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Technological Alignment of Teachers in Teaching / Learning on Higher Education: A Case of a Constituent Campus of Tribhuvan University

Shree Prasad Ghimire, Krishna Chandra Paudel

Mr. Ghimire, Department of Mathematics *Education, Mahendra Ratna Campus, Tahachal, Tribhuvan University.*
✉ *shreeprasad.ghimire@mrc.tu.edu.np*
Mr. Paudel, Department of Mathematics *Education, Mahendra Ratna Campus, Tahachal, Tribhuvan University.*
✉ *kcpaudel@ncit.edu.np*

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Abstract

Information and Communication Technology (ICT) and its use in education is one of the necessary skills for teachers to develop professional skills, knowledge and expertise. In the case of higher education, the use of ICT, particularly, on constituents' campuses is a prominent area in the context of Nepal. This article explores the examination of the university teachers' access and use of ICT in students' teaching and learning activities. The survey questionnaire was employed to 80 sampled teachers teaching Bachelor and Masters Level in different subjects of one constituent campus of Kathmandu valley. The survey method was applied for the collection of data, analysis and interpretation of the collected data showed that most of the respondents had access to at least one of the ICT facilities at their home but only 35% of the respondents who had access to ICT use it in their teaching and learning activities. By contrast, the majority of the teachers expressed their views they were not excellent at ICT skills. However, only a few teachers needed to learn basic computer skills to use it in their teaching and learning. The findings of this article suggests that the majority of teachers were willing to learn the use of ICT related to classroom instruction effectively.

Keywords*:* classroom instruction. digital materials, information communication technology, prominent issues

Introduction

The use of Information Communication Technology (ICT) is one of the essential tools for teaching and learning according to the new trends of teaching and learning at schools and university education. The use of ICT allows students and teachers to access different information e-books and resources with research papers, and research findings, that help them to enhance their teaching and learning activities. The use of ICT also supports them to access learning opportunities by sitting in one place. ICT integration for teaching and learning activities

emphasized by the School Sector Reform Plan 2009-2015 (MoE,2009). However, it was made sufficiently evident that there was insufficient financing for the establishment of ICT infrastructure and training. The work was made explicit due to the absence of sufficient funding in the use of the ICT Education Master Plan (2013-2017) (MoE, 2013). ICT use in education is a key component of the School Sector Development Plan (SSDP) 2016-2023, which aims to change the conventional method of teaching.

According to a study by Rana (2018) has suggested that a number of schools have already started integrating ICT into their lesson plans and have been working to enhance the skills on the use of new and innovative teaching methods. In this work, there was the support of government and non-governmental agencies. The study also focused on the need for specific strategies of the government to provide the necessary training with resources and development of ICT-friendly infrastructure and the training strategies to the teachers on the use of ICT. However, there is no systematic use of digital technologies in teacher education programme implemented by the different universities in Nepal (Rana, 2018). Different plans such as ICT in education Master Plan, 2013 has suggested the integration of ICT in teaching and learning (MoE, 2013)

The largest and oldest university of Nepal i.e Tribhuvan University has started different type of ICT courses in the Bachelors and Masters programme. BICTE, M.Ed. ICT, BCA, B.Sc CSIT computer applications are some of the examples of the process of implementation of ICT courses in teaching and learning as academic degrees.

Nonetheless, people now consider the rapid advancement of digital technology and the internet access to be a necessity for people. The majority of private colleges and schools have the internet connectivity available to instructors and students with their own investment, whereas government universities and schools are waiting for sufficient funding support for the establishment and use of ICT in their teaching and learning activities. Nonetheless, everyone has equal access to the internet, even government institution professors and students. Similarly, each school has access to computers and the internet, the majority of educators and students work and learn with the help of the ICT in urban regions of Nepal.

Statement of Problem

The classroom teaching and learning system of most of the schools and colleges in Nepal has not been sufficiently able to embrace the latest technology in order to change its existing

status. This might have happened because they have not been connected to the wider digital world and the technologies available in knowledge societies yet.

The problem can be solved if we can adopt ICT in the classrooms so that teachers can perform better in a lively way, and their thirst for learning gets enhanced to live their own professional life. It may further impact their level of interest and achievement. Therefore, it is imperative that the instructional strategies that teachers use to be prepared with the latest ICT tools and processes which enable themselves to cope with the changing and challenging global needs of professional knowledge and skills. In addition, there are many instructional approaches and strategies that teachers can use in the classroom which are not familiar to them. Some of them still do not have access to the technologies; and therefore, are unable to develop themselves professionally sound as expected by the institutions or the state at large. Therefore, the teachers working in higher education in Nepal need guidelines and training to use ICT-based instructional approaches and strategies to promote the learning styles of students. Assessment of the existing level of knowledge and skills of teachers regarding the issue of using ICT in their classroom is one of the needs which we realize. Similarly, it is imperative to identify their needs for further improvement in classroom delivery and the whole teaching-learning system by using the recently developed ICT tools. In this background, this research dug out the problem and explored the ways ahead.

