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### **Use of ICT in Mathematics Classroom: Situation, Purpose, and Challenges**

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#### **Abstract**

*The use of Information, and Communication, Technology (ICT) has been a unavoidable tool in the teaching/learning (T/L) process. This article explores the latest situation of practicing ICT in mathematics classrooms along with the challenges being faced in the T/L process. A descriptive survey design under the quantitative method was adopted in this study. The population of the study was all mathematics teachers of Sindhuli district and the teachers who were connected through social media were considered as a sample. Google online survey form was used as the tool for data collection. Collected data were analyzed using a table, percentage, weighted mean, ANOVA, and t-test. The result of this study showed most teachers are using ICT to up-to-date knowledge, enhance teaching skills to obtain teaching resources and additional instructional materials. Similarly, it is found that teachers are using ICT to set out question papers for different tests, assignments, and examinations. Lack of ICT materials and inadequate knowledge and skills for an operating system in the lack of training opportunities were found to be the foremost challenges to the use of ICT in mathematics teaching.*

**Keywords:** Mathematics classroom, knowledge of ICT, condition of using ICT, survey research.

#### **Introduction**

In this digital era, every aspect of human life is directly affected by ICT. They have been massively used in every sector of human life like medical science, natural science, entertainment, business, research, language education, and general education. In recent years, the use of ICT seems a sudden increase in the teaching and learning process. There is a growing demand for using ICT in education to develop the skills and provide knowledge that students need for the 21st century (Buabeng-Andoh, 2020). ICT is used for both administrative as well as instruction processes in the education sectors. Many studies have been conducted to test the effectiveness of ICT in the classroom. Almost all these studies have shown that the use of ICT is an essential component of the T/L process and it significantly increases the achievement of pupils. According to (Das, 2019), ICT promotes collaborative learning in a distance learning situation and offers more opportunities to advance critical thinking skills (p. 25). The ICT integrated pedagogy allows higher participation and greater interaction in open and distance learning (Ratheeswari, 2018, p. 46).

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The great advancement of ICT became the focus of attention around the world over the last few decades. ICT-based learning in education is the new practice to address the access and quality issue which is coming under pressure from different directions. Considering the importance of ICT in education the Ministry of Education, Nepal also makes some policies to enhance ICT pedagogy in education. Government (Information and Technology) IT Policy (2000), School Sector Reform Program (2009-2015), Three-Year Plan (2011-2013), and ICT in Education Master Plan (2013-2017) are the policies in the favor of the use of ICT. IT Policy (2010) has the following policy provisions:

Expansion of access to the Internet in all schools; Coordination and collaboration with national and international institutions to develop skilled human resources for continuous, relevant, and quality education; Promotion of Industry-Academia Collaboration (IAC); and Formulation and implementation of special IT program focusing on students, teachers, and schools to develop competent human resources (MoE, 2013, p.13).

This policy also declares the importance of ICT in the T/L process from basic to advanced levels of education. It aimed to expand equitable access to education and enhance the quality of education. It also emphasizes managing essential equipment and developing knowledge and skills to manipulate them focusing on teachers and students.

Knowledge is expanding day by day according to changes in time. So, teaching has become one of the most challenging professions in our society. The teachers must be updated themselves to fulfill the demand for use of ICT in T/L. Only technology-friendly teachers and educational institutions can address such a demand. Implementing ICT in education is a very hot topic of discourse these days after the new situation created by Covid-19. In the pandemic situation, the online class is considered one of the effective alternative means of the teaching-learning process. Sun (2020) argued that the Covid-19 pandemic has forced most educational institutions and training organizations into using online classes. To make online classes effective, the teachers should have the required knowledge and skills for the use of ICT.

Nguyen argues that “there is the hope that online learning will be able to provide a world-class education to anyone, anywhere, and anytime as long as they have access to the Internet” (2015, p. 310). After the pandemic situation created by the Covid-19 Ministry of Education, Nepal has been running education programs by different alternative methods. Among them, online teaching is considered the most effective method. But no one can say how many teachers are efficient to take online classes and how is the situation of ICT materials in the mathematics classrooms. Thus, the main purpose of this study was to investigate the real situation of uses of ICT in the mathematics classroom, and to identify the challenges of integrating the ICT in the mathematics classroom. This study wants to explore the answer of the following research questions:

1. How is the situation of using ICT in mathematics classrooms?
2. What are the purposes of using ICT by the teachers?
3. What are the main challenges to integrating ICT in the teaching/learning process?

