

The Application of Grounded Theory: An Example from Nursing Workforce Research

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The application of grounded theory was the conduit to theory development in this study. The intent was to explore nurse manager, educator, preceptor, and new graduates' perceptions of workplace readiness for new graduates entering an Intensive Care Unit. Research participants were drawn from five different ICUs: Medical, Coronary Care, Surgical, Neuroscience, and Trauma. One-on-one interviews were conducted to collect participants' perspectives on readiness to practice in the ICU. Using grounded theory, four themes emerged giving rise to the novice nurse embracing the ICU theory (NNEIT). Reflections on the type of grounded theory used, reasons for the selection, challenges faced in the theoretical development process, modifications for future grounded theory studies, and recommendations on how to further future grounded theory studies are discussed. Information useful for new grounded theory researchers and strategies for first-time researchers to overcome the challenges of conducting grounded theory studies are presented. Keywords: Grounded Theory, Nurse, New Nurse, Intensive Care Unit

New researchers are challenged with understanding all aspects of qualitative research designs including grounded theory. However, first-time researchers working with grounded theory often struggle with presenting their research designs (Brannan, Dumsha, & Yens, 2013). Grounded theory method, which is taught in master's and doctoral-level research courses, requires a significant time investment to understand the various steps required for data collection and analysis. The design requires a multilayered process, thus allowing the theory to emerge from the data (Oktay, 2012). It is important to understand that grounded theory method is holistic and requires review of data continually to ensure that the research accurately translates-the true meanings of participants' experiences.

There are several schools of thought for conducting grounded theory research, especially for navigating data analysis process. For example, while Glaser (1978) suggested a two coding phase (simple and substantive) to produce meaningful categories, Strauss proposed three types of coding to identify the phenomena (open), relate codes to each other (axial), and to develop core categories (selective; Strauss & Corbin, 1990). In grounded theory research, reviewing and understanding different schools of thought situates the importance and meaning of "dwelling in the research." Data collection and data analysis processes promote a continuous flow of information, which are reviewed until data saturates through using the constant comparative method. This article contains a description of the application of grounded theory method to the concept of nursing workforce readiness.

Grounded Theory Schools of Thought

As is true of most research designs, different schools of grounded theory evolved over time. Although Glaser and Strauss (1967) conceptualized and created grounded theory together, the design evolved into two different schools of thought. For instance, Glaser focused on a two-step coding process (Glaser & Strauss, 1967). Although this approach was focused on deciphering the data to guide the theory, it created some confusion related to the specific steps required for the data analysis process. Unlike Glaser's (1978) version of grounded theory, Strauss and Corbin (1990) emphasized the need to establish a distinct process of constant comparison and a broad view of the data that would allow the theory to emerge. The constant comparative method involves comparing the previous information with the new data to add to the emerging theme (Corbin & Strauss, 2008, 2014; Kolb, 2012). Strauss and Corbin (1998) added the axial coding section to the data analysis process that creates links to the previous categories after completing the open coding process (Corbin & Strauss, 2014).

As Corbin and Strauss (2014) explained, "analyzing data for context is essential for persons wanting to construct theory because it locates action-interaction within a set of conditions and identifies the consequences that are likely to result of that action and interaction" (p. 165). Developing a "grounded theory roadmap" helped create clarity in all the required steps for the grounded theory approach. In fact, Corbin and Strauss (2014) and Gelling (2011) have acknowledged that new researchers can experience difficulty with deciphering initial data, transitioning through different procedures and comparing data outcomes. Corbin and Strauss's approach was chosen to guide this study on nursing workforce research.

