

Integration of ICT at Secondary Level School

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Abstract

This paper emphasizes the analysis of the Integration of Information and Communication Technology (ICT) at Secondary Level Schools in Kathmandu. This study explored the teacher's opinions about the Integration of ICT, and the situation of ICT tools in schools, explored the practices for ICT education in the Kathmandu district and find the challenges for Integrating ICT in education. This research used a quantitative method and the data was collected from a questionnaire. The results indicate that teachers think that ICT has great potential for enhancing collaborative activities among students and for developing highly relevant generic skills. However, also aware of the difficulties that both students and teachers face in educational practice. The study findings are useful for educators intending to integrate ICT tools in their lessons to better engage students in active learning. it helps to forward-thinking researchers, educators, and designers find innovative solutions and practical ideas for addressing the challenges and capitalizing on the visions of ICT and integration of ICT at the secondary level of school and in the field of education.

Keywords: *ICT, ICT in Education, Integration of ICT tools in Education, Challenges for integration of ICT tools, Secondary Level School.*

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Introduction

Learning takes place when there is an interaction between knowledgeable persons and the environment. The impact of learning is powerfully imbibed in students when the flow of information is innovative or in exciting way. The above reasons make the education system introduce Information Communication Technology in the field of Education. ICTs consist of hardware, software, networks, and media for the collection, storage, processing, transmission, and presentation of information. Application of Information and Communication Technologies can help both teachers and students improve teaching and learning at school. The Successful integration of ICT into the learning environment will depend on the ability of teachers to structure learning in new ways to merge technology appropriately with pedagogy and develop socially active classrooms, encourage cooperative interaction and collaborative learning, and group work. This requires a different set of

skills from those they currently possess. In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies older technologies such as the telephone, radio, and television although now given less attention have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning although print remains the cheapest, most accessible, and therefore most dominant delivery mechanism in both developed and developing countries. New digital technologies keep emerging in our life every day in an endless stream. Nowadays, mobile phones, laptops, tablets, and multimedia players have become ubiquitously available. The twenty-first century has witnessed unprecedented development in information and communication technologies (ICT). Information and communication technology (ICT) has penetrated most aspects of our everyday life and plays a vital role in our work, study and life. In the Kathmandu District, many secondary schools are teaching ICT Education. But do not have ICT teachers in all schools.

Information and communication technology can support and improve learning. Computers and access to the Internet enable students to search for information and acquire new knowledge beyond what is available from teachers and textbooks. ICT also offers students new opportunities to practice their skills, maintaining personal websites and online publications, programming computers, speaking and listening to native speakers, simultaneously learning a second language, and preparing multimedia presentations (either alone or as part of a remotely connected team). ICT devices bring together traditionally separate educational media like books, writings, recordings, videos, databases, and games, to extend or integrate the scope of when and where learning takes place. The ICT integration in the classroom implies that it could reform some adjustments of many teachers and students in terms of teaching and learning a certain subject. It requires the appropriate selection of technological tools in such a way that it bends to a certain lesson and is an effective tool to improve the concrete learning of the students. The ICT provides evidence for the successful integration of ICT in the classrooms. It realizes the learner's engagement in the class and provides them with many competencies. It's a requirement of using multimedia sources in classrooms, particularly in a language-learning classroom. The integration of technology in education gives a new pattern in teaching-learning methods. All educational institutions have been modernized and changed and education is no exception. Regardless of the assumption that ICT integration influences the entire education system. ICT helps to transform the learning prototype and provide knowledge to people who were not able to access education. The findings of this study helped the management and staff members of the Institution to understand the importance of integrating ICT. This study will be helpful for the researcher who wants to research a similar topic. Identifying the challenges of integrating ICT, categorizing correct ICT tools and the use of the right ICT tools and technology like course content in the secondary level school and field of education is the main significance of this paper.

The objective of the study

To analyze the situation of ICT at secondary level schools for ICT education, explore the practices of integrating ICT, and find out the challenges for integrating ICT at secondary level schools in the field of ICT education.

