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September 25, 2021

THE USE OF DIGITAL TECHNOLOGY IN NURSING EDUCATION FROM LECTURERS' PERSPECTIVES AND EXPERIENCES

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Abstract

THE USE OF DIGITAL TECHNOLOGY IN NURSING EDUCATION FROM LECTURERS' PERSPECTIVES AND EXPERIENCES. *The rapid development of digital technology is unavoidable and must be utilized, including in nursing education. Lecturers need to take advantage of existing digital technology to facilitate their duties. This study aims to explore lecturers' perceptions and experiences related to the utilize of digital technology in nursing education. The descriptive qualitative method was used in this study. 7 lecturers were recruited. Data was collected through focus group discussion. 3 themes emerged: the benefits of digital technology, barriers of using digital technology, and the role of educational institutions. All informants agreed that digital technology makes everything easier particularly in the implementation of the tri-dharma. Unfamiliarity, lacking facilities and infrastructures, and economic barriers were indicated as the hinder factors. Institutions must provide facilities and training programs to improve the use of digital technology for nursing education.*

Keywords: *digital technology, experiences, lecturer, nursing education, perspectives.*

INTRODUCTION

The development and use of digital technology today is one of the characteristics of the 4th industrial revolution. This condition is unavoidable but must be utilized maximally to achieve the goal.

Digital technology is defined as the tools, systems, devices, and electronic resources that generate, store or process data (Victoria State Government, 2018) These include the use of smart-phone, social-media, multimedia, online class, e-book, virtual reality, etc. (Billings & Halstead, 2016; Gordon & McGonigle, 2018; Education Endowment Foundation, 2019; Krick, et al, 201)

Thoma, et al, (2019) stated that technological advances make it possible to complement personal teaching activities with digital learning. Furthermore, Kirkman (2017) defined digital technology in the classroom as a digital processing system that encourages active learning, knowledge construction, investigation, and exploration on the part of learners, and which enables remote communication and data sharing to occur between teachers and / or students in different physical classroom locations.

Lecturers are one of the important figures in education in achieving the goal of learning. Lecturers are not only required to be able to design their learning but must be able to deliver the learning

process to achieve learning objectives. To be able to create connectivity, active participation, and creativity in the classroom, teachers need to use new approaches or integrate them with the use of new technologies that facilitate the teaching and learning process and the achievement of learning objectives Billings and Halstead (2016) A nurse educator has its challenges. where the lecturer is responsible for preparing future professional nurse candidates who have competence, who can translate this knowledge into practice, thinking and decision making, and adapt to changes and developments and become lifelong learners (Mastrian, McGonigle & Mahan, 2011). Therefore, based on that reason. Researchers want to explore the perception and experience of nursing educators regarding the utilization of technology digital for nursing education. It is expected that by understanding the perceptions and experience of the nurse's lecturers then the benefits, gaps, barriers can be identified for the future development of nursing education.

METHODS

This study used descriptive qualitative design. 7 nursing lecturers from two different private university in North Sulawesi were recruited in a face to face focus group discussion (FGDs). These FGDs were

conducted to gain information regarding lecturers' perceptions and experiences related to digital technology for nursing education purposes. Informants were recruited using criteria: work as an educator with an educational background in the field of nursing or health science at least one year of experience in teaching. Purposive sampling technique was used as a sampling method. All informants have been explained this study before signing the consent form. Data were recorded, verbatim transcribed, and analyzed using Colaizzi's method (Polit & Beck, 2012; Morrow, Rodriguez & King, 2015)

RESULTS

There were 7 informants in this study, consisting of 3 lecturers from *Unika De La Salle Manado* and 4 lecturers from *Universitas Klabat Klabat*. 1 person holds a Doctorate and 6 of them hold master's degree. Based on gender, 4 informants are male and 3 are female. Data were processed, analyzed, and generated 3 themes and 7 sub-themes. All informants agreed that digital technology is such a sophisticated and modern device that makes everything easier particularly in the implementation of the tri-dharma. Through this study, digital technology has a lot of benefits but also has so barrier to utilizing it in nursing education. Educational institutions are seen to have an important role in facilitating the use of digital technology and nursing education.

The first theme is the benefits of digital technology. This theme consists of 2 sub-themes, namely: speed and ease of accessing information, connectivity, and interesting and easier to understand.

