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Challenges in Enhancing Digital Competence of Teacher Educators

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Abstract

21st century is of digital nature. Educational needs of learners are changing faster than a teacher can cope up with. Keeping that in mind the teachers should focus on achieving digital competencies and explore new pedagogical innovations and new endeavors of research methodology. The teacher educators must in turn understand that the use of digital content and devices will improve the teaching learning process. Teachers are facilitators and producers of creative learning environment for 21st century classrooms where students can develop their creativity, critical understanding, problem solving and collaborative skills which are the core competencies of this century (Walder, 2014). The purpose of this paper is to present common challenges faced by teacher educators when attempting to integrate technology in the classroom, and offer potential solutions to those problems. The paper is based on a study 'Digital Competence of Teacher Educators- Present Status, Future Needs' conducted by the researcher as part of the Senior Fellowship (PDF) project awarded by ICSSR, New Delhi. The study highlighted how there is a need to provide opportunity for the professional development of teacher educators so that they are able to effectively seek, analyze information digitally and integrate Technology in their teaching learning process which has the potential to bring change in the whole educational process. If the teacher educators are digitally competent then they will be able to inculcate a scientific attitude in future teachers.

Key words: Digital competence, ICT, professional development

Challenges in Enhancing Digital Competence of Teacher Educators

The illiterates of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn -**Alvin Toffler.** Today, we live in a technology driven environment, marked by an access to an abundance of knowledge, rapid changes in technology tools and the ability to collaborate and make individual contribution on a large scale. In the era of knowledge based society, technological education has assumed a significant role. The new developments in Information Technology have opened up fresh perspectives in teaching and learning. With the advent of internet and World Wide Web, the access to information has become very easy and the entire world is moving towards digitization. Millennium century skills focus on analyzing, accessing information and then creating and sharing this in smart ways. The advancements in technology and the availability of powerful and innovative digital devices and tools have a great potential to improve educational outcomes. For teachers to become competent in the usage of digital medium means going beyond the competence with the latest tools, to developing an understanding of the complexity of relationships of users, technologies, practices and tools. Pedagogy of 21st century wants teachers to be resilient, independent and flexible learners. Effective citizens and workers must be able to exhibit a range of functional and critical thinking skills such as – information literacy, digital literacy, media literacy and ICT. UNESCO defines Information Literacy as – "Information Literacy is the capacity of people to

recognize their information needs, locate and evaluate the quality of information, store and retrieve information, make effective and ethical use of information and apply information to create and communicate knowledge". Connecting and interacting through technology will help in moving traditional learning towards interactive learning relationships, learning procedures and learning opportunities with infinite possibilities. Technology is being used more and more in our daily lives and the trainee teachers need to be able to model effective use of technology to the children they are teaching. UNESCO's Sustainable Development Goal for Education (SDG4) to 'Ensure inclusive and quality education for all and promote lifelong learning', identifies three broad but distinct areas of digital skills for life and work. These skills are essential for teacher educators also. These are:

• Basic functional digital skills for accessing and engaging with digital technologies;
• Generic digital skills for using digital technologies in meaningful and beneficial ways;
• Higher-level skills for using digital technology in empowering and transformative ways.

The importance of digital competence for teacher educators is immense. The term digital literacy was first used in 1997 by Paul Gilster who defined it as: a set of skills to access the internet, find, manage and edit digital information, join in communications, and otherwise engage with an online information and communication network. Digital literacy is the ability to properly use and evaluate digital resources, tools and services, and apply it to lifelong learning processes (Gilster, 1997, p. 220). In terms of teacher education, producing digitally-literate students has generally meant the prioritisation of technical skills in using digital tools and systems which may be useful in educational settings, and identifying how these can be used within particular units of learning (Admiraal et al. 2016). This approach assumes that doing this, "equips pre service teachers with a set of basic competencies they can transfer to their future classroom practice" (Admiraal et al. 2016, p. 106). However, these approaches have been criticized for their narrow focus on skills, lack of authenticity, failure to take account of different socio cultural contexts for technology use, and their ineffective design (Gruszczynska et al. 2013; Lim et al. 2011; Lund et al. 2014; Ottestad et al. 2014). But a much broader concept than digital literacy is digital competence. "Digital competency clearly involves more than knowing how to use devices and applications which is intricately connected with skills to communicate with ICT, as well as information skills. Sensible and healthy use of ICT requires particular knowledge and attitudes regarding legal and ethical aspects, privacy and security, as well as understanding the role of ICT in society and a balanced attitude towards technology "(Janssen et al. 2013, p. 480). The paper is based on a research aimed at assessing the level of digital competence of teacher educators of Meerut district and the challenges being faced by them in enhancing their competencies. The research work was funded by ICSSR, New Delhi. It focused on the need to expand teacher educators' understanding of the competencies required to function effectively, safely and ethically in a highly complex and digital environment and the importance of this in relation to their role of educating young people to help them build capacity to take advantage from digital resources and information in safe, secure and sustainable way. Digital competence has been identified as one of the eight key competences defined by the European Commission (2006). This competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion

