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Barriers of technology integration in teaching English

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Abstract:

The study presents an exploratory perspective on barriers to technology integration in teaching English at school. The aim of this qualitative study was to explore the EFL teachers' perceptions of possible barriers of technology integration in teaching at school. The data collected from ten EFL teachers through semi-structured interview were analyzed thematically to explore the perceived barriers of technology integration. The major finding of the study revealed the fact that EFL teachers are ready to integrate technology but they feel challenged due to some external factors such as insufficient ICT infrastructure, lack of professional ICT trainings, time constraint, workload, digital divide etc. The study will hopefully contribute bringing some insights for education policy makers, ELT practitioners and researchers for the further enhancement of school education in regard of effective integration of technology into instructional practices in general.

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1. Introduction

Technology integration specially in teaching English as a foreign language (EFL) is in practice globally. It has brought a revolutionary change in the classroom pedagogy as a teaching tool. Constructivist theory of learning basically promotes technology integration to support student-centered instruction (Richardson, 2003). Further, technology has potentials to transform the mode of education and can provide solutions for qualitative education (Livingstone, 2012). Studies (Aldunate & Nussbaum, 2013; Buabeng-Andoh, 2012a; Page, 2014; Gao, et al., 2017; Hernández-Ramos et al., 2014) have found the adoption of technology highly beneficial in education. On the contrary, teachers have to face some barriers to integrate technology into their instructional practices (Nikolopoulou & Gialamas, 2016).

A few research studies so far conducted at public and private schools in Nepal found that EFL teachers were quite enthusiastic to integrate technology into their instructional practices, however, its penetration rate is very slow (Newa, 2007; Thapaliya, 2014). They recommend for further in-depth studies to promote technology integrated instruction at school. Therefore, this study is an effort to fill up the gap in the existing literature by exploring the EFL teachers' perspectives on possible barriers of technology integration at secondary schools.

Objective of the study

The aim of the study was to explore the possible barriers of technology integration in teaching and learning EFL at public secondary schools in the Kathmandu valley. Moreover, the study is significant to understand the EFL teachers' perspectives on the possible barriers of technology integrated instruction. Additionally, it will bridge up the gap in the existing literature as such in-depth studies lack specially in the context of Nepal. Despite, a number of research studies have been conducted globally, they are focused on different disciplines including EFL in different socio-cultural contexts where technology based instruction is in practice.

Literature review on barriers of ICT integration

The traditional authoritarian concept of teachers' control on the source of knowledge and on students seems to be shaken due to technology integration in instruction. Costa (2012) opines that the fear of losing control over knowledge as a guarantee of it turns to be a barrier of technology integration. Further, he proposes to redefine the role of teachers as a facilitator who could collaborate with students to explore problems, find innovative solutions and promote them for presentation of their creative findings. Similarly, lack of proficiency in technology integration or technophobia can hinder teachers (Wood et al., 2005) to integrate technology into their pedagogy. Additionally, Groff and Mouza (2008) explored six critical factors with sub-factors in a review of the literature that influence the integration of technology and teachers' ability to effective application of innovative tools in the classroom instruction. They are:

i. Legislative factors
ii. District/school-level factors
iii. Factors associated with the teacher,
iv. Factors associated with the technology-enhanced project,
v. Factors associated with the students, and

vi. Factors inherent to technology itself.

Hew and Brush (2007) synthesized these into first and second order barriers. First order barriers; lack of equipment, time, and classroom help and second order barriers; lack of relevance, mismatch with classroom management style, and lack of confidence are challenges of technology integration for teachers (Ertmer, Addison, Lane, Ross & Woods, 1999). Further, they state that second order barriers are more serious than first order barriers. Moreover, Balanskat, Blamire & Kefala (2006) found three levels of barriers to technology integration from their study based on the qualitative review of the studies of technology integration in teaching conducted at European schools. The three levels of barriers were teacher level, school level, and system level. Teacher level barriers are lack of technological skills, lack of motivation and confidence, inadequate training, practices and resistance to change are recognized as intrinsic or first order barriers (Ertmer, Addison, Lane, Ross & Woods, 1999). The school level barriers are lack of quality technological infrastructure, lack of quality hardware and software, lack of access to technology, and inadequate professional development on integration of technology in classrooms (Balanskat, Blamire & Kefala, 2006). These barriers were included under intrinsic or first order barriers by Ertmer (1999) that resembled with her findings such as lack of time, support, resources and training. Additionally, the third level barrier refers to the educational organization that includes inflexible traditional structure of school framework like classroom structure, high stakes, state and national testing (Balanskat, Blamire & Kefala, 2006).