The Application of Grounded Theory to Nursing Workforce Research Study

The intent of the study was to understand perceptions of individuals involved in training and evaluating new graduates and the transition experiences of new graduates to their roles in the ICU. Fink and Krugman (2008) reported that after six months in nursing practice only 10% of new graduates felt comfortable with providing independent nursing care and many felt unprepared to provide independent assessments and technical nursing skills in the first year of practice. While there is an increased demand for critical care nurses only the limited research regarding new graduates perception of preparedness to work in the ICU setting exists (Halcomb, Slaamson, Raymond, & Knox, 2012). Such research is needed because ICU nurses are expected to provide competent and compassionate care to critically ill patients with complex conditions. New nurses are expected to quickly transition from nursing student to critical care nurse with limited transitional time. The research aim of the study was to develop a theory to explain workplace readiness and needs of new graduates entering the ICU from the viewpoint of managers, clinical educators, preceptors, and new registered nurse (RN) graduates. The grounded theory method was instrumental toward generating a theory for the study.

Method

Grounded theory facilitated the exploration of the new graduate workforce readiness by focusing on the views of managers, educators, preceptors, and new nurse graduates related to the unique skill set required to be a competent nurse in the ICU. The design uniquely allowed for the understanding and explanation of the phenomenon through the theoretical development process. To ensure data validity an external peer reviewer and an auditor together with university faculty with expertise in interdisciplinary healthcare and qualitative methods completed the research team. Peer reviewer's feedback was integral in ensuring the consistency

and accuracy in the data collection and data analysis process which included but was not limited to coding and theme development. The auditor reviewed data to ensure consents, member checks, confidentiality was protected with coding, and data findings, meanings, and interpretations were supported in the data.

Recruitment

Nurses were recruited from a Southern academic teaching hospital. Nurses who held leadership positions as a manager, nurse educator, or preceptor were selected as well as self-identified new graduates. Research participants represented nurses from five different Intensive Care Units (ICUs): Medical, Coronary Care, Surgical, Neuroscience, and Trauma. The Medical Intensive Care Unit (MICU) provides care to patients experiencing multiple co-morbid illness such as gastrointestinal bleeds, respiratory failure, and multiple organ failure. The Coronary Care unit (CCU) provides care to patients diagnosed with myocardial infarctions (MI), congestive heart failure, and other cardiovascular illnesses. Surgical Intensive Care Unit (SICU) nurses provide care to individuals who received organ transplants. Patients admitted to the Neuroscience Intensive Care Unit (NSCIU) are commonly diagnosed with brain and spinal cord injuries. The Trauma Intensive Care Unit (TICU) provides care to patients who have experienced trauma related injuries from motor vehicle crashes, burns, and other traumatic events.

The study sample consisted of 24 nurses. Eligible leadership participants were required to have at least one-year experience in their perspective roles. The new graduate nurses were expected to have less than one-year experience in the ICU without previous nursing experience. The study received approval from two IRB committees. Participation was voluntary. Participants were de-identified with an alias name/number for anonymity and confidentiality. Respondents signed consent forms for the study, which included audiotaped responses.

Data Collection

Pilot Study. A pilot study was conducted to determine clarity of interview questions and interview protocol. The pilot study group consisted of two participants from the manager, educator, preceptor, and new graduate. After each pilot interview, participants provided feedback about the interview process, questions, and any additional suggestions.

Based on the findings of the pilot study, interview questions were reviewed and fine-tuned. Feedback was then obtained from the peer reviewer and the pilot study participants. As a result, some interview questions were expanded to include sub-questions (See Appendix A). The inclusion of sub-questions was significant in understanding the true meanings related to ascertaining detailed descriptions of the feelings and experiences related to the new graduates' transition into practice. For instance participants' were asked, "Tell me, what do you perceive as core competencies for new graduate nurses?" The sub-questions for this included the following: "What competencies do new graduates lack upon entering the ICU? What competencies are missing from current orientation plans? What competencies for the new graduates have the most difficult time learning?" Additionally, the peer reviewer recommended the inclusion of the following question: "What are the new graduates' challenges in the first 30 days of practice?" Including this vital question was critical toward fine-tuning the workplace readiness of the new graduates. The interview questions were finalized when the elicited responses reflected the true meanings of the participants and the in-depth descriptions on the research topic.

