

Clinical learning in times of crises: How the Covid 19 pandemic affected nursing students' clinical learning and strategies

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Abstract

For nursing students, practical training in healthcare during a pandemic can be considered a critical environment. This study aimed to describe how the COVID-19 pandemic affected registered nursing students' clinical learning and what learning strategies they would use in a clinical environment. The study had a qualitative, exploring approach. Data were generated using twelve semi-structured interviews with final-year nurse students and were analysed by thematic analysis. The COVID-19 pandemic can be seen as a critical environment that has unintended consequences on learning. The analysis revealed that the COVID-19 pandemic affected nursing students in both their adaptive and developmental learning as they in practicum had to handle personal responsibility for their work, reflection, and learning. In the chaotic situation, students and supervisors became like novices, struggling to go with the flow while shouldering responsibility for their own learning. The students' learning extended to tasks outside the course syllabus. They acquired extensive knowledge about working during a pandemic, including basic hygiene routines and working at a safe distance. The students developed new knowledge due to the increased demand for flexibility and creativity. They had more contact with patients as well as their relatives and developed an ethical approach related to the pandemic.

Keywords: Adaptive and developmental clinical learning; COVID-19 pandemic; learning strategies; nursing students; thematic analysis

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Introduction

The COVID-19 pandemic has placed a heavy burden on healthcare organisations around the world (WHO, 2021) and caused widespread disruption for nursing students undergoing clinical learning in healthcare environments (Ulenaers et al., 2021). The present study was carried out in Sweden, which means that the Swedish COVID-19 strategy is an important point of departure for this article. When all other

countries in Europe went into lockdown, Swedish politicians and experts decided that Sweden would remain a more open society, and the strategy aimed to be sustainable over time (WHO,2021). This meant that nursing programmes were carried out in healthcare environments infected with COVID-19. From this perspective, clinical placement during a pandemic can be described as a critical environment, defined by Giddens (1979) as a set of circumstances which for whatever reason- radically disrupt accustomed routines of daily life (p.124). Critical environments place new demands on the nursing students' opportunity for clinical learning. Some universities decided to remove them from clinical placements and provide academic courses online, while others allowed the students to remain (Morin, 2020), which the university in the present study did. This meant that the learning environment can be described as challenging and stressful with reduced support for the students, which can make it difficult for the students to attain the learning objectives for the course. How this situation affected the students' clinical learning and what learning strategies and knowledge of what learning strategies to use in a clinical environment are the focus of the present study as it concerns fundamental questions about learning and professional development in higher education.

Clinical learning and critical environments

The clinical environment in healthcare is important in preparing for future work as a registered nurse and students can sometimes find it both confusing and challenging (Oermann & Shellenbarger, 2020). A permissive, pedagogical atmosphere and visible preceptors are crucial for practising clinical learning (Cremonini et al., 2015). Nursing students' positive learning perspectives are related to the supervisory relationship in combination with the frequency of individual encounters, as well as presence and support in a well-organized nursing care environment (Papastavrou et al., 2016). To optimize learning and the construction of professional knowledge, it is important to allocate time for reflection on the elements that have been practised during the work shift (Jonsén et al., 2013).

A reflexive construction of professional knowledge means there is a constant commute between security, learning and self-development. Part of this professional development and knowledge production can be linked to the way nursing students handle various risks and possible failures. Therefore, professional and self-development imply a degree of risk-taking and a readiness to be exposed to social shame. According to Johansson (1999), this process should not primarily be related to the student's psychological conditions, but to contextual factors such

as the clinical learning environment at various hospitals or other locations where the nursing students carry out their learning. This means that registered nursing students' acquisition of professional knowledge always takes place in relation to specific social situations and other people. The social interaction also includes relationships that are extended in time and space.