In a study, Bisht (2013) explored some barriers of technology integration in teaching and learning such as lack of access to technology, lack of ICT training and practice in teaching, lack of connection between students' personal uses of ICT and learning with the help of technology, lack of connection between teachers' personal uses of ICT and teaching students to learn with technology, beliefs and attitudes towards technology integration, lack of self-confidence, lack of technical and instructional support, and lack of mentor teachers to provide support.

The available literature reviewed shows that technology integrated instruction is a prime concern of the 21st century pedagogy that is rooted into learner-centered constructivist theory of learning. However, teachers in general face some barriers: first order and second order barriers or extrinsic and intrinsic barriers to technology integrated instruction. These barriers cause ineffective technology integrated instruction.

Theoretical Perspective

The theoretical base of this study is framed under the perspective of constructivism. The behaviorist notion of transmission of knowledge has been replaced by the constructivist notion of transformation of knowledge through students' independency and autonomy in the process of constructing knowledge (Marlowe and Page 2005). Moreover, constructivist theorists promote the use of modern technology tools to facilitate learning. Teachers' knowledge and skills of technology are substantially required to create learning environments, activities and methods (Richardson, 2003) that could actively engage leaners in knowledge construction rather than knowledge transmission (Marlowe and Page 2005). Constructivism is an epistemology, a philosophical explanation about the nature of knowledge and theory of learning rather than a method of teaching and learning (Jonassen 2006; Richardson 2003). Jonassen (2006) views that "there are numerous reports that empirically validate the ability of

innovations based on a constructivist epistemology" (p.43). Thus, learners could construct knowledge "in any model of instruction or theory of learning" (Jonassen, 2006:44).

Research Question

What are the possible barriers to effective integration of technology in teaching EFL?

Methodology

Qualitative research approaches give priority to participants' subjective and multiple perspectives on a particular phenomenon. Therefore, this study was framed under qualitative research approach "to explore a problem, honor the voices of the participants, map the complexity of the situation, and convey multiple perspectives of participants" (Creswell & Plano Clark, 2011, p.7). The sample population was the EFL teachers who were integrating technology tools into their classroom instruction. A sample refers to a group or a subgroup of the population that is intended to be focused on the study (Hartas, 2010). Further, the research participants were selected through purposeful sampling that is mostly used in qualitative research. It is flexible enough that allows the researcher to choose participants who are supposed to be essentially experienced with the required information as the data for the study (Creswell, 2009).

Further, the researcher used semi-structured interviews as research tools because they could dig down deeper into the interviewees' perspectives and interpretations of the phenomena around them to get rich and thick information (Buarki, 2010). Mack, Woodsong, MacQueen and Namey (2005) defines interviews as qualitative methods that are "effective in giving a human face to research problems" (p. 41).

The researcher designed twenty open-ended questions based on the issues of barriers such as ICT infrastructure at school, EFL teachers' experiences and practices of technology integrated instructions, professional development trainings on technology integrated instructions, support from school administration and students' perspectives' on technology integrated instruction digital divide. Eight purposefully selected EFL teachers participated in the face to face semi-structured interviews that were about 30 to 45 minutes long. The research participants were assigned codes A, B, C, D, E, F, G & H to maintain the research ethics and confidentiality of the participants and their responses. Similarly, it is pertinent to gain participants' consent to assure them that their invaluable perspectives and interpretations are highly confidential. This privacy protection assurance helped winning their trust and confidence for better response (Mack, Woodsong, MacQueen & Namey, 2005).

Qualitative data analysis & interpretation

The digitally recorded audio data were mostly in English, however, some parts were in Nepali that were transcribed into English. The data were analyzed to search for themes. The approach of thematic analysis "is used widely in qualitative analytic it offers an accessible and theoretically flexible approach to analyzing qualitative data" (Braun & Clarke, 2006, p.77). Moreover, thematic analysis uses the process of induction and deduction (Gleeson, 2003); induction creates themes from a cluster of linked categories conveying similar meanings and deduction authenticates them. Thus, the five themes were identified as the most common barriers that EFL teachers experienced to hinder their technology integrated classroom instructions: Lack of sufficient technology resources, lack of professional development trainings on integrating technology, workoad and time constraint, digital divide related to students and lack of sufficient administrative and colleague supoort.