Review of Related Literature

Digital technologies help educators become more connected, however, it is important to integrate technology with modern educational techniques. That as educators build relationships, they can share knowledge and learn from each other, and when this happens, learning improves for all students (Swanson, 2015). In addition, ICT provides teachers and learners not only with access to information but also with opportunities to participate in and contribute to the knowledge economy (UNESCO, 2015). The openness of the web puts students into an exploratory mode which often challenges effective learning in time-constrained formal school systems. Without a teacher's supervision, students might misuse the technology for leisure time activities and have less time to learn and study (Devadason, 2010). Online gaming, use of Facebook, chat rooms, and other communication channels as some of other the perceived drawbacks of ICT use in education, because students easily switch to these sites at the expense of their studies. It is also possible that the use of ICT to access the website with unsolicited and harmful content may lead some students to develop unit-social behavior (such as promiscuity, violence, Satanism, etc.) as some learners tend to imitate whatever they watch on these websites (Mathevula, 2014).

The deployment of ICTs in secondary schools, including training of teachers in the use of ICTs could also enable South Africa a country with huge inequalities between the rich and the poor in the rural and urban areas access to services especially ICT to utilize the existing limited resources, including teachers, more effectively to accomplish the goals of improved secondary education and human resource development (Beyers , 2000).

Research Method and Procedure

Under the quantitative research technique, the descriptive, statics technique was selected. According to this design, the researcher visited related schools and collected the required data which helped to find out the practice and challenges in Integrating ICT education at the secondary level schools.

There were a large number of population-related for this topic, which was not possible to include in the paper, so among the various place of Kathmandu district researcher selected the 10 secondary level schools 100 respondent was selected using a random sampling method. The researcher selected the 10 schools in the Kathmandu district. The field of research for this topic uses a simple random sampling method. The researcher selected 10 different schools using the random sampling method. Generally, in this paper, primary and secondary tools were used for data collection for this paper, where the primary data was collected by the researcher making the questionnaire for the respondents, and similarly, the researcher find out the practice and challenges of the teachers towards the integration of ICT education for learning activates in the research area, find out the situation of ICT in the research areas.

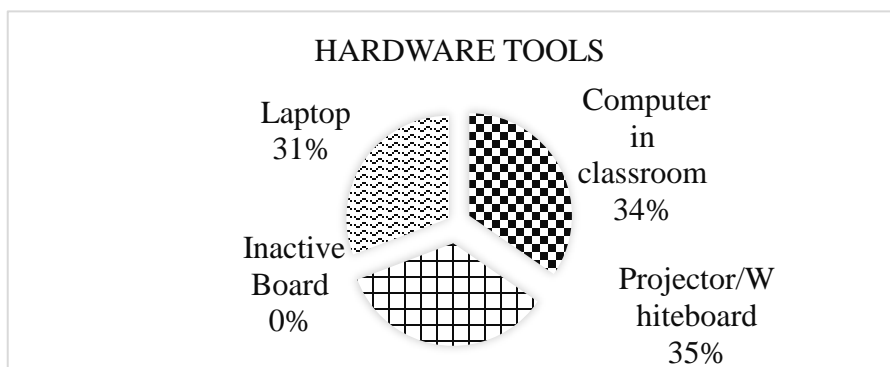
Result and Discussion

In the above chapters, we have considered the general background of the study, relevant literature review, methodology applied in gathering data. Now, the acquired data from the filled is analyzed considering the question outlined in chapter I of the study. The quantitative data were analyzed by

examining the questionnaire answered by respondents. The collected data were tabulated and analyzed are represented in various charts and diagrams.

4.1 Analysis of the data and interpretation of the result

4.1.1 Available ICT tools in the School



The following chart, chart represents the status of all all-research areas, the educational institutes have special types of ICT tools and show the percentage of the ICT tools. The status of this is below in the chart.

Figure 1: Status of Computer Hardware tools

This Pie-chart vividly shows that computers, projectors, and laptops were almost equally used in the classroom whereas inactive boards seemed unfamiliar to them.

Education through online and virtual learning

Table 1: Software Tools

Nature of Tools	Yes (%)	No (%)
E-Library	40	60
Virtual Learning	50	50
Graphing Room	40	60
Moodle	0	100
Environment	50	50
Google Classroom	50	50
Teams	0	100
Zoom Meeting	10	90
Office Package	100	0
Cloud Services	70	30

According to the respondent and collected data, the above table clearly shows that 100 percent of respondents were found using the Office Package. Similarly, 70 percent of intuitions were found using the Cloud Services, 50 percent of respondents were found using Environment, 50 percent Virtual Leaning, and 50 percent Google Classroom. 40 percent of respondents were found using E-Library, 40 percent Graphing Room and 10 percent of institutions were found using Zoom meetings.