Different clinical learning environments in healthcare and situations place differing demands on the students' opportunity for clinical learning. The students studying to become registered nurses indicated that clinical placement during the pandemic was highly demanding, busier, more insecure and stressful (Ulenaers et al., 2021). They received limited supervision during the pandemic but gained broader and unique learning opportunities, which made them more flexible (Godbold et al., 2021). During the pandemic, many of the supervisors were transferred for clinical work in other wards of the hospital and had to leave their students during the internship (Godbold et al., 2021). This meant that they missed out on important learning opportunities and components of the programme that should have taken place during their practicum and that the opportunity to gain clinical knowledge suffered (Ulenaers, et al., 2021).

During their clinical practice placement, the students experienced a sense of uncertainty, and they were often asked to do things that they would not normally do during their internship (Godbold et al., 2021; Shaukat et al, 2020). Shaukat et al. (2020) believe – and are supported by previous research on pandemic situations – that there is an obvious risk that many nurses and students will develop both physical and psychological problems after the pandemic. In addition to the obvious risk of being infected with the COVID-19 virus, there was also a risk of mental illness due to stress and anxiety during their clinical learning (Barisone et al., 2022). The supervisors told the students that they must learn to manage their fear and anxiety about being infected with COVID-19 or bringing the infection home to their families (Barisone et al., 2022; Shaukat et al, 2020).

Theoretical framework

In our analysis, we take our point of departure in the perspective on learning put forward by Ellström et al., (2008), Säljö (1981) and Marton and Säljö (1976). Learning refers to relatively lasting changes (what is learned) in an individual due to her/his interplay with the environment (how learning takes place) (Ellström, 2001). Contextual learning knowledge is context-bound, and individuals acquire ways of thinking and action patterns through active participation in a work community.

According to Ellström et al., (2008), there are two different perspectives on learning: adaptive and developmental. The individual develops adaptive learning by adapting to learning environments and learning something from a given task without questioning it or trying to change the goal or conditions. In contrast, developmental learning means that the task, goal, or prerequisites are not taken for granted and the individual assumes responsibility for examining, identifying, interpreting, and formulating them.

Säljö (1981) points out that differences between people as regards learning strategy have been identified in various studies (Biggs, 1979) and in relation to that makes a distinction between a reproductive and a transformational learning strategy. It is interesting to note the similarity between Säljö's reproductive and transformational learning strategy and the adaptive and developmental learning described by Ellström et al. (2008), which in the present study is combined with Marton and Säljö's (1976) perspective on surface and deep learning.

According to Ellström, et al., (2008) there are two variants of both adaptive and developmental learning, i.e., reproductive, and productive learning in the former and productive and creative learning in the latter. In reproductive learning, the student acquires experience in educational settings in accordance with prescribed goals and methods, which creates a reproductive ability. In adaptive productive learning, the educational goals and methods are provided but not the results and when a student uses adaptive learning strategies and focuses on reproducing knowledge. Marton and Säljö (1976) describe this form of learning as surface learning. This means that it reproduces goals and methods but can be more productive and active when it comes to the results of the students' learning, since the space for action is somewhat larger than in reproductive development.

In productive learning, only the goals are given in advance, with methods and results open for both learning and development, while creative learning offers a large space for action to shape educational goals, methods and results. This kind of learning has great similarities to what Marton and Säljö (1976) describe as deep learning strategies, where students focus on understanding to develop new knowledge and skills. When students use deep learning strategies, there is a transformation of knowledge to develop and solve the task, which often requires both flexibility and creativity.

It is important to point out that both forms of learning (adaptive and developmental learning as well as surface and deep learning) must be seen as complementary and are necessary for the development of professional knowledge (Ellström et al., 2008; Hattie & Donoghue, 2016). This means that adaptive and reproducible learning is part of a developmentally oriented, deep learning strategy to create clinically based professional knowledge.

Materials and methods

The study has a qualitative descriptive design, selected for its suitability in thoroughly describing the human experiences essential for comprehending how the COVID-19 pandemic affected nursing students' clinical learning and their choice of strategies for use in a clinical environment. Qualitative research explores and offers deeper insights into various phenomena, gathering participants' experiences, perceptions and behaviours (Polit & Beck, 2022). The data comprised semi-structured interviews analysed by means of thematic analysis (Braun & Clarke, 2022). Thematic analysis is a qualitative research method used to identify, analyse and report patterns (themes) within data. It can be applied across various research designs and theories, which is why it was chosen for this study. Theoretically, the article draws on the work of Ellström (2008), as well as Marton and Säljö (1976), focusing on students' learning strategies.

