

**Identification of Barriers To The Successful Integration of ICT in Teaching and Learning**

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**Abstract**

This paper presents the use of ICT in the classroom is very important for providing opportunities for students to explore new things, flexibility and enjoys effective way of communication. The main goal of this study is to find the barriers faced by the teachers' and students' in using ICT tools in classrooms. ICT includes various technologies that can be used to receive or share any information throughout the globe. The study suggests that teacher is a significant part of our life and always wanted to bring ICT into education so that it is easy for students to learn new things but they face many difficulties. The main barriers are insufficient confidence, insufficient assets, insufficient training. Since ICT tools also bring the use of software and hardware, enough infrastructural facilities and also support of technologies need to be provided to teachers. However, availability of one factor is not sufficient to improve the quality of teaching. It requires more factors to bring out the best in institution. The implementation of ICT in everyday education is very difficult. However, study is focused on detecting such barriers popular ICT enabled tools and recommendations for using such ICT tools for effective teaching learning process.

**Keywords :** *ICT, ICT tools, education, barrier.*

**I. INTRODUCTION**

Information communication technologies (ICT), is getting progressively significant in our day to day life and in our institutional system. It provides many reasons to improve institution in the classroom. ICT includes various technologies that can be used to receive or share any information throughout the globe. Most of the countries are using the concept of ICT as a core of education. Also new technologies have the capability to help education throughout the rules and give opportunities for better communication between teachers and students which was not available in past. The consistent implementation of ICT has a positive impact in teaching, learning and research. ICT plays an important role in institution processes, also help students to become more flexible and decrease the difficulties they face in learning education. As ICTs is becoming important in teaching and also in the future of education, finding the barriers to the successful implementation of these technologies is an important task to improve the standard of institution. The main purpose of this study is to examine difficulties faced by the teachers and students in using ICT assets in classrooms. The path for the integration of ICT in education has

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not been easy, these difficulties which act as barriers and making it difficult for teachers to bring ICT into the classroom. The procedure of using ICT in institution is very difficult. However, every new technology comes up with positive and negative impacts and it cannot be a substitute of good teacher and ICT should be seen as a tool that supports and enhances learning. The barriers that prevent the implementation of ICT into classroom are school level while some are teacher level and teacher's private matter. School-level difficulties include insufficient time, insufficient technical support, and insufficient basic school materials. Most schools in the village areas don't have ICT assets. Less number of ICT tools and low Internet connection at schools are the dominant challenges. While teacher -level difficulties includes Insufficient teacher confidence and competence, inadequacy of technological infrastructure such as hardware, software and limited internet access, Insufficient interest and awareness, Insufficient learning and practices. It has been told there is a common myth in the public that accessibility of ICT assets in schools is sufficient by itself. Also, some teachers also suffer insufficient experience in teaching using ICT due to which they suffer a lot of problem while using ICT in institution process. There are also some barriers related to institutional such as Insufficient Infrastructural Facilities and Poor ICT tools. We should also have a positive approach and attitude towards use of ICT. There are minimum direct difficulties to the utilization of ICT in the classroom some of them are: Insufficient classroom management skills, poor school funds and poor fit with the curriculum. ICT's by providing a wide range of new technologies to teachers helps students in their education to learn more effectively. We can improve barriers of ICT in institution with various new technologies-: Availability of ICT tools in classroom, Availability of teaching learning apps, Attitude of different people towards ICT. So, enough training and enough time for teachers are compulsory due to which they should consider it in their teaching.

ICT has played a major role in improving education system throughout the globe. The standard of education has been influenced by ICTs, which affected teaching, learning and research. The purpose of this study is that we can improve these barriers for the future. It has also been studied that teacher is a significant part of our life and always have a willing for the implementation of ICT into education.

**At Institutional Level:** Institutional level barriers include Insufficient Infrastructural facilities, OLD or POOR ICT tools, Absence of Technical support staff.

Expenditure of ICT equipment's: The expenditure on the equipment's and software is very high and many institutions cannot afford it. The attitude of Management towards purchasing ICT equipment's is not positive and hence educational institutes don't get chance to use ICT [4].

**At School Level:** School level barriers include insufficient flexibility in curriculum, No Internet access, corrupt government, insufficient qualified teachers and insufficient electricity [6].

