

# ICT for Education in Bhutan

Tashi Dendup.  
Supanee Sengsri

## Abstract

*As Brush, Glazewski and Hew (2008) have stated, ICT is used as a tool for students to discover learning topics, solve problems, and provide solutions to the problems in the learning process. ICT makes knowledge acquisition more accessible, and concepts in learning areas are understood while engaging students in the application of ICT. In presence of ICT and if we know how to use it, the ICT tends to expand access to education and learning can occur anytime and anywhere as the sources are available 24 hours a day. So, ICT was also seen as one of the most important tool that needs to incorporate it in the improving the quality of its education in Bhutan despite its some of the barriers. Bhutan is in the process of exploring ICT and in its developing stage.*

## Introduction

Bhutan is one of the developing country sandwiched between the two giant economically advanced country; China in the north and India in the south. As it strives for its self-reliance, the education is given the top priority and to produce the potential human resource that are competitive even at the international levels. Amidst of its developmental journey, Information Communication and Technology (ICT) was one of the very crucial strategy for upgrading the quality of education. ICT includes computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field (Shan, 2013). In Bhutan, the roadmap of ICT development is provided in the Bhutan ICT Policy and Strategies (BIPS) which describes the government actions in the area of infrastructure development, human resource development, applications and



content development, private sector development and overall policy development. The most relevant section of BIPS for mainstreaming of ICT during the 10Five Year Plan is related to the target wherein all sectors are required to put 75% of their services online by 2010 (Technical Guidelines on Information Communications and Technology (ICT) for Preparation of the Tenth Five Year Plan (2008-2013), 2006). So, due to its immeasurable significance in education and the priorities given by the government, it has now come a long way from the start. Despite the great significance it holds, Bhutan experienced both side of the coin at the initial stage and at its different levels, yet it still looks forward for the better future.

Computer simulation, telematics, video-audio, computer conferencing and virtual learning, along with educational TV and radio, have the potential to reach larger audience than possible through the traditional classroom and develop educational software that uses ICT as a tool to aid innovative thinking, problem-solving and processing skills (Technical Guidelines on Information Communications and Technology (ICT) for Preparation of the Tenth Five Year Plan (2008-2013), 2006).

Kent and Facer (2004) stated that ICT provides an important environment in which students participate in a wide range of computer activities and ICT is being applied successfully in instruction, learning, and assessment. ICT is considered a powerful tool for educational change and reform (Shan, 2013).

## Background

Bhutan though in its developing stage, it has seen unprecedented progress and it is still in its move for farther achievement. It initiates various programs to assist Bhutanese teachers to be equipped in ICT for education because of the great significance it upholds. Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners (Gray, 2016). So, teaching ICT and teaching using ICT has become so crucial in this modern era. In today's information-driven society, it becomes very important to empower students to be self-directed knowledge "navigators" on the information superhighway (Skagen, Blaabjerg, Torras, & Hansen, 2006). Teachers also need to be educated on how to help their students in the ICT context.

The teaching and learning process happens in a better way with the use of ICT as we can use internet to explore information and knowledge. It is easy to teach as we can



use variety of teaching methods like using power point presentations, through videos, audios which arouse the students interest and are more curious to learn. ICT also improves learner's pronunciation through dictionary software and provide remedy to their articulation and accent. Learners can create a wide range of output technologies and become life-long learners. The students can learn lots of things even in absence of teacher through the internet. All learners will have engaging and empowering learning experiences in both formal and informal settings that prepare them to be active, creative, knowledgeable, and ethical participants in our globally connected society (Gray, 2016).

There are two main tertiary institutions providing ICT training: Royal Institute of Management (RIM) and Sherubtse College. RIM provides diploma courses in ICT, and Sherubtse College provides Bachelor courses in Computer Applications, Information Technology, and Science (Computers). Some of the vocational training institutes such as Vocational Training Institute in Rangjung also provides hardware trainings. There are also 18 private institutes providing basic ICT courses in fields including network administration, web developing, and graphics (RGoB, 2004).

In addition to it, the two teacher education institutions under Royal university of Bhutan, namely, Paro College of Education (formerly known as the Teacher Training College) and Samtse College of Education of which in both the colleges has ICT training programs to each the students in schools. Prior to 2000, no "ICT in Education" modules were offered at either of the colleges. At that time, there were not enough trained lecturers nor was there sufficient computer equipment to be able to teach computer skills to all the trainees. Information Technology (IT) courses are offered in Grades 9 and 10. Computer classes are offered in Grades 11 and 12 but they are theoretical courses. A local IT curriculum has recently been developed for Grades 11 and 12, however, and this will be implemented in 2008.

The advent of ICT, notably computer-mediated communication (CMC) affords numerous possibilities of interaction, particularly in an asynchronous mode—a significant move away from the traditional delivery mode. CMC here refers to "any form of organized interaction between people, utilizing computers or computer networks as the medium of communication" (Romiszowski, 1997, p. 32) as cited in (Jamtsho, 2007). In 1995, the Samtse college of education also started a distance teacher education program (DTEP) with ICT as the main tool for the teaching learning process. It was a very useful initiative especially for the teacher who just had the Primary Teaching Certificate(PTC) to upgrade their qualification. Bhutan, even though it emphasizes too much on imparting the knowledges through the



advanced technology which is much easier and effective, but at the same time it also has got some of the drawbacks and some challenges at the initial stage.