Setting

In Sweden, the programme for studying to become a registered nurse is academic training, which includes 180 Higher Education Credits (HEC) and leads to a professional and bachelor's degree. The programme contains both theory and practice. To obtain a professional degree, the national goals pertaining to knowledge, understanding, skills, abilities, values and attitudes must be achieved. A bachelor's degree requires the completion of an independent degree project worth 15 HEC in nursing (SFS 1993:100).

The study was carried out with the participation of nursing students in semester six, the last semester in the nursing programme, from a small university in a medium-sized city in Sweden. Approximately 13,000 students of various nationalities study at the university and about 600 students study on the nursing programme.

The curriculum during semester six involves intended learning outcomes about nursing leadership, coordination, team collaboration and quality development of person-centred care.

A focus and curriculum goals during the clinical placement is to plan, implement and evaluate professional nursing based on a holistic view of the person both independently and in collaboration with patients, relatives, and various professionals concerning governing documents, laws, statutes, and national guidelines.

The clinical placements were conducted at hospitals and municipal healthcare centres for nine weeks (35 hours per week) and were affected by an

increased workload due to the wards being crowded with patients who had contracted COVID-19.

Participants and recruitment

The twelve participants in the study were all nursing students in their final year of studies and performed their clinical placement during the COVID-19 pandemic (Table 1). All students were recruited by a registered nurse at the clinics and received a personal e-mail invitation after completing their clinical placement. Students who wished to participate contacted one of the authors via e-mail and received both oral (in connection with the interview) and written (via e-mail) information about the study and gave written informed consent via letter or scanned document.

Table 1.

Participant demographics

Variable	
Number=12	
Age (years)	
Mean	33
Range	23-51
Median	32
Sex	
Female	10
Male	2
Semester (sem.) of nursing programme	
Sem. 6	12

Data collection

The data collection was conducted from October 2020 to January 2021 and the participants had the opportunity to choose the time and place for the interview, but due to COVID-19 none chose a face-to-face interview. Two authors interviewed each participant via the Zoom video conferencing app, which is recommended as a tool for research purposes (Lobe et al., 2020; Archibald et al., 2019). This platform supported real-time audio and full-motion video, and the participants reported that it was easy for them to use the downloadable version. To ensure privacy, the participants were advised to find a quiet place for the interview. Each interview took about 60 minutes. The data were summarized to allow the participants to make further comments.

An interview guide was used during the interviews. The questions were semi-structured, and areas were designed as recommended by Polit and Beck (2020). The purposive interview questions explored how COVID-19 affected the participants' clinical learning. The interviews were conducted in Swedish; the text was translated by the authors and were proofread by a professional translator.

Data analysis

The data analysis was conducted by means of thematic analysis, a method that can be used in various contexts in which five steps are applied to identify and analyse patterns (Braun et al, 2022). In line with a theoretically informed analysis (Willis, 1997), the study's theoretical point of departure has influenced the thematic analysis. During the research process, there is thus an alternation between (previous) theory and empiricism, whereby both are successively reinterpreted in the light of each other (Alvesson & Sköldberg, 1994, p. 42).

Initially, the semi-structured interviews were read and re-read with particular attention to how the COVID-19 pandemic affected the nursing students' clinical learning and their learning strategies. The second step was to search for initial codes by means of data reduction and documenting where patterns occurred. The coding process was performed using an inductive approach bearing the aim in mind. In the third step, similar codes were combined into groups from which the main theme with subthemes was developed. Thematic maps were written manually as a way of developing the themes as recommended by Braun et al., (2022). In the fourth step, themes were formulated and reviewed by all authors to ensure relevant and meaningful data with clear distinctions between the identified themes, while in step five the themes were named and defined. Throughout the steps, a back-and-forth movement in the data was necessary as the analysis was a recursive process. Finally, the outcome was connected to the theory, written down and strengthened by the inclusion of citations. Three themes with subthemes were identified and labelled: Students are given responsibility for their own work, reflection, and learning; Learning outside the course syllabus; Developing new knowledge and attitudes.

