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## “Finding My Own Way”: The lived experience of undergraduate nursing students learning psychomotor skills during COVID-19

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## ABSTRACT

**Background:** Little is known about how nursing students learned psychomotor skills during the COVID-19 pandemic.

**Aims:** What is the lived experience of undergraduate nursing students learning psychomotor skills during the COVID-19 pandemic?

**Methods:** Using a phenomenological approach, eight undergraduate nursing students were interviewed about their experiences learning psychomotor skills during the pandemic.

**Results:** Thematic analysis revealed three main themes. “Finding My Own Way” described adapting learning styles and advocacy for learning. Sub-themes included perseverance and comradery. “Learning the Skills” described modifications to skills learning. Sub-themes included grace by professors, smaller group sizes, less practice, and “my brain is split in half,” describing the challenges of giving dual attention to COVID-19 and skills learning. “Stress of the Pandemic” described the stress of quarantine, isolation and online learning.

**Discussion:** Findings of this study may help nurse educators understand the challenges of learning skills during the pandemic. Implications are discussed.

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The COVID-19 pandemic began in the United States (U.S.) in the Spring of 2020. Most nursing schools in the United States transitioned to hybrid or online learning during the spring, summer, and fall of 2020. Nursing students typically learn psychomotor skills in laboratories on campus, then apply these skills in clinical settings with actual patients. The COVID-19 pandemic limited clinical experiences and the ability of students to gather in laboratories on campus. Virtual simulations, at times, replaced clinical experiences. Laboratory experiences were shortened in some settings and restructured from usual curricular practices. These changes may have influenced how undergraduate nursing students learned psychomotor skills, and an understanding of students' experiences is important as educators move forward. Even if we do not experience another pandemic in our lifetimes, other conditions like natural disasters or faculty shortages may disrupt the traditional face to face educational model and force a temporary return to online learning.

### Background

Little research has been done to understand psychomotor skills learning during the pandemic. Nursing leaders have called for greater use of simulation, both in-person and virtual, when students cannot

attend in-person clinicals (Beltz et al., 2020). How nursing curricula changed psychomotor skills teaching strategies during the pandemic remains, at this writing, scant in the literature. Konrad et al. (2020) described transitioning physical assessment skills learning to an at-home, online model using MedEdu – Easy Auscultation to support skill acquisition.

Observations and commentary from psychomotor skills teaching practices in medical schools offers insight into what might be working and not working. For example, some assessment skills, such as ophthalmic examination, were effectively taught through a Zoom platform (CoShih et al., 2020). One school in the United Kingdom (UK) found success with setting up a “Skills Hub” that allowed small groups of students to socially distance while practicing skills (Wanless et al., 2020). Other UK schools noted that collaborating to create videos and curricula were more effective than individual schools developing their own resources separately (Joseph et al., 2020). An Australian team noted that videos demonstrating skill performance were useful to students, provided the videos were engaging and immersive so students were not simply passive observers (Seymour-Walsh et al., 2020). These authors cautioned against compressing frequent short skills learning sessions into less-frequent long sessions, as skills learning worked best when skills were learned and practiced over time.

What is missing from these observations and commentaries is the students' own discussions of their experiences of learning

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psychomotor skills during this pandemic. The purpose of this study was to explore the voices of the students in order to better understand their experiences in learning psychomotor skills during the pandemic.

### Research Team and Reflexivity

The primary researcher, a male doctorally prepared nurse educator who has prior academic training and experience in qualitative research methodology, conducted the interviews. A graduate research assistant, who also has training in qualitative methodology, transcribed the interviews and both researchers conducted the analysis. The researchers had no prior relationship with the participants, and the purpose of the study was described to the participants before interviews began. The interviewer also briefly described his own interest in the topic and why the study was conceived prior to beginning the interviews.

### Research Question

What is the lived experience of undergraduate nursing students learning psychomotor skills during the COVID-19 pandemic?

### Study Design

This study was a qualitative phenomenological study that employed interviewing to gather data from undergraduate nursing students. IRB approval was obtained from the researchers' University prior to recruiting.

