

Author's accepted manuscript (postprint)

How can simulation be used in qualitative analysis? A case study
Bergström, M. V. J., Sæther, Magnussen, I.-L. & Solbakken, R.

Published in: Nordisk sygeplejeforskning
DOI: 10.18261/nsf.13.4.3

Available online: 09 Nov 2023

Citation:

Magnussen, I.-L. & Solbakken, R. (2023). How can simulation be used in qualitative analysis? A case study. Nordisk sygeplejeforskning. 13. doi: 10.18261/nsf.13.4.3

© 2023. This manuscript version is made available under the CC-BY 4.0 license
<http://creativecommons.org/licenses/by/4.0>

This is an Accepted Manuscript of an article published by Universitetsforlaget in Nordisk sygeplejeforskning on 09/11/2023, available online: doi: 10.18261/nsf.13.4.3

Manuscript ID: SYGEPLEJ-2023-0015.R2.

Title: How can simulation be used in qualitative analysis? A case study

ABSTRACT

Background: To demonstrate knowledge in the analysis of text data in the bachelor's thesis is a learning outcome, and no previous nursing study has reported on how to learn theoretical analysis skills. **Aim:** To explore the students' experiences with using simulation as a pedagogical method in a theoretical educational context. **Method:** Qualitative case study with an hermeneutic approach. October 2021, data were collected using a questionnaire with open ended questions. Analysis of data is theme-centered. **Results:** Thirty-two nursing students participated. We identified one overarching theme 'Shared discoveries and understanding through the analysis process' and two categories: 1) Simulation as a path to learning and understanding; 2) Simulation creates a common arena for sharing ideas and developing knowledge. **Conclusion:** Simulation enabled students to use their visual and tactile senses in text analysis. Simulation proves to have the potential to make theoretical teaching more vivid and is considered fruitful.

Keywords: Simulation, case study, workshop, pedagogical method, qualitative analysis, understanding

INTRODUCTION

In the bachelor's degree in nursing at (blinded for review) University of (blinded), a learning outcome is to analyse data in, for example, a literature study. Experienced teachers find it difficult to achieve this learning outcome using traditional teaching methods based on behavioristic approaches (1). The authors identified a need to develop pedagogical methods that promote nursing students' knowledge and competence in qualitative analysis with an emphasis on abstraction, in order to achieve learning outcomes linked to the bachelor's thesis.

The process of abstraction and interpretation is frequently insufficiently described in qualitative research and methodological literature (2,3). Difficulties arise specifically during the abstraction and interpretation phases, particularly when attempting to thematise latent content. However, this analytical approach has the potential to yield profound insights and reveal the underlying meaning within the data (4).

Simulation, as a teaching and learning strategy, is a well-studied area among nursing students (5) and health professionals (6,7). Nursing students need to learn how to apply classroom learning and theoretical knowledge in different clinical contexts (5), such as dementia care (8), the student's learning environment (9), and patient safety (10).

Studies state that design and quality in nursing simulation should encourage student-active learning (11,12). In a simulation, the facilitators tend to focus more on debriefing than on the students' experience; this can affect the development of critical thinking and independence in the students (13), which is required for qualitative analysis in a bachelor's thesis.

Our institution's students are familiar with simulation for skills training. This principle can be extended to improve methodological knowledge and skills in text analysis. A recent study explores using simulation to analyse hard-to-access phenomena, while also questioning the generalisability of these simulations (14). To the best of our knowledge, no previous nursing study has examined how bachelor's students perceive simulation as a pedagogical method for learning qualitative analysis. This study aims to explore and describe students' experiences with simulation in a theoretical educational context, using clothing buttons as text substitutes.

DESIGN AND METHODS

This qualitative study used an explorative, and descriptive design. The design and aim of this study were influenced by the authors' pre-understanding as lecturers, acknowledging the challenges of teaching qualitative analysis in the bachelor's program. Consequently, we adopted an abductive logic and reflected on whether simulation could serve as an appropriate pedagogical method for teaching the text analysis process.

A case study design was chosen to explore how nursing students experienced simulation as a pedagogical method for acquiring knowledge in qualitative analysis (15). According to Yin & Yin (15) case study research is preferred when investigating a contemporary event and when "how" questions need to be addressed. Case studies typically involve gathering diverse data sources to develop a comprehensive understanding of the case. Case studies have proven effective in health research (16,17) and education (18). The fundamental principle of a case study is to explore an event or phenomenon in depth and in its natural context such as a classroom. The hermeneutic approach served as an overarching framework for designing the study, facilitating a comprehensive understanding of the case and enabling a nuanced and reflective interpretation of the data (19).