Ethical considerations

In accordance with the ethical principles of the Declaration of Helsinki (World Medical Association, 2013), the participants received both verbal and written information before providing their informed consent. The information contained a presentation of the study's aim and method, explained how the results will be used and emphasized that participation was voluntary and that participants could withdraw at any time without explanation. They were also informed that the interviews and results would be presented in a manner that would protect their

identity. Interview data collected during the study was stored in such a way that unauthorized persons were unable to access it. According to the Swedish law, (SFS 2003:460) Law on ethics testing of human-related research §3, no ethical approval is needed for this type of study as it does not deal with sensitive personal data (Swedish Research Council, 2017).

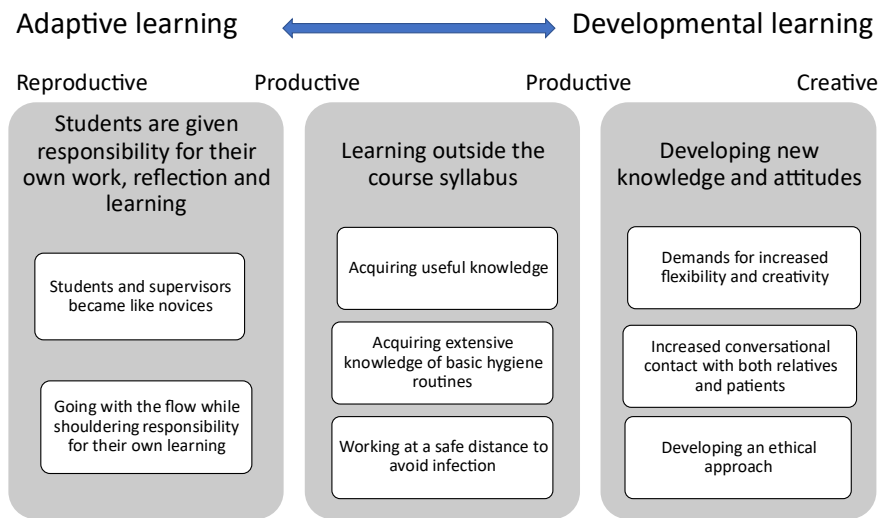
Results

The analysis showed that the COVID-19 pandemic rendered the clinical placement a critical environment and that the students were given individual responsibility for the clinical work, reflection and learning. It was a learning situation with a lot of stress, uncertainty and fear of being infected with COVID-19. To handle this situation, students developed three different forms of learning strategies which are described in the results through three themes with sub-themes (Figure 1).

It is important to point out that these three forms of learning strategies that the analysis identified must be seen as complementary and overlapping each other within the students' clinical learning. In the theme, Students are given responsibility for their own work, Reflection, and learning, an adaptive and surface learning strategy that can be described as reproductive–productive is made clear. The theme of Learning outside the course syllabus shows a developmental and deep learning strategy, which can be described as productive. The theme Developing new knowledge and attitudes exhibits a deep, developmental learning strategy that is both productive and creative. Interestingly, the theme Learning outside the course syllabus can be seen as a mix of adapted and developmental learning strategies, which alleviates the dichotomy between these learning strategies. These three themes are described below and then discussed in relation to the purpose of the article and previous research (Figure 1).

Figure 1.

Description of the results



Students are given responsibility for their own work, reflection, and learning: Students and supervisors became like novices

The nursing students described that when the pandemic started, both students and supervisors became novices due to their work in a critical environment. As routines and guidelines were constantly changing, the students and supervisors had to learn them together and sometimes the students tutored the supervisor. The students stated that COVID-19 created a situation where the health service was seriously affected. They described an increased workload, and nurses were moved from their regular workplaces to cover the staffing shortages in the newly established COVID-19 departments. As a result, continuity within their clinical learning disappeared.