Scheduling. A threat to data collection occurred as the study site was experiencing "Right-sizing." Right-sizing aims to make organizations fiscally balanced based on income and

expenses (Margolis, 2010). During data collection process, participants were notified by leadership of the impending right-sizing of the organization, which consisted of a reduction in the current workforce by eliminating 1,115 vacated positions and opening 350 part-time positions. Many participants in the research study could have been affected by layoffs, position elimination, or “bumping.” As a result of the uncertain future for many employees, response time to the invitation letters for participants and the data collection process was impacted. The delayed response created a threat to recruiting eligible participants in the study. This uncertainty lasted several days. The right-sizing process also affected morale in the organization. For example, minutes before an interview with a new graduate, she received news that she was being laid off. Although her emotions were heightened, when asked if she wanted to continue with the study, she stated “yes.” However, this participant required additional initial time to compose her emotions before the interview.

In addition due to fluctuating nursing schedules, multiple individuals needed to cancel and reschedule appointments. This challenge was prevalent during both the first and the follow-up interview process. As a result, the interview schedule was frequently changed and adjusted to meet the needs of the participants, which resulted in many late interviews.

Interviews. Data was collected through audiotaped interviews, which included demographic and semi-structured interview questions. An interview protocol was used to allow for an organized interviewed approach. At the end of the interview, the participants were asked to include any additional topics/content that they perceived to be beneficial to understanding the workplace readiness of new graduate nurses.

The open-ended questioning allowed participants the opportunity to expand on their responses. For instance, a manager participant mentioned,

New graduates feel overwhelmed. One of the interns that I lost mentioned that there is no way that they are ever going... I can't ever do this. This is just too much. And just looking to see how fast everybody moves and how quickly they decide on interactions and how they can multi-task is definitely daunting and I think in the first 30 days they're totally overwhelmed with the things that they are going to be expected to do.

This in-depth response exemplified how the interview protocol and questions facilitated in-depth responses from the participants and created the opportunity for vivid descriptions of their experiences. Upon completion of the first and second interview with the participants, the transcriptions were provided to the participants for respondent validation. Follow-up conversations and correspondence both clarified and ensured accuracy of participants' statements.

Triangulation. Threats to validity can influence the research study and design. Threats to internal validity include instrumentation and selection of participants (Marczyk, DeMatteo, & Festinger, 2005). In this study, potential threats to validity included potential researcher bias and diverse nursing experiences with new graduates from five different ICUs. According to Halcomb and Andrew (2005), data triangulation includes person and space, which reduces bias through the integration of a diverse data group to obtain varied responses about the phenomena. For instance, a nurse in the MICU could report challenges relating to new nurses adapting a renal failure patient, which occurs more frequently in the MICU. In contrast, nurses in the Surgical Intensive Care Unit (SICU) could have reported experiences specific to transplant and post-surgical patients that potentially are unrelated to the other ICUs.

This challenge was overcome by looking at overlapping incidents, themes, and patterns, which reflected the overarching transition of a new graduate entering the ICU. Different ICU locations created a great opportunity to triangulate the overall dimensions and essence of the

broad topic of new nurse workforce readiness; the person and space triangulation added value toward understanding the true essence of the topic. Additionally, the challenge was overcome by accepting that despite the specialized experiences in the different ICUs among various participants, informants shared significant similarities in their various departments. These similarities reflected the need to understand the broad nursing topic of transitioning new graduates to the fast paced ICU environment and the significant need to maintain patient safety and promote positive patient care outcomes.

Data Analysis in the Context of Grounded Theory

In grounded theory research, data collection and analysis process occurs simultaneously in the constant comparative method. The use of the constant comparative method in grounded theory enables the researcher the opportunity to use the analyzed data to create more meaningful interviews, which allows data to be constantly compared to facilitate the emerging theme (Engward, 2013; Olson, McAllister, Grinnell, Walters, & Appunn, 2016).