This table vividly shows that the maximum respondent was found using Office Package in the classroom whereas Teams and Moodle seemed unfamiliar to them.

4.1.2 Online and Virtual Learning Activities

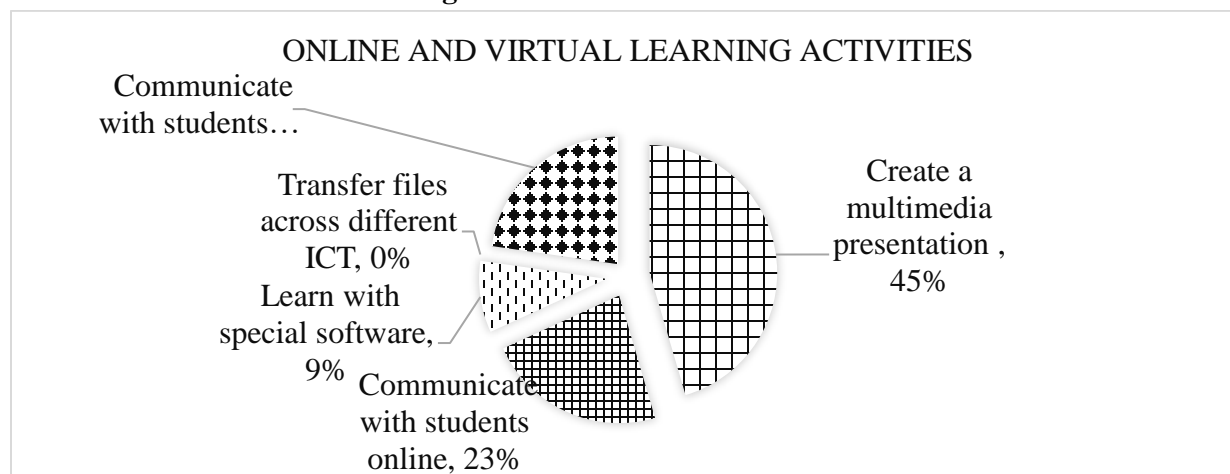


Figure 2: Education through online and virtual

According to the respondent and collected data, the above Pie-Chart no 3 clearly shows that 45 percent of schools were found using learning activities through the creating a multimedia presentation, 23 percent of schools were found using communicating with students online and using E-mail. Similarly, various schools were found learning with special software.

This Pie-Chart vividly shows that communicating with students by e-mail, online, and using special software was almost equally used in the learning activities. But PowerPoint slides were found to be used in all schools and whereas files transferred from across different ICT seemed unfamiliar to them.