#### **Review of Literature**

The abstractness of mathematics and the limited capacity of abstract thinking of students poses a great challenge for teachers and other concerned people about mathematics education. Teachers have done many efforts to make math interesting but the truth is bitter; the thinking of most people hasn't changed. Therefore, new pedagogy connected with ICT is

being forwarded to cope with the challenges and to grab the opportunities of the 21<sup>st</sup> century. The study (Sarkar, 2018) found that “the use of ICT enhances teaching-learning of mathematics, improves skills for solving mathematical problems and makes students interested in learning mathematics” (p. 232). Technology is essential in teaching and learning mathematics, it improves the way of mathematics teaching and enhances student understanding of basic concepts. New inventions and technology make mathematics teaching-learning easier, effective, qualitative, advanced, and fruitful. ICT contributes towards positive motivation, accurate feedbacks to the students and supports constructivist pedagogy (Keong, Horani, & Daniel, 2005, P. 43). Nowadays, numerous hardware and software have been developed and updated according to the demand of time. Use of these materials like; overhead projector, Smartboard, Desmos, Open board, Active Inspire, and GeoGebra make the classroom more effective and give some positive results in the mathematical achievement of students.

In this regard, Korte & Hüsing (2006) were carried out two survey studies for the headteachers and classroom teachers in 27 countries including all 25 EU Member States, Norway, and Iceland. In this survey study, more than 10,000 head teachers and more than 20,000 classroom teachers were involved. The purpose of the study was to find attitudes of teachers on ICT used, results on access, competence, and motivation for using ICT in school, and the ICT readiness of teachers. This study shows that depending on the country and type of school, there are different levels of competence and skills among teachers for using computers in the classroom.

The study carried out by Agyei and Voogt (2011) showed that mathematics teachers in Ghana do not integrate ICT into their mathematics instruction. This study was conducted among 231 teachers by collecting data through interviews and survey forms. Results of that study showed a lack of knowledge about ways to integrate ICT in the lesson and lack of training opportunities for ICT integration knowledge were major problems for the teachers to integrate ICT in the classroom.

Zakaria and Khalid (2016) have carried out a search to explore the benefits and constraints of ICT that have been faced by educators during the learning and teaching processes for mathematics. More than 300 studies, only 20 studies from Malaysia and abroad were selected, based on the research focus on ICT in mathematics education. This study concluded that ICT attracts students to learning mathematics, increases their motivation and performance, encourages lifelong learning and it facilitates positive interactions and relationships. However, many constraints have been faced by mathematics educators during teaching processes involving ICT. Lacking knowledge of ICT, minimal training, opportunities for learning about ICT, and limited technical support are some common problems to use ICT in the classroom.

From the above studies, it can be concluded that ICT supports mathematics teachers and students to update their content and pedagogical knowledge but there are several problems to integrate ICT into the T/L process. In the context of developing countries like Nepal, several questions are raised regarding the condition of use ICT and its effectiveness. The previous studies are focused on the effectiveness of ICT in the T/L process but they do not identify the present condition of ICT in the classrooms and use it in the mathematics classroom of Nepal. In this regard, the researcher conducted online survey research by using Google form to identify the real situation of the use of ICT in mathematics classrooms, the availability of ICT infrastructure in the schools, and major challenges to integrate it into the teaching and learning process.

### **Theoretical Framework**

Mishra and Koehler (2006) developed the Technological Pedagogical and Content Knowledge (TPACK) framework. According to the TPACK framework, a teaching and learning process depends on three fields of knowledge for the effective integration of ICT. The fields are content knowledge, pedagogical knowledge, and technological knowledge. They defined content knowledge as knowledge about the actual subject matter that is to be learned or taught and pedagogical knowledge as the deep knowledge about the processes or methods of teaching and learning. They argued that a teacher with deep pedagogical knowledge wants to integrate technology in his or her teaching process according to the classroom context and nature of learners. They defined technological knowledge as the knowledge of modern technologies and knowledge of how to operate those technologies.

Mishra and Koehler emphasize that the teacher with content or pedagogy only cannot be the perfect teacher. Content and ICT-based pedagogy became a teaching and learning process complete. The intersection of technological knowledge and pedagogical knowledge as technological pedagogical knowledge, the intersection of technological knowledge and content knowledge as technology content knowledge, and the intersection of pedagogical knowledge and content knowledge as pedagogical knowledge. The intersection of technological knowledge, pedagogical knowledge, and content knowledge is technological pedagogical content knowledge (TPACK). They argued that the development of TPACK by teachers is central for effective teaching with technology because understanding TPACK is above and beyond understanding technology, content, or pedagogy in isolation, but rather how these forms of knowledge interact with each other. This study focused on the technological knowledge of mathematics teachers.