Constant Comparison

Fundamental to grounded theory research, categorization and comparisons begin immediately in the data collection process. As data emerges, it is necessary that even novice researchers rise to the occasion and avoid being overwhelmed by the raw data. Although raw data provides a rich framework for the foundation of the grounded theory process, this step is mentally challenging.

The constant comparative process requires review of transcriptions to accurately understand the participants' perspectives and to identify common themes from different points of view. While conducting the constant comparative process in this study, the first and second interviews of the participants were examined multiple times to ensure the participants' intent was captured and appropriately categorized. After reviewing the interview transcripts from a new graduate and a preceptor, it was evident that both stated similar concerns, namely that ICU new graduates experience challenges adapting to changes in the patient's condition. The new graduate mentioned that novice nurses are overwhelmed because of the expectation to perform at the same speed of the experienced ICU nurse.

The need for novice nurses to make quick decisions can threaten the lives of patients. The preceptor described,

They do not know how to multi-task in an appropriate manner. They tend to be focused on one thing at a time and cannot see the periphery of what is evolving around them... But I think the hardest thing in all is for them to see the periphery of what is going on and their actions and how their actions impact the whole picture.

Using the constant comparative process required a significant amount of time and attention to detail because all of the data had to be analyzed. It was thus beneficial to take small breaks during data analysis sessions to ensure that all information was read thoroughly and to prevent overlooking vital information that could shed light on the research topic. Taking breaks is recommended to aid in creating clarity while reading and analyzing the participants' thoughts and perceptions. Such clarity is crucial because theory emerges from this detailed analysis process, as there is "continuous interplay between analysis and data collection" (Strauss & Corbin, 1998, p. 273). As a result, this design captured the nurses' unique perspectives and voices regarding the research topic. While the components of the grounded theory data analysis

process appear simple, once the data emerges and the process begins, it can be overwhelming. The researcher must ensure that comparisons emerge fluidly and reflect the intent of the interviewee. For example, the statements from the four groups of participants regarding the lack of knowledge regarding “sepsis” was categorized with other codes relating to lacking knowledge of disease and diagnosis.

Coding

Sorting through transcripts to identify themes and codes can be difficult and complex. Navigating through the coding process and creating themes was vigorous and, at times, almost paralyzing because several pages of transcripts were entered into Nvivo10 (an analysis computer program) which required sorting and coding words, phrases, sentences, and paragraphs. Participants’ willingness to participate in the study, created a vast amount of detailed and descriptive data. This in-depth process presented challenges in ensuring that all relevant data was appropriately identified, categorized, and understood for the intended meaning. While reviewing the transcripts in this study, the data had to reflect the actual statements without including any assumptions or preconceptions about the intent. The first review of the data was startling and felt daunting, as it required an in-depth exploration of all of the nuances to ultimately uncover the true essence of the story.

After multiple reviews of the data, incidents, themes, and categories started to emerge. Open, axial, selective coding, and the constant comparative method enabled the emergence of the major themes in the study. Core categories developed from the iterative-grounded theory process, constant comparison of the data, comparison of incidents to incidents, and the relating of categories. For example, the question asking about competencies new graduates applied produced several responses related to topics such as assessment, communication, mediation, assertiveness, and compassion. Quires and reports in NVivo10 produced an exponential amount of information relevant to theme development.

Word frequency tables in the current study resulted in transitioning through the coding and constant comparative process. For example, charting responses about adjusting to the expectations of frequently interacting with patients, families, and health care providers regarding changes in the patient’s condition led to the emergence of the following theme: adapting to the fast-paced ICU environment. The initial analysis process revealed 24 categories reflecting the four most common categories from the participant responses described in Appendix B. Similarities in participant’s perspectives were used to develop core categories. For example, 15 responses narrowed to this common theme: knowledge of disease and diagnosis as a core theme.

