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Featured Article

Exploring Suspension of Disbelief Among Graduate and Undergraduate Nursing Students

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Abstract
Background: The nature and process of suspending disbelief is complex, subjective, and has not been well researched in clinical simulation.
Methods: A descriptive phenomenological approach with semistructured interviews explored student experiences of suspending disbelief during simulation-based learning.
Results: Among the 18 (69%) graduate students and 8 (31%) undergraduate students, three themes emerged from participant narratives including (1) frame of mind, (2) environment, and (3) tempo. Subthemes of frame of mind included cognitive focus, apprehension, and confidence.
Conclusion: Understanding nursing students' lived experiences of suspending disbelief can enhance the educator's ability to design and facilitate effective simulation, student development, and suspension of disbelief.

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Simulation is an integral component of nurses' training that requires participants to suspend disbelief or engage in a fiction contract to optimally immerse in the learning opportunity. Suspension of disbelief (SOD) is one aspect of the simulation-based learning (SBL) experience and represents the cognitive agreement the learner makes with self to overlook the unbelievable for the sake of learning. Learners have reported that the ability to suspend disbelief makes it easier to engage, focus, and learn from SBL experiences (Holt, 2017). Despite its recognized importance, an exhaustive literature search yields numerous mentions of SOD, yet few provide an in-depth examination of the nature and process of the complex and subjective concept of SOD in clinical simulation (Dieckmann, Gaba, & Rall, 2007; Rudolph, Simon, & Raemer, 2007). Understanding students' lived experiences of what is required to mentally immerse during clinical simulation can equip the educator to design effective simulation scenarios and guide students toward critical thinking and decision-making that mirror actual clinical experiences.

Simulation has been used to teach nursing students patient care, technical, nontechnical, and team skills for decades (Boet, Jaffrelot, Naik, Brien, & Granry, 2014;

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Gaba, 2004; Orique & Phillips, 2018; Wunder, 2016). The realism of the experience hinges on the level of engagement students commit to during a simulated event (Rudolph, et al., 2007). Before engaging in simulation, facilitators discuss fiction contracts, which encourage learners to suspend disbelief and perform as if the scenario is a real event (Vaihinger, 1927) with an actual patient. Learners must be flexible and receptive to changing information as the scenario unfolds and respond as the provider during the experience (Dieckmann et al., 2007). Rules of consistency apply to SOD in simulation where students, manikins, and other participants must act, react, and interact in ways that are believable.

Key Points

- Frame of mind, environment, and tempo influence one's ability to suspend disbelief in simulation.
- Cognitive focus, apprehension, and confidence were identified as frame of mind subthemes that influence suspension of disbelief.
- Understanding learners' experiences equips the simulationist to facilitate suspension of disbelief when designing simulation experiences.

There are no previous studies among both graduate and undergraduate student nurses designed to explore SOD from the student's perspective including one's ability or inability to suspend disbelief. The purpose of this study was to explore how nursing students feel, understand, and interpret their experience of suspending disbelief during SBL. What is the nature of suspending disbelief experienced by graduate and undergraduate nursing students during SBL? Individual perceptions and motivations that contribute to or inhibit SOD during clinical simulation were explored.

Methods

Phenomenology is philosophical inquiry broadly constructed on the belief that reality is based on human perception and understanding of objects, events, or phenomena (Giorgi, Giorgi, & Morley, 2017). The principles of descriptive phenomenology (Colaizzi, 1978) were used to explore the perspectives of graduate and undergraduate nursing students and investigate the structures of consciousness in the lived experience of students as they reflected on the use of SBL. By describing everyday lived experiences, the researchers sought to capture students' perceived meanings of SOD by identifying essential themes. The phenomenological method assumes that individuals assign meaning to their world through conscious reflection on situations and events (Creswell & Guetterman, 2019).

Design, Setting, and Sample/Participants

Design

A descriptive phenomenological approach with semistructured interviews allowed participants to describe their feelings and experiences with simulation. Participants were asked to reflect on and draw from past simulation sessions in which they suspended disbelief or were encouraged to do so.

Setting

This multisite study included individual student interviews conducted at two schools of nursing, one in the southeast and one in the northeast. In attempts to minimize the risk of coercion and skewed data, interviews were conducted in faculty and staff offices by a study team member, who had no influence on participants' course grades.