The nurses were moved around a lot. This meant that we had to move around among different supervisors. There was no continuity. The supervisors did not have time. We had to learn everything new together. (Interview 5)

As the above quotation shows, the students' emphasized that the supervisors often had limited time for reflection with the students and learning new routines, which was laborious and difficult for both the supervisors and the students.

Going with the flow while shouldering responsibility for their own learning

The nursing students tried to go with the flow and keep up with what was happening as the supervisors did not always have time to supervise them. Several students were left to their own devices. They described a situation in which they had to constantly ask about various things, while at the same time having to adapt to the workplace and 'follow' the assigned tasks. The university required students to

complete a certain number of hours during their clinical learning at the same time as they were afraid of being infected with COVID-19 but tried to deal with it by focusing on their assigned tasks.

You must ask a little more to get answers to your questions. As a student, you must take a lot more responsibility for your own learning. I was very afraid that I would get infected because then I would lose hours that must be done during the clinical placement. (Interview 7)

The students stated that the supervisors were also periodically absent due to illness which mostly made it difficult to have sessions for reflection together with their supervisors, so they adapted to the situation while fumbling in the dark to find their way forward. Due to the pandemic, planned study visits and various examinations were cancelled, and routines were abandoned, and it was a matter of trying to keep up and learn about COVID-19 which the quote below shows.

I've had to learn a lot about this pandemic and COVID-19, but I've really become good at adapting. And you must be able to cope with it as a nurse. (Interview 4)

The students described the importance of adapting to and coping with the learning situation and that the need for adaptation was important knowledge for them as future nurses.

Learning outside the course syllabus: Acquiring useful knowledge

The nursing students expressed that during their clinical placement, they had to learn things other than what was planned in the course syllabus. At the same time, they wondered what they would have learned instead if the COVID-19 situation had not arisen.

I can't help but wonder: what would I have learned if we had escaped the pandemic? (Interview 4)

They also had to learn many new routines, which provided an understanding of how things can change quickly. The students stated that entering their professional role while dealing with a pandemic was instructive but sometimes burdensome. It was also noted that the nurses adapted quickly and tried to stay up to date.

My expectations were not met, the perspective became the COVID-19 crisis instead. Yes, then you had to think again: that I get to learn this instead. It's useful knowledge. I gained from it ehh, yes, I think so. (Interview 2)

Their expectations for the internship were not met as it did not turn out as they had imagined, although at the same time, it promoted development and they felt that they would always carry this knowledge with them, enabling them to function in a future pandemic.

Acquiring extensive knowledge of basic hygiene routines

The students described learning thoroughly and extensively about basic hygiene routines both at the university and in the clinic. They realised the importance of thorough hand hygiene, keeping their distance and using protective equipment such as face masks and visors. The students described that their knowledge deepened during their clinical placement as they became more aware of how easily infection can spread in the air and on surfaces.

What affected my learning is mostly the basic hygiene routines, it is so incredibly important and what a difference it makes. This is something I will take with me for the rest of my life. (Interview 8)

Working at a safe distance to avoid infection

It was difficult for the students to work at a safe distance to avoid infection. They felt that keeping their distance and using protective equipment was stressful and the protective equipment made their work extremely demanding. It could be difficult to perform certain steps in caring for the patient since the equipment could be perceived as frightening to the patient. They also mentioned that visors and face masks affected communication with patients, relatives, supervisors and other staff members, sometimes leading to misunderstandings. It was challenging to find solutions as to how to conduct a conversation in a dignified, understandable manner. One way was to articulate more clearly, speak louder and use gestures.

Communication with the patient did not work very well and it was easy to misunderstand each other. (Interview 12)

Students described that COVID-19 created a barrier between themselves and the patients. Human contact and closeness were greatly affected. It was no longer a natural approach to put one's arm around the patient's shoulder or hold their hand. The students stated that closeness was an important part of the nursing profession

at the same time as both students and patients kept their distance, which, as the students reported, reduced the opportunity to learn.