Themes were further reduced to those most frequently occurring and then ranked according to occurrence. This ranking resulted in aggregating themes to form eight themes: (a) knowledge of disease, (b) procedures, (c) communication, (d) responding to changes in the patient’s condition, (e) knowledge of medications, (f) overwhelming experience, (g) time management, and (h) patient care management. Subsequently, the aggregated eight themes led to the development of one major theme, the new graduate embracing their transition into the ICU, and three minor themes: (a) overwhelming transition into practice, (b) adapting to the ICU, and (c) embracing the role as a new ICU RN.

Analyzed data revealed meanings and perceptions related to the complex topic of new graduate nurse readiness entering the ICU. Using the auditor and peer reviewer supported the authenticity of the data. Although Nvivo10 was useful in visually organizing and analyzing the data, on several occasions the complete transcripts were reviewed for validity and intention. The emergence themes from the interviews was a fascinating experience; it created the

additional motivation to interview more participants to obtain data saturation. Based on the data, the Novice Nurse Embracing the ICU Theory (NNEIT) was developed.

Discussion

The value in using grounded theory in nursing is in the ability to capture meaning. While a number of grounded theory methods could have been applied to this study, Strauss and Corbin's approach seemed the most useful grounded theory provides a broad perspective on nursing research by searching for "social processes present in human interactions" (Chen & Boore, 2009, p. 2252). Nathaniel and Andrews (2007) described grounded-theory design as beneficial to nurses because "Nurses can apply new understandings of predictable processes and patterns of behavior to improve the quality of patient care or to alter patterns that negatively affect patient outcomes" (p. 1). Grounded theory promised to be very useful in studying the new graduate nurses' readiness for the ICU because of its focus on gathering insight into the true meanings related to new graduates' experiences of transitioning into the ICU. Facilitating the training for transition into the ICU is demanding in that it requires astute attention from nursing leaders, educators, and new graduates to navigate the vast expectations to become competent. In the ICU setting, nurses are expected to provide competent care to deteriorating patients through clinical reasoning skills and interventions. However, limited research exists regarding the needs of new graduate nurses related to providing care to unstable deteriorating patient's in unstable settings (Della Ratta, 2016). The grounded theory design was instrumental in deciphering the new graduate nurses' practice in the ICU.

Strauss and Corbin (1990) emphasize using the axial coding process to facilitate a deeper meaning of participant words creating relationships and connections with the coded information. Maintaining patience with achieving saturation, using memos, and grounded theory resources, which include the text from Strauss and Corbin help to understand the process. Dwelling in the data promotes the understanding of the participants' words and intent, which aids in understanding the research phenomena. In grounded theory, questioning is appropriate to identify the authentic reflection of the data and to promote the application of the grounded theory approach (Glaser, 1978, 1992; Schreiber & Stern, 2001; Strauss & Corbin, 1990). The consistent and repetitive review of the interview transcripts as well as the use of a labor saving computer analysis program like NVivo provide opportunities to examine the data using word frequency tables, diagrams, and charts to discover patterns and themes representing the perspectives of various participants. Simultaneous data collection and comparative analysis of volumes of rich textual data allows for the discovery of core topics and the development of target categories. Comparative analysis allows for emergent patterns and themes where initial reviews may result in more categories than warranted by the data. For example, several informants mentioned different incidents related to the competencies and skills new graduates needed to achieve to work in the ICU. Initial review of the transcripts appeared to create multiple categories, such as limited competencies with technical skills, time management, assessment skills and prioritization. Further analysis resulted in category reduction and the emergence of relevant themes, which in this case embodying the new ICU RN role.

Individuals conducting grounded theory nursing research must understand that grounded theory occurs in a synchronous movement. Because nursing topics are often complex, this qualitative design is beneficial in exploring the various nuances that exist in the nursing profession. The use of grounded theory in this research study exploring the new graduates' workforce readiness to enter the ICU was appropriate and revealed various opportunities for future research related to the new theories and themes. To advance the study, future research could focus on understanding the nursing leaders' and new graduates' past experiences, which could aid in addressing the groups' perspective on novice nurses in the

ICU. Exploring the past experiences of the nurse leaders and new graduates may reveal new knowledge related to understanding the skills competencies nursing students need to facilitate the training transition from student to ICU nurse. For example, potential nurse leaders who entered as new graduates to the ICU could have a unique perspective related to the readiness of the new ICU nurse, and this could exist in the different participant groups.