Sample

The study used a purposeful sample of eligible graduate and undergraduate nursing students. Purposeful sampling was chosen in attempts to capture a rich description of SOD from those who have experienced it. Participants included graduate nursing students with a minimum of 1 year of intensive care experience as a registered nurse, enrolled in a 36-month Doctor of Nursing Practice nurse anesthesia program in North Carolina, who began simulated anesthesia experiences during Semester II of the program. Participants from a Bachelor of Science in Nursing program in Pennsylvania in the third or fourth year of a traditional (four-year) or last year of a second degree accelerated Bachelor of Science in Nursing program were also included.

Procedures

Institutional review board approval was secured from both universities. The study design, intent, risks and benefits, and voluntary participation were explained. Participants' questions were answered, and then written informed consent was obtained. Verbal consent was recorded and then, five scripted, open-ended questions were posed, and participant responses were recorded. Individual interviews were conducted by study team members who were trained in qualitative interviewing techniques. Interview questions were pilot tested to refine and improve the interview approach. Interview burden was minimized by limiting data collection to 30 minutes. To protect participant confidentiality, participants were assigned a five-digit study identification number, which accompanied each audiotaped interview and transcription record.

Data Analysis

Descriptive statistics were used to summarize the participants' demographic data. Individual interviews were transcribed by an independent transcriptionist and entered in a text-based software program (Dedoose, version 7) for

qualitative content organization and analysis. The seven-step phenomenological approach, as outlined by Colaizzi (1978), was used to analyze study data. Both researchers read and reread each participant's accounts several times to achieve an understanding of their descriptions and lived experiences. Phrases that directly related to suspending disbelief were then identified within individual transcripts. The researchers discussed and considered individual statements frequently to identify meanings relevant to SOD. These steps were repeated for each transcript and aggregate clusters of themes. The researchers created an exhaustive list of themes that were condensed into short, dense statements that captured essential aspects of the experience. A seasoned qualitative method researcher audited the deidentified transcripts, codes, and research study process for reliability and thematic analysis to establish validity. Study participants were contacted by email to establish validity, authenticity, and transferability among the participants.

Confirmability was established by the audit trail that documented the detailed data collection process, analysis, and interpretation of how themes emerged. Trustworthiness of qualitative data was demonstrated when participants confirmed the study findings, providing credibility. Credibility of findings was further reinforced by participant member check, when participants reviewed the findings with the opportunity to clarify, correct, and provide additional information. In addition, credibility was established with the triangulation of sources or the use of multiple populations, graduate, and undergraduate nursing students for this study, as well as analyst triangulation, the use of multiple analysts to review the findings.

Results

Demographics

Demographic characteristics of the sample are described in Table (n = 26). The sample consisted of 18 (69%) graduate students and 8 (31%) undergraduate students with most participants' ages 25 to 27 years (n = 10; 55.56%), and 54% (n = 14) had eight or more prior simulation experiences.

Thematic Summary

Three primary themes emerged from participant narratives: (1) frame of mind, (2) environment, and (3) tempo. Subthemes of frame of mind included cognitive focus, apprehension, and confidence.

Frame of Mind

Students described how their frame of mind or mindset influenced their ability to suspend disbelief in SBL experiences. The mental attitude, emotions, feelings, and preparation level of the participant before and during the SBL experience impacted the degree to which one could suspend disbelief.

Cognitive Focus

Many participants stated that they mentally chose to buy into the experience as real. They cognitively focused on the goal of providing patient care and the learning experience. Participant one stated, "there are people behind the glass looking but you just do what you have to do. But doing what I have to do and keeping myself goal oriented gets me out of that thought." Peers also influenced SOD. If student peers took the encounter seriously and realistically, participants noted this helped them to keep the frame of mind that it was a real experience and SOD required less effort. As participant 60 noted, "If everybody works toward

Table Demographic Characteristics

Demographic Characteristics	Graduate Program, 18 (69%)	Undergraduate Program, 8 (31%)
Age (years)		
20-24	1 (5.56)	7 (87.50)
25-27	10 (55.56)	0 (0.00)
28-30	3 (16.67)	0 (0.00)
31-33	0 (0.00)	0 (0.00)
34-37	2 (11.11)	0 (0.00)
38-40	1 (5.56)	0 (0.00)
>40	1 (5.56)	1 (12.50)
Gender		
Female	14 (77.78)	7 (87.50)
Male	4 (22.22)	1 (12.50)
Race		
Caucasian	14 (77.78)	8 (100.00)
African American	0 (0.00)	0 (0.00)
Asian	4 (22.22)	0 (0.00)
Pacific Islander	0 (0.00)	0 (0.00)
Other	0 (0.00)	0 (0.00)
Training Program	18 (69)	8 (31)
Number of prior simulation experiences		
0	0 (0.00)	0 (0.00)
1-2	0 (0.00)	3 (37.50)
3-4	4 (22.22)	0 (0.00)
5-6	0 (0.00)	5 (62.50)
7-8	0 (0.00)	0 (0.00)
>8	14 (77.78)	0 (0.00)
Number of peer simulation observations		
0	0 (0.00)	0 (0.00)
1-3	1 (5.56)	3 (37.50)
4-6	5 (27.78)	4 (50.00)
7-10	2 (11.11)	1 (12.50)
11-13	2 (11.11)	0 (0.00)
14-16	1 (5.56)	0 (0.00)
17-19	0 (0.00)	0 (0.00)
>20	7 (38.89)	0 (0.00)
Had previous experience in health care roles	8 (44.44)	5 (62.5)
Total		26