### Participant Selection

Snowball sampling was used to recruit nursing students attending any University in the U.S. Recruiting involved the use of social media and letters to nursing school Deans requesting participation. Participants then emailed the primary researcher to express interest in the study. Students were eligible to participate if they were a nursing student enrolled in upper division nursing courses who had at least one semester of nursing coursework where psychomotor skills were taught. Practicing nurses, healthcare staff, nursing students who had not yet received skills instruction, and students taught by the researchers were excluded from the study. Recruitment continued until saturation was reached, and the final sample size was eight participants. All participants who initially expressed interest completed the study.

### Setting and Demographics of the Participants

Interviews were collected in December 2020 to January 2021 via the Zoom platform. The participants were all in their homes during the interviews, and the interviewer was in his home. No non-participants were present during the interviews.

The eight participants were primarily female ( $n = 7$ ), in their early to mid-twenties, and represented three nursing schools from different geographic areas in the U.S. Students from the researchers' own University were not recruited to participate to avoid potential bias. Five of the participants identified as White, two as Hispanic, and one as Black. Most participants had recently completed their first semester of upper division Bachelor's nursing coursework and two had outside volunteer or work experience in the healthcare setting outside of nursing school.

### Data Collection

An interview guide (Table 1) was developed to guide the interview. Following the phenomenological tradition, questions were open-ended and began with, "What it is like to learn psychomotor

**Table 1**  
Interview Guide.

1. What is it like to learn psychomotor skills right now?
2. When I say the phrase "psychomotor skills," what does that mean to you? What are some examples of psychomotor skills? What are some things you learn that aren't psychomotor skills?
3. Walk me through a day when you were learning psychomotor skills recently. What was it like?
4. What differences are there in learning skills now, during COVID, versus a time when COVID wasn't present?
5. How have your professors responded to teaching skills during COVID?
6. Describe what it is like to practice skills with real patients right now.
7. What has made learning skills easier for you right now?
8. What has made learning skills more difficult for you right now?
9. What kinds of feelings have you had while learning skills during COVID?
10. Is there anything else you would like to share that we haven't talked about yet?

skills right now?" After several follow-up questions, participants were given a chance to offer any additional information about skills learning. Repeat interviews were not done, and audio and visual recordings of each interview, which were typically one hour long, were recorded on the Zoom platform. The interviewer kept field notes to use during analysis. Transcription and primary analysis were done in tandem with interviews, and the researchers believed data saturation occurred by the seventh interview. One additional interview was done to ensure data saturation had indeed been reached, leading to a total of eight study participants.

### Analysis and Findings

#### Data Analysis

Transcripts were checked for accuracy by both researchers prior to analysis. Pseudonyms were used in place of actual names, and participants' locations were anonymized. Transcripts were coded and analyzed by both researchers for themes using thematic analysis (Braun & Clarke, 2006). Thematic analysis involves six major steps: 1. Becoming familiar with the data (transcription, reading, re-reading, and initial ideas); 2. Generating initial codes (coding interesting features of the data set); 3. Searching for themes (collating codes into potential themes); 4. Reviewing themes (checking if themes work in relation to the data set); 5. Defining and naming themes (refining and defining each theme); 6. Reporting (selecting vivid quotations that illustrate each theme) (Braun & Clarke, 2006). In this study 14 codes were identified during initial analysis and were collapsed into three themes and seven subthemes, which were all derived from the data. Member checking was done and participants indicated the themes accurately captured their experiences of learning psychomotor skills during the pandemic.

#### Measures to Enhance Trustworthiness

The researchers used several strategies to enhance trustworthiness of the study findings. Credibility, which refers to how much confidence the researcher has in the truth of the findings, was enhanced by asking open-ended questions, evaluating the interviews to improve interviewing skills, and performing member checking. Transferability, which asks whether the findings can be applied to other contexts and settings, was enhanced by having participants from three different schools in different geographic parts of the country, as well as by having "thick," detailed descriptions of the participants' experiences during the interview. Dependability, which deals with whether the findings can be repeated in another group, was enhanced by keeping an audit trail during the study. Confirmability, which asks whether the data are internally coherent, was also

enhanced by keeping an audit trail during the study and with member checking.

## Findings

There was a total of three main themes and seven subthemes in this study (Table 2).

### Theme One: "Finding My Own Way"

The main idea of this theme was that as a student, what used to work didn't work anymore. Participants had to change their learning style and adapt to new ways of learning. Participant 1 captured this idea as: "...I've got to figure out fast how I best learn...for me [that] just looked like a completely new way of studying, and kind of *adapting* it to my home and *adapting* it to how do I study the way that I need to study."