Teachers should be convinced of bring ICT in the classroom. Teachers should be provided with enough assets so that they can implement it in classroom. Without sufficient time, technical support and good time it will not be possible to implement these assets.

## II. ICT'S INFLUENCE AND THE SIGNIFICANCE OF ICT

**New tendency in Teaching:**

**IN EDUCATION IN THE FUTURE:**

ICT has played a major role in improving education system throughout the globe. The standard of education has been influenced by ICTs, which influence teaching, learning and research. ICT used in the classroom is important for giving students opportunities for effective learning. Also ICT provides us opportunities to explore new things, flexibility and enjoys effective way of communication. ICT's are being utilized in institution to help students to learn more successfully by giving teachers with access to a wide scope of new advanced technologies [12].

The most frequently used ICT tools are desktop and laptops. The use of Information and communication technology (ICT) such as various applications, video technologies, CD-ROMS and software programmers have resulted many changes in society as well as in the field of institution process and the way we live our daily lives have been impacted [11]. Teacher's perception has also been affected by the dimensions of ICT. The use of ICT has many advantages as compared to the institution approach.

However, every new technology comes up with positive and negative impacts and it cannot be a substitute of good teacher and ICT should be seen as a tool that supports and enhances learning and not as a mean by itself [4]. Our goal is to try to gain more and more advantage of ICT tools. Due to ICT the relationship between Teachers and Students has also been improved. At present students are very techno-friendly and techno- expert. Socialization has also been increasing due to new technology. Earlier students had very limited assets to learn but now due to ICT students have many options and choices from there they can learn Now They can learn from anywhere and at any time. In addition, it will increase flexibility so that students can access the education regardless of time and geographical barriers. ICTs also create creative content in which students has shown interest [7].

The Information and communication technology save our time and vitality. We can examine our problem through websites without the need of going out and leaving our home. For example-Because of COVID-19, most teachers and students forced to use technology as they teach and learn. Every new technology comes up with new trends so there are also new trends in teaching. Technology helps teacher to distribute much information to students so it can remove various common difficulties such as; bad handwriting, bad visibility and lightning. Teachers can also improve their presentation of material by using Microsoft power point and various other computer programs to teach. Teachers can provide opportunities for the students to learn think critically [10]. The most important contribution of ICT in the field of education is to provide easy learning. Students can browse to e-books, sample examination papers as well as learning at any time. Teachers also have the options to support the Students at any time [12].

The quality of education has been influenced by ICTs, which influence teaching, learning and research. In this growing world common education is important for every individual. The utilize of ICT is influencing teaching in different ways. ICT with the use of online based classes helps teachers to generate their own information and as a result they have more dominance over the information used in the classroom. Also advanced technology helps teachers and students to be more creative in the classroom. Using ICT in the classroom provides opportunities for students to effective learning explore new things, flexibility and enjoys effective way of communication [16].

**III. BARRIERS TO THE INTEGRATION OF ICT INTO EDUCATION**

The main purpose of this study is to examine barriers faced by the teachers' and students' in

using ICT tools in classrooms. The path for the integration of ICT in education has not been easy, there are number of troubles which go about as difficulties and stop teachers to implement ICT into the classroom. The process of using ICT in institution is very difficult.

Classification of barriers: Study suggests there are different categories to classify barriers in different classrooms. Barriers are at different level; Teacher Level, Institutional Level and System level [18]. Several studies also categorize the difficulties into two barriers: Intrinsic and Extrinsic, Extrinsic difficulties are referred to access, time, help, assets and training whereas Intrinsic are difficulties referred to attitudes, self -confidence, self-esteem and resistance [19].

#### **A. At Teachers Level**

Teacher level barriers includes Attitude, Insufficient proper training, Insufficient awareness, Quality of training Marta [3].

Insufficient proper training: There are very few teachers who are properly trained and acquire ICT skills. Teachers who does not have experience using ICT tools gets a lot of problems to adapt ICT skills [2].

Attitude: As ICT offers many methods to improve education in classroom, here in this teaching-learning process attitude matters a lot [1]. Attitude of different individuals like teachers, students, parents and management should be positive because positive attitude of different individuals will improve our quality of education in smart way [7].