Cloud Computing Services over the internet

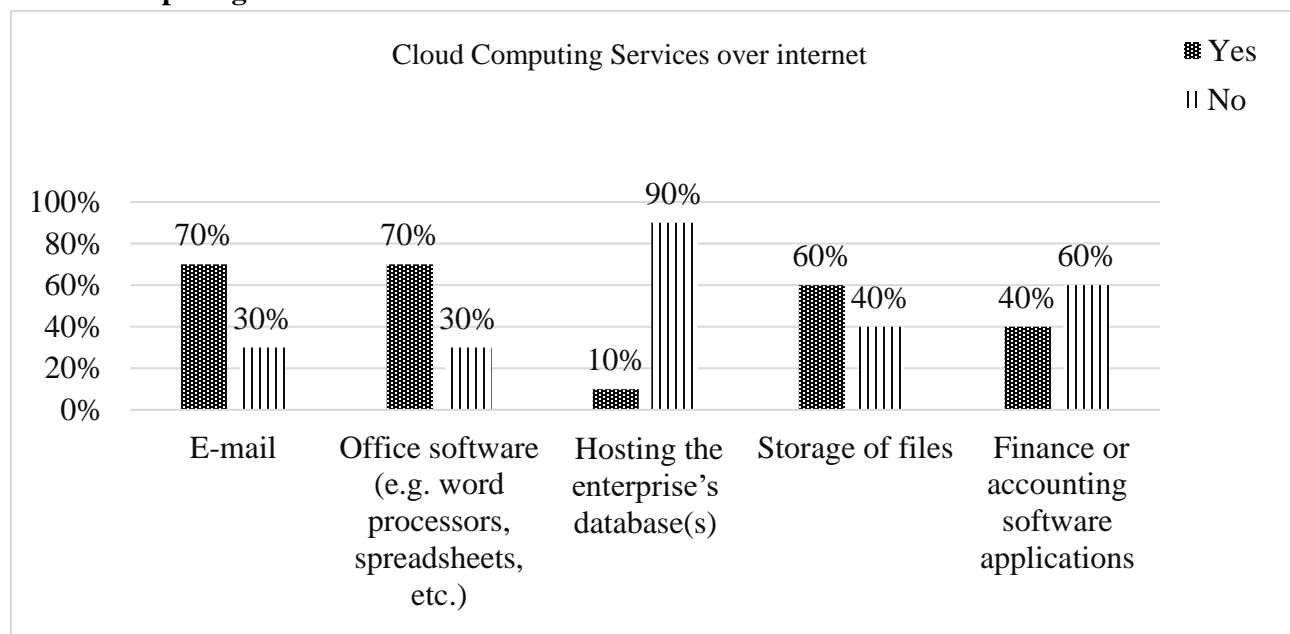


Figure 3: Cloud Computing Services over the internet

According to the respondent and collected data, clearly shows that 70 percent of respondents were found using office software and 70 percent were using E-mail with students. Similarly, 60 percent of respondents were found using the hosting enterprise and 60 percent of respondents were found to store files. 40 percent of respondents were found using finance or accounting software. This Bar-Graph vividly shows that E-mail, and Office Package, were almost used whereas few schools seemed unfamiliar to them.

Integration of ICT for Learning Activities*Table 2: ICT Integrating teaching-learning activities*

Reflects on ICT Integrating for learning activities	Yes (%)	No (%)
Insufficient Number of computers/ laptops/ notebooks	70%	30%
Insufficient Number of the internet - connected computers	100%	0%
Insufficient internet bandwidth or speed	80%	20%
Insufficient number of interactive whiteboards	80%	20%
School computers are out of date and/or need repair	100%	0%

According to the respondent and collected data, depicts that 70 percent of respondents found an insufficient number of computers/laptops/ notebooks. Similarly, 100 percent of respondents were found to lack several internet-connected computers and 100 percent of respondents were found school computers out of date and or needing repair, 80 percent of respondents were found insufficient bandwidth or internet speed, and 80 percent insufficient many interactive whiteboards. The maximum respondent was found to lack knowledge of ICT and technical issues. This given above table shows that the maximum respondent was found using traditional teaching-learning activities and there is no internet connection. Similarly, various schools were found to lack of trained subject content teachers. There were found lack of proper knowledge of technician for the internet or computer repairing.

Perception of the current situation of ICT integrating for Learning**Table 3: Current situation of ICT for learning activities**

Current situation of ICT for learning activities	Percentage (%)
Lack of adequate skills of teachers	20
Insufficient technical support for teachers	10

Too difficult to integrate ICT use into the curriculum	60
Lack of content in the national language	0
Lack of adequate content/material for teaching	10
Limitations in school space organization (classroom size and furniture, etc.)	30
Insufficient pedagogical support for teachers	10
Lack of pedagogical models on how to use ICT for learning school time organization (fixed lesson, time, etc.)	0

According to the respondent and collected data, depicts that 70 percent of respondents found an insufficient number of computers/laptops/ notebooks. Similarly, 100 percent of respondents were found to lack several internet-connected computers and 100 percent of respondents were found school computers out of date and or needing repair, 80 percent of respondents were found insufficient bandwidth or internet speed, and 80 percent insufficient many interactives

Respondent heard about

Table 4: Respondent heard about policy

Respondent heard about policy	Percentage (%)
Master Plan 2013	20
ICT policy 2015	90
SSRP(School Sector Reform Plan)	70
SSDP(School Sector Development Plan)	60

The given table vividly shows that the maximum respondent who was found heard about the IT policy. The majority no. of respondents didn't hear about the Master plan and various respondents found a lack of knowledge of the master plan and SSDP.

Table 5: Participation in the ICT Training program

	Yes (%)	No (%)
Have you participated in any ICT Training programs?	20	80

The above table, clearly shows that there was 20 percent of the respondent were found participated ICT training program. But 80 percent of respondents have not participated in any type of ICT

training. So, in this questionnaire which is asked of the research area educational institute the collected data and analysis of the data clearly shows that the maximum respondent did not participate in any ICT training.

