

Transforming on Digital Education: Perceptions of Teachers and Students at High School, in Cambodia

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Abstract

Transforming on digital education was a process of digital transformation in the education system, regarding as a way to improve education quality and teaching and learning methods in responding to Industrial Revolution 4.0. This study aimed at examining the perceptions and challenges of teachers and students on the transformation of digital education. This research also explored the impact of digital education transformation on the process of teaching and learning at Cambodian high schools. In depth-presentations of research results, the study used mixed methods-research for data collection and analysis. The collected data were analyzed by using the content analysis method for qualitative data analysis and descriptive statistics method for quantitative data analysis. The results showed that transformation of digital education proffered the importance to improving the education quality and reforming education. Transforming on digital education helps teachers and students develop their digital skills. Thus, this study provided many benefits to the digital education, including enhancing the quality of digital education, improving teaching and learning methods, developing the digital skills of teachers and students, and integrating digital technology with traditional teaching and learning.

Keywords: *Digital Transforming; Education Quality; Digital Education; Digital; Transformation*

1. Introduction

Digital education is the education that uses the digital technology in teaching and learning process. Royal Government of Cambodia established a policy of digital transformation, aiming at developing Cambodia in responding to the Industrial Revolution 4.0 (Royal Government of Cambodia [RGC], 2021). At the same time, the education policy focused on the digital transformation in education was reformed to develop methods of teaching and learning and to improve the quality of education (Ministry of Education, Youth and Sports [MoEYS], 2019). Transforming on digital education was the transformation of education by using the digital systems to effectively develop quality of

education. The digital transformation in Education was set with the aim of reforming and developing the teaching and learning methods by using the technology to develop the human resources and streamline teaching and learning process (Hang-Chuon, 2021). Digital transformation was to take the advantages of advancing the communication technology, information, and digital to increase the productivity and make Cambodia's socio-economics be developed with a higher level (RGC, 2021).

Transforming on the digital education was an important mission for all educational institutions. Integration of the digital technologies was very important for the communication, management, and support for teaching and learning (Dirk et al., 2021). Transformation of digital education aims to provide the insight into how education changes through the adoption of digital technology. On the other hand, the development of digital learning must be based on the needs of students. Digital education was a response to era of technologies (digital transformation) to reform training and schools, especially to increase the human resources with digital technological skills (Hang Chuon, 2021). In the context of Industry 4.0, digital education was crucial for transforming Cambodia into a country with a digital economy. The digital transformation in education has brought several benefits to the process of teachers' teaching and students' learning. The digital technology and the social media systems included Computer, Smart Phone, Facebook, YouTube, Telegram, Google, Web-apps, and Microsoft Team, in which they created e-learning systems and digital platforms to support the students' learning process. The learning environment in the digital era was a key factor in the digital transformation in education.

In transformation of digital education, digital literacy was an essential skill for teaching and learning in the society of 21st century, which used the digital technology (Internet platforms, social media, and electronic devices). Transformation of digital education was the key factor in improving the education quality and education reform to strengthen the effective school management, develop teaching and learning methods, and promote STEM education. Transformation of digital education contributed to development of digital education and the relationship of digital education in schools. In the digital transformation in education, the teachers played a vital role in education sectors and the teaching and learning process because the teachers needed to use digital technology (information and communication technology). With the development of information and communication technology, digital devices were used in digital transformation to determine the growth and development of education (Parlak, 2017). Transforming the

digital in education was the result of growth of the use of technology in the teaching and learning process (Taşkıran, 2017). In digital transformation in education, digital competence was an important ability for the teachers and students to develop teaching and learning methods in line with the current conditions (Parlak, 2017). Digital transformation had a profound effect on the education, including structure and learning environment (Balyer & Öz, 2018). The transformation of digital education was the general framework for the education system, which was the need to develop the quality of the digital education (digital transformation on the development of teaching and learning methods).

This present study aims to examine and understand the perceptions and challenges of teachers and students on the transformation of digital education at the high schools in Cambodia. This study focuses on the impact of the transformation of digital education on the process of teaching and learning. The transformation of the digital education is a research topic that has aroused researchers to do research in developing the high quality, effective, and efficient teaching and learning methods at the high schools. Thus, this study explores transformation of digital education: perceptions of teachers and students at the high schools in Cambodia.