Insufficient time: Teachers does not get enough time to implement ICT in the classroom. Also the availability of weighty courses, teachers do not get sufficient time to use ICT in the classroom.

#### **B. At Institutional Level:**

Institutional level barriers include Insufficient Infrastructural facilities, OLD or POOR ICT tools, Absence of Technical support staff.

Expenditure of ICT equipment's: The expenditure on the equipment's and software is very high and many institutions cannot afford it. The attitude of Management towards purchasing ICT equipment's is not positive and hence educational institutes don't get chance to use ICT [4]. Absence of technical support staff: At institutional level, we fail to provide qualified and trained staff for technical support to our staff or student in using ICT enabled classroom. We should provide best IT Professionals and Hardware experts for proper use of ICT technique [1].

#### **C. At School Level:**

School level difficulties include insufficient flexibility in curriculum, No Internet access, corrupt government, insufficient qualified teachers and insufficient electricity.

Unavailability of internet: Some schools suffer technical issues due to bad internet connection. This problem mainly raises in the government schools. In the urban areas they are not given training how to use internet [13].

Insufficient technical support: Technical support is necessary in institution. Without Technical support Teachers would not be able to heal the difficulties preventing them from using ICT [3]. Technical training helps in institution always takes time. Teachers have to face various technical barriers such as hanging so that websites can exposed, Poor Internet and teachers are also forced to work on old computers [5].

**D. At System Level**

Insufficient flexibility in curriculum: The most important drawback of current education is more bookish and examination orientated. Because of such limitation the curriculum lacks flexibility and not able to take advantage ICT tools.

The relationship between the barriers is almost related to each other such as insufficient accessibility and insufficient competence and other difficulties such as enough time, insufficient self-esteem and technical issues and problems. There is lot of difficulties due to time as there are assets accessible in schools but insufficient time does not allow teachers to using those assets. There are technical equipment's available for teachers but teachers do not get sufficient time to analyse and start those new techniques. This is because the weight of the courses is very much and teachers do not get much time [13]. In some there are assets accessible to teachers but teachers are not capable to use those assets in the classroom because it is difficult for them to access to those assets. This is why teachers always require technical assistance as that assistance always provides them update in the world of technology. The correction of ICT skills needs an enough time given to teacher. Teachers who gets sufficient time seems to be more productive than the teachers who do not get enough time [19]. The main problems teachers are facing are insufficient access to assets and the reason for these problems is teachers' confidence. In simple words it is complicated to categorize the difficulties into barriers because there are multiple connections between the barriers [14].

Further ICTs are increasing at a very high speed, so the teachers after getting trained to technical support and after knowing the significance of ICT have much command over the substances utilize in the classroom. Teachers seem to be more productive in the class with the help of advanced technology.

**E. Teachers Faith and execution; Influence of modern approach**

Most of the teachers used ICT facilities in their classrooms. Many of the teachers are not able to use ICT resources in teaching but they should be optimistic towards ICT resources. Many of the teachers had complained about the lack of equipment's in their classroom and stated they would use them if they had them [15].

Teacher's opinions always focus on the innovative approaches provided by ICT. Teachers always wanted to use ICT positively but due to lack of competency; Teachers do not capable to bring ICT in the classroom and cannot able to use that. In addition, teachers often use simple things like Microsoft power point to make it class presentation. The study also suggests that most teachers and parents are not in the favor of using ICT tools in the classroom.

The integration of ICT based methods and approaches into teaching and learning environments is dependent on many different factors. In the end everybody needs to understand how to tackle these barriers. Teachers should be convinced of bring ICT, in the classroom. Then they should be given with facilitate to those equipment's and the most important teachers may be capable to facilitate those equipment's productively. We should give sufficient time and support towards the use of ICT.

**F. Suggestion to to improve the barriers of ICT in institution environment:**

The path for the implementation of ICT in education has not been easy there are different types of problems which act as difficulties and stop teachers to bring ICT into the classroom.

The process of using ICT in institution is very difficult. The process of ICT in institution is not a procedure; it is an Educational means in which different types of procedures and attitude may be executed. We can improve barriers of ICT in institution with various new technologies. It requires more factors to bring out the best in institution. You should always have a positive attitude and approach towards the use of ICT and get it successful.

