ICT enabled learning.

### **OBJECTIVES OF THE STUDY:**

- To study the perception of higher secondary students towards benefits of ICT enabled learning
- To study the perception of higher secondary students towards challenges of ICT enabled learning
- To analyze the difference in students' perception towards benefits and challenges of ICT enabled education with respect to their demographic profile

### **RESEARCH METHODOLOGY:**

The present study was conducted with a view to analyze the perception of higher secondary students towards benefits and challenges of ICT enabled learning. Convenient Sampling Technique was used by the researcher to select students from different schools. A sample of 120 students pursuing their higher secondary education has been selected for the study. The selected students belong to different schools of Kozhikode and Malappuram Districts in Kerala.

The data for the study was collected from the students with the help of a structured questionnaire, which consists of two sections. The first section of the questionnaire is about the demographic details of the students like gender, religion, stream of education, year of education, type of institution and district. The second section consists of students' perception towards benefits and challenges of ICT enabled learning. Both benefits and challenges include 14 statements each and measured using a five-point Likert Scale (ranging from Strongly Disagree to Strongly Agree). For measuring the perception, the researcher used statements which were obtained from previous literatures.

The analysis of the data was done with the help of Statistical Package for Social Sciences (SPSS). The demographic profile of the students was analyzed using Percentage Analysis. The statements of perception were analyzed using their Mean scores. Statistical tools like Independent t-test and One Way ANOVA were used to analyze the differences in the perception towards benefits and challenges among the students with respect to their demographic profile.

**DATA ANALYSIS AND INTERPRETATION:**

a) Demographic Profile of the students:

**Table 1: Demographic Profile of the higher secondary students**

Variables	Groups	Frequency	Percentage
Gender	Male	62	52
	Female	58	48
<b>Total</b>		<b>120</b>	<b>100</b>
Religion	Hindu	44	37
	Muslim	40	33
	Christian	36	30
<b>Total</b>		<b>120</b>	<b>100</b>
Stream	Science	52	43
	Commerce	35	29
	Humanities	33	28
<b>Total</b>		<b>120</b>	<b>100</b>
Year of study	First year	68	57
	Second year	52	43
<b>Total</b>		<b>120</b>	<b>100</b>
Type of institution	Government	41	34
	Aided	37	31
	Unaided	42	35
<b>Total</b>		<b>120</b>	<b>100</b>
District	Kozhikode	60	50
	Malappuram	60	50
<b>Total</b>		<b>120</b>	<b>100</b>

Source: Primary Data

The above table shows the demographic details of the higher secondary students. Majority of the selected students are male. Most of the students are belonging to Science stream. More than half of the students are doing their first year in higher secondary and majority of the students are from Government and Unaided higher secondary schools.

b) Perception towards benefits and challenges of ICT enabled learning among the higher secondary students:

Perception towards both benefits and challenges are measured using the statements with the help of five point Likert Scale. The mean scores are obtained for each statement. The interpretation of the measurement is as follows:

Mean Score	1-2	2-3	3	3-4	4-5
Level of perception	Strong negative	Negative	Average	Positive	Strong positive

**Table 3: Perception towards ICT enabled learning among students**

Sl No.	Statements of perception towards benefits	Mean Score	Statements of perception towards challenges	Mean Score
1.	ICT enabled learning enhances my learning ability	<b>4.42</b>	Stable internet connection is essential for ICT enabled learning	<b>4.1</b>
2.	It creates me better learning experiences	<b>4.5</b>	There are some technical difficulties in this mode of learning	<b>3.95</b>
3.	It gives more learning opportunity	<b>4.33</b>	Apart from technical difficulties, I face other complexities due to lack of training in this system	<b>3.92</b>
4.	It provides more knowledge than from books	3.28	There is no much difference in this mode when compared with traditional mode of learning	3.31
5.	It is capable of generating wider information on any topic	3.65	It do not show any significant improvement in my academic performance	3.4
6.	It brings more clarity in the subject matter	3.98	This system is not suitable for all kinds of students	3.69
7.	It enables self-learning which makes education more advantageous	4.08	There is high chance of encouraging malpractices in this system	3.8
8.	It helps me in getting innovative ideas	3.67	I feel lack of communication under this system	3.39
9.	I experience high quality learning in this system	3.94	The system should be periodically updated to make learning process more effective	3.7
10.	It is possible to clear doubts more quickly under this system	4.03	Chances of errors are high in this mode of learning	3.65
11.	Availability of digital resources like e-library helps in making ample references	4.05	It often directs me to unnecessary websites, which are not part of my subjects or even education	3.63
12.	This system is effective in terms of saving in cost, time and efforts	4	It is not necessary for school level education since it provides overloaded information on any topic	3.76

13.	This mode is essential for practical subjects and problem solving subjects	4.19	Some subjects require hands-on sessions which make their learning more effective	3.75
14.	Compared with traditional learning, it requires less mental efforts	3.95	Learning through regional languages is not possible in this system	3.64
<b>Overall Mean Score</b>		<b>4.005</b>	<b>Overall Mean Score</b>	<b>3.69</b>

Source: Primary Data

The Mean scores of all the statements for both benefits and challenges are above 3. This means that the perception of higher secondary students towards benefits and challenges of ICT enabled learning are found to be positive to strong positive. Among benefits, the highest score is obtained for the statement 'Better learning experiences'. The second highest score is obtained for 'Enhancement of learning ability' and the third highest score is for 'More learning opportunity'.

