

# Nursing students' perceptions of learning after high fidelity simulation: Effects of a Three-step Post-simulation Reflection Model



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## ABSTRACT

**Background:** High-fidelity simulation (HFS) has become a bridge between theoretical knowledge and practical skills. A safe and realistic environment is commonly used in nursing education to improve cognitive, affective and psychomotor abilities. Debriefing following a simulation experience provides opportunities for students to analyze and begin to reflect upon their decisions, actions and results. The nursing literature highlights the need to promote the concept of reflective practice and to assist students in reflection, and research indicates the need to refine and develop debriefing strategies, which is the focus of the current paper.

**Purpose:** To explore the value of reflections after HFS by investigating nursing students' perceptions of their learning when a Three-step Post-simulation Reflection Model is used.

**Design:** A qualitative descriptive research approach was applied.

**Method:** A Three-step Post-simulation Reflection Model that combined written and verbal reflections was used after an HFS experience in a second-year course in the Bachelor Program in Nursing at Luleå University of Technology, Sweden. Reflective texts written before and after a verbal group reflection were subjected to qualitative content analysis.

**Findings:** The main theme in the first written reflections was identified as "Starting to act as a nurse", with the following categories: feeling stressed, inadequate and inexperienced; developing an awareness of the importance of never compromising patient safety; planning the work and prioritizing; and beginning to understand and implement nursing knowledge. The main theme in the second written reflections was identified to be "Maturing in the profession", with the following categories: appreciating colleagues, good communication and thoughtfulness; gaining increased self-awareness and confidence; and beginning to understand the profession.

**Conclusion:** The Three-step Post-simulation Reflection Model fostered an appreciation of clear and effective communication. Having time for thoughtfulness and reflection promotes self-awareness and a better understanding of both the nursing profession and patient safety. The progress demonstrated in the depth of the themes in the written reflections indicates that repeated reflections stimulate and enhance student learning. The findings point towards the potential effectiveness of alternate methods of reflections.

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## 1. Introduction

For nursing students, high-fidelity simulation (HFS) has become a bridge between theoretical knowledge and practical skills. A safe and realistic environment makes it possible to use learning methods that improve cognitive, affective and psychomotor abilities (Wotton, Davis, Button, & Kelton, 2010). Studies indicate that HFS increases students' knowledge and understanding of nursing (Burns, O'Donnell, & Artman, 2010; Gates, Parr, & Hughen, 2012; McCaughey & Traynor, 2010; Partin, Payne, & Slemmons, 2011; Traynor, Gallagher, Martin, & Smyth, 2010; Weaver, 2011).

A key element of the theoretical foundations of HFS is the *experiential learning* concept, i.e. the process of learning through experience (Kolb, 1984). Debriefing is a way to learn from experience, and its

incorporation following a simulation experience is a well-established praxis and should be seen as obligatory (Cantrell, 2008; Decker et al., 2013; Fanning & Gaba, 2007; Shinnick, Woo, Horwich, & Steadman, 2011). Debriefing provides opportunities for students to analyze and begin to reflect upon their decisions, actions and results, and offers instant feedback from the instructor (Shinnick et al., 2011). In the current paper, the HFS is defined as an activity consisting of a simulation experience followed by a verbal debriefing session.

When HFS was introduced in the nursing education at Luleå University of Technology (LTU) in 2009, it followed the standard procedure of a simulation experience and a verbal debriefing session. Despite this, some students lingered after the sessions to raise unanswered questions and thoughts regarding the simulation experience. This observation and previous research (Dufrene & Young, 2014; Neill & Wotton, 2011) indicate that there is a need to refine and develop debriefing strategies.

It is known that reflection upon experiences supports learning and development (Dewey, 1991; Schön, 1983), and the nursing literature

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highlights the need to promote the concept of reflective practice and to assist students in reflection (Bulman, Lathlean, & Gobbi, 2012; Clarke, 1986; Ekebergh, Lepp, & Dahlberg, 2004; Forneris & Peden-McAlpine, 2007; Powell, 1989). Verbal debriefing is the common procedure following HFS, and few studies have examined the potential value of using written reflection as a learning strategy in HFS, which, according to Petranek (2000), is an efficient way to learn. It has also been shown that the written word can facilitate the expression of experiences that are too sensitive to describe face to face (Baikie & Wilhelm, 2005). To our knowledge, no one has utilized a blend of written and verbal reflections over an extended period of time following the HFS in order to enhance students' learning. In the current study, we introduce such a model in three steps. The purpose is to explore the value of reflections after HFS by investigating nursing students' perceptions of their learning when the Three-step Post-simulation Reflection Model is used.