A brief review of the learning theory shows that there is the primary and urgent need to bridge the large gap between the theories and practices in the context of the mathematics classroom. In the context of Nepal, some scholars have done research in effectiveness of ICT integrated T/L process, importance of ICT integrated T/L process, and necessity of ICT in classroom pedagogy, but these studies don't explore the actual situation and challenges to integrate ICT in mathematics classroom. Thus, the researcher has tried to do this study to explore the real situation of using ICT and its challenges in mathematics classroom.

### **Methods and Procedures**

This research deployed a descriptive survey method under quantitative research design to investigate the use of ICT and the challenges of integrating ICT into the teaching of mathematics. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or explaining a particular phenomenon (Labaree, 2020). Descriptive research aims to describe a population, situation, or phenomenon and allows to gathering of large volumes of data that can be analyzed for frequencies, averages, and patterns accurately and systematically (McCombes, 2020). The online survey was conducted among the target population using Google Forms to identify the condition of use of ICT and explore the barriers to integrating ICT in the mathematics classroom.

The population of the study was all mathematics teachers of the Sindhuli district. The teachers who were connected through social media were considered as a sample. At first, the researcher listed mathematics teachers of the Sindhuli district and connected them through social media, and the connected teachers were considered as samples of this study. The total population was 160 and Solvin's formula  $n = N/(1+Ne^2)$  was used to determine the sample size. According to this formula, 114 mathematics teachers may consider as samples.

This study has been based on primary data. The instrument used to collect the primary data for this study was an online survey form which consists of a set of self-structured questionnaires. Reliability was calculated by Cronbach's Alpha and it was found to be 0.83 whereas for validity the questions were approved by the expert judgment method. The online Google form was distributed through e-mail and social media like Facebook, Messenger, and Viber etc. The survey consists of 29 items including Yes/No questions, multiple-choice questions, and five-point Likert-type items. This survey was used to examine the situation of ICT use in mathematics classrooms and challenges for a teacher in using ICT along with some suggestions to reduce these obstacles. This online form was spread among 130 teachers using social media and e-mail and only 118 were returned which is sufficient for the sample size of this study.

Collected data were categorized into different themes such as teacher personal profile (age, gender, experience), available ICT facilities in the schools, level of using ICT by a teacher, sectors using ICT, and problems faced by teachers while using ICT. The information obtained from the online survey form was analyzed using the SPSS software. At first analyzed the according to the age wise, gender wise, and based on working experience using simple percentage table. To test the significance, the one-way ANOVA test was used. Similarly, to identify purposes of using ICT by the teachers weighted mean, standard deviation was calculated and to exam their significance t-test was used. The frequency table and percentage were calculated to explore the problems faced by the teachers while integrating ICT in the mathematics classroom.

### Result and Discussion

Many educators, parents, and policymakers are always worried about the poor performance of students in mathematics. In this regard, many research studies focused on the role of ICT integrated instruction in the mathematical achievement of students, and most of them show a positive relation. This study mainly focuses on the use of ICT in the mathematics classroom of the Sindhuli district.

#### Situation of ICT Use

This section discusses participants' demographic background, gender, age, teaching level, and experience of teaching and their practices of using ICT in the T/L process.

#### Use of ICT based on Gender, Age, and Experience

The use of ICT by the teachers based on gender, age, and experience are shown in the following tables.

Table 1. *Use of ICT based on Gender*

Gender	Using ICT	Not Using ICT	Total
Male	65(68%)	31(32%)	96
Female	10(44%)	12(56%)	22
Total	75(63%)	43(37%)	118

Table 1 shows that out of 96 male teachers 65(68%) male teachers were using ICT in a classroom while out of 22 female teachers only 10(44%) were using the ICT in the classroom.

Table 2. *Test of hypothesis*

Hypothesis	Test statistics	d.f.	p-value
H <sub>0</sub> : Use of ICT doesn't depend on gender.			
H <sub>1</sub> : Use of ICT significantly depend on gender.	$\chi^2$	1	P > 0.05

The p-value is greater than 0.05 indicates no strong evidence against the null hypothesis. That means gender doesn't play the statistically significant role in using ICT in a classroom the mathematics classroom. This shows that numerically the male was ahead in using ICT but not scientifically. The female teachers are also wants to take ICT knowledge and integrated in mathematics classroom.