Similarly, highest score is obtained for 'Stable internet connection' among challenges, followed by 'Technical issues' and by 'Difficulties due to lack of training'. On an average, the students have strong positive perception towards benefits of the ICT enabled learning and positive perception towards challenges of the ICT enabled learning. The overall mean score is higher for perception towards benefits than perception towards challenges.

- c) Differences in perception towards benefits and challenges with respect to the demographic profile of the students

Independent t-test and One Way ANOVA are used in the study to analyze the differences in perception among students in terms of their demographic profile. The interpretation is based on the coefficient of p-value. The null hypothesis will be accepted if the p-value is above 0.05 and vice-versa. The null hypotheses stated for the study are as follows:

H<sub>0</sub>1a: The perception towards benefits of ICT enabled learning do not significantly differ with respect to their gender

H<sub>0</sub>1b: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their gender

H<sub>0</sub>2a: The perception of students towards benefits of ICT enabled learning do not significantly differ with respect to their religion

H<sub>0</sub>2b: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their religion

H<sub>0</sub>3a: The perception of students towards benefits of ICT enabled learning do not significantly differ with respect to their stream

H<sub>0</sub>3b: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their stream

H<sub>0</sub>4a: The perception of students towards benefits of ICT enabled learning do not significantly differ with respect to their year of study

H<sub>0</sub>4b: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their year of study

H<sub>0</sub>5a: The perception of students towards benefits of ICT enabled learning do not significantly differ with respect to their type of institution

H<sub>0</sub>6a: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their type of institution

H<sub>0</sub>5b: The perception of students towards benefits of ICT enabled learning do not significantly differ with respect to their district

H<sub>0</sub>5b: The perception of students towards challenges of ICT enabled learning do not significantly differ with respect to their district

**Table 4: Comparison of perception towards Benefits and Challenges**

Particulars		Benefits		Challenges	
		p-value	Result	p-value	Result
Demographic Variables	Gender	0.43	Not significant	0.85	Not significant
	Religion	0.904	Not significant	0.205	Not significant
	Stream	0.65	Not significant	0.273	Not significant
	Year of study	<b>0.014</b>	<b>Significant</b>	0.683	Not significant
	Type of institution	0.801	Not significant	0.454	Not significant
	District	0.373	Not significant	0.798	Not significant

Source: SPSS Output file

In the above table, it is shown that the p-values for both perceptions towards benefits are above 0.05 for all demographic variables except in case of year of study. Hence, the null hypothesis H<sub>0</sub>4a is rejected at 5 percent level of significance, which implies that the perception towards benefits of ICT enabled learning differs significantly among first year students and second year students. However, the perception does not differ significantly for different categories of other demographic variables. In case of perception towards challenges, the p-value is shown to be above 0.05 for all demographic variables. Therefore, the null hypotheses are accepted and it means that the perception of students towards challenges of ICT enabled learning do not differ significantly with respect to their demographic profile.

**Table 5: Description of significant results on perception towards benefits of ICT enabled learning**

Year of study	Mean score on perception towards benefits
First year	4.159
Second year	3.811

Source: SPSS Output file

The mean score for perception towards benefits is higher for First year students when compared with students of second year. Hence, it means that the first year students have strong positive perception towards ICT enabled learning, while the second year students just have positive perception.

### **DISCUSSION:**

The aim of the study was to analyze the perception towards benefits and challenges of ICT enabled learning among higher secondary students in Kozhikode and Malappuram districts of Kerala. There is strong positive perception towards benefits of ICT enabled learning among the students, which is concurrent with *Dang Hoang Tri and Nhung Hong Thi Nguyen (2014)*. Enhancing learning ability, Better learning experiences and More learning opportunity are the top perceived benefits among the students. The perception level of challenges towards ICT enabled learning is also positive, but not up to that of benefits. Stable internet connection and Technical issues are the top perceived challenges among the students, which is concurrent with *Abilasha R (2016)*, and *Silin Yang & David Kwok (2017)*. Difficulties in usage due to lack of training is also a highly perceived challenge among the students. The perception of the students towards benefits of ICT enabled learning do not differ significantly for different categories of gender, religion, stream, type of institution and district. However, it was found that students enrolled in first year have stronger positive perception than that of second year students. The perception of the students towards challenges of ICT enabled learning do not differ significantly for different categories of gender, religion, stream, type of institution, year of study and district.

### **CONCLUSION:**

The present study shows the perception towards benefits and challenges of ICT enabled learning among the higher secondary students graduated in Kozhikode and Malappuram districts of Kerala. The students hold strong positive perception towards benefits. According to their perception, benefits like enhanced learning ability, better learning experiences and more learning opportunity are the important benefits of ICT enabled learning. Thus, it can be remarked that the ICT learning environment in the schools of these districts are students friendly and highly appreciable. But, it is also worthwhile to note that their perception towards challenges is also positive. Stable internet connection, technical issues and lack of training are the higher challenges of ICT enabled learning among the students according to their perception. As a whole, the demographic profile of the students does not have any significant impact on their perception.

The students show positive attitude towards ICT enabled learning; however they still face certain challenges in this system. According to the results of the study, it is suggested that the higher secondary schools in these districts should take initiative for ensuring secure and established internet connection for making ICT enabled learning more effective among the students. It should be also noted that the schools should conduct pre training programmes among the higher secondary students to make them more aware and proficient in the technical and other important aspects of ICT enabled learning. Theoretical and application level contents should become part of the higher secondary level syllabus of the Kerala state. Also, the government should take important steps in creating awareness on ICT among students in the higher secondary level, which can add up to the benefits for students, institutions and government at large. Apart from this, it is also recommended that the authorities should also give importance to the factors like prevention of online malpractices, minimizing errors, use of regional languages, simplification of contents and timely update.

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