



Assessment of Teacher Education Curricula in Nepal: An ICT Perspective.

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Schools and colleges in Nepal face a growing number of challenges when it comes to information technology, and few are more pressing than the need to prepare teachers who can promote effective use of digital technologies. In this regard, this paper assesses Nepali universities' teacher education curricula from the perspective of safe, effective and responsible use of ICT. Using a desk based approach to curricula review in the first phase and drawing on the perceptions of teachers and students in the second phase, this paper presents a realistic assessment of the status of teacher education curricula in Nepal. The paper underscores that safe and responsible use of ICT is not just teaching about ICT; it is a culture that needs to be cultivated to help create a learning environment involving responsible use of open educational resources.

Keywords: Teacher Education Curricula, Nepali Universities, ICT in education, open educational resources



Introduction

Education is changing in terms of what, where, how and why students learn and who they learn from and digital technologies are impacting education likewise (NetSafe & Ministry of Education, 2015, p. 1). Likewise, “the use of ICT has expanded tremendously at home and in school and children are increasingly introduced to ICT at a very young age” (UNESCO, 2015a, p. 11). Therefore, it is essential for schools to create a learning environment involving responsible use of digital technology since schools and colleges are facing a growing number of challenges and delusions about the use of ICT (including online security to misuse of information) in teaching and learning.

Among all problems, in the context of Nepal, which stands at 2.37 (falling short of the developing-country average 3.84) in the ICT Development Index (IDI) 2013 in the Asia-Pacific region (International Telecommunication Union, 2014, pp. 92-93), the need to develop teachers who can promote “safe, effective and responsible use of ICT (SERU-ICT)” (UNESCO, 2015a) in their classrooms is the most pressing one. Given the context that use of ICT in school education has been mandatory (Ministry of Education, 2013), it is firstly important to prepare and develop teachers for the use of ICT in their classrooms. In the recent years, an increasing number of teacher education programs are recognizing the importance of ICT skills for teachers and are now offering such courses (Hubbard & Levy, 2006, as cited in Shin, 2015, p. 181). Such opportunities keep teachers “aware of the need to enhance their ICT integration practices, and keep them current with the ever-changing face of ICT” (Lim, 2013, p. 10). Moreover, throughout their teacher education experience, the participating teachers or would-be-teachers learn about and with technology and how to incorporate it into their own teaching (UNESCO, 2002a, p. 32).

Although most of the instructional technology or ICT courses may acquaint teachers in the art and science of using ICT for teaching and learning in classrooms, it should be noted that such courses should encourage and promote safe, effective and responsible use of ICT. Therefore, teacher education institutions, mostly universities in Nepal, which play a crucial role to ensure that the teachers can make and promote safe and effective use of ICT in schools and beyond, are offering some teacher preparation and development courses. In this regard, teacher education curricula are vital in preparing teachers with the knowledge and skills in management of safe and responsible use of digital technology for learning.

In this study, the authors have discussed the curricula of Bachelor of Education and Master of Education programs, which are considered to be preparing (pre-service) teachers and equipping (in-service) teachers with necessary pedagogical skills. Therefore, the purpose of this study is to analyze and critique on the status of Nepali universities’ teacher education curricula (BEd and MEd) from the perspective of SERU-ICT. More specifically, the following research questions framed this study:

- What is the current status of safe, effective and responsible use of ICT in teacher education curricula in Nepali universities?
- What pragmatic implications can be drawn about enhancing safe, effective and responsible use of ICT in teacher education curricula in Nepal?

ICT in Teacher Education Curricula

There are many mechanisms of teacher development for both pre and in service teachers. One of the major and formal aspects is covered by universities. So the purpose of the research is

meaningful, justifiable and even significant due to the fact that the heart of the university functions through its curriculum. There are different ways to envision curriculum. What most teachers and societies envisage as an important teaching and learning process constitutes the "intended" curriculum. Since it is usually presented in official documents, it may also be called the "written" and/or "official" curriculum (Kelly, 2009). However, at the classroom level, this intended curriculum may be altered through a range of complex classroom interactions, and, moreover, what is actually delivered can be considered the "implemented" curriculum. What learners really learn (i.e. what can be assessed and demonstrated as learning outcomes or learner competencies) constitutes the "achieved" or "learned" curriculum (UNESCO, 2015b). The scope of this research, however, is limited only to the official curricula of some selected universities in the Nepal. Furthermore, the research is limited to unfolding the overall status of teacher education curricula from the perspective of SERU-ICT.