Table 3. *Use of ICT based on Age*

Age	Using ICT	Not Using ICT	Total
20 – 30	22(69%)	10(31%)	32
30 – 40	38(70%)	16(29%)	54
40 - 50	15(46%)	17(54%)	32
Total	75(63%)	43(37%)	118

Table 3 shows the age-wise decomposition of ICT users and not user teachers. According to this table 22(69%) of teachers between the age 20 -30 years, 38(70%) of teachers between the age 30 – 40 years, and 15(46%) of teachers between the age group 40 – 50 years were using ICT in the teaching-learning process of mathematics.

Table 4. *Test of hypothesis*

Hypothesis	Test statistics	d.f.	p-value
$H_0$ : Use of ICT doesn't depend on age.	$\chi^2$	2	$P < 0.05$
$H_1$ : Use of ICT significantly depend on age.			

A p-value less than 0.05 is statistically significant. It indicates strong evidence against the null hypothesis. Thus, the age plays the significance role in using ICT in the mathematics classroom. Increasing the age decrease the interest attaining ICT knowledge and using them in T/L process.

Table 5. *Use of ICT based on Experience*

Experience	Using ICT	Not Using ICT	Total
0 - 5	27(85%)	5(15%)	32
5 – 10	39(78%)	11(22%)	50
10 - 20	17(56%)	13(44%)	30
20 - 30	2(35%)	4(65%)	6
Total	75(63%)	43(37%)	118

Table 5 shows the condition of ICT use based on their working experience. This table shows that newly employed teachers were ahead in integrating new technology the in a classroom. Table 3 shows that only 2(35%) teachers of 20 -30 years experienced teachers using ICT whereas 27(85%) teachers of 0 – 5 years experienced using ICT in the teaching-learning process. Similarly, 39(78%) of 5 – 10 years experienced and 17(56%) of 10 – 20 years experienced teachers were added technology in instruction.

Table 6. *Test of hypothesis*

Hypothesis	Test statistics	d.f.	p-value
$H_0$ : Use of ICT doesn't depend on teaching experience.	$\chi^2$	3	$P > 0.05$
$H_1$ : Use of ICT significantly depend on teaching experience.			

A p-value greater than 0.05 is no statistically significant. It indicates there is no strong evidence against the null hypothesis. The working experience doesn't play the significance the role in using ICT integrated pedagogy in the mathematics classroom. Numerically it is shown that the teachers who recently entered in to the teaching profession are in advance in using ICT than the more experienced teacher but it is not statistically significant.

### Purpose of Using ICT

Teachers can use ICT in different areas of instruction including preparing teaching materials, maintaining the record of students, enhancing knowledge, etc. The 5-point Likert scale questionnaire consists of nine items used to measure the level of ICT use in instruction. The following table depicts the levels of ICT use in different areas of instruction.

Table 7. *Condition of Using ICT*

S. N.	Activities	5	4	3	2	1	W. Mean	Std.	P-value
1.	Develop unit/lesson plan and teaching schedule.	18	28	26	16	30	2.91	1.42	0.48
2.	Mathematical calculation and problem solving	18	19	42	21	18	2.98	1.25	0.88
3.	Design poster, chart, graph, and diagram related to mathematics.	18	23	23	21	33	2.75	1.44	0.07
4.	Develop mathematical puzzles and IQ tests.	10	13	36	27	32	2.59	1.23	0.00
5.	Show DVD and videos related to mathematics.	13	29	16	16	44	2.59	1.47	0.00
6.	Develop question papers for different tests, assignments, and examinations.	31	26	21	16	24	3.20	1.48	0.14
7.	Maintain the record of students of a mathematical task.	16	18	23	16	45	2.53	1.47	0.00
8.	Up-to-date knowledge and enhanced teaching skill	21	39	31	13	14	3.34	1.23	0.00
9.	Obtain teaching resources and additional instructional materials.	26	39	18	23	12	3.37	1.30	0.00

Table 4 shows the sampling weighted mean of the response of 118 teachers from different schools. The highest number of teachers always use the ICT for the evaluation of students. Out of 118 respondents, 31 teachers always use ICT to develop question papers for different tests, assignments, and examinations. Likewise, the second and third highest number of teachers always use ICT to obtain teaching resources and additional instructional materials and update knowledge that enhances teaching skills. The number of teachers who use ICT to obtain teaching resources and additional instructional materials was 26 and up to date knowledge and enhance teaching skills was 21.

