

Effective learning and development through simulation

Arranging a simulation-based learning experience at LAMK's SimuLti Simulation Centre



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The Publication Series of Lahti University of Applied Sciences, part 52

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The Publication Series of Lahti University of Applied Sciences, part 52

Editor-in-chief: Miia Willman

Layout: Mikko Kantonen

ISSN 2342-7507 (PDF)

ISBN 978-951-827-325-0 (PDF)

Lahti, 2019

INTRODUCTION

Simulation-based learning is one of the key pedagogical methods for teaching and learning the working life skills and professional competencies required in different professions. The SimuLti Simulation Centre utilises it extensively in education leading to a degree, in continuing education, and in various working life development projects. In order to ensure a high-quality learning experience, it is essential that everyone using the method has a clear understanding of what simulation-based learning is even when the method is being adapted to suit the specific requirements of different circumstances.

This guide is intended to be a common framework and support mechanism for the implementation of simulation-based learning. The guide describes the various factors and issues that need to be considered when planning, delivering, and evaluating simulation-based learning. In addition, the guide also describes the roles of the different participants during the various stages of the simulation process.

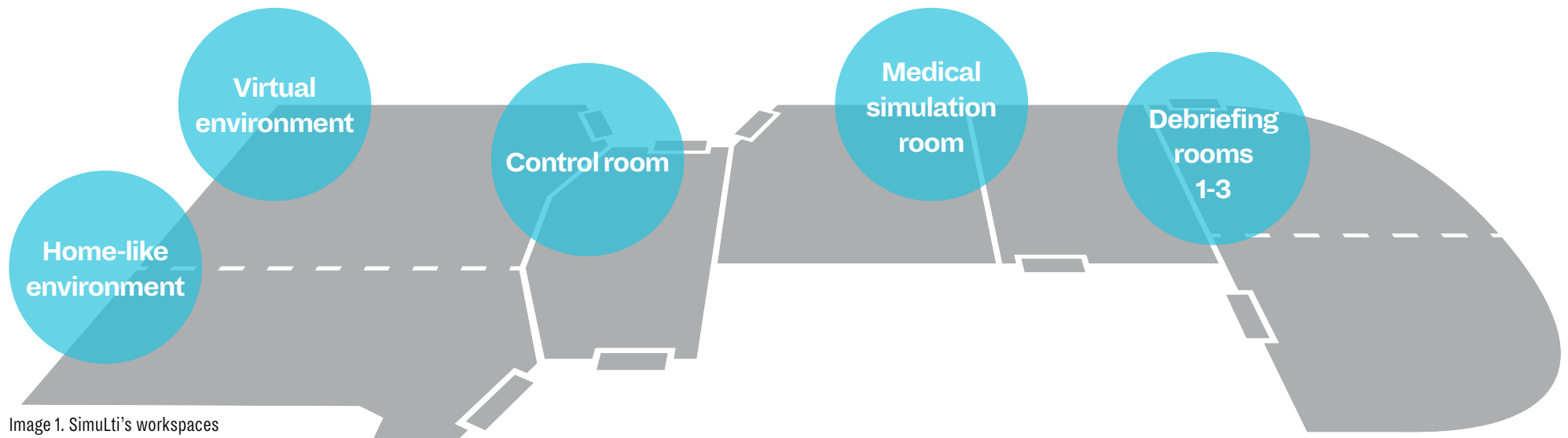


Image 1. SimuLti's workspaces

1. SIMULTI SIMULATION CENTRE

Lahti University of Applied Sciences' SimuLti Simulation Centre is a multi-disciplinary learning and innovation environment that develops and utilises simulation pedagogics. SimuLti has three simulation environments: 1. home-like environment, 2. medical simulation room, and 3. virtual environment, and three debriefing rooms (image 1). The SimuLti simulation environments can be adapted to authentically replicate a range of learning environments and real-life situations and are intended to support experiential and observational learning. Through simulation, students and professionals can gain practical experience of developing and experimenting with different services and processes. The simulation spaces are also suitable for presenting, demonstrating, testing, and developing various products, tools, and devices.

