

# Transformation of the learning system in nursing education after the COVID-19 pandemic



Sulastri<sup>1\*</sup>, Wachidah Yuniartika<sup>2</sup>, Diah Ayu Agus Triana<sup>2</sup>, Giyoto<sup>2</sup>

## ABSTRACT

**Introduction:** As the next generation of professional nurses, nursing students must adapt to the learning system implemented in Indonesia during the COVID-19 pandemic. This study aimed to explore information on the transformation that occurred from the application of the learning system.

**Method:** Using a qualitative descriptive research design with the guidance of the Meleis Transition Theory, which was used to gather information from nursing students about the application of learning systems, both theory and laboratory practice at the Nursing department, Universitas Muhammadiyah Surakarta during the pandemic, interviews were conducted on 13 participants. Data was collected by interviewing one by one using a semi-structured format and then transcribed. Data were analyzed using Colaizzi phenomenological reduction. The interview results obtained three themes: technological challenges, academic challenges, and resilience.

**Result:** The study's results obtained a theme that revealed a number of challenges experienced by students during this transition period, such as technological challenges, academic challenges, and resilience.

**Conclusion:** The COVID-19 pandemic requires the world of nursing education to adapt to maintain the skills and knowledge of its students to become the successors of professional nurses.

**Keywords:** Covid-19, Learning, Nursing Education, Transformation.

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<sup>1</sup>Department of Nursing Science,  
Faculty of Health Science, Universitas  
Muhammadiyah Surakarta, Indonesia;  
<sup>2</sup>Post Graduate Program, Universitas Islam  
Negeri RM Said Surakarta, Indonesia;

\*Corresponding author:  
Sulastri;  
Department of Nursing Science,  
Faculty of Health Science, Universitas  
Muhammadiyah Surakarta, Indonesia;  
sulastri@ums.ac.id

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## INTRODUCTION

The emergence of the COVID-19 pandemic has had an impact on major changes in various fields, including in the field of nursing education. Nursing education is part of health education as well as medical education, pharmacy, public health and other health education that aims to improve the quality of professional nurses through education levels.<sup>1</sup>

With the policy from the Ministry of Education, Culture, Research, and Technology in Indonesia regarding the implementation of learning in university, the nursing study program of the Faculty of Health Sciences, University of Muhammadiyah Surakarta is required to follow existing policies where currently, the learning process is implemented a limited face-to-face learning system while still implementing health protocols and or online learning.<sup>2</sup> This policy poses many challenges for universities and students, especially for nursing study programs where the learning process includes

learning the laboratory's theory and practice, which is carried out directly or face-to-face.

The COVID-19 pandemic has encouraged nursing study programs to use a synchronization learning system using online learning platforms such as schoology and open learning and a synchronization learning system using virtual meetings such as google meet and zoom. For safety and concerns about the transmission of the COVID-19 virus, many nursing education institutions are depriving their students of clinical practice at health institutions and replacing these experiences with virtual and web-based simulation programs.<sup>3</sup> Even before the pandemic, some literature has uncovered themes related to student challenges to online learning, including technological barriers, student/instructor communication barriers, and difficulties in engaging students.<sup>4</sup>

Nursing students are currently in the midst of experiencing a profound transition from in-person learning

to online learning that requires them to incorporate new knowledge and change their behavior. Transition theory is explained by<sup>5</sup> as a college nursing education center requires new knowledge, changing behavior, and even changing self-definition. Transitions can be facilitated or hampered by conditions such as meaning, cultural beliefs and attitudes, socioeconomic status, preparation, and knowledge, as well as community and community conditions.<sup>6</sup> The transition can generate what has been described as a major change in the lives of individuals and others that is significant and has important implications for well-being and health.<sup>7</sup>

The transition from this face-to-face instruction to an online learning platform gives students several challenges. These challenges include infrastructure, support, time management, study spaces, families, and work.<sup>8</sup> The undergraduate nursing education program focuses on preparing students to become competent practitioners and have clinical experience.