Again, from table 7 we see that the statements; obtain teaching resources and additional instructional materials (3.37), up-to-date knowledge and enhance teaching skills (3.34), and develop question papers for different tests, assignments, and examinations (3.20) have highest

mean values. These results are also statically significance having smaller p-values ( $< 0.05$ ). Similarly, the statements; develop mathematical puzzles and IQ tests (2.59), show DVDs and videos related to mathematics (2.59), and design poster, charts, graph, diagrams related to mathematics (2.75) have the smallest mean values. One the basis of mean also we conclude that in general teachers were using ICT for seeking new knowledge and examination purpose than regular classroom teaching. It was found that ICT was very rarely used to show mathematical videos, diagrams, and figures, and to play games, and, puzzles.

Above analysis shows that several mathematics teachers in the Sindhuli district were not integrating ICT in regular T/L process. The teachers were using ICT for making questions for different tests and keeping a record of these tests. They also use computers/laptops to make an annual plan, unit plan, and lesson plan. This means that ICT was used for administrative purpose not for classroom teaching till now. The result shows teachers were using the internet to search for teaching materials, quiz questions, and mathematical puzzles.

### Challenges to Integrating ICT in a Mathematics Classroom

There are many barriers to integrating ICT in a mathematics classroom. Eleven major barriers were identified and table 5 shows the percentage responses on the various items.

Table 8. *Barriers to Using ICT*

S.N.	Problems	Responses	Percent
1.	Lack of knowledge about ways to use ICT.	52	44%
2.	Not enough or limited availability of ICT materials.	64	54%
3.	Over workload of a teacher.	36	31%
4.	Lack of adequate technical support for ICT projects.	35	30%
5.	Not enough teacher training opportunities for ICT projects.	70	59%
6.	ICT integration is not a priority of the school.	27	24%
7.	Students are not interested and they do not have access to ICT equipment.	23	20%
8.	Classrooms are not suitable for use of ICT.	35	30%
9.	Not enough or limited availability of electricity and internet.	31	24%
10	Difficult to manage the classroom having many students in a classroom.	35	30%
11	Lack of motivation in teachers to use ICT.	39	33%

Table 5 shows that inadequate teacher training opportunities, limited availability of ICT materials, and lack of knowledge are the main barriers to integrating ICT in teaching mathematics. A total of 59% of teachers consider the limited availability of ICT materials as a major barrier to the use of ICT in a mathematics classroom. Similarly, 54% consider the availability of ICT materials, 44% consider lack of knowledge, and 33% consider lack of motivation was the main problem to use ICT. 31% of teachers agreed that over workload is the main barrier and 30% think due to lack of adequate technical support, classroom management having many students and inappropriate classrooms are obstacles to effective use of ICT in their classroom.

Some major barriers hindering the implementation of ICT in mathematics teaching were found to be the lack of knowledge about ways to integrate ICT in mathematics instruction,



and inadequate teacher training opportunities for ICT projects. Joshi & Bhandari, (2016, p. 16) argue that mathematics teachers have to attain mathematical software training programs at the beginning to use this software effectively. Similarly, the lack of ICT materials, the lack of time in school schedules for projects involving ICT, and the lack of adequate technical support for ICT projects are also the barriers to integrating the ICT in a mathematics classroom. This result is consistent with the study of Hudson, Porter, and Nelson (2008). They mention that lack of ICT materials and lack of knowledge of teaching strategies are the barriers to using ICT. Similar results were shown by the study of Dhakal (2022) as the results of this study. Her study shows that poor ICT infrastructure, lack of software and lack of training for teachers and lack of ICT integrated curriculum are the main challenges for the virtual learning in mathematics.

Despite many challenges and obstacles, ICT is an inseparable part of the teaching-learning process in mathematics. The use of ICT makes mathematics teaching meaningful, it helps to motivate the students and helps to make the mathematics classroom more interactive. Recognizing the importance of modern technology in mathematics teaching, it is necessary to provide adequate ICT materials including necessary software in the classroom and provide training opportunities to the teachers. Ertmer and Ottenbreit-Lefewich (2010) said that, we need to teach teachers that technology helps the students build in-depth knowledge that can be applied in real-world situations according to the needs of twenty-first-century students.

