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Nepalese university teachers' perspectives on integrating 21st century skills in their teaching – Barriers and Needs

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Abstract

The development of higher education teachers' competences known as 21st century skills has gained increasing research interest; particularly as means to improve quality in education. It is imperative for the teachers to master and comprehend the concept of 21st skills themselves before they are able to integrate them into their teaching and enhance their students to master and understand the same skills.

In this study we investigated the needs and barriers Nepalese higher education teachers perceive pertinent integrating 21st century skills into their teaching. The research was conducted in the inception phase of the Finnish Ministry for Foreign Affairs funded HEI-ICI project, Developing Pedagogy for 21st Century Skills in Nepal. The participants were university teachers in Nepalese higher education. The data were collected via an online questionnaire including multiple-choice statements and open-ended questions and the qualitative data were analysed using contents analysis method.

According to the results, Nepalese higher education teachers identify four types of barriers in integrating 21st skills in their teaching: infrastructure barriers, organisational barriers, teacher related barriers, and student related barriers. As for needs, they manifest the need for initial and continuous teacher training in digital pedagogy, the necessity of curriculum and assessment reform, support for students as well as need for stable Internet connection and modern digital devices for teachers and students.

Keywords: generic skills, 21st century skills, teachers' professional development, higher education, transnational research

Introduction

This article takes a closer look at the barriers faced and the needs raised by Nepalese university teachers in integrating and applying generic 21st century skills underpinned by digital pedagogy into their teaching. It highlights the results of the baseline study conducted in collaboration with Finnish and Nepalese researchers.

In global educational discussions, teacher professionalism and teacher quality have been recognised as some of the key factors in improving the quality of education. This phenomenon can be seen in a global context, for example in publications produced by OECD on definitions and a breakdown of the policies that promote teacher quality (Schleicher, 2015). Thus, we can postulate that teachers can be real change-makers in the process of improving students' skills, knowledge, attitudes and values needed to tackle the changes in their environment or daily lives and help them to shape the future they want.

In recent decades, discussions in education and the world of work have emphasized the importance of acquiring generic skills (also known as e.g., key skills, transferable skills, core competences, 21st century skills) in order, for example, to be able to increase one's employability (Fadel et al., 2015). These skills that OECD calls as transformative competences entailing knowledge, skills, attitudes and values are also needed, not only by students, but teachers alike, to meet unknown challenges of the 21st century, transform society and shape the future for better lives (OECD, 2018)

The setting of our research is the Ministry for Foreign Affairs of Finland funded HEI-ICI project Developing Pedagogy for 21st century skills in Nepal. The project partners are Tribhuvan university and Nepal Open University in Nepal, and two universities of applied sciences in Finland: Häme University of Applied Sciences and JAMK University of Applied Sciences of which JAMK acts as the project coordinator. The project's overarching aim is to increase Nepalese higher education teachers' capacity, in particular, their 21st century skills and digital competences. This 4-year project (2020-2024) comprises an inception phase and three outputs. Prior to the actual outputs, a baseline study was conducted in the inception phase to investigate the current state of pedagogy in Nepalese higher education. Thereafter, in output 1, a new Master's programme on 21st century pedagogy will be designed with the focus on digital skills, digital pedagogy, guidance and counselling. Output 2 concentrates on guidance and counselling by developing an onsite module for classroom use and a MOOC for online teaching pertaining guidance and counselling. Output 3, on its part, ensures that 21st century skills are included in all levels of education, as workshops and training will be provided for educational staff at provincial and local levels.

Thus, at the onset of this process our study focused on prevailing the current practices in integration of 21st century skills. In order to explore these issues, the following two research questions were formulated:

1. What elements do Nepalese university teachers perceive as barriers in integrating 21st CS in their teaching?
2. What do they need to meet the challenges and facilitate 21st century skills integration?

Theoretical frameworks

Globally, there is an attempt for educational organisations to endorse the integration of 21st century skills and competences in national curriculum policy to meet the needs required from the knowledge society. Thus, numerous models and frameworks for 21st century skills that students need in their lives and work, can be found (e.g., ATC21STM, 2014; Ananiadou & Claro, 2009; Binkley et al., 2012; Geisinger, 2016; Gordon et al.2009; P21, OECD-DeSeCo, 2005; Van Laar et al., 2017). The more generic frameworks, such as OECD-DeSeCo, as well as, the EU framework and ACT21s model, have provided a conceptualization of 21st century skills and competences and have been a basis for the other frameworks to build on.