For example- Schools should give instructional classes to teachers to pick up understanding and trust in managing new technologies and some new present- day gadgets. Technical help also needs to be given in schools. Teachers ought to be furnished with essential resources, such as, hardware and software by schools. It is significant for schools to give educators sufficient opportunity to actualize new innovations in classroom.

Teachers also play an important role in integration of ICT in classroom. They need to get involved in various activities. They should feel confident and open minded towards new training methods.

We can improve barriers of ICT in institution with various new technologies. Some of them are:

**1) *Availability of ICT tools in classroom***

Availability of ICT in classrooms plays an important role in modern teaching-learning process. In ICT enabled classrooms we can use various tools like Microsoft PPT, The Internet, Interactive Whiteboard, Projector, Computer, Touch Pen Pad, eBooks, etc. With the help of availability of ICT tools. we can conduct our ICT based class in proper way to remove the barriers of ICT [20].

It is also important to innovate the tools you already have.

**2) *Attitude of different people towards use of ICT***

As ICT offers many methods to better education curriculum in the classroom, here in this teaching-learning process attitude matters a lot. Attitude of different individuals like teachers, students, parents and management should be positive because positive attitude of different individuals will improve our quality of education in smart way [8].

**3) *Availability of teaching learning Apps***

Teaching Learning apps helps a teacher educate their students in a better way. Learning applications like TED-Ed, Google classroom, SSPS etc. are available along with basic features of learning and latest learning technique [15].

Features provided in teaching – learning apps:

1. We can get registered in applications by Email Id or Sign up.
2. It is small application so that it requires very less space and timing to install.
3. There is feature that multiple teachers and student to join same class simultaneously so that it is easy for them to join to do online discussions.
4. There is perfect quiz and assignment and on the basis of this we can give grades to grow our students efficiently.

**4) *Overcome your fear of the unknown***

It is also important for teachers to overcome the fear of the ICT tools and technologies and use them confidently. Teachers can organise a meeting to discuss the problems related to student learning, including implementation of technologies [21].

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5) ***Start with small, fast projects that enhance learning*** Teachers who are new to using ICT tools and technology should start with small and fast projects which help them to gain confidence and connect them with students. It helps them to understand what they are doing [9].

### 6) ***e-Books***

Students can also share eBooks with their friends. Students save money with eBooks, Transportation convenience, no more book storage issues. eBooks are searchable as well as save 8 Million Trees Each year. E-books also makes teaching easier for students as they are able to share images, video, text, etc.

### 7) ***Webinar***

Online class is the best model for internet educating. Webinar is a connected class directed via the internet. Typically a live introduction, lectures and workshop that happens online in which students and teachers join via chatting, video call and screen sharing and asking questions through microphone.

### 8) ***Over-head projectors and slides***

To supplement the blackboard overhead projectors are used [19].

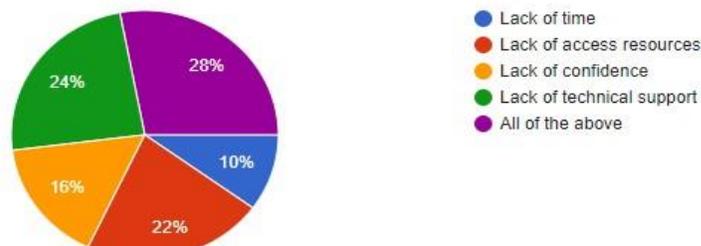
### 9) ***Learn with your students***

Teachers should try to connect with their students and start learning with them. This will lead to increase in teachers' confidence. In the end, do the best you can do with what you have got.

## IV. RESEARCH QUESTIONS ON SURVEY ON USAGE OF ICT (INFORMATION AND COMMUNICATION TECHNOLOGIES) IN TEACHING AND LEARNING.

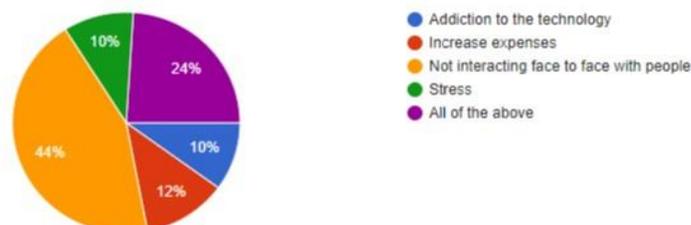
1.) Which is the most important barrier of ICT in teaching learning process?