This study aims to explore nursing students' experiences with transformation in the learning system after the COVID-19 pandemic during the odd semester of the 2021/2022 academic year in the nursing study program, faculty of health sciences, University of Muhammadiyah Surakarta.

## METHOD

The descriptive phenomenological research design was used in this study to determine the experiences and perceptions of students and nursing lecturers at the University of Muhammadiyah Surakarta about the transformation in the learning system after the COVID-19 pandemic. The research involved nursing students and lecturers who run a learning system either theory or practice of the nursing laboratory.

### Sample recruitment

The sample recruited in the study included nursing students of the University of Muhammadiyah Surakarta class of 2019 or students who started entering college in 2019. Class of 2019 are students who are undergoing a change in the education system from offline to online. The sample recruitment process was carried out during December 2021 at the end of the 2021/2022 semester, at the end of this semester the nursing study program at the Muhammadiyah University of Surakarta conducted a trial of limited face-to-face learning. In addition to research students, also recruit samples from lecturers who teach in the nursing study program in both theoretical and laboratory practice. Offers are made to students and lecturers through the email of college affiliates, the email aims to explain the purpose of the study, guarantee the confidentiality of the sample and invite potential participants to become respondents in the research to be carried out. Students and lecturers who are interested and willing to be sampled will be given a link or invitation to an interview conducted online using a google meeting and recorded during the interview process. After the interview process is complete, students and lecturers complete the demographic questionnaire survey link using a google form. Students who are willing to be sampled will be

given a reward in the form of an internet voucher of Rp. 100,000 rupiah.

### Data collection

Students and lecturers willing to participate in research are kept confidential by using the name's initials. Data collection was carried out by interviewing one by one using a semi-structured format. Students and lecturers are free to choose the location or place where the interview session is conducted to feel comfortable. The interview contains reflective questions that are used to gain their experiences and opinions about transformation in the learning system carried out in the nursing study program, both theoretical and practical learning laboratories. Questions were given such as "*Can you tell us about your experiences following the current learning system?*". The interviewer also asked for a follow-up with questions for clarification and to validate the sample statement. The interviewer also asked the sample to elaborate on his statement with "*Could be told more*" or "*then how next*". Before the interview students are directed to fill out a demographic questionnaire. Students and lecturers are asked to name the initials of their names which are used to fill out the questionnaire with the aim that the demographic questionnaire can be synchronized with the transcript of the interview.

### Data analysis

The results of the interview recording are then transcribed, and the interviewer verifies all the manuscript results for accuracy by watching the recording. Data analysis using Colaizzi's seven-step phenomenological reduction.<sup>5</sup> This process includes becoming familiar with the data (by reading the transcript several times), identifying significant statements relevant to the phenomenon of transforming the learning system, formulating meanings (that is, identifying meanings relevant to the phenomenon), grouping themes, describing themes, condensing describing themes to brief statements that capture the essence of the phenomenon, and finally seeking verification of the theme through another review of the transcript.

After each interview, the researcher independently analyzes transcripts and

significant statements are extracted to formulate emerging themes. Researchers then meet to discuss interpretation until a conclusion is reached among all researchers. Researchers have reached a conclusion in interviews conducted on a sample of 8th students and 5th lecturers that no new themes have emerged and data saturation has been achieved.

Credibility is built through triangulation, debriefing, and checking members with participants at the end of each interview. Triangulation was achieved by comparing data in interviews and reviewing reflective field notes from researchers' observations and perceptions documented in the reflective field notes of each interview.

## RESULT

Of the 13 samples that participated in the study, 8 participants were students and 5 participants were nursing lecturers who taught both theory and practice. Demographic characteristic data is distributed in the table below.