It is commonly held that a teacher education curriculum should have some components of ICT, if not a distinct course, since we are living in a digital age and are dealing with digital citizens. In this regard, a framework for ICTs in teacher education has been proposed by UNESCO in 2002.

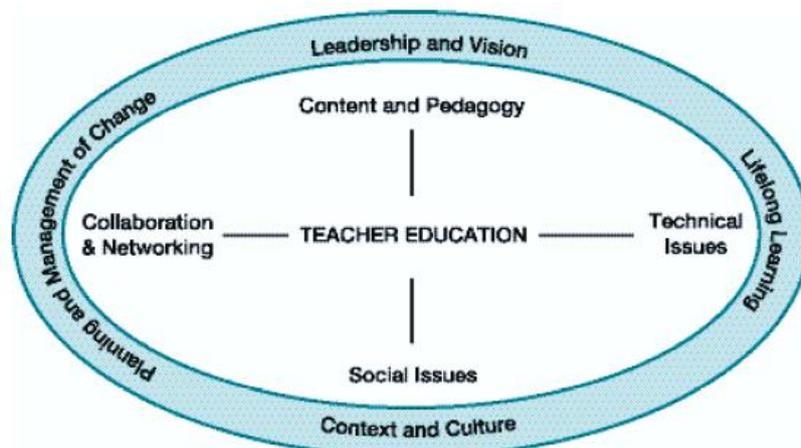


Figure 1: Framework for ICTs in Teacher Education (UNESCO, 2002a, p. 41)

Digital technologies help educators become more connected, however it is important to “integrate technology with modern educational techniques” (Swanson, 2015, para. 1). Swanson (2015) further adds that as educators build relationships, they can then share knowledge and learn from each other. And when this happens, learning improves for all students. 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 (United Nations Group on the Information Society, 2013, as cited in UNESCO, 2015a). This is largely achieved by fostering a positive culture of digital technology use where challenges are understood to exist. This approach is supposed to “reduce negative outcomes by reducing the incidents of misconduct involving digital technology, and by minimising harm to students by effectively responding to incidents when they occur” (NetSafe & Ministry of Education, 2015, p. 4). Studies of teaching and learning in schools around the world identify four broad stages in the way that teachers and students learn about and gain confidence in the use of ICT. These four stages give rise to the model depicted in Figure 2 that shows the stages in terms of emerging, applying, infusing and transforming (Miao, 2014).

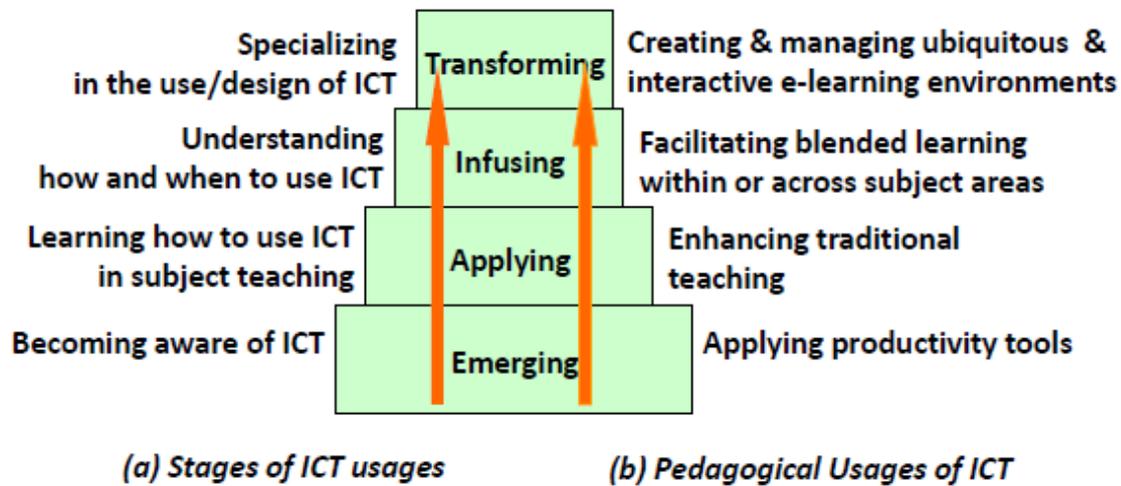


Figure 2: Four stages of teacher development on ICT-pedagogy integration (Miao, 2014) SERU-ICT as a Worldview

The authors have taken SERU-ICT as a worldview in facilitating meaningful learning with the use of ICT. This worldview is based on the principle of developing respectful relationships among teachers, learners, learning content and instructional tools and technology.