Results

The thematic analysis of the data generated the five most common themes/barriers of technology integrated instruction that were experienced by the EFL teachers;

- Lack of sufficient technology resources
- Lack of professional development trainings on integrating tecgnology
- Workload and time constraint
- Digital divide related to students
- Lack of adminstrative and colleagues support

Theme 1: Lack of sufficient technology resources

Technology resources are primarily required for technology integrated classroom instructions at school. Most of the schools where the participants were teaching had SMART board, computers, laptops, multimedia, Bluetooth, audio devices, projector, the Internet facility and power back up. Those technology resources were almost set up in a hall like room, called ICT lab that were insufficient comparing to the number of classes with many sections of each. When the participants were asked, "How often do you integrate technology into your classroom instruction?" Many of them had a similar response i.e. once a week and sometimes once a fortnight/month. Such a low frequency of technology integration in EFL instruction may not bring substantial change in the delivery mode of knowledge construction. Participant 'A' expressed that:

Not always, I don't use that the ICT tools to teach my subject matter, not every day but sometimes, let's say once a week, once a fortnight. It depends on the topic.

The similar view was expressed by Participant 'C':

It's not that I've made a routine but according to the course or lesson I use it …requirement based, once a week kind.

Participant 'E' used technology on the regular basis for the classroom instruction. He was found to use technology every day and frequently because his school managed to have a projector, a whiteboard and the Internet connection in each classroom. The teachers who needed to use technology, they simply got connected to the Internet through their laptop and projected the teaching materials on the whiteboard. It saved the time of going to the ICT lab or waiting in queue to get a chance. He expressed that:

It's all the time, regularly … I teach my students with ICT every day, every class …

Among the eight participants, one participant was found to use technology regularly for the classroom instruction. The rest seven participants were found to struggle to integrate technology into their classroom instruction because of the only one ICT lab available at school and also because the EFL course they taught did not require technology integration regularly in teaching as they expressed in the above extracts.

Theme 2: Lack of professional development trainings on integrating technology

The rapid innovations in modern technology bring useful devices and techniques to facilitate teaching and learning however, teachers remain unaware of those innovations in the lack of trainings. All the participants expressed their view that they did not get any professional trainings in regard of technology integrated classroom instruction. Though some of them got a basic computer training provided by DEO, NCED and other organizations that was limited to 2/3 days. Professional training programs enable teachers to update their teaching methods and integrate technology effectively if the quality of training programs and long duration of traning will be provided to teachers (Buabeng-Andoh, 2012b). When the participants were asked about their ICT knowledge and skills to integrate technology into their classroom instruction/pedagogy, many expressed that they got some basic computer knowledge informally by practicing or learning from friends. Participant 'E' expressed that:

No, no, I've not got any training … but I got those ideas and I got practice myself. Personally managed informally so I'm so interested that's why.

The similar view was expressed by all the participants. The participant 'B' expressed that:

Not formally, but when the SMART board was introduced, 1/2 days training was there on how to run SMART board, how to get the ideas, how to make lesson plan using the SMART board etc. Yes, I personally took basic computer course for 3/4 months.

Many of the participants expressed similar view regarding their technology knowledge and skills that they managed to learn informally or got a 2/3 day formal training on the basic usage of computer, SMART board. The participants agreed that a week training on using technology in instruction was not sufficient.

It is quite challenging for EFL teachers to create constructive teaching and learning environment in the classroom in the absence of sufficient technology knowledge and skills. All the participants were found quite enthusiastic to use technology into their EFL instruction at school but the prime problem was EFL teachers' insufficient technology knowledge and skills for instructional practices. Thus, their challenges are primarily oriented towards the first order barriers.

Theme 3: Workload and time constraint

School teachers in Nepal are highly loaded with 6/7 periods a day in general and also need to complete the course in the scheduled time to conduct terminal and final examinations. Moreover, Bordbar, (2010) states that the teachers who spend more time in training activities are more prepared for technology integrated instructions.

Participant 'F' expressed his view that:

… before entering the class with ICT tools the teachers should be prepared. I think without preparation, it isn't possible to go to the class and for that purpose I think teachers don't have sufficient time because within one day the teacher has to look after 6/7 periods. And it is very tough, very engaged.