Table 6: Enthusiastic with ICT education in learning activities

Nature of Enthusiastic	Response by the teacher	Percent (%)
How enthusiastic are students with learning, in general, using ICT in high school education?	By Encourage individual learning	100
	Improves by engagement	100
	Encourage by collaboration	80
	Students can learn useful life skills through technology	100
	Watch video or listen to audio on the web	100

According to the respondent and collected data, the above table clearly shows that 100 percent of respondents found by encouraging individual learning, Improves engagement. Similarly, 100 percent of respondents were found enthusiastic to learn useful life skills through technology and watch the video or listen to audio on the web. 80 percent of respondents were found encourage by collaboration.

The given above table vividly shows that the maximum respondent was found using encourage individual learning and few respondents were found encourage by collaboration. There were various challenges in using ICT for the teaching-learning process.

Table 7: Familiar with available ICT tools

	Yes (%)	No (%)
Are the students familiar with the ICT tools available in the school?	100	0

In the above table, the table shows that 100% of respondents were familiar with the ICT tools of the educational institute weren't enough ICT tools, (like projectors, speakers, and the laptop was mostly used for ICT tools

Practices of ICT tools for Teaching Learning Activities

ICT Tools	Percentage (%)
Personal Computer	100
Video Conference system	100
LMS/VLE (Moodle, WebCT)	50

Audio Equipment	100
Mobiles Phones	80
Projection	70

Table 8: Practice of ICT tools for learning activities

In the above table, the table shows that 100 percent of respondents were found to access the personal computer for teaching learning activities, 100 percent of respondents were found using video conference system, 50 percent LMS/VLE (Moodle, WebCT), and 80 percent Mobiles Phones. Similarly, 70 percent of respondents were found using Projection and 100 percent audio equipment. Maximum respondent was found using a personal computer and the majority of respondent were found using LMS/VLE.