The speed and ease of accessing information, connectivity was described as the ability of digital technology in making it easier for users to communicate, in accessing information, especially as reference material and in data processing [I1, I2, I3, I4, I5, I7]. Some verbal expressions as follows:

"digital teknologi itu memudahkan kita untuk mengolah data, mendapatkan informasi, dan membantu dalam mengambil keputusan, contohnya smart phone..." [I2] (The use of digital technology helps in simplifying data processing, obtaining information, and assisting in making decisions, for example is a smart phone)

"...contohnya di waktu saya dulu memerlukan beberapa hari untuk memberikan jawaban kalau dosen nya tidak tauh, tapi sekarang tinggal beberapa waktu lewat Googling digital bisa dapat E-Book, Library Online setelah itu kita bisa langsung menjawab kalau kita pun tidak tauh." [I4] (Previously the lecturer had difficulty finding references to answers to questions asked by students, but now it is very easy and fast to access information such as via google, e-books and e-libraries so that lecturers can provide answers / responses to students more quickly)

"dalam penelitina, internet untuk mencari jurnal, untuk berkomunikasi dengan peneliti yang ada ditempat yang lain. Penggunaan kuisisioner di kirim lewat E-Mail ke mereka." [I7] (in research, the internet is used to access research journals, to communicate with other researchers. other than that the research questionnaire can use email.)

Apart from that, are seen digital technology has a benefit where learning material becomes more interesting and easier to understand. The use of digital technology such as video in teaching is seen as more attractive and easier for students to understand and can even facilitate increased student creativity. [I1, I3, I4, I5, I6]. Some verbal expressions as follows:

"Kalau dikelas, kita sudah menerapkan system online, kita sudah menggunakan role play, kita sudah menerapkan digital disana seperti suruh buat skenario lewat vidio, kita bisa liat kreativitas mahasiswa disana.... Sekarang kaum milenial lebih tertarik menonton dibandingkan torang menjelaskan secara verbal. Jadi kita terapkan digital seperti itu kepada mereka" [I4] (In class, already using the online system learning model. students do roleplay by making videos. it makes students creative. students today are more interested in learning through watching videos than in the conservative way where the lecturer explains directly)

"digital teknologi itu untuk mempermudah, proses belajar mengajar, khusus nya pada waktu mengajar, membuat apa yang tidak reallitas menjadi realitas. contohnya pembelajaran tentang sistim pembuluh darah dan jantung dengan vidio-vidio dan animasi-animasi yang ada, membuat vidionya menjadi seperti realita. Jadi sesuatu yang tidak bisa dilihat oleh mahasiswa bisa dilihat lewat vidio itu" [I5] (The use of digital technology at the time of teaching makes what is not reality a reality. For example, the cardiovascular system learning materials use existing videos and animations, which make the videos come true. So something that cannot be seen (only imagined) by students can be seen through the video)

"di Google Class Room....., menggunakan teknologi dalam menyampaikan materi agar mudah dimengerti oleh mahasiswa" [I7] (Google Classroom makes students easier to understand the learning materials)

The second theme is barriers of using digital technology. This theme consists of 3 sub themes namely: unfamiliarity, lacking facilities and infrastructures, and economic barriers. Unfamiliarity with the use of digital technology in education is seen as one of the main inhibiting factors in utilizing technology for nursing education purposes [I1, I2, I3, I4, I5, I6, I7]. Some verbal expressions as follows:

"hambatan mungkin ada, seperti yang Mem katakan tadi bagaimana familiarity untuk

menggunakan itu. Mungkin untuk dosen di jaman era seperti Mem, mungkin itu baru mulai digunakan, dalam lima, delapan tahun terakhir ini sehingga membutuhkan waktu untuk menyesuaikan dengan system”[11] (the obstacle that might exist is familiarity in the use of technology. differences in the generation of lecturers and students relied on their ability to use technology and this takes time for lecturers to adapt)

“saya sendiri mungkin belum menguasai semua Software, walaupun ada beberapa bagian yang saya rasa saya sudah paham, tapi beberapa ada yang belum, perlu belajar banyak lagi”[17] (The lecturer felt that he had not yet mastered how to use the software, and only a few parts were known and still needed to learn more)