He also expressed that 40/45 minutes of each period duration was not enough for technology integrated instruction:

… it's not sufficient because within 40 minutes we've to arrange everything and in our school I think in one class 40 to 50 students and paying focus to each student is not sufficient

Participant 'A' expressed his view that:
We've very limited time to manage … because we need extra hours to manage those tools and then teaching needs to be managed in modern way being in traditional setting. We need separate lesson plan … general lesson plan doesn't work.

Theme 4: Digital divide related to students

One of the important components of teaching and learning is students. They are placed in the center of school curriculum. Though these net generation students are digital natives, the lack of technology access at their home hinder their EFL learning. All the participants expressed their similar view on the challenges related to the students. They said that the students at public school in average belonged to low income families. Their family could not provide them technology access at home that created some challenges to the EFL teachers. Thus, the students who have technology access at home and who do not have, create a gap that is termed as digital divide. Bernard, (2011) opines that digital divide refers to the gap in equality between those who have access to computers and the Internet and those who do not have. Those who have technology access at home could practice more and do assignments given by their teachers. On the contrary, the majority of students either need to go to cyber or to their friends' home to do assignments.
Participant 'E' expressed that:
… all the students don't have ICT access, it may be the challenge. All the students don't have laptops and computers at home but these days children have been very crazy to play with ICT tools and everything has two sides; good and bad sides.

Participant 'A' mentioned that:

…our source students are from lower middle class so most of them don't have … they go to cyber to do the assignments, cyber is available here in the city area.

Theme 5: Lack of administrative and colleagues support
Administration is one of the basic pillars of any academic institution. It maintains all the required infrastructures, boosts up teachers' uptake in regard of managing professional trainings to update in-service teachers for better instruction, creates academic environment, co-ordinates with educational stakeholders and so on. Some of the participants reported that their school administration was not primarily in favor of technology integrated instruction. It believed that technology integrated instruction was wastage of time that delayed to complete courses in time.
The participant 'B' expressed that;
… they say that from the admin that it's not time to be there, the lab is pack … even though we're mentally prepared, we've to postpone for the other time.

Similarly, leg pulling and back biting discourage EFL teachers from technology integrated instruction. Further, the participant 'A' mentioned that:

... the tools which are available here, we can use but there're still hidden factors ... there's leg pulling, back biting etc. if someone is working actively or moving with the time ... she is ... O! Why she is doing such but in my case I don't care ...

The similar view was expressed by the participant 'D' that the EFL teachers who were stick to traditional mode of instruction, did not want others to go for the technology integrated EFL instruction. Thus, lack of support from administration and colleagues discouraged EFL teachers to integrate technology into their EFL instruction.

Results & Discussion

This study was conducted to explore the barriers to technology integrated EFL instruction at public secondary school. Qualitative research approach guided the study to explore the lived experiences of EFL teachers through semi-structured interviews. The phenomenal experiences of purposively selected eight participants were analyzed thematically based on the interview data. Five themes emerged from the thematic analysis of the interview data that were found to create barriers to effective integration of technology into EFL instructional practices. The first four themes are commeon among all the participants expect the last theme that was expressed by the two participants as one of the critical barriers for effective implimentation of technology into EFL instrcution.

The first theme revealed the fact that there are a limited number of technology resources at public secondary school. Mostly these schools have a hall like ICT lab with SMART board, laptop, projector, sound system, Bluetooth, TV screen, Internet connection and power back but one of the schools has projector in each classroom instead of an ICT lab. Having a projector in each classroom is very commendable however, that still lacks sufficent technology infratsruture equal to the number of students like all other schools. The limited technology resources casued EFL teachers to have low frequency of technology integration into EFL instrction i. e. once a week/fortnight or month. The participants refleted that there were a number of sections of each class and one ICT lab that made them wait for their turn. Thus, insufficient technology insfrastructure at school was found to be one of the major barriers for EFL teachers to integrate technology into their instructional practices. Findings on the second theme brought the result that lack of professional trainings to integrate technology into instructional practices made EFL teachers to be confined to their basic knowledge and skills of technology. Most of the participants have basic knowledge and skills of technology use that they managed personally either formally or informally. A few participants got a 2/3 day traning program on technology use conducted by DEO, NCED & NGOs/INGOs, however, that tranings were not sufficient for their professional development. Further, Giri (2010) states that the in-service training programs conducted by the Department of Education (DEO) is ritualistic and ineffective that is usually administered by under-qualified and poorly trained trainers. Thus, EFL teachers' basic knwledge and skills of technology made them confine to word office, powerpoint presentation, downloading EFL content materails; audio/video through Google surfing etc. which are basically low usage of technology. They lacked skills to integrate specific EFL websites into their instructional practices that hindered the effective technology integration. Findings on the third theme revealed the fact that EFL teachers at secondary schools regelary teach 6/7 periods a day that make them highly loaded with teaching hours. Moreover, technology integrated instruction requires some extra time for planning an effective EFL lesson. Additionally, the duration of 40/45 minutes of each period was found insufficient for technology integrtaed instruction. As most of the schools has one ICT lab away from