A conceptual analysis identified simulation as a dynamic concept with undiscovered potential as a learning strategy in nursing education (20). Hovancsek (21) describes the aim of simulation as: '...to replicate some or nearly all of the essential aspects of a clinical situation so that the situation may be more readily understood and managed when it occurs for real in clinical practice'. At the 15th Qualitative Methods Conference, we participated in a workshop led by Dr. J. Spiers (22), where we experienced this replication by using clothing buttons instead of text data. This motivated us to refine and test a visually and tactilely engaging method. We aimed to explore if replacing text with buttons, like manikins, could support students in all content analysis phases, especially abstraction. Lindgren et al.'s (4) study also inspired us to share our developed pedagogical method involving simulation.

Teaching, learning, and understanding are interconnected and influenced by others and the environment (23). Simulation is a social constructivist approach that facilitates student learning. According to social constructivism, learning is a collaborative process where knowledge is built through interactions (23). Vygotsky highlights its significance in individual development and learning (24).

This case study consisted of a 1-day workshop held in a lecture hall on campus, lasting approximately 6 hours, with breaks included. Both the authors and the participating students were present in the classroom during the workshop. The workshop was conducted on the second day of a 3-day introductory seminar to the bachelor's thesis in the students' 6th semester. This study was presented according to the Consolidated Criteria for Reporting Qualitative Research (COREQ) (25).

Participants and data collection

All thirty-two students in the class participated and were invited to evaluate the workshop. A paper-based questionnaire consisting of 13 open ended questions, (see Table 1.) was distributed to the students at the end of the workshop held in October 2021. The questionnaire is based on our pre-understanding, aligns with our teaching experience in the bachelor subject and relevant course descriptions, emphasising teaching methods, content, and learning outcomes. Thirty-one students, 29 women and two men, returned the questionnaire. In addition the researchers made fieldnotes during and after the workshop, which constituted the overall data.

Please insert Table 1 here

Table 1: Individual Questionnaire

The workshop session

Originally, the word workshop refers to 'a place where things are made or repaired' (26). In current times, this word is used to refer to an arrangement in which a group of people learn and acquire new knowledge or engage with creative problem-solving and innovations related to domain-specific issues (27).

Our workshop started with an introductory lecture, followed by short lectures and group sessions, including group discussions. The teachers who had lectured switched to the role of facilitator and asked open-ended questions, both concrete and abstract, to motivate the students to provide in-depth answers, explanations, and justifications. This cycle was repeated throughout the workshop at each analysis phase. Students were encouraged to take notes during the workshop to create their own 'recipe' for analysing their data in the bachelor's thesis.

Introductory lecture and workshop facilitation

To provide knowledge and consciousness of the analysis process, the students were given an introductory lecture on qualitative content analysis, based on the principles of Graneheim and Lundman (28). The analysis phases were presented theoretically and schematically to promote the students' process thinking during the analysis process. In addition, we used PowerPoint presentations with images and photos to promote their receptiveness, creativity, motivation, and learning and help them develop several perspectives. This introductory lecture lasted approximately 20 minutes.

Group sessions and discussions

In the first group session, we explored the students' experience with analysis and their base knowledge, in line with Gadamer's (19) pre-understanding concept, by encouraging the students to recount their previous experiences with analysis up to the current point in their bachelor's programme.

Next, the class was divided into eight groups, with seven groups of four students and one group of five students. The students were requested to clear the table, put away disturbing items, such as personal computers and mobile phones, and use only a pen and paper. The students were then invited into the world of buttons.

Further, each workshop-session followed the phases of content analysis according to Graneheim and Lundman (28), starting with an overall picture, coding, categorisation, and thematisation; this was set as an outer frame, as illustrated in figure 1. After each workshop-session the participants' understanding was summarised before embarking on the next step as a fusion of horizons of understanding (19) for both students and teachers and as a guide for the next session.

Phase 1 - The overall picture

Each group was given a pile of buttons placed on the table in front of them. The buttons simulated text. Each student was individually asked to look at the pile of buttons given to the group and to write down some words about the first impression in response to the question, 'What do you see?' The authors identified a need for helping the student to get started by encouraging them to use their imagination and creativity. The students then presented their impression to their group and explored and described different perspectives of what they saw

in the pile of buttons. Finally, each group presented the overall picture of the pile of buttons to the entire class.