“perangkat yang kita miliki contohnya laptop, laptop juga harus di Update, teknologi sekarang ini kan sudah ada yang baru lagi dan baru lagi jadi harus menyesuaikan juga. ... kendalanya di bahasa, jadi teknologi menggunakan bahasa Inggris, jadi mungkin ada bahasa-bahasa untuk penggunaan Software ini saja. Jadi menyesuaikan itu juga”[15] (current technology always renewed, so that lecturers also need to continue to learn and adapt to existing improvements. Besides that, the limitations of mastery of foreign / English languages are also an inhibiting factor because current technology mostly uses English so it needs a lot to learn more)

lacking facilities and infrastructures such as poor internet connection, electricity disruption is also an inhibiting factor in the use of digital technology for nursing education purposes. [11,12,13,14,15,17]. Some verbal expressions as follows:

“Kalau online kelas sebenarnya memang bagus, tapi ada beberapa kesulitan seperti yang saya katakan tadi, perlu pendukung seperti internet kemudian pengaturan waktu....untuk pengabdian masyarakat tergantung daerah. Kalau daerah yang kita kunjungi itu, tersedia sarana yang mendukung maka itu bisa dilakukan. Tetapi di beberapa tempat sarana yang menunjang untuk penggunaan teknologi, tidak memungkinkan sehingga tidak dilakukan” [11] (online classes require an internet connection and time management ... in community service, lecturers need to adapt to certain local conditions and the availability of existing infrastructure)

“... hambatan berhubungan dengan jaringan internet, jadi data seluler, tergantung tempat yang akan kita tuju. Jadi misalnya kita berada di suatu tempat yang tidak tersedia layanan data, otomatis kita tidak bisa memperoleh data yang maksimal”[12] (“... Barriers related to internet networks, availability

of cellular data, and location affect the acquisition of data / information)

“kalau hambatan, listrik ya misalnya mati atau didaerah tersebut misalnya sinyalnya juga kurang bagus jadi lambat atau pelan” [17] (blackouts or areas with bee internet networks are barring factors)

Another problem is related to economic ability, especially students, where the use of digital technology, of course, must use tools / denice such as smartphones and computers where not all campuses can provide these facilities and not all lecturers / students can have these tools / gadgets. [13,17]. Some verbal expressions as follows:

“hambatan yang lain misalnya torang sudah buat contohnya Google Class Room, tapi kan mahasiswa dikelas itu bervariasi dia pe status ekonomi ada yang pake handpone canggih ada yang handpone biasa juga sudah bersyukur. Jadi kalau mau ditugaskan di Google Class Room tidak bisa akses ke situ, jadi dia harus akses ke tempat yang lain. Jadi belum semua mahasiswa bisa akses ke Google Class Room”[17] (students have different economic status. some have sophisticated cellphones and some don't, so they have difficulty accessing their online classes)

“Ekonomi dari mahasiswa itu juga harus dipertimbangkan. Tdeknologi seperti kita tauh harganya mahal, jadi harapannya juga semua mahasiswa ini ekonomi orang tua nya akan meningkat, supaya semua berjalan lancar.”[15] (The economic capabilities of students need to be considered. technology is expensive, and it is hoped that the economic capacity of students' parents can increase so that the learning process runs well.)

“teknologi digital sangat banyak dikembangkan namun masalah ekonomi juga yang mebatasi dalam penggunaannya di kampus-kampus/universitas-universitas karena mempertimbangkan biaya, jadi biaya-biaya mungkin boleh diturunkan agar bisa dijangkau” [14] (technological developments continue to develop, but each campus / university also has economic barriers in providing these technological facilities. it is hoped that this technology can be more affordable)

The third theme is the role of educational institutions. This theme consists of 2 sub themes, namely: Improvement of internet network facilities and infrastructures and trainings for lecturers. The role of educational institutions is deemed necessary to improve network facilities and infrastructures [11,13,14,15,16,17]. Some verbal expressions as follows:

“karena teknologi berkembang sangat cepat sehingga harapannya dari institusi pendidikan itu memiliki satu sistem untuk mensupport baik pengetahuan maupun keterampilan penggunaan”

[11] (It is hoped that educational institutions have a system that can support increased knowledge and skills in the use of technology)