Due to online learning and quarantine, study time, study location, and the ability to have study groups were altered. Participants also described having to advocate for their own learning needs and find their own resources for learning. Participant 5 said, "It just...was hard. I felt like I had to teach myself most of the semester... It was just very overwhelming and we...a lot of us struggled with that, especially. Um, so yeah, I had to make use of a lot of my own resources, um, rather than the lecture...because the lecture just wasn't sufficient enough in my opinion."

Two subthemes were present in this theme:

#### Subtheme: Perseverance and Resilience

Participants believed that if they could get through this semester, they could get through anything. Participants also still loved being a nursing student and the idea of becoming a nurse. Participant 5 said, "I still love being in nursing student...despite the fact that we're in...the pandemic. I'm still excited about the next semester and I'm still eager and ready to learn new things, um, despite the difficulty of it all, but I...I can see myself getting through it...especially if I can get through this semester, um, I feel like I can get through it just fine."

#### Subtheme: Comradery

Participants expressed a feeling that they were all in this together as students – that they were all in the same boat, and there was comfort in knowing that. Participant 6 stated, "I think it was the idea that my peers my, my cohorts, *we're all in the same boat* and we're all learning and we're here to learn. Nobody's expected to already know what they're doing...we're all learning and it's okay if you mess up, because you're going to get better at it."

### Theme Two: "Learning the Skills"

The main idea of this theme was that participants still had to learn to perform psychomotor skills, but the way they learned to do them

looked different than before the pandemic. This theme had 5 subthemes:

#### Subtheme: Professors Were Graceful

Most faculty, although stressed themselves, genuinely wanted students to learn the skills and went above and beyond in their teaching methods. Deadlines were extended and the message to students was that faculty recognized that learning during a pandemic is difficult. Participant 7 stated, "So I know some students...um, they were dealing with all of that [getting COVID-19 and being in quarantine] and with catching this disease, and also dealing with nursing assignments and so... professors gave them grace in terms of turning the assignment in, and giving them more time to do the assignment... because it's a lot, you know, and I think that was really, really cool." Participant 2 added, "[Faculty was] really *committed* to trying to make sure that we would get time to learn these skills."

#### Subtheme: Smaller Size of Groups

All participants in this study stated that they were able to participate in skills lab learning sessions, but that these labs looked different than usual. Due to social distancing requirements at most Universities during the pandemic, skills lab groups were smaller in order to allow people to spread out more in the room. Participant 2 said, "I think the biggest difference now is that there's kind of a *restriction* on how much, like, group work we can do [in the lab]."

In order to allow all students to participate in lab time, most participants stated that the labs were shortened so that more labs could be scheduled to accommodate the smaller groups. The smaller groups allowed for more individual attention from faculty, but the shorter lab sessions meant less practice time. Nearly all participants described the benefit of having smaller lab groups. For example, Participant 6 stated, "I still...I actually really liked the size of the group in lab, just because it did feel like we got a lot of more of one on one time or personal time with the instructor and then I never [did] feel crowded."

#### Subtheme: Less Skills Practice Time

In addition to shorter lab sessions, most schools had few if any open lab sessions, meaning that there were few opportunities for guided or individual skills practice. Participant 4 expressed, "I know in past semesters, they were given frequent open labs, we did not get that this semester. We got one day of open lab, but it was only three hours." Some participants stated that there were few open lab times offered, which made it difficult to find time to attend.

Participants had to find other ways to practice skills at home or by watching videos. Sometimes the school provided videos, either made in-house or by textbook publishers. Participants described some videos as helpful and other videos as not helpful. For example, Participant 1 stated that some, "[textbook] videos were from, like, the 90s. That's not that long ago but the equipment has changed, the way we think we do things [has] changed. Um, so sometimes that was a bit of a disconnect."

Some skills like hygiene and oral temperature skills were omitted from practice due to COVID-19 concerns. Many participants were not allowed to check out equipment to take home for practice. There were fewer standardized patient experiences in some schools. All these things made learning the skills more challenging. Some participants felt some injustice with having less practice time, as described by Participant 4: "I kept thinking that I wasn't given the same opportunities as other students were in past semesters...and I just kept thinking...it's not *fair*."