making it more of a realistic experience, then your group is really going to have that attitude going in and it is definitely gonna change what you can get out of the experience.'' Previous positive simulation and clinical experiences also had greater impact on SOD than negative prior experiences.

Apprehension

Participants noted that apprehension and anxiety increased before and during the simulation encounter. An apprehension-invoking aspect of the experience was being watched by peers and faculty. This made students fear making mistakes and subsequent judgment. Graded simulations were viewed as producing higher levels of apprehension compared with formative simulation. Participant 57 described that ''I do get a lot of apprehension knowing that it is like pass/fail if it is being graded in terms of my course that makes me more nervous versus doing it just for the experience.'' When students feel ''on guard'' or apprehensive, they are less able to emotionally connect via the limbic system (Lester & Yambor, 2019). This apprehension impedes the ability to be transported to the simulated scene, assume an intentional role, and suspend disbelief to perform in that role. Laarni, Ravaja, Saari, and Hartmann (2004) report that personality differences including anxiety level contribute to a simulation participant's level of engagement and sense of presence in a scenario.

Despite participant reports of apprehension with simulation, they found value in the psychomotor and multifaceted practice coupled with feedback on skills and decision-making. Participants noted that preparing for simulation helped decrease apprehension. As participant 55 stated: ''It is all about going through what procedure you will be performing in the simulation scenarios and just going through the process in your head.'' Participant apprehension was a motivator to prepare for the simulation case. In turn, mental preparedness alleviated apprehension, decreased impedance to being psychologically transported, and created a mental state more conducive and willing to suspend disbelief. Reported methods of preparation included reading, watching videos, and imagining how the case might unfold while contemplating appropriate interventions.

An important modulator of apprehension with initial simulation experiences was time. As a simulated case progressed, students reported decreased apprehension and anxiety. Likewise, as they participated in more simulations, they felt less apprehension with each new encounter. Participant 44 noted that ''the more you practice with it, the easier it becomes … the first couple times are a little bit more difficult … as we begin to practice more, it becomes more realistic.''

Confidence

Students reported that as the number of simulation experiences increased, baseline anxiety decreased and confidence increased. This inverse relationship between confidence and apprehension aligns with deliberate practice evidence that suggests repetitive skill execution leads to improved confidence (Kiernan, 2018; McPhee, 2018; Rice, Omron, & Calkins, 2018). Participants described confidence as cyclical, that anxiety builds at the beginning of each new encounter and then declines after debriefing. Participant six stated that ''a situation where I didn't get to do a whole lot of research on the content or topic, I don't think I would feel too confident. But afterwards depending on the feedback my confidence could go up.''

Debriefing activities helped some participants increase confidence with reports that positive feedback boosted self-confidence. Gradually, increased confidence and performance improvements led to self-realization which made it easier for students to imagine themselves in the role for which they were preparing and easier to suspend disbelief. Participant six described that ''as time goes by in the sim, your confidence increases and you get more comfortable toward the middle or end of the situation than you are in the beginning.''

Environment

The level of environmental fidelity impacted SOD. When equipment properly functioned and materials were readily available, participants perceived increased realism which enhanced SOD. Participant 12 noted that ''the environment definitely makes a difference … It exactly mimics an operating room and so you can immerse yourself a little bit more.''

Participant two pointed out that a ''glitch … sort of sets you off'' and decreases the ability to focus and immerse in the encounter. Participant 57 noted that ''some of the supplies weren't working and so we were having to pretend a lot more and that made it just harder because there is only so much I can pretend.''

Tempo

The tempo or pace at which a simulation experience progresses can promote or inhibit SOD. The progression of events in ''real time'' without interruption more closely mimics an actual patient-provider experience and promotes SOD. Participants noted that when there was a pause and restart of the simulation experience for the sake of practice or to correct errors, this detracted from a realistic workflow and interfered with SOD and the ability to immerse in the simulation.