**Technical Problem:** At the beginning, since it was introducing ICT facilities for the first time, it encountered some of the technical problems. It was mainly due to the lack of qualified technical personnel. Sometimes some of the minor problems took several days to fix and replacing or repairing p could take weeks. Sometimes it also must be taken to some other hardware shops where affects the efficiency.

### **Supply of ICT equipment**

For the effective teaching learning to happen with the new approach, it must be well planned and highly organized. For this program to be successful, adequate computer resources, teaching resources, reference materials and textbooks are required. So, to establish at one go requires lots of funds. At the initial stage, Bhutan faced some problems like inadequate supply of ICT equipment. On top of that, the low internet access affects the learning efficiency where by its purpose or its objectives are defeated. Most of the relevant software was not available and funds were limited.

### **Professional development of lecturers**

In the beginning, since the course was new, there was no experts to teach the module and it was anticipated that the lecturers teaching the course would need help to build their capacity. The tutors receive very less training and knowledge to teach the trainees. So, there was need for more training. For example, if a module was going to be offered in Semester 2, then a professional development course to prepare the lecturers to teach that module was conducted in Semester 1 which affects the effective teaching and learning.

### **Drawbacks**

The most common drawback of the ICT is only when we misuse it. The choice that the user makes is very crucial but quite often we land up miss using it. The waves of the facebook and the other social medias are the waves where most of the learners get intimated and brain washed too. Most people seem to go in the wrong direction when they have the option. We normally use the technology mainly for social interaction of which some people



gets exploited of it consequences. Most people choose the wrong path than right path. So, its important that our country people get the right advocacy on the proper use of ICT and we benefit instead of being exploited.

## Current realization

Bhutan now is on its journey with the rapid changes and trying to its best ability to move with waves of technology world and reap its effects too. Though Bhutan cannot produce the accessories but it has the potential of applying most of the technologies and even repairing and doing the necessary maintenance works.

Teachers now has the skills and knowledge to teach and the performance has increased tremendously. As a result, most of the official works can now be done online where it has eased the burden for countless people. The work which at the initial stage needs to be done by the foreign experts are replaced by the Bhutanese.

In terms of pedagogy, teacher educators moved from the conventional teacher-centered approach to more collaborative modes. There was also an increase in group work activities, use of project-based teaching, exploratory methods of learning, and constructivist approaches. Moreover, the teacher uses the laptops to make their lesson plans and teach using the power point presentation for the better understanding while teaching with variety. They also use some of the short and relevant video clips where the students enjoy watching it and learning happens at the same time in a fun way.

Now all the higher secondary school has IT lab each with at least 1 or 2 IT teachers and sufficient computers are supplied. The colleges have about two to three IT labs with well-equipped lecturers and the IT technicians (Wong). The schools now also can provide not only the knowledges and the net facilities, but also the maintenance and repairing of private laptops. Even all the primary schools have at least few computers or laptops for teachers to document and students to explore and expose.

Finally, all the most Bhutanese and almost 95% of the secondary school students can use various modern technologies for searching useful informations which promotes the self-learning and share the responsibilities of learning and thus making the teachers work easier (Wong). Moreover, it is more of student centered learning and ownership of the learning goes to students themselves.



## Conclusion

Once we have achieved certain level, we can't just relax and stand still. Learning never stops and the technologies goes on improving. We must move on for the newer height with the current of the modern technology. In reality, this is the level where Bhutan needs to open its eyes outside Bhutan and compare with other developed countries. It's still a long way to go. If we can work more on the problems to solve and look for the areas of improvement and work on it, Bhutan can be advanced too particularly in teaching learning process.

## References

- Gray, T. (2016, January). Future Ready Learning; Reimagining the role of Technology in Education. Retrieved 10 14, 2017, from file:///C:/Users/Dell/Desktop/IT/NETP16%20ict.....pdf
- Jamtsho, S. (2007, August). Distance in Bhutan: Improving access and Quality through ICT use. Retrieved 10 25, 2017, from file:///C:/Users/Dell/Downloads/10.1.1.540.8458.pdf
- RGoB. (2004, July). BHUTAN INFORMATION AND COMMUNICATIONS TECHNOLOGY POLICY AND STRATEGIES. Retrieved 11 1, 2017, from file:///C:/Users/Dell/Desktop/IT/ict%20bhu.pdf
- Shan, F. J. (2013). ICT in Education: A Critical Literature Review and Its Implications. International Journal of Education and Development using Information and Communication Technology. Retrieved 11 21, 2017
- Technical Guidelines on Information Communications and Technology (ICT) for Preparation of the Tenth Five Year Plan (2008-2013). (2006, August). Retrieved 11 21, 2017, from file:///C:/Users/Dell/Downloads/Bhutan-TechnicalGuidelines.pdf
- Wong, P. (n.d.). Bhutan "Support for Teacher Education" Project. Retrieved 11 12, 2017, from file:///C:/Users/Dell/Downloads/Bhutan\_Support\_for\_Teacher\_Education\_Project%20(2).pdf