## 2. Design

### 2.1. Participants

Participants were recruited from the three-year Bachelor Program in Nursing at LTU. A total of 51 students were invited to participate in this study. All students, 44 females and 7 males, accepted the written invitation and signed a consent form. Of these, 16 females, ages 20–47 years ( $md = 23.5$  years), completed the three-step reflection model described below. The 35 nursing students who completed only the first two steps in the model were excluded from the results. The students had no previous experience of HFS and little experience of verbal and written reflections from previous courses.

### 2.2. The HFS setting

The focal HFS is a regular part of the curriculum provided in a third-semester course of the program. The purpose is to develop the students' ability to perform nursing care with patients suffering from medical and surgical diseases, e.g. congestive heart failure, diabetes and chronic obstructive pulmonary diseases.

A total of 51 nursing students were divided into groups of nine, typically. Each group performed HFS scenarios led by two teachers during the course of one day. The manikin was a Laerdal® SimMan®. It was operated by one of the teachers who controlled the physiological parameters and provided the patient's voice during the HFS, while the other teacher served as the facilitator. On the HFS day, the student group was divided into subgroups of three students. Each subgroup performed one HFS scenario, while the other two subgroups acted as observers; thus, three scenarios were performed on each HFS day.

The allocated time for each HFS scenario was 45 min for the practical nursing performance and 45 min for debriefing. The debriefing followed a standard procedure (Decker et al., 2013), reviewing the simulation event with formative feedback aimed to develop the students' ability to perform nursing care. The feedback reinforced positive behaviors, corrected misunderstandings and clarified cognitive frames that led to incorrect decisions. All nine students and both teachers were active during the verbal debriefing part of each scenario.

### 2.3. The Three-step Post-simulation Reflection Model

In order to explore the value of reflections after HFS, a Three-step Post-simulation Reflection Model was introduced; see Fig. 1. The model, described in greater detail below, has two written reflections (Step 1 and Step 3) and one verbal group reflection (Step 2). It is an extension of the debriefing done in connection to the HFS, since it gives the students opportunities to spend additional time on the reflection. In order to answer the research question, data were collected by means of the individual written reflections from Step 1 and Step 3, which can be seen as pre- and posttests of the verbal group reflection in Step 2. The analysis used a descriptive qualitative design, anchored within the naturalistic paradigm (Polit & Beck, 2013).

### 2.4. The three-step reflection model

In order to answer the research question, the study incorporated a three-step reflection model, where Step 1 and Step 3 are written reflections and Step 2 is a verbal group reflection. The procedure is shown schematically in Fig. 1 and described in greater detail below. Data were collected by means of the individual written reflections from Step 1 and Step 3 and analyzed using a descriptive qualitative design anchored within the naturalistic paradigm (Polit & Beck, 2013).

#### 2.4.1. Step 1: Individual written reflection

At the end of the HFS day, the students were asked to write individual semi-structured reflections. These were submitted electronically to the teacher. The written reflection followed a protocol based on the reflection process and associated questions presented by Gibbs (1988). The students were encouraged to answer the questions freely. To address the specific aims of the study, four of Gibbs' original six questions were used, with modifications, as follows:

1. What happened that touched you?
2. What thoughts/feelings were raised by this event?
3. What knowledge does this give you? Your knowledge may, for instance, relate to your ability to apply knowledge within medical and nursing science; to observe, assess and prioritize changes in a patient's condition; to communicate with the patient, family members and your colleagues; and participate in teamwork around the patient, or other matters.
4. How can you use what you learned in your work as a nurse? What importance do you think this will have for the patient safety?

#### 2.4.2. Step 2: Verbal group reflection

With the intention to help students deepen their learning, the nine students and one of the teachers met for a verbal, non-structured group reflection led by a facilitator on the day after the HFS. The facilitator's task was to create an interactive group setting with an accepting climate that put the students at ease, allowing them to describe their reflections thoughtfully in their own words and add meaning to them. In contrast to the verbal debriefing part of the HFS, this reflection was entirely student driven. The students could reflect on any experience from the day before, from the perspective of being an active participant in a scenario as well as being an observer. They had the

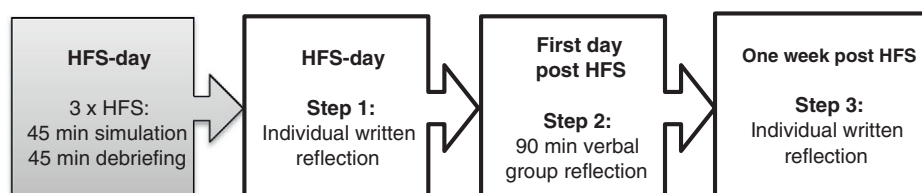


Fig. 1. The Three-step Post-simulation Reflection Model.

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