Students felt SOD required less mental effort when events occurred naturally without unplanned interruptions (mechanical, audio, and so forth). Student actions felt authentic when events unfolded in real time with plausible patient reactions, both of which assisted with SOD. Participant 17 noted that ''doing it as flawless as possible so it feels even more real. Or if you mess up restarting as

opposed to saying oh well pick up where you left off. Because you couldn't do that in real life''.

Discussion

The ability to maintain cognitive focus decreased participants' apprehension and promoted SOD. Students noted that remaining goal oriented, accepting the experience for the sake of learning, embracing group work, and preparing for the SBL experience supported cognitive focus. Knowing that they could not hurt the patient helped students focus on learning. Decreased apprehension was also noted by participants who looked forward to getting feedback, getting hands-on experience, observing others perform, working in groups, and being challenged. Participants valued deliberate practice and feedback. Based on these findings, the researchers recommend that during prebriefing, facilitators discuss the positive learning that occurs during and after SBL (Rudolph, Raemer, & Simon, 2014). Additional suggestions to facilitate SOD include establishing partnerships with learners, clear expectations, and an opportunity for clarification after instruction just before the SBL activity (Muckler, 2017). Faculty can provide preliminary assignments and psychomotor procedural practice that allows students to prepare (INACSL, 2016) for patient encounters and potential provider responses.

Increased apprehension attributed to being watched led some participants to doubt whether they could adapt, perform, and make decisions. Apprehension and anxiety during simulation is well documented (Lasater, 2007; Yockey & Henry, 2019) and was the primary factor expressed by participants to impede SOD. These findings suggest that having faculty and/or peer observers in the simulation room may negatively impact SOD and student performance. Establishing a trusting environment with and among students is encouraged to decrease apprehension, which subsequently enhances SOD and learning (Harder, 2018; Yockey & Henry, 2019).

Student fear, stage fright, and a sense of judgment during SBL experiences are also well documented (Cant & Cooper, 2010; Lasater, 2007; Lundberg, 2008; Parker & Myrick, 2012). Eliminating anxiety is nearly impossible, yet instituting measures to mitigate predictable sources of anxiety can improve SOD, learning, and assessment. Parker and Myrick (2012) support the vital role of social discourse and peer filtering of knowledge during observation and debriefing, noting that both enhance learning. Bensouda et al. (2018) suggest that despite observation-induced stress, simulation observers are essential in training as this allows learners to practice stress management skills and better prepares them for the health care environment, which often includes observers. It is recommended that faculty design administrative procedures and counseling resources for managing students who experience unusually high levels of stress and anxiety related to simulation (Willhaus, Averette, Gates, Jackson, & Windnagel, 2014).

Simulation provides ongoing assessment and feedback in the graduate program, yet participants reported that apprehension increased once the assessment was deemed summative. Anxiety reportedly motivated students to study and prepare, which increased readiness to perform and SOD. However, perceived high levels of apprehension and anxiety can impair learning and negatively impact SOD (Najjar, Lyman, & Miehl, 2015; Imbir, 2017). Faculty using simulation for summative evaluation should incorporate measures to decrease anxiety by providing adequate (1) case information, (2) preparation time, and (3) prior formative cases.

Thematic analysis in this study revealed an inverse relationship between confidence and apprehension. Apprehension was increased at the beginning of each new simulation encounter and with each encounter that included new content. After deliberate practice and debriefing, apprehension decreased as it helped participants identify practice needs and increased confidence in their ability to progress in knowledge, skills, and abilities. Confidence was low immediately after the simulation experience before entering the debrief as participants expressed that they were unsure of how they performed, yet after debriefing, they expressed increased confidence in their skills and decision-making. Facilitators can remind participants that confidence levels are cyclical; as the cumulative number of simulation experiences increases, confidence and SOD typically increase and anxiety decreases, whereas between simulation experiences, confidence decreases. This study supports others that have found that simulation increases student confidence levels (Cummings & Connelly, 2016; Germain, O'Leary-Kelley, Goyal, & Anand, 2018; Thomas & Mackey, 2012).

Environment and Tempo

Previous simulation experience helped learners immerse in the environment and increased comfort levels, which may have positively influenced SOD. Participants noted that each simulation experience and credible manikin/patient reaction assisted with SOD. Dieckmann et al. (2007) recognize the as-if concept is inherent to SOD during simulation. Students who act as if the encounter is real are deeply engaged. Promoting participants' acceptance of the as-if concept is key to increasing fidelity and enhancing SOD.

