

Background

Simulation-based training can be an effective method to increase nursing students' competencies. Simulation-based trainings can be used to realistically model clinical situations and by this give nursing students the possibility to gain new knowledge and skills such as clinical skills, critical thinking, and skills for interdisciplinary collaboration within a safe learning environment [1]. Based on theories of experiential learning [2], and referring to the INACSL Standards for Simulation [3] as well as the 4C/ID Model [4], we assume simulation-based training as complex learning environments. The development of these learning environments includes choosing learning tasks, information, and practice [5].

Aim(s)

The aim of this study was to find out how complex simulation-based learning environments for nursing students can be developed and which criteria have to be considered in this process.

Methods

We conducted a Delphi-study with experts in nursing education. Experts in this study have to have more than five years of experience in the development of simulation-based trainings. In the first round of the Delphi-study, we conducted interviews with 12 experts (N=12) using a semi-structured guideline. Data were analyzed using qualitative content analysis [6]. Based on the results, we developed an online-questionnaire. In the online-questionnaire experts could indicate their agreement to the relevance of the described criteria on a 4-point Likert scale (1=absolutely relevant – 4= not relevant). Furthermore, participants could name possible improvements and missing contents. The questionnaire was filled out by four experts that had already participated in the first round and 21 further experts (N=25). These data were analyzed by using descriptive statistical analysis. Qualitative content analysis was used to analyze suggested improvements and missing contents.

Results

The results indicate that experts differentiate five different phases in the development process of complex simulation-based trainings: analyses, design, testing, implementation, and evaluation. For each phase, experts described relevant criteria. For instance, in the analyzing phase, experts indicated that setting learning goals and integrating skills is important (M=1.30; SD=.47). Furthermore, in the design phase experts emphasize for example it is necessary to gain connectivity between theoretical knowledge and skills that have to be used in the simulation-based training (M=1.43; SD=.59). In the testing phase, the experts indicated that it is most relevant to make sure that the learning environment is complex by using different scenarios and vignettes (M=1.52; SD=.51). For experts, implementation means using high-fidelity simulation methods (M=1.61; SD=.58). In the evaluation processes, experts indicate that using debriefing methods is helpful (M=1.91; SD=.97).

Discussion

Results show that analyses, design, testing, implementation, and evaluation are the important phases in the development of complex simulation-based trainings. In each phase different requirements have to be met. This study provides an overview of phases and relevant criteria for the development of complex simulation-based learning environments.

Implications and future perspectives

These results are important for nursing educators and can be used as a framework in order to make sure to develop high quality complex simulation-based trainings.

References

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2. Kolb, 2014.
3. Sittner et al,36: 294-298, 2015.
4. Van Merriënboer et al, 50:39-61, 2002.
5. Mayring, 1:1-100, 2021.