Phase 2 - Coding

A short introductory lecture was given on coding. It was described as a ‘clean-up’ step, where data are structured and systematised. Coding is a technique for promoting the cognitive process in the analysis process.

The students then had to decide, within the group, how to systematise the pile of buttons. They started by systematising the buttons. Most groups systematised based on colour, size, or number of buttonholes. The authors facilitated this process by walking around in the classroom asking questions such as, ‘Explain why these buttons are in the same pile’ or ‘What are the characteristics of the buttons that make them belong together?’ to help the students clarify and articulate their thoughts underlying the coding. In some of the groups, there was marked agreement on the codes. In other groups, there was disagreement. Thus, even though the group members saw different ways of coding, they had to come to an agreement before they could share the thoughts behind the coding with the class.

Phase 3 - Categorisation

The next step was to categorise by clustering the coded buttons they thought belonged together. The approach and result also varied here. The students started to look for nuances across the codes. Some groups clustered by colours, while others mixed the colours, for example, by shades of blue, or by the size and shape of the buttons, by the area of use, or by the button material. This process revealed that there are several ways to code and cluster and that there is no specific or correct way. The challenges, however, were to reach an agreement and verbally justify the choices. As facilitators, we drew parallels showing that this could also be the case when they are working with texts in their thesis. The facilitators and students, by mutual discussion, helped these groups to see patterns that could enable them to create categories. Finally, the groups decided upon 4–10 categories.

Phase 4 - Thematisation

A brief lecture containing the steps from categorisation to thematisation was given. For all students, thematisation was expanded as thinking of the button as a context, i.e., determining the history of the button. Qualitative data, simulated by the buttons, always exist in a context. In an attempt to visualise an abstraction process, the students were asked to pick one button

and tell its story to the class. In this way, they could expose the latent data and create a context for the button.

In this process, the button was assigned characteristics. The characteristics could not be seen but were revealed when the button was put into a context and was related to people and events, allowing the underlying meaning to emerge. The buttons were in this way related to life events. Then, the students were asked, 'How did you proceed, and which cognitive tools did you use to create the story of the button'? Several students said that they had used their imagination, creativity, memories, senses, emotions, and experiences and that they could visualise themes. This exercise illustrated how themes could be created from manifest and latent content in a text and, made abstract concepts concrete by making the process of thematisation tangible for the students.

Please insert Figure 1 here

Figure 1 illustrates the analysis phases and, the accompanying photos the results of each phase.

Analysis

The primary purpose of the analysis is to bring together and compare information from different participants, shedding light on the study's aim (29). Qualitative data in the questionnaire was analysed using a theme-centred, four-steps approach based on Thagaard (29). The focus was on exploring the students' experiences with simulation as a pedagogical method in a theoretical educational context. In the first step, coincident data was gathered to inform the study's aim. The essence of the data was extracted. In the second step, these extracts were condensed into five codes. Each code serves as a label for an extract, representing its meaning. Moving to the third step, the two categories were developed based on codes that we perceived as related or sharing commonalities. Based on the researchers' pre-understanding and through dialogue with each other and the text, the two categories were merged into one main theme, in step four, as shown in Table 2. This integration allowed for a more holistic approach to the analysis. In a hermeneutic approach, this is to be understood in the way that the findings also represent our new horizon of understanding.

Please insert Table 2 here

Ethical considerations

The study is registered with XXX, no. 647318. All participants were given verbal information about the study. Additionally, the questionnaire included written information about the study, and they provided written consent for their anonymous questionnaire data to be used in the research. The participants were assured of their right to withdraw from the study at any time.

FINDINGS

Conducting the workshop provided continuous data and became interdependent and interwoven elements. The students gained new understanding from each phase which they built upon in the next phase, guided by the buttons and the facilitators. They discovered that there is not just one, but several possible paths in an analysis process. The following main team emerged through the analysis process; ‘shared discoveries and understandings through the analysis process’ and is explained by two categories: 1) Simulation is a ‘path’ to learning and understanding; 2) Simulation creates a common arena for sharing ideas and developing knowledge.

Simulation is a ‘path’ to learning and understanding

In the first phase the students described the button-pile as messy, unsystematic, and confusing. This first overall picture changed in the next phase when the students used their familiar and associative knowledge and sorted the buttons according to the buttons’ properties; the use of the buttons in clothing; and the material, colour, shape, or size of the buttons. There was some variation in the number of codes used by the different groups, ranging from 6 to 15 codes. One student (S4) said she had coded according to how the clothing should be sorted before washing. This student shared these thoughts with the group, and it helped them systematise (code) the buttons. Another student (S12) said:

‘It is very educational, helps to put thoughts into words, to structure ideas’.