2. Literature Review

The development in information era, impact of globalization, and technology referred to the necessity of changes and improvements in education system, methods, and process of teaching and learning (Bates, 2015). Sisman (2016) argued that the development of information and communication technology contributed to the out-of-school and lifelong learning. Digital transformation could be achieved by involving all sections of society and individual needs (Balyer & Öz, 2018). Individuals who saw the digital process as making personal work or communication with state more comfortable and easier to communicate with institutions would be part of the digital transformation process. Digital education referred to the combination of the technological knowledge and digital skills, which was an important part for teachers and students to develop teaching and learning. In this sense, teachers needed to have digital capabilities that helped them develop the teaching methods in responding to education in the Industrial Revolution 4.0.

According to Paulo (2020), digital competence was the use, evaluation, and information and data managing, information sharing and communication, digital transformation, and use of ICT in the teaching and learning process. Within the framework of digital education, the digital skills were the goal of teaching and learning that improved the digital capabilities of teachers and

students. Integration of the educational technology focused on the school identification and individual factors that explained process of transforming the education system into digital education (Dirk et al., 2021). In the 21st century, innovation and digital technology connected people to the Internet and provided rich and open data and search platforms of rich data (Paunescu, Lepik & Spencer, 2022). Digital transformation referred to the use of digital technology in the different contexts. Accordingly, the digital transformation focused on use of technology in regeneration (Forrester, 2016; IDC, 2015). Digital transformation was the process of digital creation and re-enactment of what was once analog (OECD, 2017; Raab & Griffin-Cryan, 2011). Digital transformation of HEIs was ongoing and part of the digital process in education (NV, 2017).

According to the stud confirmed by Balyer and Öz (2018), digital transformation affected the education (structure and learning environment), being a framework for the education system and need to develop quality of the digital education. Higher education institutions (HEIs) had been using emerging technologies as a means of improving educational practices and adapting to a technology-based society. Digital transformation on education was the key to the development of teaching and learning methods (Paulo, 2020). The digital technology contributed to the development of quality education, focusing on the use of digital systems and Internet, the use of computer technology, online experimental learning, collaborative learning, and the integration of the digital technologies in teaching and learning.

The integration of the digital technology was an important mission for the educational institutions in Cambodia. Digital transformation aimed at giving the insights into how the education systems were changing through the adoption of digital technology (Dirk, et al., 2021). The digital transformation of education from media education perspective reflected and supported education in process of digital transformation from a performance-oriented education and media perspective. In order to use the existing ICT devices more effectively, sustainably and accurately, higher education institutions were driven by new ways of collaborating to create and share knowledge and resources that led to innovation and growth (Paunescu, et al., 2022).

Digital transformation of education was a digital strategy that helped the educational institutions achieved intended goals. Today, higher education institutions were under pressure to provide new and innovative digital-experiences for stakeholders (e.g., education administrators, teachers, and students). For this reason, educational institutions must begin to examine digital as a whole and change by implementing digital thinking and using

frameworks that allowed the educational institutions to manage all digital initiatives and approaches (Silva, 2017). Digital transformation of education provided importance in the development of digital strategies for education systems, control over the use of ICT in education, and the creation of digital infrastructure in education (Internet access, digital tools, and digital learning environments) (Paulo, 2020). Digital technology was the support to students' learning process - providing students with the rich learning resources and being able to turn teaching and learning into classroom practice.

Currently, vision for higher education was directly linked to the process of digitalization in line with the global trends of digital society and the digital economy (Yurev et al., 2020). In the digital transformation, the educational institutions had been embracing new technologies and changing educational practices and processes. Digital transformation in higher education was a testament to development of more advanced and effective methods and practices in pursuing the mission of the higher education (Alenezi, 2021). Alenezi said that the digital transformation and education were inextricably linked as the integration of digital technology and higher education. The synthesized results of previous studies showed that digital transformation on education provided several benefits to the development of the teaching and learning methods, enhancement of digital education, and development of digital skills of teachers and students (ICT soft skills).