“sebaiknya di setiap instansi, terutama di instansi yang sedang ada saat ini, bagaimana instansi tersebut menyediakan akses internet yang cepat, yang dapat di akses baik dosen maupun mahasiswa, ya paling tidak sekitaran halaman institusi atau kampus. Agar supaya proses pengolahan data, proses pengambilan informasi, proses untuk bisa mendapatkan sumber-sumber pembelajaran dari internet, bisa cepat di akses dan tidak memperoleh hambatan....” [13] (It is hoped that the institution can provide fast internet access, which can be accessed by lecturers and students on campus. It is hoped that this will simplify the data processing, information retrieval process, the process of being able to get learning resources from the internet, can be quickly accessed)

“... institusi untuk digital contohnya kalau dikelas, penggunaan internet begitu, sinyalnya harus bagus. Inikan kalau disini internetnya hanya di kantor, jadi kalau dikelas harus ada internet supaya kita bisa langsung saja cepat...” [15] (Institutions can facilitate strengthening of internet network connections in classrooms and not only in administrative / lecturer offices)

Besides, educational institutions are deemed necessary to increase the ability of lecturers to use digital technology for the teaching and learning process through training programs [13,16,17]. Some verbal expressions as follows:

“dosen mungkin sebaiknya difasilitasi untuk berkembang...” [11] (Lecturers need to be facilitated to develop)

“di adakan pelatihan-pelatihan seperti baru-baru ini pelatihan dari Microsoft unksumber dayanya agar bisa aplikasikan kepada mahasiswa, jadi yang seperti tadi dikatakan, diadakan pelatihan-pelatihan dan aplikasinya di update terus” [16] (It is necessary to hold trainings to increase lecturer resources so that they can be applied to students)

“penggunaan aplikasi sistem informasi akademik ini, karena mungkin masih baru, jadi butuh sosialisasi lebih dari misalnya pihak rektorat atau yang memberikan ini, aplikasi ini, dari PTI juga, ada beberapa fitur-fitur yang memang belum tauh, mungkin Cuma itu” [13] (The use of academic information system applications requires more socialization from universities related to the features of its use)

DISCUSSION

The main purpose of this study is to explore the perceptions and experiences of lecturers related to the utilization of digital technology in nursing

education. This study found that all informants agreed that digital technology is such a modern/advanced device that makes everything easier particularly in the implementation of teaching, conducting research, and doing community services (*tri-dharma*). This result is in line with Rumanyika & Galan (2015) that stated that the use of digital technology in higher education is for the development of teaching materials, the delivery of lecture materials, the media of communication between lecturers, students, and the outside world, as a medium for making and delivering lesson presentations, research results and other administrative activities.

Through this study, digital technology has two main benefits, including the speed and ease of accessing information, connectivity; and the interesting and easier to understand. The use of digital technology is considered to have advantages in terms of speed and ease in accessing information and in communicating with one another. The use of digital technology such as video in teaching is seen as more attractive and easier for students to understand and can even facilitate increased student creativity. The results of this study are in line with the statement of Kirkman (2017) where the use of digital technology in the classroom can encourage active learning, be able to construct knowledge, inquiry, and exploration on the part of students, and enable long-distance communication between teachers and / or participants students in different physical classroom locations. This is because the use of digital technology such as the internet allows users to be able to connect and obtain any information, anytime and anywhere (Joseph, 2012).

Apart from that, in the teaching and learning process, digital technology has a benefit where learning material becomes more interesting and easier to understand. (Joseph, 2012) stated that the use of technology not only facilitates learning but more than that it can improve the experience of both lecturers and students and this is very important for students' magic, especially for prospective nurse students. In nursing education. Oermann (2015) also mentions that in nursing education, digital technology such as virtual reality can translate a relationship into a scenario and make the scenario more realistic which can facilitate students to understand more easily, correlate theory with practice, and in making clinical decisions. In the end, nurse educators need to creatively design and determine the right type of digital technology that can facilitate students in the learning process, especially those that can increase students' participation in the learning process.

This study also found several obstacles experienced by lecturers related to the use of digital technology in nursing education. The 3 main obstacles are unfamiliarity, lacking facilities and

infrastructures, and economic barriers. These three obstacles are in line with what Kirkman (2017) states that the use of digital technology has challenges, especially infrastructure constraints such as slow internet connections, the gap between those who have access to digital technology and those who don't.