Situation of ICT tools

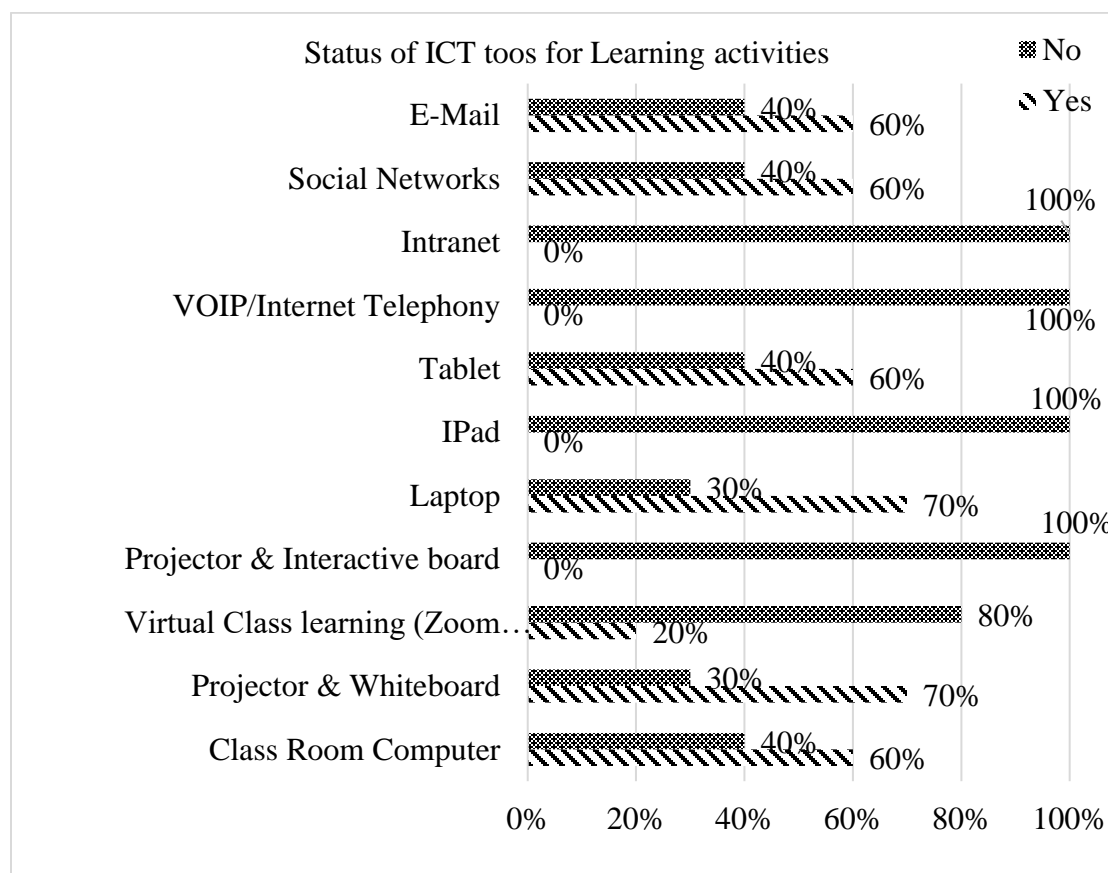


Figure 4: Situation of ICT tools

The above Bar-Graph depicts, that most of the respondents said that ICT tools were really helpful for Teaching Learning Activities. Results show that 100 percent of the school said that the ICT tool

helps with Teaching Learning Activities. The given above Bar-Graph depicts that all respondents were found using 60 percent classroom computers, 70 percent projectors, 20 percent virtual class learning (Zoom meeting, Google, etc.), 70 percent laptops, 60 percent Tablets, 60 percent Social networks, and 60 percent E-mail.

This given Bar-Graph vividly shows that almost respondent was found using the projector, E-mail, laptop, and social networks, and communicating with students via e-mail, and online, using were almost equally used in the learning activities. But Interactive Board, VOIP, IPad, and Blogs were not found to be used in all schools, these ICT tools seemed unfamiliar to them. Many teachers had not enough proper knowledge of ICT tools or digital learning activities. Type of help, services, situational ICT tools, and some of the school was getting kind of help from the government of Nepal. There was no school where the government of Nepal was not helped by providing ICT tools. There were not any special kind of tools implemented, provided in the Kathmandu District. So in this questionnaire which is asked of the research area educational institute the collected data and analysis of the data in the above Bar-Graph clearly shows that a bit of institution was provided ICT tools by the government or local government or by the school. The analysis or field visit also that there was a lack of skill about how to use and by who helped the ICT tools. The situational ICT tools were a common problem in the educational institute. The government of Nepal announces for implement the different- of different ICT tools for different Teaching Learning Activities. But there were various institutions were found to get limited help from the government and many respondents had not the sufficient computer in the computer lab. The analysis or field visit also that there was a lack of skill in how to operate ICT tools.

ICT education improves learning activities

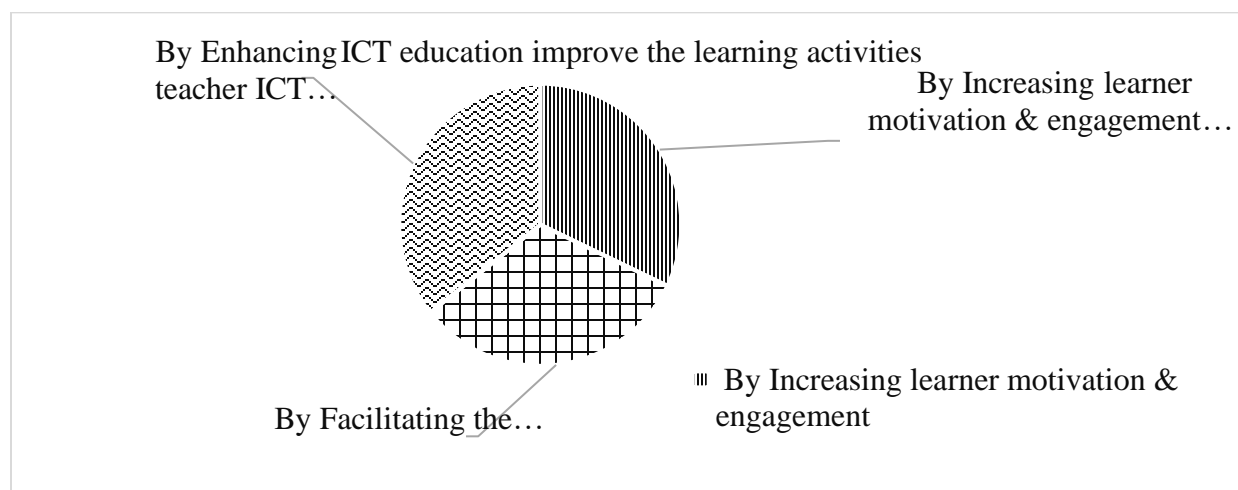
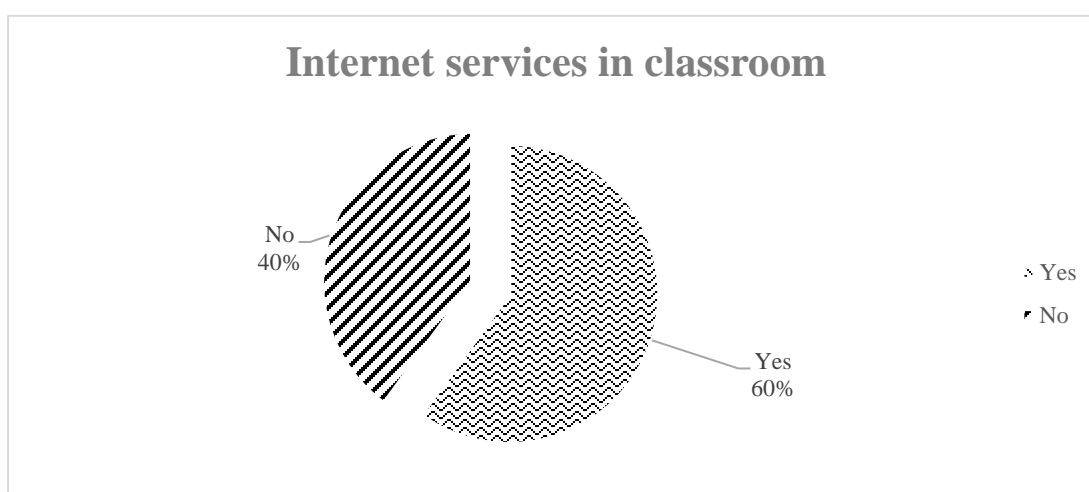