Conclusions

Embarking on grounded theory research requires patience as the researcher is collecting and analyzing data simultaneously. The grounded theory design is beneficial in nursing and other research disciplines. For the novice researcher, the research design promotes critical decision-making related to data analysis while ensuring compliance with the principles of grounded theory. The method includes the constant comparative method to guide data saturation, which enables the theory to emerge. Understanding grounded theory and realizing the potential to uncover new theoretical principles that reflect the reality of the phenomenon is the true spirit of this method.

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Appendix A: Final Interview and Demographic Questions

Manager, Educator, Preceptor

1. What is your age?

20–29 30–45 45 and above

2. What is your gender?

Female Male

3. What is your current role?

Manager Clinical educator Preceptor

4. What is your highest level of education?

Diploma Associate Bachelor's Master's Doctorate

5. Did you enter the ICU as a new graduate?

Yes No

6. Have you ever taught in a nursing school?

Yes No

7. What types of ICU have you worked in?

MICU CCU SICU TICU NSICU

8. How many years have you worked in your current role?
1–3 4–6 7–10 more than 10
9. How many years have you worked in this organization?
1–3 4–6 7–10 more than 10
10. Tell me what you think about new graduates entering the ICU?
11. Tell me about the 1st 30 days of a new graduate in your ICU?
 - a. Tell me, what challenges did you perceive new graduates have in your first 30 days of practice?
12. Tell me, what does it mean to you to be a competent new graduate in the ICU?
13. Tell me, what does it mean to you to be professionally competent in the ICU?
14. Tell me, what does it mean to be competent in skills in the ICU?
15. Tell me, what does it mean to be competent in your knowledge as an ICU nurse?
16. Tell me, what does it mean to be a trained ICU nurse?
17. Tell me, what does it mean to you to have a new ICU graduate in your area?
 - a. Tell me what have been your positive experiences with new graduates working in this area?
 - b. Tell me what have been your negative experiences with new graduates working in this area?
18. Tell me, when there was a time that you saw the new graduate become competent?
19. Tell me, when there was a time that you saw the new graduate become competent in their knowledge?
20. Tell me, when there was a time that you saw the new graduate become professionally competent?
21. Tell me, when there was a time that you saw the new graduate become competent in their skills?

22. Tell me, what do you perceive as core competencies for new graduate nurses?
 - a. What competencies do new graduates lack upon entering the ICU?
 - b. What competencies are missing from current orientation plans?
 - c. What competencies do the new graduates have the most difficult time learning?
23. Tell me, what do you perceive as essential skills new graduates need to practice?
 - a. What skills are new graduates lacking upon entering the ICU?
 - b. What skills are missing from current orientation plans?
 - c. What skills are taught in your unit orientation program?
 - d. Tell me, what skills the new graduates have the most difficult time learning?
24. Tell me, when you entered the ICU as a new graduate, did you feel you had the essential skills and competencies upon entering the ICU? (If applicable)
 - a. What are the skills in nursing schools that you learned in nursing school that you immediately applied to your role as an ICU nurse?
 - b. Tell me what the differences is from when you started to now?
 - c. What skills as a new graduate did you have the most difficult time learning?
25. Tell me, what topics are missing which you perceived to be beneficial to facilitate the new graduates' workplace readiness into the ICU?
26. Tell, me, what do you perceive as sufficient time the new graduate nurse needs to receive orientation before transitioning to independent practice? (Explain)
27. Tell me, what do you think about new graduates making critical decisions?
28. Tell me, what do you think about the leadership skills of new graduates?
29. Is there anything else you would like to tell me about skills and competencies of new graduates?