Participants were dominated by female participants, namely 8 participants (61.5%), with an average student aged 21.25 years and an average lecturer aged 46 years. Student participants consist of various regions ranging from urban areas and rural areas (areas with inadequate internet access). Research participants, students and lecturers were interviewed for a duration of between 15-35 minutes. From the results of the interview analysis, three themes were obtained which included technological challenges, academic challenges and resilience in facing the changes that occurred.

### Technology challenges

The learning system used in the nursing study program at the Muhammadiyah University of Surakarta during the Covid-19 pandemic, both theoretical and practical learning laboratory, includes the Schoology and Open Learning online learning platforms. Most students mentioned that the use of online learning platforms, especially Open Learning, is not familiar to older lecturers, so it becomes a barrier for students in learning. One of the students interpreted it as follows:

**Table 1. Demographic characteristic participants.**

Characteristic	Frequency (n=13)	Percentage (100%)
<b>Gender</b>		
Male	8	61.5%
Female	5	38.5%
<b>Age</b>		
21-25	8	61.5%
30-60	5	38.5%
<b>District area</b>		
Urban area	7	53.8%
Rural area	6	46.2%

*During learning with older lecturers, lecturers prefer to teach using virtual meetings such as google meet or zoom meetings because lecturers are not familiar with their operations. So it's a lot of wasting time to start in one meeting.* [Student 2]

Another finding found obstacles related to communication during virtual learning through online learning platforms. Students struggled while discussing some concerns about when to ask questions and how to establish communication with lecturers during online learning.

Students say:

*I... Afraid to start asking... i have a hard time understanding the lecturer's explanation.... And I don't know if the lecturer can hear my voice... students should ask questions, then when the lecturer listens to the questions, you shouldn't ask them... I can't even remember why I asked about it.* [Student 5]

One of the lecturers said,

*The interaction of lecturers with students is very limited when using online learning, we cannot know the level of student understanding of the material presented..... students are uncooperative, even during discussions...* [Lecturer 1]

Further findings regarding tissue problems and disorders in the learning environment. One of the students explained during the change in the learning system as follows:

*I live in an area where it's hard to get internet access... there are also many distractions... the connection is broken so that it cannot understand what the lecturer is saying.* [Student 3]

Another student stated,

*I'm not sure if it's my WiFi or maybe it's my lecturer's WiFi that's the problem. So I contacted my friend if they had*

*also experienced the same thing.... I was having an exam when I was working on a disconnected signal and I couldn't repeat it again ,,,, it was a problem that happened... I have to head to the city center in order to be able to take the exam smoothly...* [Student 1]

Although many negative aspects are associated with challenges to technology for education, students and faculty also feel a positive impact. This includes the advantages of time and place where the teaching process can be done anytime and anywhere without having to worry about the room. Another positive impact is that students can re-listen and listen back to lectures that have been done before. One of the students mentioned:

*I often record lecturers' explanations when zooming in.... I can better understand what the lecturer is conveying through recording than during the zoom,.,.,[Student 6]*

One of the lecturers said,

*With online lectures I am more flexible in the timing.... No need to scramble for classes anymore if you want to change the lecture schedule..* [Lecturer 4]

### Academic Challenges

In addition to the findings of technological challenges, students describe another negative impact of applied changes in the learning system, namely regarding academic challenges for students. Most students describe feeling the loss of friends, study groups, and the gap between friends, making it more difficult to exchange thoughts or discuss.