classrooms that is set in trdaitional way i.e. two row sittings for students facing a SMART board or White board. Thus, EFL tecahers need to spend 10/15 minutes in managing the ICT lab and students there and in remianing 30/35 minutes, they need to pack up their instructional activities. Further, they reflected that they compulsorily need to complete the course in time i.e. before the eaxmination that puts extra burden on them to be worried more about course complition rather than the technology integrtaed instrruction. Some of them expressed that they need to spent much time on Google searching for authentic EFL materails related to the course contents. It is quite geninue that EFL teachers need extra time and some reduction in the workload for effective integrtaion of technology into their instructional practices. Therefore, the barriers of workload and time constraint need to be revised for better perfomance of EFL teachers with technology. The barrier in terms of digital divide related to students created gap in their performance. Majority of students at public secondary schools come from low income families, they could not provide their children technology access at home. A few students do have technology access at home and they could do home assignments given by teachres or could practice more using technology. Moreover, all the participants expressed that they gave a very few home assignments to students for some practice. The students who did not have technology access at home, used to do assignments going to cyber or friends' home. If there were sufficient technology infratsruture at school, the students would have done project work/assignments more often to get EFL proficiency along with developing technology skills. The final theme, lack of administrative and colleague support was found to be as one of the major barriers of technology integrated EFL instruction. Some aprticipants who were highly in favor of technology integrtaed instruction revealed the fact that the support from school administration and colleguages was most to ecourage EFL teachers, however, it lacked as administration showed disinterest, and leg pulling and biting from colleagues hindered EFL teachers from technology integrated instrcution.

This study explored EFL teachers' experiences of barriers to technology integrtaed instructional practices at public secondary schools that suggests to overcome the existing barriers by providing sufficient technology infrastructure at school, professional trainings based on technological pedagogical technological knowledge (TPACK) framework (Mishra & Kohelar, 2006) for EFL teachers to integrtae technology into instructional practices, managing teachers' workload and time constraint, bridging up digital divide by providing technology access to students at school in leisure time and providing support from school administration and colleauges could work as encentives for EFL teachers to promote them for effective technology integration into their instrcutional practices.

TPACK is an effective model for the teaching profession that emphasizes on technological knowledge and technology integration into instructional practices (Mishra and Koehler, 2006). Thus, it is necessary for a teacher to get mastery over all seven constructs of TPACK; Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Knowledge (TK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK) and Technological Pedagogical Content Knowledge (TPACK) (Mishra and Koehler, 2006). Moreover, the theory of constructivism as discussed above requires technology tools to mediate learner-centered teaching approaches. It is globally seen through research perspectives that modern technology has educative potenials to be used as educational tools that facilitate learning to develop the skills of the 21st century.

Conclusion

Effective technology integrated EFL instructional practices at public secondary schools requires to be filled the visible lacks in terms of insufficient technology infrastrture, technology integration trained EFL teachres, revised workload and time constraint to integrate technology, bridge up the digital divide related to students, and supportive school leadership and colleagues' attitude towards technology integrated instruction. It is pertinent to the education policy makers to take concrete visiononary steps for minimizing barriers and maximizing successful integration of technology in school education. Additionally, professional training programs based on some technology integrtaion models like TPACK (Mishra & Kohelor, 2006) will help EFL teachers to integrate technology for pedagogical purposes. Only the trained teachers can better create student-centered learning environments that basically promote students to construct knowledge. Thus, the traditional mode of transmission of knoweldge through teacher-centered approaches/methods is outdated because it is the global need of the 21st century to produce digitally competent human resources from academic intitutions who could construct and share knowledge on their own. Moreover, it is recommended that some further in-depth studies should be done to explore EFL teachers' knowledge and skills of technology integration, their perceptions, beliefs and attitude of technology, the role of school leadership towards technology uptake and bridging up digital divide.

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