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Featured Article

# Comparison of Debriefing Methods after a Virtual Simulation: An Experiment

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## KEYWORDS

self-debrief;  
virtual debrief;  
virtual simulation;  
nursing education;  
quantitative study

## Abstract

**Background:** Numerous studies support debriefing after an in-person simulation experience. However, there is little understanding about effective debriefing methods after a virtual simulation.

**Method:** An experimental study was conducted to examine various debriefing methods. Participants completed a virtual gaming simulation and were randomly assigned to one of three debriefing methods: in person, virtual, and self.

**Results:** Within groups, students made significant knowledge and self-efficacy gains, and all groups rated their debriefing experience highly. There were no significant differences in outcomes between groups.

**Conclusion:** There is evidence to support alternative debriefing methods beyond the traditional in-person approach after a virtual gaming simulation.

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A virtual simulation recreates reality on a computer screen, allowing students to safely practice making decisions in a clinical situation. Accordingly, nurse educators

are increasingly embedding virtual simulations into curriculum (DeGagne, Oh, Kang, Vorderstrasse, & Johnson, 2013). An essential part of the simulation is the debriefing component, which involves facilitated processes of reflection after the learning experience (Meakim et al., 2013). Indeed, some researchers suggest that debriefing is the most critical feature of simulation (Van Heukelom,

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Begaz, & Treat, 2010). One of the primary goals of debriefing is to assist participants to reflect, understand, analyze, and synthesize what they thought, felt, and did during the simulation (Centre for Medical Simulation, 2016). As such, debriefing has been shown to develop critical

### Key Points

- Nursing educators are increasingly embedding virtual simulations in curriculum.
- Effective ways to debrief virtual simulations have not been critically examined.
- Results of an experimental study support that positive knowledge, self-efficacy, and debriefing experience outcomes may be achieved using any of the following debriefing methods: synchronous virtual, self, and in person.

thinking and judgment (AL Sabei & Lasater, 2016) and improve future performance (Rudolph, Simon, Raemer, & Eppich, 2008). Learning is heightened during the debriefing; particularly when facilitated by a person with formal training and carried out in a favorable setting (Hall & Tori, 2017). During virtual simulations, feedback containing rationales for the most appropriate responses is provided. However, students are not consistently given a structured debrief or has this area been studied in depth. In this experimental study, we examined three types of debriefing (in person, virtual, and self-debrief) after a virtual gaming simulation

(VGS) on three student outcomes: self-efficacy (SE), knowledge, and the debriefing experience.

## Background

There are several options for debriefing in virtual simulations. In-person-facilitated debrief session held after a virtual simulation is one option (Foronda, Gattamorta, Snowden, & Bauman, 2014; Foronda et al., 2016; Josephsen & Butt, 2014). There is strong evidence to support this approach (Sawyer, Eppich, Brett-Fleegler, Grant, & Cheng, 2016) particularly because it is a best practice standard with in-person simulations. Another approach is self-debrief where learners are provided debriefing questions after the experience to reflect on and answer independently. The findings of two studies with graduate-level students suggested positive outcomes with the use of self-debrief after in-person simulations (Boet et al., 2011; Oikawa et al., 2016). Another approach is a synchronous virtual debrief using a web-conferencing platform in which a facilitator leads the debrief with groups of about ten participants (Gordon, 2017). These three virtual simulation debriefing methods seem viable. However, to date, these debriefing approaches have not been critically examined for use in virtual simulation.

Some members of our research team designed a VGS on the topic of mental health and embedded it in the first-year

curriculum of a baccalaureate program (see VGS at <https://de.ryerson.ca/games/nursing/mental-health/>). The VGS was designed as an interactive and experiential opportunity for nursing students to conduct a mental health and interpersonal violence assessment while engaging in clinical decision making during a simulated home visit (Verkuyl et al., 2017a). The learner was given feedback at each of the 13 decisions points, as well as a summary report of each decision was made with links to educational content at the end of the VGS. Results from an earlier focus group study suggested that this VGS enhanced student engagement, learning acquisition, and satisfaction (Verkuyl et al., 2017a). During data collection, the research team noted that the participants used the focus group as a way to debrief their experience (Verkuyl et al., 2017a). The need for debriefing virtual simulation experiences is supported by the literature (Peters & Vissers, 2004; Tilton, Tiffany, & Hoglund, 2015); the question now is how best to conduct the debrief. Best practices in debriefing related to virtual simulations is an important issue, as educational institutions increasingly use online and technology-enabled learning.

## VGS and Debrief

The participants were nursing students enrolled in a first-year health assessment course in a four-year undergraduate nursing degree program. Didactic content on conducting a mental health assessment was taught in the traditional classroom, after which all students were required to play the VGS as an independent learning activity and to attend their assigned debrief group. The game generally takes 30 to 60 minutes to play. Students attended their assigned debriefing session within 72 hours of playing the VGS. Faculty who led the debriefing sessions were experts in debriefing and had completed a debriefing workshop specific to the three-dimensional (3D) model of debriefing used in this study (Zigmont, Kappus, & Sudikoff, 2011). As well, all debriefers followed a scripted introduction and debriefing questions.

## Methods

An experimental design using surveys and focus groups was used to test the differences between the three VGS debriefing methods; in this article, we focus on the quantitative survey component of the study (Figure). A power analysis was done using an alpha of 0.05 and 80% power with small-to-medium effect size (0.2), indicating that a sample of 150 to 225 participants was required. Students were randomly assigned, by laboratory section, to a debriefing method. All students in the three groups received the same debriefing questions; only the debriefing method differed. At completion of the VGS, participants printed a

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