50 responses



2.) What are the disadvantages of using ICT in teaching and learning?

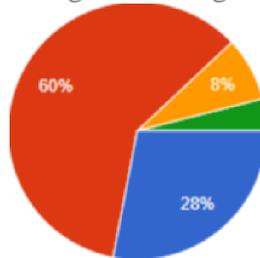
50 responses



3.)Do you think that ICT use in the classroom make subject more interesting for teachers and students?

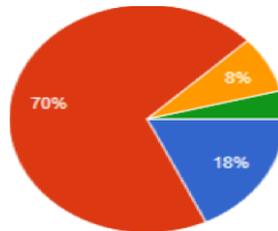
50 responses

Strongly Agree 60% Agree 28% Disagree 8%



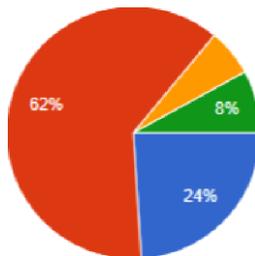
4.)Does teachers and students feel confident while using technology in class?

50 responses



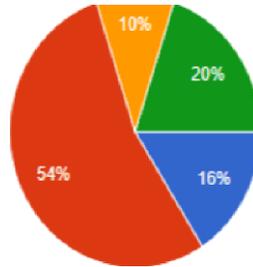
5.) Do you think that ICT can improve teaching and learning practice?

50 responses

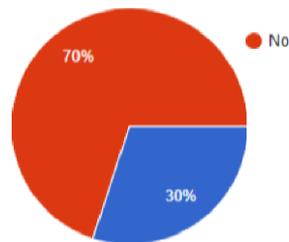


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6.) Do you think adopting ICT tools are an expensive system? 50 responses

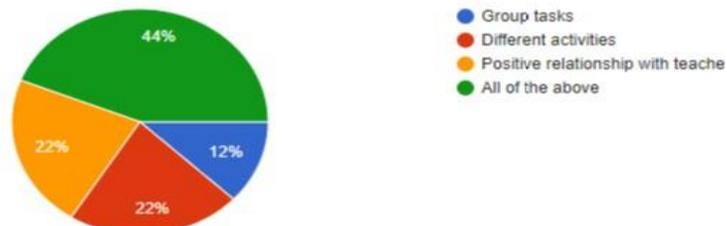


7.) Do you think ICT requires a lot of MANPOWER to operate It? 50 responses Strongly disagree @ Disagree Strongly agree @ Agree @ Strongly disagree Disagree



9.) What do you like the most about your ICT lessons?

50 responses



8.) Do you think that ICT lacks security and trust issues?

50 responses



12.) What importance do you think need to provide to teachers in the integration of ICT?

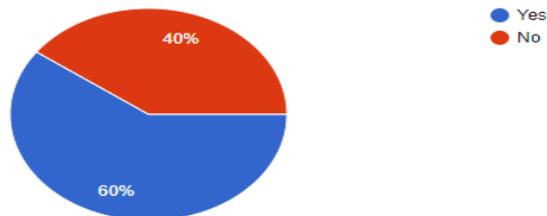
50 responses



10.) Which is most important to improve the barriers of ICT in education?  
50 responses



11.) Do you think that lack of technical issues in ICT is often a waste of time?  
50 responses



## V. CONCLUSION

The main purpose of this paper is to find the difficulties faced by the teachers' and students' in using ICT tools in classrooms and to motivate teachers and students for bringing the ICT into education. The study suggests that teachers and students always have the willing for bringing the ICT in education.

The major barriers that found out were insufficient confidence, insufficient time, insufficient technical support and insufficient training. Education at present time is more challenging because of availability of different tools and style but proper support, training; accessibility will help teachers and students to integrate ICT into education.

We can improve barriers of ICT in institution with various new technologies. Everyone should always have a positive approach and attitude towards use of ICT. Integration of ICT will only be successful if there is right co-ordination between teachers and students.

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