As different terminology and frameworks of generic skills exist, in the purpose of this study, we use the term 21st century skills. In general, different frameworks have highlighted skills,

such as collaboration, communication, ICT literacy, cultural skills, citizenship, creativity, problem solving and learning to learn, as integral skills for a 21st century citizen (Voogt & Roblin, 2012). The role of ICT in the 21st century classroom is increasing in prevalence and importance as educators understand its value and adjust to its influence.

International assessments and comparisons of education systems, for example, OECD's Feasibility Study for the Assessment of Higher Education Learning Outcomes, have emphasized 21st century skills with a view to improving the quality of teaching and learning. However, in order to achieve this, teacher educators and teachers themselves need to understand the importance of 21st century skills and be able to apply them in teaching in order to support their students' skills development. In other words, in the teaching profession, it is fundamental that teachers not only acquire these skills but apply them in their teaching in order to support the skills development of their learners. Thus, their teaching skills must correspond to 21st century skills (Kim et al., 2019). There is sufficient research evidence indicating that generic skills develop when certain kinds of pedagogical approaches, such as active learning methods and group activities, are utilised (e.g., Ballantine & McCourt Larres, 2007; Kember, 2009). In the current digital era, these pedagogical methods should be applied in online contexts. Subsequently, this entails teachers continuously updating their pedagogical understanding and skills.

Teaching is seen as a profession which develops throughout teachers' career; hence a teacher's professional development can be considered to be a lifelong effort. Thus, effective professional development, which is defined by Darling-Hammond et al. (2017) as *structured professional learning that results in changes in teacher practices and improvements in student learning outcomes* (p.2), is required. Currently, one of the focus points for teachers is to refine the pedagogies required to teach the increasingly complex skills students need to work in the 21st century. Alongside is the requirement for teachers to obtain high quality digital competences to maintain effective facilitation of learning in digital learning environments. Owen, et al. (2018) state that in developing countries the current focus of teachers' professional development is on integrating ICT into learning and teaching as well as teachers' adaption of 21st teaching skills. Consequently, our work and research in the Developing Pedagogy for 21st Century Skills in Nepal-project aims to improve the quality of learning by enhancing teacher educators' and teachers' capabilities to support the skills development among their students.

Methods and methodology

This paper has its foundations on the baseline study conducted with Finnish and Nepalese researchers in the project Developing Pedagogy for 21st Century Skills in Nepal. The research followed a mixed research methodology, allowing the integration of data collection and analysis procedures of quantitative and qualitative methods (Creswell, 2014). The methodology offered the researchers possibilities for multiple ways of seeing, hearing and making sense of the social world of the study context in Nepal.

The data were collected among Nepalese university teachers by utilising online questionnaire and conducting semi-structured interviews in November 2020 to early

January 2021. The questionnaire contained multiple-choice statements and three open-ended questions. The statements mapped the participants' digital pedagogical skills and practices as well as the application of 21st century skills in their teaching by applying a 5-point Likert-scale. The open-ended questions pertained barriers and needs in integrating digital pedagogy and 21st century skills. The baseline study data were quantitatively and qualitatively analysed by the researchers in January 2021.

The questionnaire was sent to full-time employed university teachers in two main universities in Nepal, resulting (n= 339) replies. Additional interviews were conducted with (n=23) teachers. The total number of the participants (n=361) represented university teachers from all provinces across the country and different disciplines taught in Nepal. Vast majority of the participants were male teachers 72 %. The rest of the respondents were female 26% and about 1,5% did not want to enclose their gender. Majority of the participants were experienced educators having a long, over 15 years, experience in teaching at university level.

This paper focuses on the results achieved by an additional qualitative analysis process on the open-ended questions of the questionnaire. The qualitative data were analysed employing content analysis method (Krippendorff, 2004) and utilising Atlas.ti-software (version 8.4.18). The data were read and segmented, that is, all relevant items regarding either needs or barriers were marked. An expression conveying an opinion related to needs or barriers was counted as a segment. The segments were allocated under emerging categories which were discussed and refined with the other researchers. The analysis conveyed four categories pertinent barriers in integrating 21st century skills in teaching, likewise the categories regarding teachers' needs were four.

Results

Barriers

The analysis indicates four types of barriers in integrating 21st skills in Nepalese higher education teaching: infrastructure barriers, organisational barriers, teacher related barriers, and student related barriers.

According to the participants, the fundamental barriers are caused by the infrastructure; unstable Internet and electricity create serious obstacles for integrating 21st skills in teaching. Power cuts prevent efficient online teaching and learning and hinders the use of digital tools and learning management platforms.