In the third phase, two groups were unable to find codes that could fit into the same category because the codes were too complex and inhomogeneous. The categorisation made the systems they had found hazy and made the clustering proses unwieldy, resulting in frustration. Several students wanted to rearrange their sorting, as they saw new and alternative relations, e.g., categorisation by how buttons are used in different clothing: for example, in party- and work clothes, and clothes for adults and children. During this phase, some student groups not only noticed the evident characteristics of the buttons but also considered the broader context in coding and categorisation, utilizing their imagination.

However, other groups discovered alternative ways to code and wanted to go back to step one and start the coding from the beginning again because they could not find ways to cluster the existing codes. Other students (S14 and S5) stated:

'The buttons gave room for creativity and help to get inspiration in the interpretation'.

We observed that the button workshop was not suitable for all students and their preferred learning styles, resulting in some of them not gaining as much educational benefit from the activity. Furthermore, there were differing opinions in the class regarding the allocated time for the workshop, as evidenced by the following quotes:

One of the students (S19) expressed:

'I experience learning more from the lecture on analysis than what I was left with after the button exercise. Also, I think the session took too long'.

Another said (S11):

'A lot of heavy information to process in a very short time'.

Simulation creates a common arena for sharing ideas and developing knowledge

In the fourth phase, several of the students formed stories (about the selected button) in the group, and also shared the ideas with the other groups. The stories were understood as the main theme in the analysis process. The students developed curiosity about each other's stories, and during the workshop, the groups engaged in discussions, asking questions, and exchanging thoughts on the practical execution of the analysis steps. There was a pleasant atmosphere and comments as they openly shared their thoughts. Two of the students found this teaching method childish and opted out by pushing the buttons aside and turning to their cell phones. They did not recognize the learning potential and the applicability for simulating text analysis through the use of buttons. S9 stated:

'This is downright meaningless and it has absolutely no connection with learning text analysis in a bachelor's thesis'.

The rest of the students presented stories of the buttons with engagement and laughter. For example, a red button was imagined belonging to Santa Claus' suit that was lost on the way from the North Pole while he was delivering gifts. A brown leather button was said to have belonged on a nice, knitted sweater of a male resident in a nursing home; the button was associated with good memories. One student (S3) said:

'The buttons made a revelation of analysis that leads to creativity, and a revelation that one can manage to use and interpret it as one's own, as well as create new understanding'.

Most of the students said that simulation became an activity that led to discoveries, awareness and learning, and provided motivation for further writing on the bachelor's thesis. They felt more prepared and confident in writing their bachelor thesis, particularly in terms of meeting the learning outcomes and conducting data analysis.

Student (S22) made a final comment:

'Because, despite the "dry" topic and lesson, you followed along quite well because you were made aware of how important it is to understand how analysis in a bachelor's thesis should be written and understood. Because it was very useful for me, I want others to get the same and be able to use the same knowledge'.

DISCUSSION

This study aimed to explore and describe students' experiences with simulation as a pedagogical method in the text analysis process that involved the use of clothing buttons. The findings from the study revealed that the students actively engaged in sharing their discoveries throughout the analysis process. Simulation emerged as a valuable approach that facilitated learning and understanding, while also providing a common platform for students to exchange ideas and enhance their knowledge collectively.

The button: building a bridge between former and new knowledge

Classroom teaching in analysis related to bachelor's thesis is often deficient, unclear and challenging (23). In response to this issue, we conducted a workshop in a theoretical setting, incorporating practical exercises. The students' reflections on their analysis experiences and their perspective, based on the idea of 'starting where the student is,' served as the foundation for this study (30). They were introduced to a 'button world,' where familiar buttons represented known concepts used to explore the unknown, facilitating transitions between existing and new knowledge (31). The teaching approach was designed to connect with recognisable elements, allowing learning to oscillate between reinforcing new knowledge and achieving deeper understanding in various learning phases (32). The students' reflections and discussions with the researchers on each step of the analysis process helped them recognise the interconnectedness between steps, leading them to modify codes and categories along the way. The researchers provided guidance to enable the students to perceive new perspectives and aided them in a back-and-forth process of physically manipulating buttons to make changes. As a result, an 'analysis language' emerged, influencing the students thinking and coding, aligning with Vygotsky's sociocultural theory (24).