Yes, your own learning was a bit negatively affected because you did not get close to the patient. You have a visor and keep your distance, and it's hard to talk. The patient has difficulty hearing, you almost have to scream sometimes and then you have a mask. The patient cannot see what you look like without all the protective equipment. You want to do everything very well and give them the care they need, closeness for example. The pandemic has prevented that. It is a longer distance to the patient. (Interview 3)

As the quote above shows, the students stated that they sometimes had difficulty understanding what the supervisors said because they had to keep the recommended distance. An example of the difficulty involved in social distancing was when the supervisor wanted to show and teach documentation, since the student and supervisor had to sit next to each other in front of the computer screen to see.

I really wanted to keep a distance from others, but it was difficult when I had to stand next to my supervisor and be near the computer screen. (Interview 11)

Even when the supervisors showed something to the students on the ward it was difficult to keep their distance. Protective equipment was used during reports and rounds but could be perceived as limiting communication and learning, leading to a great risk of misconceptions and a major challenge for students' clinical learning.

Developing new knowledge and attitudes: Demands for increased flexibility and creativity

The students said that clinical placement during the pandemic involved several challenges, which meant that they had to develop both increased flexibility and creativity. They found solutions to problems in everyday life; thus, the focus was on problem-solving. Among other things, they arranged digital opportunities for patients and relatives to meet during periods of lockdown. The students accepted the challenges they faced, but they had to be extra aware of these critical situations, seeing them as an opportunity to develop new knowledge. It meant that they felt that they were growing as a person.

In the collaboration between supervisor and student, there was learning but from two different perspectives. We both learned something new, even

though I was the one to be supervised. It was an interesting situation. I had to be sharper and think of solutions myself. (Interview 9)

The students stated that the chaotic work environment forced them to become more flexible. Due to lack of time, activities that were not previously carried out routinely in, for example, nursing homes could now be carried out by thinking outside the box. The students were given more opportunities to socialize with and activate the patients as the lockdown prevented relatives from visiting.

During the clinical placement, the opportunity arose to stimulate the residents in a different, more flexible way. There has been more time to take care of older people. (Interview 1)

The example above shows how the students activated the patients in a completely different and much more flexible way than previous students on placement. This was important since contact with relatives was significantly less during the pandemic, which placed new demands on the students.

Increased conversational contact with both relatives and patients

The students stated that they usually worked according to set goals outlined in the syllabus, which included conversational contact with relatives. Such meetings with relatives in the care wards decreased due to the lockdown, leading to increased contact via telephone, which the students frequently had to take care of. The students described that relatives often phoned to ask how the patient was feeling, and, in this way, they were able to practice such conversations on a more regular basis, which they described as an opportunity to develop.

The visitation bans reduced contact with relatives on site but increased by telephone, which was great to practice. An educational and good experience. It was a great learning opportunity for me. (Interview 2)

The students said that COVID-19 reduced the time spent on close caring relationships. According to the guidelines, the number of people around the patients was reduced, which meant that the students sometimes had to stand outside the care room during, for example, a wound dressing. The students were able to meet with the patients themselves afterwards and thus had more time for socializing with the patients, as they could talk to each other without other people around.

We sat and painted with the older people and played games and went out for walks because they were not allowed to have contact with their relatives. Yes, so there have been some other tasks. (Interview 1)

As the quote above shows, the pandemic meant that students got more opportunities for other social situations like playing games or going for walks with the patients which otherwise would not happen as often.

Developing an ethical approach

The students described that ethical issues related to the pandemic arose daily during their clinical placement. Almost all encounters with patients became complicated when they wore protective equipment and kept their distance. They questioned whether it was ethically sustainable to remain behind the mask in care when the patient could not always see, hear, or understand what was happening. Another question was whether the need to prevent the spread of infection was greater than ensuring that the patient could hear and understand the information provided and thus avoid being frightened. The students had to think daily about how to provide good care with a socially distanced approach and found it difficult to solve these ethical challenges.