Significance of the Study

Since this study is based on the teachers, teaching at Bachelor's as well as Master's level at a constituent campus under Tribhuvan University. All the students, teachers, administrators will be more benefited from this study. Mainly it helps to provide different facilities, and training based on the ICTs for the enhancement of the professional development of teachers. Besides these, teachers of different subjects will be more benefited to get the opportunities and possibilities. Similarly, students will also get facilities on their learning through the use of ICTs as well. Moreover, the study has great significance for the university authority to provide the necessary support to enhance the quality in education according to the global world.

Objectives of the Study

The education system utilizing digital materials by means of computer technology is supposed to be based on education. It is one of the modern systems of instructing and educating the learners on their study which attempts to bring on this modernized system of education. The

objective of this study was to find the existing status of the use of ICT tools by teachers of a constituent campus of Nepal in classroom instruction.

Limitations and Delimitations of the Study

Since this was based on the sampled teachers at a constituent campus of Tribhuvan University, it was conducted within different constraints such as time, financial support etc. In this connection, it has the following limitations and delimitations:

i) This study was delimited to the teachers teaching at Bachelor and Masters' level in respective sampled campuses.

ii) The findings of the study can be generalized within the teachers and students studying in the constituent campus

Research Questions

To fulfill the above objectives, the following research questions were formulated:

What kind of ICT tools does the teacher of a constituent campus of Nepal use in their classroom instruction?

Review of Related Literature

The history of computer technology in Nepal started with the use of the computer for statistical data analysis work in the census of 1971 as mentioned by Chapagain, (2006). The national Electronic Data Processing Center was designated as a data processing center that was run by the government. It took a long time around 20 years to make people aware of the value of computers and develop digital literacy for the use of information technology. Hence this center was renamed as the National Computer Center in 1974 (ibid, 2006). Numerous computer training facilities were started in the national cities in the middle of the 1990s. The Internet facility was introduced in 1993 A.D in Nepal which changed the hope of the people (Shakya, 2007). However, the nation still lacked the proper ICT policies. In this regard, the first government strategy known as ICT Strategy 2000 was created with the purpose of facilitating for the use of technologies and distance learning (Nepal Telecommunication Authority,2012, November 22).

Many people have expressed their views regarding the various problems /obstacles that prevent the use of technologies. However, various obstacles to the effective use of ICT in teaching and learning are the same as those that appear from employing technology in teaching and learning. The use of ICT presents unique technological difficulties due to the necessity of ensuring computer connectivity. Technology has the greater power to increase teacher and

student interaction and even the physical appearance of schools (David, 1991). But there is little indication from the history of educational reform that this kind of change will happen just because the technology is available. ICT helps to advance higher education by offering strong learning instruments and opening up new resources for all subject areas. It also helps to achieve national goals, increases access to education for students living in remote areas, and allows for administrative changes and efficiency gains in higher education. A number of studies have been conducted globally (Pelgrum & Plomp, 1991) that describe the extraordinary adoption of information communication technology in higher education. This study has demonstrated the indisputable worth of computer programs and their crucial role in classroom learning (Roblyer, Castine & King, 1988). The education system of Nepal is divided into three phases such as elementary education (1-8 grades), secondary (9-12 grades) (ICT in Education Master Plan, 2013) and higher education (Bachelor, Masters, M. Phil and Ph. D.) lasting for three to seven years. Additionally, one and a half to three years of distinct technical education are offered (TSLC and Diploma). There are opportunities for both newly literate and illiterate people to get non-formal education, as well as opportunities to develop literacy. This kind of instruction offers opportunities for literacy, life skills development, and lifelong learning. Individuals who left school early and never returned have the option to enroll in such non-formal education programmes for alternate forms of education. In these systems of education, the role of ICT use is very important and essential. In this context, this study found the status of the use of ICT by the teachers in their teaching as a tool.

Every instructional strategy should direct students' acquisition, retention, and application of new information. According to the National Council of Teachers of Mathematics (NCTM), this ICT-based method positions the instructor as a "guide on the side." Students using ICT-based learning have more freedom in the problems they tackle. The constructivist method focuses on problem-solving and subject comprehension through the use of ICT.