3. Methodology

This study employed the mixed research-methods (Ivankova & Crewell, 2009; Than, 2021), combining the qualitative research-method (Denzin & Lincoln, 1994) and quantitative research-method (Lennon, 1990; Hsieh & Shannon, 2005) for data collection and analysis. This research used the data collection tools, such as face-to-face interviews (Masadeh, 2012) and questionnaires (Graesser & McMahan, 1993). Data analysis methods included content analysis method (Hsieh & Shannon, 2005) for the qualitative analysis and descriptive statistics analysis (Biecek & Burzykowski, 2021) for quantitative analysis. This study selected 385 samples (150 teachers and 235 students) of 10,000 population size from 20 high schools in five provinces, for questionnaires. 30 interview-samples among 385 samples were selected. These samples were selected by using random-sampling methods. The selected students were the grade 10, 11 and 12 students from High Schools. These high schools included Sokha Phally, Kampong Speu, Hun Sen Chambok, Depok, Techo Hun Sen Tbhong Khmum, Ponhea Krek, Heng Samrin Anlong Chrey, Preah Sihanoukville, Hun Sen Kampong Cham, Samdech Chuon Nath, Hun Sen Skon, Cambodia-Japan Kampot Krong, Preah Norodom Ranaridh,

Chhouk, Trasekkaung, Hun Sen Bati, Chea Sim Takeo, Samdech Ov, Chheu Teal, and Krong Preah Sihanouk. These high schools located in the provinces, such as Kampong Speu, Tbong Khmum, Kampong Cham, Kampot, Takeo, and Preah Sihanouk. These participants were the required samples selected from 20 high schools of the five provinces to determine perceptions and challenges of teachers and students on digital education transformation at high school in Cambodia. Questionnaires and interviews were analyzed for the interpretation of the research results. Questionnaire analysis was used by descriptive statistical analysis to examine the impact of transforming on digital education on the process of teaching and learning at the high school in Cambodia. Quantitative data were analyzed by using SPSS to investigate the mean of each hypothesis. Instead, analysis of interviews was used as a contextual analysis to determine the perceptions of teachers and students have for transforming on digital education and challenges of teachers and students on transforming on digital education at high school in Cambodia.

4. Findings

Perceptions of Teachers and Students on Digital Education Transformation

Teachers said that digital was an electronic program that was used for teaching. The teachers pointed out that the digital technology referred to “computers, smartphones, and tablets.” Teachers were of the view that the digital transformation was a technological change in modern era. According to the research results shown, digital education referred to education using technology. Teachers pointed out that the evolution of the digital education was the transformation of the education system by using digital technology. The teachers should have sufficient digital skills in teaching. The results of the research showed that the teachers should be proficient in digital technology in the process of teaching. The teachers said that transforming on digital education provided benefits, including the ease of teaching, the development of teaching methods, the improvement of teaching quality, and the insurance of teaching effectiveness.

The students pointed out that digital referred to the electronics used for study. Students explained that digital technology included “telephones, computers, and telescopes.” Accordingly, the digital transformation referred to the changing process of technology used in education process, especially the studies. The students indicated that digital education was the use of digital technology in education. Transforming on the digital education was a process of educational transformation by using digital technology, especially the use of the digital technology in education. The results showed that the students should have sufficient digital skills to the study. Students should be

proficient in the digital technology on the process of learning. According to the research results shown, transformation on digital education had the significant impact on the process of students' learning, including increasing the ease of learning, developing the learning methods, improving the quality of education, and ensuring the effectiveness of the study.

Challenges of Teachers and Students on Digital Education Transformation

The challenges, in which the teachers faced in the transforming on digital education at the high school. The results stressed that teachers did not know how to use technology in process of teaching. With this digital technology, the teachers were troubled with challenges, such as a lack of understanding of the use of the digital technology in the educational process. Accordingly, the teachers had problems with teaching methods in transforming on digital education, including a lack of understanding of new approaches by using digital technology. Teachers did not have the skills of digital technology in the teaching process. The results asserted that the teachers were doubted with the challenges in using the digital technology to develop teaching quality, such as the lack of digital knowledge on the development of teaching quality. The findings showed that teachers did not have sufficient digital skills in teaching.