According to UNESCO (2015a), “Digital technologies change at a rapid rate, and it will be very challenging and difficult to keep up with measures to prevent and mitigate risks associated with ICT use”, therefore it is important to ensure that ICTs are used appropriately. Thus, SERU-ICT as a worldview is intended to “educate children, teachers, and parents on digital literacy and citizenship” (UNESCO, 2015a, p. 3). Moreover, SERU-ICT basically involves creating a safe digital environment where young digital citizens can comfortably and confidently take advantage of technologies in an ethical and responsible manner in order to allow them to successfully participate in and contribute to knowledge society.

In order to promote safe, effective and responsible use of ICT in classrooms, greater responsibility comes to the teacher education institutions that can produce teachers who can make SERU-ICT a priority. Therefore, teacher education institutions’ curricula aim at developing digitally resourceful and responsible teachers for the changing school contexts, who holds SERU-ICT as a culture or belief system.

Methodology

The authors applied a desk research (DJS Research, 2015) approach to explore the existing status of SERU-ICT in teacher education programs in Nepali universities. In Nepal, there are nine universities in operation and three more universities are already in the process of being opened up. Among the presently functional universities, 4 are running Education programs which are considered to be preparing and developing teachers at different levels. The authors purposively selected the teacher education curricula from two universities, namely Tribhuvan University (TU) (both BEd and MEd curricula) and Kathmandu University (KU) (only MEd curriculum), which have established themselves in teacher education. Moreover, the authors also based their selection on the universities’ service catered to the number of students. Combining both TU and KU, they cover almost 85% of total higher education students in Nepal (Martin Chautari, 2015). After

selecting the universities, the authors visited the universities' respective online portals to search for their teacher education curricula. Finding the entire curricula of the education programs on the Webpage was a challenge. Therefore, the authors also had some rounds of email correspondence with the concerned programme coordinators about making their curriculum available to the authors and also exploring their observations on ICT and SERU-ICT in such curricula.

After the collection of the curricula, the authors looked for ICT as keyword in all the course description. They sorted out the courses that are enlisted as ICT courses and that have the keyword ICT in their course descriptions. The courses that have ICT components but are not explicitly mentioned in the curriculum and the course outlines were not included in this study. Then, they developed an analysis matrix for each curriculum from the perspective of SERU-ICT. Given this context and their methodology, looking through the lens of SERU-ICT would mean to see the indicators of digital literacy and citizenship (how to be a good citizen in the digital world, UNESCO, 2015a, p. 3) in the teacher education curricula of Nepali universities. Therefore, in the analysis matrix, the key elements of digital literacy and digital citizenship have been adapted from UNESCO (2015a). After developing the analysis matrix, the authors filled the *matrix* with each of the selected university's teacher education programs. A tick (✓) is used to show the direct relationship between the subject and the indicators and a cross (×) is used to show the indirect relation (or absence of relationship) thereof.

Table 1: Matrix for Curriculum Analysis From the Perspective of SERU-ICT

University/Institution: Program:		Remarks
Course	ICT tools, Responsible, Safety, security, Values benefits of legal (rights) wellness, and reinforcement ICT use, and and ethical protection against (respect, e-learning behaviour risks (frauds and empathy, etc.) awareness)	

In the second phase, the authors also interviewed a course tutor from each university, a student each currently studying a teacher education programme in the selected universities and an ICT integration specialist from KU. The data obtained from the second phase (through interactions with the teachers, students and ICT integration specialist) were used to supplement the preliminary findings of the desk research. Where clarifications were needed to confirm the authors' notations (tick or cross) in some courses, they also asked the concerned course facilitator and students. After the analysis and subsequent interpretation, findings were drawn and discussed further to make some pragmatic recommendations.

Analysis of University Specific Curricula

There is a consensus among teacher education practitioners that the orientation of a country's education is determined largely by the curricular orientation of its teacher preparation programs. Whether or not schoolteachers promote safe, effective and responsible use of ICT and likewise learning environments can be attributed to their own curricular experiences as participants of pre-service and in-service teacher education programs. Thus, it is imperative to analyze teacher preparation curricula with a view to exploring the extent to which the key elements of SERU-ICT (covering digital literacy and digital citizenship) are incorporated in them.