You get used to having a visor and there may not be many who react to it, but when you have a patient who does not hear, what do you do then? Should one... this ethical question: what is the risk of becoming infected with COVID-19 compared to what this patient will benefit from hearing what I say? I think that is a very ethical question. (Interview 9)

This is a major ethical question regarding how long a patient should have to suffer from the disease? ... The sickest of the sick come to the hospital and there were many during the time I was there who died alone due to the pandemic. (Interview 12)

Most students reported that they saw patients who were left to die alone without their relatives when there was a ban on visits. They were challenged to try to understand the difficult situations that followed in the footsteps of the pandemic. In a way, it felt as if they were developing skills and being productive, while also learning to deal with ethical dilemmas, but at the same time, it was sad.

Discussion

The aim of the study was to investigate how the COVID-19 pandemic affected nursing students' clinical learning and what learning strategies they would use in a critical environment. The analysis reveals three themes which, with the support of Ellström et al. (2008) and Säljö (1981), show three different learning strategies. In the theme, Students are given responsibility for their own work, reflection and learning, adaptive and reproductive learning strategies became visible. In the theme of Learning outside the course syllabus, an adaptive and developmental learning strategy emerges, both of which can be seen as productive, while the theme Developing new knowledge and attitudes presents a learning strategy that can be described as developmental and thus both productive and creative.

Within the theme Students are given responsibility for their own work, reflection, and learning, learning was influenced by the fact that the students were quickly given individual responsibility. The students always have responsibility for their learning, but they need the support of their supervisor and the opportunity for joint reflection on the various practical aspects of the internship (Jonsén et al., 2013). Reflection together with a supervisor can help students achieve deeper learning and understanding, and this seems to be especially important in a critical environment (Berndtsson et al., 2020; Marton & Säljö, 1976). When the supervisors were moved from their regular workplaces to cover the staffing shortages in other care departments, joint reflection became difficult, which meant that the students were often left alone with their own learning and reflections. This may be a partial explanation for why in some situations they developed an adaptive strategy, as the theme Students are given responsibility for their own work, reflection and learning shows. These experiences are also in line with what both Barisone et al., (2022) and Godbold et al., (2021) found since they show what happens when supervisors are reassigned and leave the students alone in a critical environment. It probably also contributes to the extensive anxiety and uncertainty that previous research (Barisone et al., 2022; Shaukat et al., 2020) has shown, but also what the students in the present study testify to. According to Ulenaers (et al., 2021), the COVID-19 situation created a unique learning opportunity that nursing students would never get in a 'normal' clinical placement, but having to manage their learning in a critical environment was stressful (Barisone et al., 2022; Godbold et al., 2021). At the same time, Ulenaers (et al., 2021) warns that the pandemic could jeopardize this learning opportunity, as many of the students reported both anxiety and uncertainty.

In addition, the constant stream of new guidelines meant that both nurses and students had to learn about these new guidelines together, or in some cases, the students even tutored the nurses. This meant that both students and supervisors were regarded as novices in the department, which also led to little or no continuity in supervision. It is important to note that according to the curriculum, during the sixth

semester of their education students' learning outcomes are related to nursing leadership, encompassing knowledge of guidelines and healthcare laws.

Students' acquisition of professional knowledge always takes place in relation to specific social situations and other people (Johansson, 1999). At the same time, some students found it difficult to handle the situation and could not cope with taking to take responsibility for their learning. Strange situations caused by the guidelines emerged periodically and the students constantly tried to keep up with what was happening on the ward, struggling to complete their assigned tasks. They worried about missing out on some important knowledge, even though they unconsciously fulfilled the stipulated learning objectives in the curriculum. Although they learned a great deal, they did not learn everything that had been planned. In contextual learning, knowledge is context-bound, which enables individuals to acquire ways of thinking and action patterns through active participation (Ellström et al., 2008). This is in line with earlier findings that there is a risk of a chaotic environment when students are not given the opportunity to perform planned tasks (Shaukat et al., 2020).

The theme Learning outside the course syllabus showed that the students gained useful knowledge of what it is like to work in a critical environment, learning about issues that were not planned in the course syllabus. Therefore, the practicum sets the conditions and takes no account of the course syllabus. In a way, COVID-19 changed the course syllabus, with the learning linked to clinical conditions. The pandemic was demanding and created uncertainty (Ulenaers et al., 2021) and the educators no longer had control over the content. At the same time, the situation provided the nursing students with unique learning opportunities which Barisone et al., (2022) and Godbold et al, (2021) also described in their studies.