The term 'abstract' refers to something detached or removed from tangible reality (26). It is described as being difficult to fully grasp and understand. In the context of nursing research, abstraction is perceived as less useful and should be made more comprehensible. According to Rienecker et al. (31), abstract questions are more challenging to answer compared to concrete ones. However, the use of buttons as concrete thinking tools in simulations helps students better understand abstract concepts. Teaching, performing, and describing abstraction proved to be challenging based on our experience. Typically, abstract and concrete are viewed

as opposites, but in simulations, they can complement each other. Simulating abstract concepts through visual and tactile senses aids in describing abstraction processes. This suggests that simulation might be transferable to students analysing textual data (31).

In the context of qualitative content analysis, achieving transparency in interpretation is often challenging, as mentioned in previous studies (28,33,34). However, during our study, we observed that when we encouraged our students to express their thoughts verbally while coding, they became more conscious of the specific characteristics they used to systematise the buttons. This process bears resemblance to de-contextualisation (4). Additionally, in the thematisation phase, we noticed that students employed cognitive strategies, such as recalling memories, which became evident through their reflections, discussions, and verbal expressions. These cognitive aspects suggest that the students drew upon their previous analysis experiences and familiarity with buttons, indicating that familiar elements can serve as a scaffold to understand new and unknown concepts, fostering a deeper comprehension (30). The method seem to make abstract concepts more tangible and accessible to the students, leading to a better understanding of the subject matter.

The button - a cognitive thinking tool

When the students encountered the buttons, they brought their former knowledge and understanding, which was further enriched by the new information provided in the introductory lecture. Throughout the analysis process, the students' pre-understanding became more apparent as they shared memories and past experiences related to the different phases of analysis and the results. In addition, the students demonstrated their imagination and creativity in a social interaction while engaging in the analysis process (23).

The buttons and the researchers encouraged the students to be active, possibly related to the researchers enthusiasm and desire for them to discover and see what we had experienced at the conference (22) - transferring our motivation and drive. The researchers brought energy into the setting, creating awareness that analysis is an essential part of being a nurse, especially in education and research (35).

The students' hermeneutic step of gaining new understanding is evident in their data when they started to explore alternative and novel perspectives to organize the buttons. They achieved this new understanding at different levels: individually, within their groups, and collectively as a class. Further, in the context of group work as a social setting, both learning

and comprehension occur (31). It is essential for individuals involved in the analysis process to be aware of their pre-understanding. This awareness serves as a prerequisite for achieving a deeper comprehension of the subject matter and being able to conduct analysis (31). The process of gaining new insights and understanding follows the pattern of the hermeneutic spiral (19), where each step leads to the emergence of new horizons of understanding before progressing to the next step. The process of gaining new understanding and insights also applied to the researchers themselves. While observing, researchers noticed dynamic interactions between students, buttons, and themselves, realizing buttons as a promising, beneficial teaching method.

In this study, students engaged in the process of creating stories for the buttons by placing them into familiar and meaningful contexts. When they shared these stories with others, the contexts appeared credible, keeping the other participants engaged and prompting them to ask follow-up questions. This interaction allowed for a concrete button, with its observable properties, to be situated within a context that revealed its underlying meaning or latent content. This process is similar to re-contextualisation, as described by Lindgren et al. (4). Looking 'beyond the button,' might enable the students to interpret stories in a manner that seemed to resemble the cognitive processes involved in interpreting art. This suggests the possibility of a significant level of abstraction and interpretation occurring in the process as depicted in Figure 1.

Simulation is not limited to clinical skills training alone; it can serve other educational purposes as well (12,36). In this study, it became evident that simulation could be an useful approach for teaching and learning methodological skills, and to meet the requirements of the qualification framework based on the Bologna process (37).

The use of buttons in lieu of traditional manikins allowed for a more engaging and interactive learning experience. Furthermore, this approach can be beneficial in identifying students who may struggle with learning through traditional theoretical lectures and syllabi. The tactile and visual nature of working with buttons introduces a unique aspect to the learning process, particularly in abstraction and text analysis. According to Solheim and Flo (7), the impact of simulation as a learning method can be long-lasting, with participants remembering the experience for up to 12-18 months after the simulation event. However, the study suggests that not all students are suited for simulation-based learning. Some nursing students adopt a technical-instrumental approach, undervaluing abstract knowledge (38). This may challenge

certain students' engagement and benefit from simulation, preferring traditional learning methods.