Tribhuvan University

Tribhuvan University, founded in 1959, is the oldest and biggest university of Nepal, which covers more than 80% of the students in the country (Onta & Uprety, 2014, para. 1). This public university has a key emphasis on preparing teachers and teacher trainers as per its vision of documented curriculum. For that, the University has been offering subject specific courses in Bachelor, Master, MPhil and PhD levels in the Faculty of Education.

Master of Education (MEd) programme in Faculty of Education (FoE), Tribhuvan University (TU) is a two-year academic as well as professional training programme. FoE through this programme has been producing competent educational professionals such as teachers, teacher educators, curriculum specialists, educational planners, managers/administrators and researchers for more than three decades. M.Ed. in TU has a special feature in the sense that it provides content as well as pedagogical courses to the learners in a balanced way (Tribhuvan University Faculty of Education [TUFoE], 2015).

The curriculum of MEd comprises professional (core) courses, specialization courses and elective courses. Specialization areas offered in MEd programme include Curriculum and Evaluation, Educational Planning and Management, Nepali Education, English Education, Mathematics Education, Science Education, Health Education, Physical Education, Population Education, Geography Education, History Education, Economics Education, and Political Science Education (TUFoE, 2015). The courses are delivered through project works, assignments, seminar, case studies, and field studies in addition to lecture sessions. TUFoE is also preparing master programs in the Open and Distance Learning (ODL) mode (TU, 2015). Regarding this, the Head of the Department of Online Education stated that:

In the existing programs, besides ICTEd, we do not specifically have any course on ICT or technology. But in the new program, that we are revisiting the courses also, we will certainly have at least one course on ICT in Education. (Head of the Department and tutor, Online Education/TU)

However, looking into the curricula of Teacher Preparation Course (TPC) (one year training covering BEd first year curricula), Bachelor [regular academic and one year (professional)] and Master programs, the researchers could not find a single course on ICT or Technology in Education, let alone SERU-ICT, in the subject areas mentioned above. A student participant remark in this regard was succinct:

It is a pity that we do not have any courses on use of ICT in teaching. As we go for teaching practice, we feel the need to have some knowledge of ICT use in pedagogy, which we dearly lack in the present curriculum. (MEd Second Year Student, TU)

As the teacher and the student reported, the authors could not find any course as such, however, a few courses have indirectly touched upon some of the indicators of ICT in teaching and learning, which they did not find worth mentioning in the matrix.

On the other hand, TUFoE has started a new course in both Bachelor and Master's level on Information and Communication Technology Education since 2013 (MICTED, 2013). Faculty of Education started M.ICTEd. programmes in Sanothimi Campus Department of Information and Communication Technology, Bhaktapur, Nepal. M.ICTEd. course is designed to meet the needs of Information Technology professionals. The basic objective of this program is to prepare skilled

and qualified instructors and teachers for ICT. In the following analysis matrix, the authors present the review of the curriculum from the perspective of SERU-ICT.

Table 2: Analysis of Tribhuvan University Teacher Education Curricula

University/Institution: Tribhuvan University, Faculty of Education					Remarks
Program: Master of Education and Bachelor of Education (ICT.Ed.)					
Course	ICT tools, benefits of ICT use, and learning	Responsible, legal (rights) and ethical behavior	Safety, security, wellness, and protection against risks	Values reinforcement (respect, empathy, etc.)	
ICT Education Theory and Practices	✓	✓	✓	x	M.ICT.Ed.
Fundamentals of Computer and IT	✓	x	x	x	M.ICT.Ed.
Computer Fundamentals & Programming	✓	✓	✓	x	B.ICT. Ed.
Teaching ICT, Object Oriented Programming & Database	✓	x	✓	x	B.ICT. Ed.
E-learning	✓	x	✓	x	B.ICT. Ed.

Note: Courses on ICT.Ed. are heavily technical and not directly related to teaching, however they address one or the other element identified in the analysis matrix. For example, the course “Communication & Cyber Law” focuses on safety and security issues as well as legal issues and thus inculcates the value of integrity in the learners. To ease our analysis and make this comprehensible, here the authors have included only those courses that are explicitly related with teaching and learning.

As the review of the curricula depicted, even the courses on ICT, related to teaching and learning, both at the bachelor and master level, lack the part of value reinforcement. And even across similar courses, there are cases of discrepancy. To highlight, a course for example, “Computer Fundamentals & Programming” covers computer and internet ethics. Likewise, it covers computer securities, IT policy and cyber laws, which parts (safety, security and ethical behavior) are largely lacking in the course “Fundamentals of Computer and IT”. This indicates that there is a long way to go for revisiting the courses from the perspective of SERU-ICT.