The use of ICT in schools in Nepal is becoming more widespread. To incorporate ICT in school education, the government provisioned a five-year Master Plan 2013-17 (MoE, 2013) This displays the government's dedication to use ICT in teaching. However, the program has not yet reached a stable state. To put it another way, it is still on a trial phase. NGOs and INGOs, on the other hand, support ICT on a piecemeal basis. Even though the road map is clear, the journey has taken a long time. The fundamental issue is that completely equipping schools with ICT

facilities requires a large sum of money, which the Ministry of Education appears incapable of providing on its own. Therefore, the main cause for this is the economic downturn.

Some work in this area has recently begun. In-service teacher training is scarce, and it lasts only ten days a year, which is insufficient. Increasing the length of training is not a good idea. ICT has been an elective subject in pre-service teacher education programs, but the products were knowledgeable in all elements for the use of ICT in education in general and in the classroom in particular. Nepal can achieve a lot if educational donor partners assist it for a few years, at least during this first ICT Master Plan 2013-2017 (Wagle & Jha 2013). In this context, Zakaria and Khalid (2016) has found that technical support is needed for the teachers that helps to develop the motivation of teachers in the use of ICT.

The theory of connectivism was used to explore the use of ICT in classroom instruction. The connectivism theory emphasized different knowledge and skills on the use of ICT in classroom instruction. It helps to explore the different online platforms, multimedia resources, and social media for learning as well as the preparation of the Learning Management System in teaching and Learning. The interest of researchers and educators is increasing in the areas of the use of digital tools by teachers and students. The financial effects of ICT in higher education how people also show how different digital gadgets for formal and informal learning have been used. Teachers understand the economic implications of ICT in education and it makes pedagogical decisions within the broader framework of many cultural aspects of society. One can argue that the modern work of childhood and adolescence in industrialized nations is made possible by digital media, that shapes communication and integration. These changes challenge our understanding of the digital divide, digital safety, culture and youth media literacy.

Computer technology has aided the educational system in both the development and trans mission of information through research and instruction, as well as a variety of administrative fu nctions and services. After reviewing the above literature. It is concluded that ICT is very important for the development of education systems for the nations. To fulfil this demand, this research helps to explore the different obstacles and challenges to the use of ICT in classroom delivery.

Methodology

This section deals with the design, population sample, preparation and validation of tools, data collection, and analysis and interpretation procedures. These were described as below:

Design of the Study

The nature of this is quantitative with survey design. However, the descriptive statistics with frequencies, percentages and mean were calculated to analyze the data obtained numerically.

Population

The population of this study constitutes all teachers teaching in B. Ed. and M. Ed. at the constituent education campus of Tribhuvan University.

Sample of this study

There were two constitutional education campuses under Tribhuvan University running different programme in Bachelor's and Master's level in Kathmandu Valley. Considering the number of programmes, students and faculty only one campus was selected as a sample of the study. Altogether, there were 160 teachers in the selected constituent campus excluding the teachers in study leave and other administrative posts under Tribhuvan University and other educational sectors. Among 160 teachers, 50% (a total of 80) teachers were selected randomly for the purpose of data collection. A questionnaire and a checklist were distributed to each of the sampled teachers to explore the availability and use of ICT in their teaching-learning activities.

Method of Data Collection

This section deals with the construction of tools, computation of reliability and validity of tools, procedures of data collection and analysis of data obtained from the field.

Construction of tools

This study is based on one of the constituent campuses of Tribhuvan University about the use of ICT in classroom instruction adopted by teachers and their available tools for the effective use of ICT in teaching and learning by teachers and students in respective subjects. For this purpose, the first tool for the collection of data was a checklist whereas in the second section contained a questionnaire, based on necessary training needs for the effective use of ICT in their teaching and learning. For the preparation of tools related to the use of ICT, different literatures were reviewed to identify the list of ICT tools that were appropriate in the context of the Nepalese classroom. These tools were listed and consulted with the ICT teachers, and university

professors about their content validity. With the suggestions/feedback provided by three ICT teachers and one university professor teaching at Bachelor and Masters Levels, the tools were finalized.

Reliability and Validity of tools

To test the reliability of tools we had taken the help of literature and previous research on ICT use and integration in the classroom. Further, we have collected the necessary information about the different types of ICT tools which are used for teaching-learning activities. Besides these, the researchers have consulted three expert teachers including a university professor and IT expert for the necessary suggestions and feedback on the checklist and the questionnaire constructed for the use of data collection.

Data Collection Procedure

A set of checklists and questionnaires based on the availability and use of ICT for teachers, were distributed to the teachers and requested to fill up and write the answers to the questions.

Each questionnaire was distributed and returned by the teachers individually.