#### Subtheme: Other Ways of Learning

In addition to videos, virtual simulations were used as another way to learn skills. Some participants found these helpful, especially when they were combined with facilitated debriefing with faculty.

**Table 2**  
Themes.

Theme Number	Main Theme	Subthemes
One	"Finding My Own Way"	-Perseverance and resilience -Comradery
Two	"Learning the Skills"	-Professors were graceful -Smaller size of groups -Less skills practice time -Other ways of learning -Challenges of learning skills in the context of COVID-19: "My brain is split in half"
Three	"Stress of the Pandemic"	none

Virtual simulations were also viewed as a safe place to make errors, as described by Participant 4: “But with the Virtual [Simulation], we were able to *really* mess up and know, ‘you really can’t do that when you’re in lab.’ And then I wouldn’t - so that was cool. So, the virtual...the virtual simulations were very detailed and very beneficial, I’d say.” Other participants did not find the virtual simulations helpful, because they viewed them as a process of clicking the right buttons rather than truly learning how to do a skill. Participant 1 stated, “I hate those [Virtual Simulations]. I think they’re so unhelpful and I think those were used a lot, kind of in way of saying, “oh, this is practice” but it’s not. It’s clicking on a button to introduce yourself or to take the blood pressure and there’s *no* emphasis on skills in my opinion.”

*Subtheme: Challenges of Learning Skills in the Context of COVID – “My Brain Is Split in Half”*

Participants described how it is hard to learn skills, which have their own set of steps, along with having COVID-19 precautions and Personal Protective Equipment (PPE) to worry about too. Several participants described issues with being able to see through fogged eyeglasses or visors that were worn as PPE. In addition, participants had some difficulty distinguishing how to perform skills in “normal” times versus “COVID-19” times. Participant 6 said, “I think the hardest part for me to, like, get my head around is, like...normally non-pandemic, this is what you would wear in this situation...but then having remember now like during COVID, what is appropriate was a little bit hard to distinguish and figure out.”

There was also difficulty having enough focus and attention to maintain COVID-19 precautions while also focusing on performing the skill. Participant 7 captured this idea vividly: “I’m always conscious when I’m with other people in a big group to not get so close to them... and that kind of hinders my learning a little bit, because instead of thinking, focusing all my attention on what needs to be done for this skill...I’m also thinking, ‘Am I keep[ing] my distance?’... ‘Is my mask fully covering my face?’...you know, not being too close to this person, or whatever. And it’s like... my brain is like split in half between learning this skill, but also reminding myself that we are also in a pandemic.”

*Theme Three: “Stress of the Pandemic”*

Participants described the stress of being a student during the pandemic. Quarantine, isolation, and online learning was difficult. Participant 1 said: “It’s impossible to build a relationship [during COVID]...I think it’s been really, really depressing to not know people. I think that’s one of the saddest parts.” In relation to skills learning, participants recognized that there were consequences if they got COVID-19 or had to quarantine, which caused additional stress. Participant 6 said, “I don’t want a chance coming into contact or being exposed to COVID, because that would mean time out from lab and I wouldn’t be getting the same experiences or practice time as my peers.”

**Discussion and Implications for Nurse Educators**

At the time of this writing, schools around the U.S. are in a state of transition regarding the pandemic and required precautions. With increasing vaccination rates, some schools will be easing restrictions regarding social distancing and remote learning in the coming semesters. However, it remains unknown if future spikes in infection rates will occur, and schools may have to return to increased restrictions again. Globally, vaccination rates lag in many countries. For example, as of May 4, 2021, 51% of UK citizens and 44% of U.S. citizens had received at least one dose of the COVID-19 vaccine, while only 9.3% of Indian citizens and 14.4% of Brazilian citizens had received at least

one vaccine dose ([Our World in Data, 2021](#)). While the reasons behind global vaccine uptake are beyond the scope of this article, schools of nursing in other countries may continue to deal with COVID-19 restrictions for the foreseeable future.

In the first theme in this study, “Finding My Own Way,” participants described that since learning conditions had changed, their study methods also had to change. They recognized that they had to advocate for their own learning needs and reach out for help when needed, which is consistent with the characteristics of successful adult learners. Prior studies have shown that self-advocacy skills are related to positive academic performance ([Daly-Cano et al., 2015](#)). It was not surprising to hear participants describe persevering through the challenges of the pandemic, as prior studies positively correlate perseverance with academic success ([Farruggia et al., 2018](#)). Nurse educators can use these findings to know that nursing students tend to advocate for themselves when needed and generally tend to persevere through challenges in nursing school.