Kathmandu University

Kathmandu University School of Education, situated at Hattiban, Lalitpur has run the MEd, MPhil and PhD programs in education. There are four specialization areas, namely *English*, *Mathematics*, *Sustainable Development*, and *Leadership and Management* in Master’s program. Similarly, it has four specializations in the MPhil program, viz. *Education Leadership*, *Development Studies*, *English Language*



Education and Mathematics Education. Likewise, it has been offering PhD in Education specializing in *Educational Leadership and Development Studies* since 1998.

Kathmandu University School of Education's aims "to offer high quality teacher education programs with a holistic approach, and to play a key role in developing competent teachers, trainers and educational leaders" (KUSOED, 2015). While reviewing the core curricula of teacher education program of KUSOED (2014) as *documented curricula*, it was found that the University has been trying to promote ICT as a pedagogical tool and a way for transformative education practice, which the participants also referred to (ICT) as a culture at KUSOED. During the research, the authors discussed with some of the students and teachers at KUSOED, who said that ICT skills is an important attribute of KUSOED students. The authors took this note as a helpful indicator of practicing SERU-ICT as per this research framework.

The KUSOED curricula was found to have covered the idea of educational technology in various subjects as crosscutting element. Moreover, teaching ICT as a subject was found to be a priority there, besides teaching through ICT. However, since the authors got a bunch of courses of ICT, they have not covered other indirectly related courses for analysis here.

During their research, the authors also talked with a student, a course tutor and an ICT specialist at KUSOED. One of the participants said:

The most obvious technique for professional development for teachers is to provide courses in basic ICTs knowledge and skills, therefore, we have at least one course each program. (ICT integration Specialist, KU)

The authors also found that ICT, Technology, Computer, Internet, Network, Collaborative learning, are the buzzwords at KUSOED programs, which often appeared frequently across courses, though the courses were not typically titled ICT or something similar. Another participant expressed:

Using ICT as the means of our teaching and learning, we seek what can be done to improve student learning and what opportunities can be created for them. (Course Tutor, KU)

This remark of the participant was in line with UNESCO's (2002a) highlight in that it states "the development of ICTs does not improve education if the focus is on ICTs. The vision must focus on what ICTs can do to improve education" (p. 36).

Here, the authors present the overall review of KUSOED master program curricula being based on their analysis matrix.

Table 3: Analysis of Kathmandu University Teacher Education Curricula

University/Institution:	Kathmandu University, School of Education				Remarks
Program:	Master of Education				
Course	ICT tools, benefits of ICT use, and e-learning	Responsible, legal (rights) and ethical behavior	Safety, security, wellness, and protection against risks	Values reinforcement (respect, empathy, etc.)	
ICT in English Language Teaching and Learning	✓	x	x	✓	English (F2F)
Academic Reading and Writing	✓	✓	x	x	English (F2F)
CALL	✓	x	✓	x	English (F2F)
ICT in Mathematics Education	✓	x	x	✓	Mathematics (F2F)
ICT in School Management and Leadership	✓	✓	✓	x	Leadership & Management (Online & F2F)
ICT in Teaching and Learning	✓	✓	✓	x	Pedagogical Studies(Online)
EDSD Technology in Sustainable Development	531 ✓	x	✓	x	Master in Sustainable Development (F2F)

The strength of KUSOED master's programs seems to be underpinning the importance of teaching ICT explicitly in the curriculum that would allow pre/in service teachers to visualize teaching theory and, developing necessary skills to support learning in a more vivid manner. In this regards, a participant said:

KUSOED's pedagogy directly supports effective professional development of teachers in to how to use ICTs in teaching and learning. I think KUSOED has brought an instructional shift in teacher education, preparing 21st century teachers to teach the 21st century learners. (MEd 3rd semester student, KU)

Again, like that at TUfoE, however, at KUSOED as well, the authors found greater part of values reinforcement lacking. The courses which have been marked positive (✓) under the column of “values reinforcement” have briskly caught “collaborative learning”. Likewise, the university curricula seem to have been dominated by the uses of ICT in teaching learning practices and thus largely neglected the safe and responsible use of it. In this sense, Nepali universities have much to work further to enhance their ICT embedded practice in that, “a healthy ICT environment requires heightened awareness of the social, ethical and legal aspects of its use” (Central Institute of Educational Technology, 2013).