In this study, **unfamiliarity** with the use of digital technology in education is seen as one of the main inhibiting factors in utilizing technology for nursing education purposes. Unfamiliarity can be influenced by lecturer resources in using the latest digital technology and language skills. A previous study conducted by Mercedes & Gairin (2020) stated that the main obstacle for lecturers in the use of digital technology is the lack of lecturer competence (professional barrier) in using digital technology. Also, Mercedes & Gairin also stated that the disciplines of lecturers had different types of obstacles, where lecturers in the arts and humanities had more obstacles in utilizing digital technology in their teaching practices.

Other inhibiting factors are **lacking facilities and infrastructures** such as poor internet connection and electricity disruption. The availability of facilities such as computers, the internet, and electricity networks are the main requirements needed when using digital technology. This will greatly affect the implementation and achievement of learning objectives. Lecturers need to consider the situation and adjust to these conditions. Tulinayo (2018) stated that one of the factors limiting the use and acceptance of digital by technology students was limited access to technology at universities.

The third obstacle is related to **economic factors**, where digital technology is always closely related to the use of gadget devices such as computers, lab tops, and smartphones, which not all universities, lecturers, especially students, can have them. The use of technology should have an impact on budget efficiency, but in reality, the use of technology is also expensive. Both lecturers, students, and even educational institutions have economic limitations. This can increase the gap between those who are economically able and those who unable to afford it. the ability of users to use digital technology, the availability of facilities and infrastructure, economic factors, and the lack of support from government institutions are obstacles as well as challenges in the use of digital technology in higher education. (Salavati, 2016. Rumanyika & Galan, 2015; Mukuni, 2019)

Through this study, educational institutions are seen to have an important role in facilitating the use of digital technology and nursing education. 3 main roles have been identified: Improvement of internet network facilities and infrastructures, and training for lecturers. In this study, educational institutions are deemed necessary to increase the ability of lecturers to use digital technology for the teaching and learning process through training programs. The availability of facilities needs to be complemented by the ability of human resources, especially lecturers to use this technology. Therefore, educational institutions need to facilitate lecturers to develop and be updated in terms of the use of the latest digital technology for the teaching and learning process. Tulinayo (2018) states that universities have a role in developing pedagogical digital competencies for lecturers, training students, and complementing existing digital learning facilities. Lecturers do have the freedom to plan, implement, and carry out their teaching in the classroom within the framework of student achievement (Salavati, 2016), but most importantly, lecturers need to ensure that digital technology is used effectively to achieve learning goals. Increasing the capacity of resources in the use of digital technology needs to be accompanied by the availability of adequate digital technology facilities and infrastructure.

In this study, the role of educational institutions is deemed necessary to provide digital technology facilities such as the provision of computer facilities, and adequate internet networks and supporting structures that can maximize the digital significance of technology in nursing education. Research conducted by Tulinayo in 2018 also recommends that educational institutions need to provide learning facilities including the availability of laboratory computers, e-learning platforms, e-libraries, increasing Internet bandwidth, thereby increasing Internet speed in the campus environment. Furthermore, Yulinayo stated that the provision of facilities and infrastructure must be carried out together with increasing resources because both will determine the better use of digital technology.

This research is still limited to the perception and use of digital technology in nursing education and has not been able to explore further its effectiveness in achieving learning objectives. Therefore, further researchers need to explore more deeply whether the use of digital technology is in line with its effectiveness in achieving learning objectives. Besides, data collection in this study was carried out several months before the Covid-19

pandemic occurred, where the use of digital technology in the form of online learning was 'forced' to be used with all existing limitations. This will certainly have an impact on the quality and effectiveness aspects of online learning. For that further research is needed to answer that phenomenon.

CONCLUSIONS

In conclusion, digital technology is such a sophisticated and modern device that makes everything easier particularly in the implementation of teaching, conducting research, and doing community services (tri-dharma). Digital technology has a lot of benefits but also has so barrier to utilizing it in nursing education. Educational institutions are seen to have an important role in facilitating the use of digital technology and nursing education. Therefore as an educator, lecturers need to proactively develop themselves including the uses of the latest digital technology. A lecturer needs to be sensitive to conditions and situations (infrastructure) as well as trends and students' abilities in using digital technology so that lecturers need to adjust and design consistent and appropriate instructional learning to achieve learning goals. Lecturers need to ensure that the use of digital technology is effective in achieving learning. For further researchers, it is necessary to study further the effectiveness of digital technology in learning achievement.

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