Figure 5: ICT education improves learning activities

According to the respondent and collected data, the given pie chart depicts that, almost of respondents were found equal and positive with ICT education learning activities.

ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools that, when used appropriately, can promote the shift to a learner-centered environment.

Internet services in classroom



According to the Respondent and collected data, in the given above pie-chart majority number of 60 percent of respondents found the internet services in the classroom and few schools weren't connected internet because The analysis or field visit also that there was a lack of skill about how to connect internet and by who connected the internet. The situational internet was a low speed or wireless connection so there was no high speed or nobody had satisfied. The government of Nepal announces for implementation of the however connect internet because various task organization has to do online or operate different social networks and websites, E-mail, etc. The given pie chart vividly depicts the percentage of respondents who were found not connected internet and there was a lack of skill on the internet.

Conclusions

The research entitled "integrating ICT at Secondary Level School in the Kathmandu District" describes the current situation, challenges, and respondent opinions about integrating ICT education. The integration of ICT occurs using ICT tools and communication devices online/offline. Most of the respondent has no idea about integrating ICT or ICT tools.

The major challenges identified were an absence of ICT infrastructures, incompetence, and a low level of technical know-how as well as a lack of self-confidence. The ease of accessibility to IT resources is a critical and essential component of ICT integration in the Secondary Level educational institute of Kathmandu District. ICT infrastructures like computer software and Hardware, adequate time, and technical support should be given to secondary school teachers. These components have to be made available for the successful integration of ICT into secondary Level Schools as none of them is sufficient enough in itself to provide good and quality teaching. The application of ICT in education helps the school community to learn and perform as expected in the 21st Century. This research finds out that, there are real challenges to integrating ICT education and situation with their areas of ICT education, and how to use them. In the educational institute, there were most of the teacher`s traditional pedagogy learning activities. ICT-related manpower in the educational institute, there was a big problem all of them were not from the ICT field. The policy which is announced by the government of Nepal for the disaster, they were not implemented in all of the educational institutes of this research area. There was also a lack of knowledge about the benefit of ICT tools, and the significance of integrating ICT education tools for communication, there were not sufficient ICT tools and techniques for Teaching Learning Activities. Teachers` lack of knowledge and skills is one of the main hindrances to the use of ICT in education. A study of 10 schools surveyed showed that most of the teachers that teach ICT in institutions have not been taught how to teach ICT education at the secondary level. Therefore, a lack of knowledge regarding the use of integration of ICT education and a lack of skill in ICT tools and software have also limited the use of ICT tools in teaching and learning activities. Various institutions were found to lack appropriate staff training and quality ICT education training for teachers.

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