Similarly, lack of institutional resources in terms of providing teachers devices, wi-fi, learning management systems and access to e-library hamper integrating 21st century pedagogy. From the institutional barriers the teachers regarded the lack of training in digital pedagogy and use of digital applications as an essential barrier for them to apply 21st century pedagogy in their own practice.

The third category of barriers that emerged from the data are the ones pertinent to the teachers; they manifested not having enough capability to integrate 21st century pedagogy into their teaching. They considered not having up to date devices nor knowledge about digital pedagogy. They also regarded themselves lacking know-how on how to create a versatile course on learning management platforms. It is also notable, that the majority of the teachers admitted not having a comprehensive understanding of the notion of 21st century skills. Therefore, teachers' insufficient skills or knowledge contribute negatively to 21st skills integration into their teaching – if the teachers do not have a comprehensive understanding of 21st century skills themselves, it is impossible to integrate those skills into their teaching.

Furthermore, the teachers regarded student related issues hindering integration of 21st skills into learning activities. The students' insufficient competences, lack of devices, negative attitude towards digitalisation as well as students' diverse backgrounds in terms of financial resources create obstacles for adapting 21st century skills in teaching and learning.

Needs

As for teachers' needs for facilitating 21st century skills integration in teaching, the data evoked four categories: initial and continuous teacher training in digital pedagogy and 21st skills, necessity of curriculum and assessment reform, support for students as well as need for stable Internet connection and modern digital devices.

The data imply that teacher training in digital pedagogy as well as understanding and applying 21st century skills are the most significant needs the teachers identify. They acknowledged their lack of understanding of the concept of 21st skills, lack of knowledge on digital applications and incompetence in utilising them in a pedagogical sound manner to create optimal learning experiences for their students.

Further, the teachers require a transformation in curriculum and assessment methods; they need to be adjusted to match the 21st century pedagogy. According to the faculties, the curriculum and assessment methods reform would broaden the teachers' autonomy in selecting learning activities and the ways to assess their students in a more holistic manner.

Additionally, the teachers identify the students' need for multifaceted support. The necessity for support in using digital devices and applications is apparent; the students face difficulties in digital learning; therefore, teacher support is essential. The students also need financial support for up-to-date devices which allows them to benefit digital learning at its best. Further, particularly students from remote areas need support for accessing to the Internet, since the connection tends to function insufficiently for online learning.

Finally, it also became apparent that stable Internet connection and electricity are prerequisite for digital pedagogy, particularly in remote areas unstable connection is an essential issue. In addition, the teachers recognize their need for digital devices whose

capacity is sufficient for producing digital teaching material, facilitate asynchronous and synchronous online learning and provide students with support.

Conclusions

It seems apparent that in order to support 21st-century learners, the focus on the improvement of teachers' 21st century skills and redefined pedagogical approaches is needed. Thus, it is useful to re-conceptualize how we can train and reskill teachers' competences on digital pedagogies in order for higher education to match better the 21st century learning environments. In this paper we have described the barriers faced and the particular needs raised by Nepalese university teachers in integrating and applying generic 21st century skills into their teaching.

We discovered that the barriers and as well as the needs are related to the societal, organizational, and individual levels. Although, Nepal has made and achieved major improvements in many societal-level functions, its infrastructure to support efficient online learning is still insufficient. Country-wide electricity network and stable Internet connections need to be built before a genuine accessibility to online learning is possible. Meanwhile it is important for teachers to consider digi-pedagogical methods that require less bandwidth and are asynchronous.

Reflecting the teachers' barriers and needs at organisational level, it can be highlighted that continuous professional development policy and strategy are needed. University teachers in this baseline study seemed to have an urge for retraining and upskilling themselves on digital pedagogy and 21st century skills. For the universities to develop such training courses or workshops, naturally requires sufficient personnel and other resources as well as quality procedures to evaluate the usefulness and effectiveness of the offered training. At individual level, comprehensive understanding of the notion of 21st century skills and they application into teaching is varied. Reading the list of the skills from the official documents does not necessarily help teachers to implement and apply them into their own subject teaching. Like any other major changes in education, to achieve a true impact, change in individuals' mindset is mandatory; this applies to all including students.

Despite the challenges we have outlined, we feel that small scale improvements can be achieved during the duration of the project Developing Pedagogy for 21st Century Skills in Nepal. We believe that successful accomplishment of 21st-century teaching pedagogy, will be able to enhance the learning of students in Nepal.

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