When designing simulation scenarios, the level of the learner and number of previous simulation experiences should be considered (INACSL, 2016). Newer students have fewer clinical experiences from which to gauge patient interactions, distinguish between plausible actions, and may be less equipped to respond to verbal or physical manikin responses compared with more experienced students (Yockey & Henry, 2019). Limited experience or preparation for the encounter can also lead students to verbalize

they are performing a psychomotor skill that was an intended objective of the scenario design.

Physical fidelity of the experience is one component of immersion. Dieckmann et al. (2007) note that social aspects also influence SOD. Regardless of the degree of realism offered, apprehension related to being watched can limit engagement and SOD (Yockey & Henry, 2019). Minimize feelings of being watched to decrease anxiety and enhance SOD; have observers view the simulation from another room, camouflage cameras, or position equipment for discrete one-way mirrors.

Vital signs incongruent with the simulated patient's hemodynamic status due to technical delays or malfunctions cause students to struggle with SOD. Malfunctioning equipment and misunderstanding manikin cues increase situational anxiety and decrease SOD. Cognitive load theory identifies that situational anxiety can create a mental load that places excessive burden on emotional and cognitive resources (Josephsen, 2015). Inadequate or defective materials and equipment, inadequate orientation, and heightened emotions are instructional issues that can contribute to mental load. Decreased cognitive resources limit the student's mental capacity for suspending disbelief.

Students reported that knowing the location and functionality of supplies and equipment created less distraction. Greater cognitive focus on the broad task rather than singular elements may optimize the mental capacity needed for SOD and provider performance. Troubleshooting an alarming intravenous pump is not typically the objective of a simulation and may become an error of fixation (Lewis, Canelli, & Ortega, 2018) which interrupts learner focus and impedes SOD.

Apprehension and anxiety impact SOD and performance although the degree to which this occurs remains conflicting. Anxiety motivates some students to prepare for simulation which leads to performance readiness. However, apprehension and anxiety can impair learning (Al-Ghareeb, Cooper, & McKenna, 2017) and may inhibit SOD. Consistent prebriefing can decrease student anxiety and promote SOD, cognitive focus, and decision-making (Stephenson & Poore, 2016).

Limitations

Study limitations included use of a purposive sample and conduct of research in two academic institutions where institutional review board differences and data integrity assurance required resolution. Demographic surveys primarily collected ranges rather than specific numbers. Results of this qualitative study may not be generalized to all graduate and undergraduate nursing student populations, yet findings suggest various mental and environmental issues that impact students' simulation experiences. Participants were students of the researchers, which may have influenced participants' responses.

Implications for Practice

Findings of this study support the importance of orientation to the simulation laboratory and prebrief. During orientation, ground rules, behavioral guidelines of respect, and expectations of confidentiality are established. The facilitator clarifies the unknown, builds trust, and allows students to learn rather than worry about being inappropriately criticized, demeaned, or embarrassed. Participants should explore the simulation room, touch the manikin and equipment, visualize room setup, and auscultate manikin sounds, which assists them to use mental capacity less for SOD and more toward critical thinking, decision-making, and skill performance (Josephsen, 2015).

During the prebrief, scenario objectives are restated, the patient case is reviewed, and students are encouraged to cognitively focus to facilitate SOD and enhance performance. A structured prebrief clarifies the process of the simulated scenario to help students accept the artificial aspects of simulation and differences from clinical setting (Dieckmann et al., 2007; Page-Cutrara, 2014; Tyerman, Luctkar-Flude, Graham, Coffey, & Olsen-Lynch, 2019). A comprehensive prebrief reiterates functionality of the manikin and equipment, expected procedures, available medications and equipment, the standardized patient role, the environment, and the limitations of each. Enhanced environmental fidelity promotes SOD, yet the expense of establishing a high level of environmental fidelity can be cost prohibitive. Understanding environmental aspects and how faculty will manage limitations may increase SOD, skill performance, and minimize student confusion related to realistic versus work around performance and when each is appropriate (Tyerman et al., 2019).

Conclusion

Simulation is a highly interactive teaching method that aims to enhance student learning by helping students practice professional roles. Although SOD can be subjective and multifaceted, understanding determinants of SOD allows faculty to design measures to enhance students' capacity for role assumption as if a simulated encounter is real. Significant mental resources are required during simulation. Building trust and decreasing learner anxiety improve SOD and promote mental focus for improved decision-making and psychomotor performance, allowing learners to expend less energy deciding what is real and more effort engaging in the role.

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