*.... Can't discuss it with my classmates. If the lecturer gives a group task it feels like an individual task.... me and my group have been together since the beginning. We can't exchange ideas with each other... I learned independently...*

[Student 8]

Another student stated:

*I feel lonely, as I know I have no chance of being able to interact directly with my friends.* [Student 6]

On the other hand, some students describe them forming their own group studies through social media or google meet, where they have made agreements to interact and discuss. One student said:

*We sometimes hold study sessions using google meetings to study together or use video calls to stay in touch. Thus we don't feel like we're struggling on our own.* [Student 7]

Other findings were obtained in addition to limited relationships with peers, the learning system implemented also had an impact on student relationships with lecturers and other academic staff. Such as, unanswered emails, lack of office hours, lateness or absence of feedback on submitted tasks, and increasing length of the administrative process. one student stated,

*I can't discuss freely with my lecturers during virtual meetings, it feels like the lecturers are already very busy scheduling the next lesson. Many times they do not respond to our emails or social media when we have a question.* [Student 1]

Another of the findings obtained related to academic challenges is the evaluation of learning in both theoretical and practical learning laboratories. Some lecturers complained that the exam results were far from expected. One of the lecturers said:

*We can only see the final score during the exam, but we cannot directly supervise the process of students in doing the exam questions... it could be that students discuss with each other.... Students can open books or other references we are not sure about....*[Lecturer 3]

Another lecturer says:

*Assessing the most difficult laboratory practice exams, unable to assess how students perform when taking actions directly.* [Lecturer 2]

### Resilience

Changes in the learning system make students and lecturers increase their innovation and creativity. Lecturers are

required to be able to operationalize online learning platforms that have never been used before, making innovative teaching methods that are effective so that the material can be delivered to students. Students become more independent in their studies, form independent study groups, and practice nursing skills using equipment available in their home environment or similar. Students discover their own strengths, and increase the efficiency of their defense.

Despite the challenges associated with world events and the response of academic institutions to the switch to online learning, students still feel the bright side. They are able to adapt to the learning system that is applied, students get extra study time do not need to mobilize to come to high school and have a lot of free time with family. The experience of one of the students about their adaptation during the implementation of the learning system such as:

*I had to find a way to understand what the lecturer was saying... if I didn't understand I would discuss it with my friend via WhatsApp group or video call..... this made me creative, to learn a lot of things from nursing duties. And my creativity is growing... I made my own props that resembled the equipment in the laboratory for me to learn.* [Student 2]

Another student made the following statement:

*... as long as the learning process is not too difficult, it's just that for learning the laboratory needs more effort... It was challenging, but I still made it through.* [Student 7]

One of the lecturers said:

*... I try my best to change the learning method so that students can understand it. ... In the study of the laboratory, it is very difficult to practice for students... many equipments are only in the laboratory,... examples when teaching injection procedures cannot show students how and what is happening in real terms.* [Lecturer 4]

## DISCUSSION

The emergence of the COVID-19 pandemic has had an impact on major changes in various fields, including in

the field of nursing education which has resulted in changes in the learning process. This study describes students' perceptions or experiences about changes in the learning system after the COVID-19 pandemic. The study's results obtained a theme that revealed a number of challenges experienced by students during this transition period starting with technological challenges. These technological challenges have created new problems, such as inequalities in access to learning caused by different types and capacities of devices and different internet access for each student.<sup>9,10</sup> The students in this study reported a number of challenges related to the use of technology including inadequate internet access, causing students not to understand the material presented and constrained to have discussions with friends and lecturers during learning.

On the other hand, with a learning system like this, a number of students have the opportunity to re-listen to lecture recordings at the speed of their own understanding. Students and faculty generally have a positive view of the use of technology in nursing education. However, to be successful, the technology must be reliable, accessible, and user-friendly with available technical support. With the challenge of technology, lecturers get the breadth to improvise, while for students, the development of e-learning is not a significant problem considering that the current generation is digital native, it's just that it is necessary to improve the ability to self-directing learning.<sup>11</sup> A strategy to build and strengthen resilience in the learning system of the study program should consider the right combination of asynchronous classes with synchronous classes to allow for more flexibility and lecturers must be prepared to provide alternative tasks if students experience technological difficulties.<sup>12</sup>