and/or participation in society (Ferrari, 2013). The purpose of the study was to know the perceptions of teacher educators about the level of their digital competences and how it helps them in their profession. Also, what challenges they faced in the process of enhancement of their digital competence and what steps were needed to overcome them. Although teachers generally appreciate the benefits of educational technologies, they often find smooth and effective integration of new educational technologies challenging. From acquisition of new technology equipment to adaptation of curricula and teaching techniques to incorporate new educational tools, technology integration presents significant challenges to teacher educators of each level.

Methodology

The study examined teacher educators' attitude towards technology, their knowledge regarding latest innovations and the level of competence in the use of technology. Also the extent to which they use digital skills in their academic work and the challenges faced by them in adapting and adopting to the technology in pedagogical practice and how initial or continuing training programs influence this use. The study involved teacher educators and for data collection, an online as well as offline semi-structured questionnaire was used. The population consisted of all the teacher educators working in various teacher training institutions in Meerut District. Descriptive research method was used. It involved knowing the attitudes of teacher educators towards the use of digital medium and how competent they are in using it.

Results

Examination of the issues of the problems faced by teacher educators in embracing digital technologies should be valuable to current and future educators, school administrators, as well as educational technology researchers. The research highlighted the challenges to technology integration that are external (extrinsic) to the teacher educators, including access to resources, training, and support. It also gave an insight into the barriers that are internal to teacher educators, including their attitudes and beliefs, resistance toward technology in the classroom, and their knowledge and skills. First, issues surrounding insufficient equipment or connectivity can be termed as access constraint. If a teacher educator's institution does not possess adequate computers and fast internet connection, the implementation of educational technology is not feasible. Next important factor that emerged was the challenge of inadequate training related to technology. Technology is changing rapidly with new innovations coming up each day. To keep pace with these changes teacher educators need training on a regular basis. If teacher educators are not provided effective professional development on new technologies, they will not be capable of using it to its full potential. Another important factor was support which includes inadequate technical support and administrative/peer support. While teachers are expected to integrate technology into the classroom, the reality can be very different. Some of the issues teacher educators face relate to the technology itself. Was there enough of the right professional development to help teacher educators become proficient in digital technology? This is even more challenging due to the ever changing nature of technology with new innovations happening each day and keeping pace with them is a very cumbersome task. These are the concerns which need immediate attention if the issue of digital competence of teacher educators is to be resolved.

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Discussion

Gillen and Barton (2010) point out that 'Learning is always connected to specific domains of activity– the settings, participants, discourses and dynamics of participation' (p.5). Over the years, a variety of frameworks, and models have been developed to guide teachers in their efforts to build digital capabilities in their students, that will support them to use new and emerging technologies in their future classrooms. Generally, there has been more focus on advancing students' skills in using 'educational' applications and digitally-sourced information, or understanding effective pedagogical content and technological knowledge but less emphasis has been on the enhancement of the digital competence of the teacher educators who are the building blocks of the whole educational system. Within teacher education institutions courses developing teaching capabilities there is an assumption that technology integration in the course is simply the inclusion of ICT as a discipline or in the form of assessment. However, significant research exists suggesting the current narrow focus on subject-related technical and information skills does not prepare students as well as teachers adequately with the breadth of knowledge and capabilities needed in today's classrooms, and beyond. This attitude has resulted in ignoring the need for enhancing the digital competence of the teacher educators. Professional development has tried to address teacher educators' technology struggles. But much of it has been limited to one solution for all strategies. In fact, there is no single technological solution that applies for every teacher, every course, or every view of teaching. Integrating technology in the classroom is a complex and varied process for many teacher educators. Professional development and creating a shared vision for ICT education is important. Meaningful technology integration depends on more than device use. There is a need for a multi-dimensional approach to ICT professional development so that the teacher educators are able to handle many various situations they find themselves in and to boost their confidence. Enhancement of digital competence of teacher educators needs a holistic approach wherein besides realizing the need for it, teacher support and training are the issues that need to be addressed. Some of the other issues that need attention and that emerged from the research conducted are -

- There is undue pressure on the teacher educators to become digital experts –Ever since the rise of globalization teacher educators have been expected to integrate digital technologies as they have to train future teachers who will cater to the needs of the students who might be "digital natives". Pre-service teacher training programs have been advised to "enhance" initial teacher education by using innovative technology practices with no attention on the need for the enhancement of the digital competence of the teacher educators. This has resulted in many teacher educators perceiving new technologies as a barrier. For them technology isn't always the answer and they feel it does not add anything extra to their skills. Most of the teachers felt that technology was not necessary and it was more for the students and not for them. They were contended with their traditional pedagogical practices.