Strengths and limitations

This study benefited from the participation of 31 out of 32 students, which can be viewed as a strength as the number of participants is considered representative of the entire class.

However, the study's scope being limited to a single class may be regarded as a weakness, as conducting repeated workshops could have improved data access, contributed to data saturation, and provided more robust verification of the results. Nonetheless, the data collected from the participants reflects both positive and negative experiences, which signifies an environment conducive to trust and credibility. Moreover, the use of quotations strengthens the findings (39).

Thema-centered analyses are criticised for not preserving a comprehensive perspective (29), especially when excerpts of text are detached from their original context. To overcome this limitation, the approach used allows the questions and analysis steps to guide the extraction process, ensuring that data coherence and context are preserved. As an example, the coding phase involves describing quotes in relation to the context of the interaction. This highlights the essential aspect of a case study approach, where researchers fully immerse themselves in the phenomenon of the study and is a defining characteristic of a case study, as emphasized by Yin (15). The researchers' interaction and engagement may have influenced the students and affected the outcome. With different teachers, the result could have been different.

A strength of this study was that two teachers with experience in qualitative analysis and simulation were present and facilitated the workshop. Students were presented with the opportunity to practice discussions and reflections throughout the analysis process, in line with a hermeneutic approach (19). Collaboration with several co-coders has been useful according to an Australian study (40).

Finally, regarding limitations, we could have placed more emphasis on the transferability between analysing through simulation and analysing real text. How the students' notes from each step in the analysis process could have been useful in a bachelor's thesis should have been better explained.

The first author is a course coordinator for bachelor's theses at our institution. The second author is well-qualified in simulation topics, which adds strength to the study as they have expertise in the subject matter. However, there are potential methodological weaknesses due to both authors being involved in designing the questionnaire and facilitating the workshop. Being closely connected to the study's design and implementation may limit the ability to obtain openness to the data.

The questionnaire is based on our pre-understanding, and is therefore not face-, or content validated. A validated questionnaire would strengthen the study.

When the same individuals fulfill roles as teachers, designers, and researchers, there is a potential risk of lacking sufficient openness, leading to subjective analysis and interpretation of data. Another advantage of the questionnaire is its division into themes, which may promote a more accurate data interpretation. The data does not provide a basis for generalisation, but it is nevertheless interesting to see that this study is in line with the learning outcomes of simulation in clinical subjects from other studies.

Reflections on the authors role in the implementation of the case-study

In the workshop, the authors collaboratively constituted a team, followed by subsequent reflective deliberations regarding the efficacy of this collaboration and nurturing a positive student-teacher relationship. Our reflections prominently centered on examining our capacity to enhance student analysis skills, and transitioning from being primarily instructors to more effectively supporting students and facilitate progress in the analysis process.

The authors had an active role throughout the workshop, representing the case in this study. Initially, we were instructors providing a common theoretical foundation. Then, as initiators and motivators, we used questions to guide the students' analysis after distributing buttons. As their analysis progressed, we became more facilitators, encouraging students' choices and creativity, which encourage their progress and responsibility in the group process. Depending on the students' engagement, our role shifted between affirming, and actively demonstrating "analysing" buttons. We transitioned from guiding specific parts to guide the overall process, in line with hermeneutic tradition (19). The authors planned the workshop together, recognizing eachothers strengths and our common goal is to help students understand the analysis steps. Our appreciative approach may have fostered a positive student-instructor relationship and have strenghtend the students self-belief (31). Alltogether, a student-active

form of teaching combine with a trusting mentoring relationship may have positively influenced the results.

CONCLUSION

Simulation as a pedagogical method can enhance theoretical teaching by making it more vivid and concrete, particularly in learning qualitative analysis. The method of simulation used in this model can be beneficial in helping students grasp the analysis process for their bachelor's thesis. However, it is essential to acknowledge that this approach may not be suitable for all students, and further research is needed to better understand its effectiveness and applicability.

AUTHORS CONTRIBUTIONS

XX— lead in design, facilitating in the workshop, taking fieldnotes, analysis and authorship of the study. XY—contributions to design, facilitating in the workshop, taking fieldnotes, analysis and contribution to authorship of the study.

ACKNOWLEDGEMENT

We extend our heartfelt gratitude to the nursing students who actively participated in the workshop, as their valuable contributions made this study possible.