The challenges, in which students faced in transforming on digital education at high school. The findings highlighted that the students were troubled with challenges in using digital technology for learning, such as a lack of using the technology in learning process. The students had problems with technology knowledge, including a lack of understanding of the use of digital technology in the education. The students did not have a deep understanding of new learning methods by using the digital technology. The students did not have the specific skills of digital technology for the studies. The results showed that students had a lack of digital knowledge and did not have the ability to develop the learning quality.

Impact of Transforming on Digital Education on Teaching and Learning

Table 4.1 described the impact of transforming on digital education on the teaching process at the high school. The research results indicated that transformation of digital education contributed to the teaching process with the intermediate ($M = 1.95$, $SD = 0.576$). Digital education facilitated the process of teachers' teaching with the high ($M = 1.98$, $SD = 0.557$). Digital education helped improve the quality of education in Cambodia ($M = 2.05$, $SD = 0.590$). Accordance to the results asserted in Table 4.1, transforming on digital education contributed to the development of the teaching methods

($M = 1.97$, $SD = 0.633$). Transforming on digital education facilitated the teaching with advance ($M = 1.96$, $SD = 0.531$). The results of the research showed that transforming on digital education helped teachers develop digital skills for teaching with the intermediate ($M = 1.88$, $SD = 0.662$). Table 4.1 proved that STEM subjects contributed to teaching of digital education with the intermediate ($M = 1.95$, $SD = 0.751$). The results of the research showed that digital technology helped improve the teaching quality with the intermediate ($M = 1.93$, $SD = 0.751$). According to the results stressed in Table 4.1, transforming on digital education contributed to the development of the education quality in Cambodia, with the high ($M = 2.06$, $SD = 0.694$). In brief, transforming on digital education benefited teachers in developing the teaching methods, teaching quality, and teachers' digital capabilities, and it contributed to the promotion and development of education quality with the high ($M = 1.96$, $SD = 0.566$).

Table 4.2 highlighted the impact of transforming on digital education on high school students' learning. Transforming on digital education contributed to the students' learning process with the high ($M = 2.03$, $SD = 0.913$). The findings showed that digital education helped improve the students' learning process with the rapid ($M = 2.07$, $SD = 0.693$). Students explained that digital education helped improve the education quality in Cambodia with the high ($M = 2.14$, $SD = 0.663$). According to results shown in Table 4.2, transforming on digital education contributed to the development of the student' learning methods with the advance ($M = 2.18$, $SD = 0.696$). The transformation of digital education enabled the students to study with the higher ($M = 2.09$, $SD = 0.684$). The transformation of digital education helped students develop the digital skills of learning process with the rapid ($M = 2.02$, $SD = 0.671$). Table 4.2 argued that STEM subjects contributed to the study of digital education with the high ($M = 2.04$, $SD = 0.676$). In the context of transforming on digital education, digital technology helped students develop the education quality with the best ($M = 2.10$, $SD = 0.638$). The results presented that the transformation of digital education contributed to the development of education quality in Cambodia, with the high ($M = 2.17$, $SD = 0.712$). The results revealed that transformation of digital education provided benefits to students in developing the learning methods, learning quality, and digital abilities, and it contributed to the promotion and development of education quality with the rapid ($M = 1.96$, $SD = 0.566$).

5. Discussion

Perspectives on Transforming on Digital Education

The results of this research have shown that digital technology is a process of technological development, in which it facilitates teaching and learning process in the 21st century. Digital education refers to the use of digital technology in education (MoEYS, 2021) to contribute to the development of the teaching and learning methods. Transforming on digital education (Hang Chuon, 2021) is the education that uses the digital technology for the teaching and learning process. The transformation of digital education is an important mission for educational institutions (Dirk et al., 2021) to reform the curriculum and improve quality of education in Cambodia. Technological system, including Wiki School, E-school, Facebook, Google Meet, Zoom is the digital that serves education. Digital technology helps leaders, teachers, and students develop the management and methods of teaching and learning, in particular, the administration, time, and education. Transformation of digital education is the necessary factor in the development of curricula at all levels and quality assurance of education in Cambodia, especially quality of teaching and learning. Therefore, transforming on digital education is an education policy, which is adopted to the increase digital knowledge and capabilities, improve quality of teaching and learning, and reform education.