The students expressed that they gained unique knowledge about hygiene routines and how to work at a safe distance from infection during a pandemic. Although that is important basic knowledge, the protective equipment became a barrier that limited communication. The students lost close contact with the patients, which created constant ethical dilemmas caused by not hearing when talking to each other. Misunderstandings occurred and could lead to consequences in terms of care or documentation.

Different learning environments place differing demands on students and provide different opportunities for optimal clinical learning (Johansson, 1999). The critical environment created some personal stress for the students and in line with previous research (Barisone et al., 2022), they became worried about contracting the disease or infecting others. Becoming ill during the clinical placement could result in consequences such as not being able to complete a course. The stress level was high, and the students stated that the environment could be described as critical when circumstances disrupted the planned learning.

In the theme Developing new knowledge and attitudes, it seems that the students developed new knowledge and attitudes in an environment that demanded flexibility, creativity and social competence to talk and communicate with patients and their relatives in particularly difficult situations. In this critical environment, there was also a demand for developing ethical competence when meeting with, for example, relatives when someone close to them had died. This was knowledge that was not found in the intended learning for the course but was shaped by COVID-19 and through an environment that was critical in many ways. The practicum in this environment offered the opportunity to develop new and more in-depth knowledge (Marton & Säljö, 1976), which can be seen as unique in relation to what is usually offered in nursing programmes. But it was also a balancing act between an offer of new and in-depth knowledge and a situation coloured by anxiety and uncertainty that challenged the students' learning. The environment was thus critical and challenging from several perspectives and involved a great deal of risk-taking, placing huge demands on learning and knowledge production (Johansson, 1999). This stresses some students and stimulates others, as demonstrated by the present findings. Ethical issues related to the pandemic arose and the encounters sometimes felt uncomfortable due to the protective equipment. In these situations, the students needed to be flexible and creative to provide care while practising social distancing.

Strengths and limitations

The low number of interviews could be a limitation (Polit & Beck, 2022). Nevertheless, the interviews enabled the collection of detailed and rich information, which provided a deeper understanding of how the COVID-19 pandemic affected nursing students' clinical learning. During the interview, it was possible to ask follow-up questions and adapt questions to the person interviewee, which is a strength. The purpose of the interview in combination with thematic analysis was to highlight the students' experiences, not to generalise. The fact that all participants were nursing students in their final year of studies may impact the results due to their greater experience and knowledge of working in a nursing context.

The participants appreciated being able to choose the time and location of the interview, as well as whether it would be face-to-face or via Zoom. Due to the pandemic, everyone chose Zoom, which was a good alternative for interviewing when there were strict restrictions on various face-to-face meeting. There were no technical or conversation problems. An oral summary at the end of each interview allowed participants to add or modify information, ensuring the validity of their responses.

Another limitation could be that this study concerned data based on one nurse education programme at a single university in Sweden, which can reduce the transferability of the findings (Polit & Beck, 2022). The findings are thus better suited for attaining comprehension rather than generalisation.

Conclusion

The COVID-19 pandemic created a challenging environment with unintended consequences for learning. During their clinical placement, the nursing students' adaptive and developmental learning was significantly impacted due to having to assume personal responsibility for their work, reflection and education. In the chaotic situation, both students and supervisors felt like novices, struggling to adapt while taking responsibility for their learning.

The students' learning extended beyond the course syllabus, as they acquired extensive knowledge about working during a pandemic, including basic hygiene routines and maintaining safe distances. They developed new knowledge due to the increased demand for flexibility and creativity, had more interaction with patients and their relatives, in addition to cultivating an ethical approach related to the pandemic.

Therefore, to support and develop clinical learning in a critical environment, it is essential to discuss which structures and processes are important for reducing students' stress and anxiety while carrying out their clinical placement. The study can also contribute to the discussion among educators and supervisors about students' learning processes in similar critical situations during their education.

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