FOR UNIVERSITY OF APPLIED SCIENCES STUDENTS:

- An authentic learning environment

FOR BUSINESSES AND ORGANISATIONS:

- A versatile learning and collaborative development space
- A demonstration environment for products and services

2. WHAT IS SIMULATION-BASED LEARNING?

2.1. EXAMPLES OF SIMULATION PEDAGOGICS AND SIMULATION-BASED LEARNING

Simulation refers to the replication or imitation of a real-life situation or system (Society for Simulation Healthcare 2015). Simulation-based learning is observational, experiential, and activating, and places an emphasis on a learner-centred approach and the significance of guidance (Keskitalo 2015). A simulation can be understood as a safe learning environment; one in which making mistakes or 'failing' is not only allowed, but encouraged — mistakes are there to be learned from!

Simulation-based learning has been a part of social service and healthcare education for more than thirty years and is considered to be an effective, evidence-based method of teaching and learning (Heland et al. 2017). Simulation-based learning is realised in a wide variety of ways. Simulation-based learning can make use of different levels of patient simulator, experiential experts, actors trained in simulation education, or drama-based learning involving simulation participants.

In addition to the various forms it takes, simulation-based learning also offers plenty of opportunities to practice and refine a wide range of skills and competencies. Both technical and non-technical skills can be practiced in simulation (image 2). Technical skills include e.g. haptic skills, and non-technical skills include e.g. interaction, teamwork, problem-solving, and decision-making competencies. Thanks to its versatility, simulation-based learning can be applied to a vast array of targeted learning exercises in different fields and in different working environments, and can be often utilised as part of supplemental practical training in different professions; e.g. in negotiation, meeting, and line management skills development.

Technical skills

- haptic skills
- clinical skills
- training in the use of devices and tools

Non-technical skills

- communication and interaction skills
- client engagement
- teamwork skills
- leadership
- problem-solving
- decision-making
- challenging customer service and sales situations
- supervision competencies
- service channel development
- user-orientated design

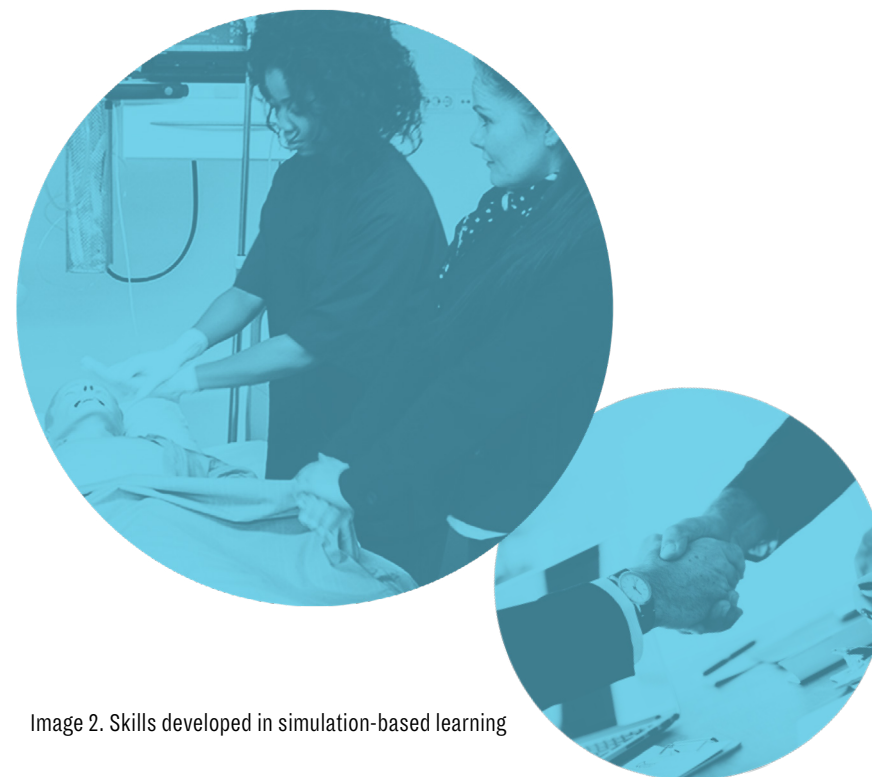


Image 2. Skills developed in simulation-based learning

2.2 SIMULATION-BASED LEARNING AND INSTRUCTOR COMPETENCY

Supervising or instructing simulation-based learning is demanding and requires a wide range of proficiencies. An effective instructor is able to combine pedagogical elements with technical expertise and facilitate a engaging learning experience for participants in the simulations (Topping et al. 2015). In order to deliver a high quality simulation-based learning experience, instructors must be familiar with simulation pedagogy and have a firm command of the subject matter of the simulation exercise in question. Moreover, the instructor also needs to be technically proficient in the relevant skills (Keskitalo 2015). Anyone intending to deliver a simulation-based learning experience at SimuLti is also required to attend an induction to simulation pedagogy at the Simulation Centre. The induction covers the principles of simulation pedagogy and the practical aspects of delivering a simulation-based learning session. Inductions are arranged regularly each term and are delivered by the SimuLti team. We also recommend that you sign up for a separate simulation instructor training course, which are provided at least in the field of healthcare simulation.