The second theme in this study, “Learning the Skills,” centered on the reality that skills learning had to occur in some way, so modifications were made to accommodate for the pandemic. Some of these modifications were seen as acceptable and desired, such as faculty extending deadlines and acknowledging how difficult it was to be a student during the pandemic. In addition, smaller skills lab group sizes were also seen as beneficial due to increased faculty supervision and more space to work. Although there is no unified recommendation for the ideal faculty to student ratio in the nursing skills lab, most participants in this study reported that during the pandemic lab capacity was approximately 50% of usual. Nurse educators may want to consider the benefits of smaller skills lab group sizes in the future.

Participants described that not having equipment like blood pressure cuffs and Foley catheterization trays at home inhibited their practice and skills learning. Given our current knowledge of COVID-19 transmission, nursing faculty can allow students to take home equipment for practice.

Participants recognized that shorter lab times, less practice time, and few open labs inhibited their skills learning during the pandemic. This finding is consistent with other literature about skills learning, which found that nursing students desire many practice opportunities when learning psychomotor skills ([Aldridge, 2017](#)). Participants in this study looked for other ways to learn skills by watching videos, practicing at home with limited – if any – supplies, and doing virtual simulations. They recognized these methods were imperfect substitutes for the actual hands-on skills lab, which is consistent with other literature. For example, participants in another qualitative study also described challenges using videos to learn skills due to differences in equipment and the order of the steps ([Aldridge & Hummel, 2019](#)). Nurse educators may consider making their own videos instead of relying on videos from textbook publishers or online sources, which often contain errors like poor infection control methods ([Duncan et al., 2013](#)).

A very interesting subtheme of theme two was how participants described the difficulties trying to focus on the steps of performing the skill while also giving attention to maintaining COVID-19 precautions, as well as differentiating whether the steps of the skill they were performing needed to be modified in a “non-COVID world.” This finding is consistent with cognitive load theory, which describes information processing by the brain. In times of complex analysis, the capacity of the working memory – also known as the short-term memory – can be reduced by nearly half of its usual capacity ([Josephsen, 2015](#)), which could explain the feeling of the “brain split in half,” representing increased cognitive load. There may be methods nurse educators could use to decrease cognitive load, such as creating memory aids about PPE and breaking the steps of the skill into “chunks” ([Josephsen, 2015](#)) so that the skill seems less overwhelming as a whole. Other methods to decrease cognitive load in nursing education is an area of ongoing research.



The third theme of this study, “Stress of the Pandemic,” is consistent with global college students’ experiences of learning during the pandemic. Worldwide, students have reported increased anxiety, which was positively correlated with economic stressors and academic delays (Cao et al., 2020). In this study participants specifically spoke of fears of missing lab and falling behind if they had to quarantine or were diagnosed with COVID-19. Nurse educators may want to acknowledge these fears directly with students and examine policies about allowing makeup labs in order to decrease student anxiety.

### Limitations

This study had some limitations. Since snowball sampling was used, participants may have had their own reasons for volunteering to participate in the study. Thus, experiences of other types of students may not have been captured. Also, participants may not have felt completely comfortable sharing their experiences with the researchers.

### Future Research and Conclusion

This study provides nurse educators with a better understanding of nursing students’ experiences learning psychomotor skills during a pandemic. While participants acknowledged and appreciated faculty efforts in an unprecedented situation, they also noted that learning was imperfect, primarily due to limited practice opportunities. In most nursing programs in the U.S., there are several cohorts of students who learned remotely and had limited skills practice during the pandemic; globally, there will likely be many more. Future research about any remaining deficits in knowledge or skills performance in these students would be helpful for future employers to understand in order to tailor new graduate programs to best meet the needs of nurses educated during the pandemic. For example, employers may want to assess psychomotor skill performance of graduates and provide additional opportunities for skill development in order to allow for safe care. Finally, participants in this study – while recognizing all the challenges of being a nursing student during this time – still overwhelmingly expressed joy about their future as a nursing student and a nurse, which may help faculty understand that their own efforts at teaching during this stressful time are appreciated.

### Declaration of Competing Interest

None.

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