According to the TPACK framework teaching and learning process depends on content knowledge, pedagogical knowledge, and technological knowledge. Content and pedagogy are two major components of the teaching-learning process. Appropriate pedagogy is essential to share the knowledge of the teacher related to the subject matter with the students in an effective way. A good pedagogy enables students to learn more effectively and it helps them to develop high-order thinking skills. The technology-added pedagogy increases the effectiveness of the teaching process by enabling students to construct deep and connected knowledge, which can be applied to real situations. It helps the teachers to apply student-centered pedagogy in the mathematics classroom in an innovative way. This study shows that the technology is not integrated with the regular classroom teaching-learning process. The situation of using ICT in the classroom is found deficient and the TPACK framework suggests adding the ICT integrated pedagogy to improve the student's achievement in mathematics.

As stated by Mishra and Koehler, (2006) technological knowledge is knowledge about standard technologies, this involves the skills required to operate technologies. Since technology is continually changing, the nature of technology knowledge shifts with time as well. Present study illustrates that mathematics teachers don't have the essential knowledge to integrate the ICT in the teaching-learning process. Most standard technology workshops and tutorials tend to focus on the acquisition of such skills. In the opinion of Mishra and Koehler TPACK approach suggests that teachers simply need to be trained to use technology. Indeed, teachers need more time for the preparation because drawing figures, and inserting equations takes more time than general text. So, the teacher aspect that school should provide sufficient time for preparation. In this regard, Strickland and Coffland (2004) argue that teachers perceived that teaching with the technology required more time both in preparation and in class than their traditional teaching. Similarly, in the opinion of Agyei and Voogt (2011) most in-service teachers reported that schools did not offer them sufficient time to manage and familiarize themselves with ICT.

The priority of school also seems a problem to integrate ICT in the classroom because many schools don't keep technology as their priority yet. The lack of technical support and maintenance is a significant impediment to the development of ICT in schools. Schools that made dedicated computer facilities available to teachers reported that it led to the use of more high-quality and creative teaching resources in classrooms (Mulkeen, 2011). In some instances, electricity, internet facility, and classroom management are also shown as an obstacle to ICT using in the classroom.

### Conclusion

The above analysis shows that mathematics teachers of Nepal are using ICT for documentation purposes and less use it in classroom teaching. Most teachers use the ICT for lesson plans and to conduct different types of tests, assignments, and examinations. However, fewer teachers used ICT to design a poster, charts, graph, diagrams related to mathematics, develop mathematical puzzles and quizzes, and show DVDs and videos related to mathematics. Analysis of the survey data obtained in this research shows that age, gender, and teaching experience play the determining role in integrating ICT in the classroom. Increasing in age and years of experience tend to lower the interest in using new technology.

Newly qualified teachers are more likely to use ICT to obtain teaching resources and additional instructional materials and up-to-date knowledge and enhance teaching skills. In the present study, it seems there are so many barriers to using ICT in the classroom effectively. The major barrier to integrating ICT in mathematics teaching was found to be the lack of knowledge and availability of ICT materials. Maybe, to remedy this problem the school must include in their school plans the training of teachers using technology with emphasis on lesson planning and provide required ICT resources.

The use of ICT in teaching mathematics can make the teaching process more effective as well as enhance the student's capabilities in understanding basic concepts. This survey-based study identified the condition of ICT use in T/L practice in school mathematics. By using ICT one can conduct different extracurricular activities which help to increase the mathematical knowledge and motivate the students in learning. Nevertheless, implementing its use in teaching is not without problems as numerous barriers may arise when integrating ICT in the T/L process. Technology-based instructions are not possible unless the availability of sufficient ICT equipment and teachers are not enabled to use modern technology.

Based on the finding of this study we conclude that the situation of the use of ICT in the mathematics classroom is not satisfactory. This study shows that the condition ICT facility is not good and the teachers are not familiar with ICT materials. The little use of ICT is also not to enhance the mathematical knowledge of students, they are used to conduct the various tests and maintain records of students. By keeping in mind, the importance of ICT use in a mathematics classroom, it is necessary to provide essential ICT equipment and should offer the training opportunities to develop the basic skill to manipulate ICT materials. Moreover, the classroom should be technology-friendly, and should provide sufficient time for the teachers to prepare ICT materials.

The use of ICT in mathematics teaching has a vital role to increase students' achievement, development of knowledge, skills, attainment, and mathematical understandings. The finding of this study will be helpful to increase ICT use in the classroom. This also is useful for policymakers, curriculum designers, school management, teachers, students, donors, researchers, and other stakeholders of education.

To address this problem, the school ought to provide training and refreshment opportunities to the teachers by coordinating with Education departments, district office/regional office, local government, and NGO/INGOs. The training or professional development programs should be time and again.

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