The second theme includes academic challenges, peers and faculty play an important role in helping students develop a sense of community and a sense of belonging.<sup>13,14</sup> The enactment of learning policies resulted in a lack of interaction between lecturers and students which led to feelings of loss. Which has an impact on the student's lack of politeness,

other research found nursing students indifferent to teacher expectations<sup>15</sup>, on the other hand<sup>16</sup> mentions that distance education is not suitable for nursing education and basic practical skills of nursing, the distance education system does not operate well enough, and is not suitable for conducting mandatory clinical practice for nursing. While in this study some students find ways to engage with each other, courses can offer active online learning strategies that allow students to collaborate through group work, sharing video messages, and soliciting student feedback regularly. Study programs can also develop creative strategies to encourage student engagement such as innovation in making props for practicum or using virtual reality learning media. Additional strategies include creating a discussion group forum where students share their work with partners to identify similarities and differences. Another strategy, by applying joyful learning can be alternative learning that is not limited to learning in general but also focuses on students and is able to create meaning in learning<sup>17</sup> or applying flipped classroom learning which is a combination of traditional learning models and media-based learning in the form of images and videos.<sup>18</sup> Competency-based learning strengthens individual-based outcomes for each student, strengthening nurses to overcome the practical challenges needed to become part of the collaborative practice-ready health workforce.<sup>19</sup>

The last theme that comes up in each interview is resilience. Resilience is a contextual and dynamic process that includes the ability to overcome difficulties, adapt, adjust, and bounce back after a period of stress or difficulty.<sup>20,21</sup> Students who participate in research are advanced semester students who had gone through various changes in the learning system starting from the learning system before the emergence of the pandemic where all learning was carried out face-to-face and practiced directly in the laboratory, a full online learning system, to a mixed learning system between face-to-face and online learning. The research was carried out when the study program implemented a mixed learning system wherein the implementation of the

laboratory exam was carried out directly and unsatisfactory results were obtained, students such as at the beginning of the semester where experienced anxiety during the exam. Anxiety can affect student performance during exams, if the student is confident when performing the procedure, then they will be successful in exams.<sup>22</sup> Another study showed that undergraduate nursing students had high levels of perceived resilience associated with differences in personal values and beliefs, self-perceptions, gender, dynamics, and social support.<sup>23</sup> So that students in this research are able to overcome various obstacles to technological challenges, and become independent and creative. Institutions have the opportunity to assess resilience in all students by training to find ways to overcome challenges, make negative experiences something positive, and ask students to consider what they have learned from stressful experiences. as part of an Islamic university, the study program can also conduct positive online psychology training with Islamic values as a promotive program for improving mental health for students.<sup>24</sup> Nursing education will look different in the future, especially related to disaster preparedness and public health, health equity, and technology.<sup>6,25</sup>

There are some limitations of the research carried out where the interview process is carried out by the research team itself, on the other hand, the research team is also a teaching lecturer in the nursing study program at the University of Muhammadiyah Surakarta. Researchers do not recruit interviewers outside the team, this results in students and lecturers being less comfortable in conveying their responses and experiences during the changes in the learning system they are undergoing. Another limitation in the research that has been carried out is that the research is carried out in only one place, thus it may have differences from other institutions.

## CONCLUSION

Changes in the learning system have resulted in a number of technological and academic challenges for nursing students and lecturers. Despite these challenges,

students showed an overwhelming sense of resilience and perseverance. Institutions have the opportunity to combine new knowledge and innovation in nursing learning systems that are ready to face the challenges of education in the future. Institutions must encourage online communication building and innovation development to facilitate students to adapt to applicable policy changes successfully.

## CONFLICT OF INTEREST

There is no conflict of interest in this study.

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## ETHICS APPROVAL

This research is registered in the ethics commission of health research, faculty of medicine, Universitas Muhammadiyah Surakarta and ethically approved with number 4564/B.2/KEPK-FKUMS/X/2022.

## AUTHOR CONTRIBUTION

All authors contributed to the research and writing of this manuscript.

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