Data Analysis and Interpretations

For the analysis of collected data obtained after the distribution and collection from each of the sampled teachers, were analyzed by using descriptive statistics. The analysis was done by using the statistical data analysis software SPSS 20. The statistical treatment and analysis of the data were related to research questions on how teachers use ICT in the classroom based on their availability of tools.

Results and Discussion

For the analysis of available ICT tools for teachers, the following Table 1 represents the descriptive statistics of the ICT instrument available with teachers.

Table 1. *Descriptive Statistics of ICT Instruments Available with Teachers*

S.No	ICT instruments	No. of teacher (with tools)	Percentage	No. of teachers (without tools)	Percentage
1	Laptop	63	78.8%	17	21.2 %
2	Desktop Computer	36	45%	44	44%
3	Smart Phone	34	42.5%	46	57.5%
4.	Tablet	9	11.2 %	71	88.8%
5.	Recorder	7	8.8%	73	91.2%
6	Projector	6	7.5%	74	92.5%
7	Other device	4	5%	76	95%

Analyzed by Using SPSS 20

From the above Table 1, it was found that 78.8% of teachers have Laptops, 45% of teachers have Desktop computers, 42.5% of teachers have smartphone, 11.2% have tablets, 8.8% have a recorder, 7.5% have a projector and 4% of teachers who have other instruments which have been used at home. All teachers have at least one of the ICT instruments to make plans and preparations for teaching and classroom instruction.

Moreover, almost all of the teachers have one or more types of ICT instruments such as (Desktop computers, laptops, Tablets, Recorder, Projector, Smartphone etc.) to work with ICT at home This shows the teachers have sufficient opportunities to perform different work and planning by using ICT.

In the analysis of the attitudes toward the Use of ICT in Teaching, Teachers were asked whether they were interested in the use of ICT tools. The following table represents the current status on the use of ICT in their teaching and learning.

Table 2. *Descriptive Statistics of Use of ICT tools for teaching and Learning Activities*

S.No	Use of ICT tools for teaching and learning	No. of teacher (with tools)	**Percentage**
1	No use of ICT	28	35%
2	Use of ICT if needed	26	32.5%
3	Use of ICT Once a week	11	13.8%
4.	Everyday Use ICT	10	12.5%
5.	Use of ICT once a month	3	3.8%
6	Once a year	2	2.5%

Analyzed by using SPSS 20

Table 2 shows that 35% of teachers were not using ICT instruments for teaching-learning activities and 32.5% of teachers were ready to use instruments of ICT in teaching-learning activities. Similarly, 13.8% use ICT instruments once a week, 12.5% use them every day, 3.8% use them once a month and only 2.5% of teachers use them once a year. This information indicates that there is less use of ICT instruments in their teaching-learning in the sampled campus.

Findings and Conclusion

The findings of this research have highlighted that almost all of the teachers have one or more types of ICT instruments such as a desktop computer, Laptop, Tablet, Recorder, Projector, and Smartphone. This shows that there was sufficient opportunity to do different work and planning for teachers by using ICT tools. In the analysis of the internet access, 60% of the teachers have an internet connection in their home whereas almost all teachers have internet facilities in their smartphones as well.

In the case of the training programme, teachers have basic knowledge to operate software programme such as computer operating, word processing, Excel, PowerPoint, use of multimedia, email and internet and use of projector. Even though teachers at the sample campus in taking much interested to take training on ICT. They were interested in taking training on frequently used software and hardware. Teachers were interested in training on different types of research software courses related to classroom pedagogy. In this research, respondents were asked about their competencies in the use of ICT and explored the status of ICT in their classroom instruction. From this research, it is concluded that there were sufficient ICT facilities available for teachers but it is needed to motivate them to use them in teaching and learning activities. Moreover, necessary training facilities are needed to provide for the teacher to enhance their knowledge and skills in better use of ICT. The teachers are capable of using it if they have knowledge and skills in it. The finding of this study has contradicted the study as teachers have sufficient knowledge and skill in the use of computers but the government authority did not support them with the necessary resources and opportunities for learning. Due to the insufficient knowledge and skills in ICT, teachers have not used it in their teaching-learning activities frequently. This finding is similar to the findings of Zakaria and Khalid (2016) has found that

technical support is needed for the teachers that helps to develop the motivation of teachers in the use of ICT in teaching.

Educational Implication

This study has implications to the campus administration for the preparation ICT-friendly infrastructure so that there should be an effective use of ICT in their teaching and learning for the students. Further, this study creates a positive environment towards the students to connect their knowledge and skills with the global word. Students can able to get sufficient resources for their teaching and learning with the use of ICT. This research-based helps to increase the motivation towards the use and benefit of ICT.

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