Transforming on the Improvement of Education Quality

According to the above-presented research results, digital transformation is a technology that is constantly evolving to contribute to the development of the human resources and nation. Digital competence (Parlak, 2017) is a part of the digital transformation that helps teachers and students develop the teaching and learning methods. Digital transformation has had a profound effect on education (Balyer & Öz, 2018), such as facilitating administration, finance, human resources, teaching and learning. The digital transformation plays an important role in the development of the quality of teaching and learning, the reform of education, the improvement of education quality, and development of human resources. Digital transformation contributes to helping teachers and students, especially depth-understanding of the digital technology and develop new approaches that are in line with the digital era of the 21st century. Thus, the digital transformation is a contribution to improvement of education, the reform of education, and the development of the education quality.

Effects of Transforming on Digital Education into Teaching and Learning

The above-addressed results of research reveal that digital is a technology that has been developed for use in jobs, such as administrative management,

finance, and human resources, training and management of human resource, and educational quality reform. Digital transformation is important for training, particularly education. Digital transformation helps develop the digital capabilities of teachers and students (Paulo, 2020) in facilitating the process of assessment and information or data management and sharing information in the teaching and learning process. Digital is a technology with digital processing (NV, 2017) in digital education. Digital transforming is transformation of digital technology that enhances and develops the education quality through integration of digital technology and traditional education. Digital transformation contributes to the process of teaching and learning, such as the development of teaching and learning methods and the help in improving the quality of digital education. Digital transformation plays an important role in promoting and developing the quality of teaching and learning, especially the quality development of digital education. Digital transformation provides education mechanisms and policies that lead to the development of quality of digital education. Thus, digital transformation benefits to the digital education process, including the development of the teaching and learning methods (e.g., Distance teaching and learning, E-teaching and learning, Digital teaching and learning), the development of digital competencies and skills of teachers and students, curriculum reform, and quality development of the digital education.

6. Conclusion

Transformation of digital education helped developing methods of teaching and learning, improving quality of digital education, and ensuring the quality and effectiveness of digital education. This study determined the views of the teachers and students on the digital education transformation, identified challenges of teachers and students on transforming on digital education, and examined the impact of digital education transformation that influenced the teaching and learning process at high school in Cambodia. The findings addressed that transformation of digital education contributed to develop teaching and learning methods, and digital capability and skills, to provide mechanisms for education reform, to reform the curriculum, improve the digital education quality, and to ensure the effectiveness of digital education. Importantly, this study proffered benefits to the digital education, as such advance of the digital competencies and development of digital education quality. Integration of digital education is a mechanism for bettering the education systems. Transformation of digital education to develop teaching and learning methods, enhance and improve the quality of digital education, capabilities, and digital skills, and ensure effectiveness of digital education.

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Appendixes

Table4.1 digital education transformation on the process of teaching

	Items	N	M	SD
1	contribute to teaching process	150	1.95	0.576
2	help advance the teaching process ...	150	1.98	0.557
3	improve quality of digital education	150	2.05	0.590
4	develop the teaching methods.	150	1.97	0.633
5	Provide digital teaching platforms	150	1.96	0.531
6	better digital capabilities	150	1.88	0.662
7	contribute to STEM teaching	150	1.95	0.718
8	helps improve the quality of teaching	150	1.93	0.751
9	contribute to develop education quality	150	2.06	0.694
	Total		1.96	0.566

M ≤ 1.50 Low, M ≤ 1.95 Medium, M ≤ 3.00 High

Table4.2 digital education transformation on learning process

	Items	N	M	SD
1	contribute to learning process	235	2.03	0.713
2	help better the learning process	235	2.07	0.693
3	improve the education quality	235	2.14	0.663
4	develop the teaching methods.	235	2.18	0.696
5	Provide digital teaching platforms	235	2.09	0.684
6	better digital capability and skills	235	2.02	0.671
7	contribute to STEM learning	235	2.04	0.676
8	helps improve the quality of learning	235	2.10	0.638
9	contribute to develop the digital education	235	2.17	0.712
	Total		2.02	0.713

M ≤ 1.50 Low, M ≤ 1.95 Medium, M ≤ 3.00 High