- Teacher Educators need more continuous professional development- Some of the teacher educators were aware of the innovations in the digital world, some were still using old technology which they were comfortable in and did not want to go in for new innovations. Some teacher educators

wanted to use technology but were not adept in using it. Still some were reluctant in using technology and were contended with the traditional ways of teaching learning. Thus, teacher educators need access to digital technologies for classroom implementation and to keep up with continuous technological advances. This needs to be regular, scaffolded and sustained. Yet, professional development is neglected by the administration with no funds allocated for this purpose especially in non government organizations. Any training needed by the teacher educator has to be financed by him/her with no support financially or otherwise by the organization.

- Not all teacher educators believe in using technology - A wide range of research has established that teacher educators don't believe in using digital technologies for achieving learning goals and integrate it into curricular content. Digital technology training and preparing lessons to include new technologies can be time consuming and need expertise. Teacher educators have shown preferences for manual writing (compared to typing) and spending time writing notes instead of using digital media. For them using digital media is time consuming, cumbersome and expensive. They have a very lackadaisical attitude towards the integration of technology in their teaching learning process. Some of them are not ready to learn about the use of these medium and are contended with the traditional way of teaching and learning. For them learning new technology is a waste of time and energy.

- Lack of adequate ICT support, infrastructure, or time- This is one of the biggest impediment in the enhancement of the digital competence of the teacher educators. Appropriate access to technical support (classroom, informally), availability of infrastructure (computer labs, software), policies (training needs) and time allocated to incorporate new technologies are major challenges for teachers. The teacher educators do not get any kind of support to move towards digitization especially in non government organizations where they are left to tap their own resources whether to get training or to incorporate it in their teaching learning process. They do not even get leave to attend training sessions. In such a situation the need for using digital medium or to enhance one's knowledge takes a back seat. They revert to the less expensive and friendly terrain of traditional pedagogy.

Conclusion

Technology is a key part of teaching and embedding new tools into classrooms, in schools and universities is a trend that is revolutionizing the educational system. Use of digital technologies can enhance learning through accessing information and improving communication, as well as providing self-directed and collaborative learning opportunities. ICT skills can also help develop capable, future-ready citizens. The challenges lie in fact that this needs clear thought and planning in order to be most effective. The purpose of the study was to know the perceptions of teacher educators about their digital competences and to identify challenges in achieving the same and also their future needs. The way in which the digital teaching competence can be developed and how it can be introduced into teacher education programme to make it more rewarding and innovative was the chief concern. However, it must be stressed that to introduce technology in any field, one has to consider the training that is needed. Teacher educators need to be clear on why it is being used and know how to use it themselves. Change does not happen overnight. Educationists have started seeing the benefit of the technology and have stopped seeing it as a barrier. As teacher educators become

more and more competent, they will begin to see their digital capabilities improve. It is an organization's commitment to ensure and to promote quality and innovation in teaching. It is hoped that teacher educator organizes his pedagogical practice in a coherent and balanced process, using digital medium as a resource to improve the learning environment. The research showed that the factors influencing teacher educators' adoption of Digital Technologies results from the technological experiences included in training programs. There is a need for a profound digital intervention in the initial and continuing teacher training programs, including the knowledge in using digital technologies in school learning. The wider considerations to be kept in mind while framing a design for digital competence are ethical, digital citizenship, health, well being, safety, collaboration and communication. It should help the teacher educator in finding and locating sources, analyzing and synthesizing the material, evaluating the credibility of the source, using and citing ethically and legally. Besides this, the idea of competence implies a need for constant revision, reflecting changes to the technological systems and uses that take into account the evolving nature of technologies. Proper support and planning along with optimum allocation of resources for the training and professional development of the teacher educators is the need of the hour. Only then the objective of making teacher educators digitally competent can be fulfilled. The teacher educators should realize the importance of digital media and how it can help them in their professional growth. Only then they will use technology to transform their classes and integrate it into their pedagogy. It can be concluded that there is a need of reconceptualisation of the outcomes of the teacher education programmes, which moves towards a digital competency model that recognizes the more diverse knowledge, capabilities and dispositions needed by the teacher educators. The focus now should also be on enhancing the digital competence of the teacher educators and not only the learners.

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