REFERENCES

1. Sfard A. On Two Metaphors for Learning and the Dangers of Choosing Just One. *ER*. 1998;27(2):4-13. <https://doi.org/10.3102/0013189X027002004>
2. Mazaheri M, Eriksson L, Heikkila K, Nasrabadi A, Ekman S, Sunvisson H. Experiences of living with dementia: qualitative content analysis of semi-structured interviews. *J Clin Nurs*. 2013;22(21-22):3032-41. <https://doi.org/10.1111/jocn.12275>
3. Elo S, Kaariainen M, Kanste O, Polkki T, Utriainen K, Kyngas H. Qualitative Content Analysis: A Focus on Trustworthiness. *SAGE Open* [Internet]. 2014; 4(1):[2158244014522631(10) p.]. Available from: <https://doi.org/10.1177/2158244014522633>
4. Lindgren B-M, Lundman B, Graneheim UH. Abstraction and interpretation during the qualitative content analysis process. *Int J Nurs Stud*. 2020;108:103632-. <https://doi.org/10.1016/j.ijnurstu.2020.103632>
5. Floden Ø, Christiansen B. Hvordan erfarer sykepleierstudenter sammenhengen mellom simuleringstrening og praksisstudier? [How do nursing students experience the coherence between simulation training and clinical practice?]. *Nordisk sygeplejeforskning*. 2023;13(1):1-13. <https://doi.org/10.18261/nsf.13.1.1>
6. Aamlid H, Tveit B. Simulation as a joint learning activity in clinical placement— interaction between first-year nursing students and qualified nurses. *JCN*. 2022;31(1-2):250-61. <https://doi.org/10.1111/jocn.15903>
7. Solheim E, Flo J. Nurses' experiences of simulation-based learning, 12–18 months after the simulation: A qualitative study. *NJNR*. 2021. <https://doi.org/10.1177/20571585211032774>
8. Kimzey M, Mastel-Smith B. Impact of dementia simulation on nursing students: When empathy breeds awareness. *Teaching and learning in nursing*. 2022;17(2):169-73. <http://dx.doi.org/10.1016/j.teln.2021.11.010>
9. Bailey L, Emory J. High-fidelity simulation improves confidence in nursing students. *Teaching and learning in nursing*. 2022;17(2):191-4. <https://doi.org/10.1016/j.teln.2021.12.004>
10. El-Hussein MT, Harvey G. Scaffolding safety in nursing simulation: A grounded theory. *J Prof Nurs*. 2023;45:14-20. <https://doi.org/10.1016/j.profnurs.2023.01.003>
11. Jin H-R, Choi Y-J. Three-dimensional needs of standardized patients in nursing simulations and collaboration strategies: A qualitative analysis. *Nurse Educ Today*. 2018;68:177-81. <https://doi.org/10.1016/j.nedt.2018.06.015>
12. Mariani B, Doolen J. Nursing Simulation Research: What Are the Perceived Gaps? *Clinical simulation in nursing*. 2016;12:30-6. <https://doi.org/10.1016/j.ecns.2015.11.004>
13. Frandsen A, Lehn-Christiansen S. Into the black-box of learning in simulation debriefing: A qualitative research study. *Nurse Educ Today*. 2020;88:104373-. <https://doi.org/10.1016/j.nedt.2020.104373>
14. Vemuri S, Hynson J, Gillam L, Williams K. Simulation-Based Research: A Scoping Review. *Qual Health Res*. 2020;30(14):2351-60. <https://doi.org/10.1177/1049732320946893>
15. Yin RK, Yin RK. Case study research and applications: design and methods. Sixth edition. ed. Los Angeles, California: SAGE; 2018.
16. Mjøsund NH, Vinje HF, Eriksson M, Haaland-Øverby M, Jensen SL, Kjøs S, et al. Salutogenic service user involvement in nursing research: A case study. *J Adv Nurs*. 2018;74(9):2145-56. <https://doi.org/10.1111/jan.13708>