Although there is no such a course called SERU-ICT in any of the KUSOED programs, most of the indicators of SERU-ICT as per the framework of this research were found to be addressed in one way or the other. The course description on EDLM 516 ICT in School Management and Leadership clearly states that it “introduces basic foundations of ICT tools and techniques used in education fields. The aim of the course is to develop competency and ability to use ICT techniques in a school” (KUSOED, 2014). The program on Leadership and Management is for the school leaders who would learn about integrating ICT into the overall school system, including in instruction. Further, they help their teachers to select best educational technology to suit their teaching needs. The ICT integration specialist also said:

There are so many digital educational tools today that teachers should choose the best fit for their students and guide students to make their most effective use. (Course tutor, KU)

Moreover, the ICT courses aim at developing the ability of school teachers to interlink ICT in facilitating teaching learning process and enhance the access opportunity to the rapidly growing knowledge realm of the 21st century. Most of the courses focus on developing “awareness on ICT related security precautions” (KUSOED, 2014). In terms of values reinforcement, most of the courses lack explicit ideas, yet they state that students will demonstrate critical, reflective and creative understanding of ICT values that shape students’ own practices in integrating (e.g. Mathematics and English) teaching and learning (KUSOED, 2014). Moreover, all ICT courses at KUSOED have UNESCO E-Learning Series on ICT in education as a basic component.

Regarding the practice of ICT use in instructional pedagogy, the ICT integration specialist said:

In response to our college’s new requirement that all the educational materials we use in the face-to-face class must be digital(ized), and thus uploaded in the Moodle course platform, we have given sufficient trainings to our faculty. (ICT integration specialist, KU)

It seemed that KU has realized that “Dedicated training sessions help familiarize teachers with the new digital tools and resources” (Zurier, 2015, Modern Classroom Section, para. 6). To sum up, KUSOED seems to be promoting SERU-ICT in Nepal, from which TU has to learn much.

Implications

Based on the analysis and discussion of the findings above, the authors drew the following key implications of this study.

- Nepali teacher education institutions need to equip Nepali teachers with the knowledge and skills in management of safe and responsible use of digital technology for learning.
 - The first step towards ensuring this would be building the institutional capacity of the teacher education institutions (TEIs) in designing and providing the training on ICT-pedagogy integration for pre-service and in-service teachers.
- Effective initiatives are required to integrate ICT in the curriculum as today’s technologically competitive world needs integration of ICT in education.
 - For better, it is important to have a distinct course or a chapter on SERU-ICT in teaching and learning.
 - Since ICT is a crosscutting subject/issue, it is to be integrated in all programs.
 - If it is not possible to introduce ICT as a distinct course like in KU, TU needs to incorporate greater part of ICT use and awareness in most of teacher education courses.



- ICT enabled teaching-learning should be a priority in today's world that encompasses a variety of techniques, tools, content and resources aimed at improving the quality and efficiency of the teaching learning process.
 - It is important at least to introduce ICT in all teacher education institutions so that all teachers are familiar with ICT pedagogy.
- As school headteachers play an important role in establishment and utilization of ICT and ICT enabled education practices in schools, all school headteachers may undergo appropriate orientation in ICT and ICT enabled education training programmes.
 - This will also help them in building up digital resources for schools, and that they can ensure the safety of the ICT infrastructure and the optimum use of the ICT facilities.
- Universities can design curricula with a view to developing digitally resourceful and responsible teachers and headteachers for the changing school contexts, who can practice and advocate SERU-ICT as a culture.

Conclusion

Though the use of ICT in school education has been mandatory (Ministry of Education, 2013), not many teacher education programs have focused safe and responsible use of ICT in their teacher education curricula in Nepal. The paper deliberates that Nepali universities take pride in the existing teacher education curricula that aim at developing ICT capability in learners in finding, selecting and using information. However, it further appraises that it is essential to encourage teachers for themselves and for their learners to make safe and sensible use of ICT. The paper reveals that there is no such a course called SERU-ICT in either of the universities studied in this study. Nonetheless, most of the components of it have been addressed in Kathmandu University curricula, whereas this seemed to be neglected in Tribhuvan University's teacher education curricula, excepting ICT.Ed. Program. Finally, the paper suggests that SERU-ICT is not just teaching about ICT; it is a culture that needs to be cultivated to help create a learning environment involving the safe and responsible use of digital technology and (open) educational resources.



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