17. Solbakken R, Bondas T. Fallhendelser hos eldre i hjemmetjenesten i en norsk kommune- omfang og omstendigheter [Fall incidents among elderly people in home care in a Norwegian municipality Scope and conditions]. *Nordisk tidsskrift for helseforskning*. 2015;11(1):165. <https://doi.org/10.7557/14.3487>
18. Asikainen E, Tapani A. Exploring the Connections of Education for Sustainable Development and Entrepreneurial Education-A Case Study of Vocational Teacher Education in Finland. *Sustainability (Basel, Switzerland)*. 2021;13(21):11887. <https://doi.org/10.3390/su132111887>
19. Gadamer. *Truth and method*. 2nd, rev. ed. New York: Continuum; 1989.
20. Bland AJ, Topping A, Wood B. A concept analysis of simulation as a learning strategy in the education of undergraduate nursing students. *Nurse Educ Today*. 2011;31(7):664-70. <https://doi.org/10.1016/j.nedt.2010.10.013>
21. Hovancsek M. Using simulation in nurse education. In: Jeffries PR, editor. *Simulation in nursing education: from conceptualization to evaluation*. New York Natl League for nursing; 2007.
22. Spiers J, editor *Separating the Muddle from the Mess in Data Analysis*. The 15th Qualitative Methods Conference; 2016; Glasgow.
23. Dolin JP. Undervisning for læring [Teaching for Learning]. In: Rienecker L, Stray Jørgensen P, Dolin J, Ingerslev GH, editors. *Universitetspædagogik [University Pedagogy]*. Frederiksberg: Samfundslitteratur; 2013.
24. Vygotskij LS, Cole M, John-Steiner V, Scribner S, Souberman E. *Mind in society : the development of higher psychological processes*. Cambridge, Mass: Harvard University Press; 1978.
25. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-57. <https://doi.org/10.1093/intqhc/mzm042>
26. Merriam-Webster I. *The Merriam-Webster dictionary*. Springfield, Mass: Merriam-Webster; 2016.
27. Ørngreen R, Levinsen K. Workshops as a Research Methodology. *Electronic Journal of E-learning*. 2017;15(1):70-81.
28. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today*. 2004;24(2):105-12. <https://doi.org/10.1016/j.nedt.2003.10.001>
29. Thagaard T. *Systematikk og innlevelse : en innføring i kvalitative metoder [Systematics and empathy: an introduction to qualitative methods]*. 5. ed. Bergen: Fagbokforl.; 2018.
30. Pettersen RC. *Kvalitetslæring i høgere utdanning : innføring i problem- og praksisbasert didaktikk [Quality learning in higher education: introduction to problem- and practice-based didactics]*. Oslo: Universitetsforl.; 2005.
31. Rienecker L, Stray Jørgensen P, Dolin J, Ingerslev GH, Mørcke AM. *Universitetspædagogik [University pedagogy]*. Frederiksberg: Samfundslitteratur; 2013.
32. Hattie JAC, Donoghue GM. Learning strategies : a synthesis and conceptual model. *NPJ Sci Learn*. 2016;1(16013):16013-. <https://doi.org/10.1038/npjscilearn.2016.13>
33. Lundman B, Graneheim UH. Kvalitativ innehållsanalyse [Qualitative Content Analysis]. In: Nielsen BH, Monica Granskär editor. *Tillämpad kvalitativ forskning inom hälso- och sjukvård [Applied qualitative research in health care]*. 3.uppl. ed. Lund: Studentlitteratur; 2017. p. 219-34.

34. Lyhne Nørby Cecilie, Bjerrum M. Kvalitativ indholdsanalyse – En hands-on introduktion [Qualitative content analysis – A hands-on introduction]. *Klinisk Sygepleje*. 2021;35(4):304-22. <https://doi.org/10.18261/issn.1903-2285-2021-04-04>
35. Gjevjon ER, Rolland EG, Olsson C. Are we prepared to educate the next generation of bachelor nursing students? A discussion paper. *NJNR*. 2022;42(2):59-61. <https://doi.org/10.1177/20571585211040444>
36. Cant RP, Cooper SJ. Simulation-based learning in nurse education: systematic review. *J Adv Nurs*. 2010;66(1):3-15. <https://doi.org/10.1111/j.1365-2648.2009.05240.x>
37. Biggs J. *Teaching for quality learning at university.: what the student does*: Open University Press; 2011.
38. Vågan A, Erichsen T, Larsen K. En mixed methods studie: Sykepleierstudenters syn på kunnskap og læring [A mixed methods study: Nursing students' view of knowledge and learning]. *Sykepleien Forskning*. 2014. <https://doi.org/10.4220/sykepleief.2014.0087>
39. Lincoln YS, Guba EG. *Naturalistic inquiry*. Beverly Hills, California: Sage; 1985.
40. White D, Szabo M, Tiliopoulos N, Rhodes P, Spurrier M, Griffiths S. *Look Up in the Sky: Latent Content Analysis of the Real Life Superhero Community*. Qualitative report. 2016;21(2):178. <http://dx.doi.org/10.46743/2160-3715/2016.2485>