3. STEPS OF SIMULATION-BASED LEARNING

Delivering a simulation-based learning experience can be described as a continuum — from prior preparation to follow-up work (Image 3). Next, we will open up what these different stages and their core contents are in order to support the delivery of simulated learning experiences. Simulation-based learning participants adopt a variety of roles. You can check out what these different roles involve at the end of each section in this guide.

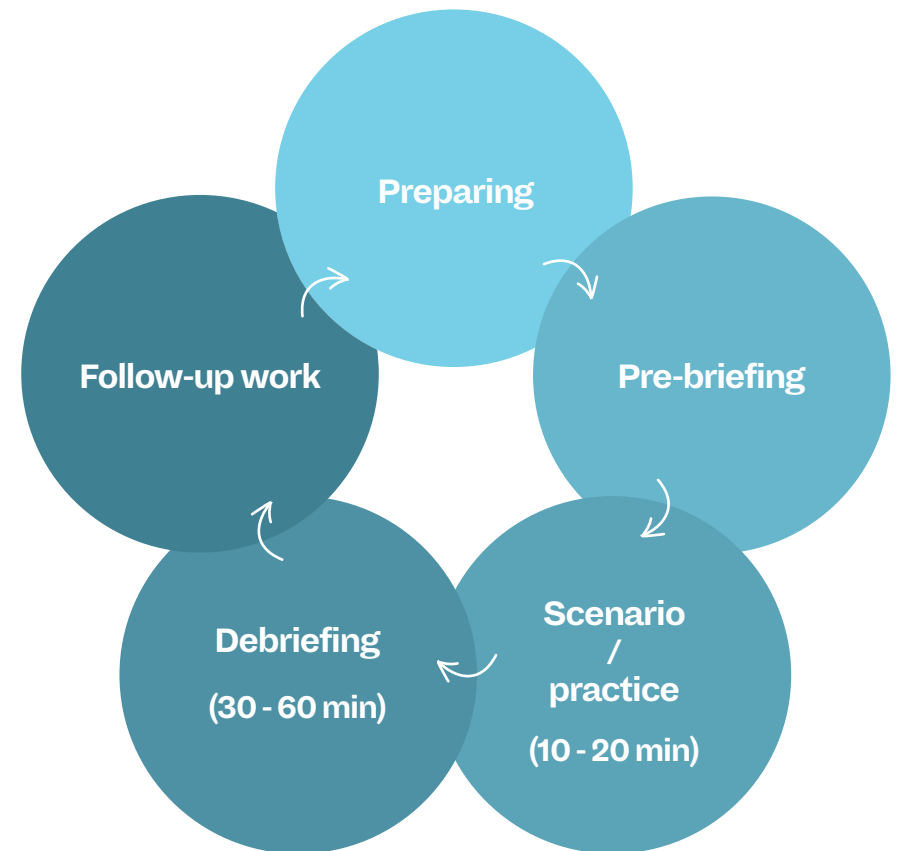


Image 3. Progress in simulation-based learning by stages (c.f. Keskitalo 2017 and Jaye et al. 2015)

PREPARING

How you prepare for a simulation-based learning experience may differ depending on whether you are participating in simulation delivered as part of degree studies or, for example, as a supplementary training session. In both cases, however, a facilitator (a teacher or expert) will be in charge of the simulation-based learning experience. The preparation stage is an essential part of a successfully delivered learning experience. The facilitator plans the simulation's learning objectives during this stage, and these will then steer the whole learning process. Once the objectives have been set, the facilitator writes the script for the simulation scenario(s), attempting to make the scenario as authentic as possible. The facilitator will already need to have a firm grasp of the subject matter of the simulation at this stage. If for whatever reason the facilitator is not an expert in the field in question, they should seek assistance from collaborative partners and the experts due to attend the simulation during the writing stage.

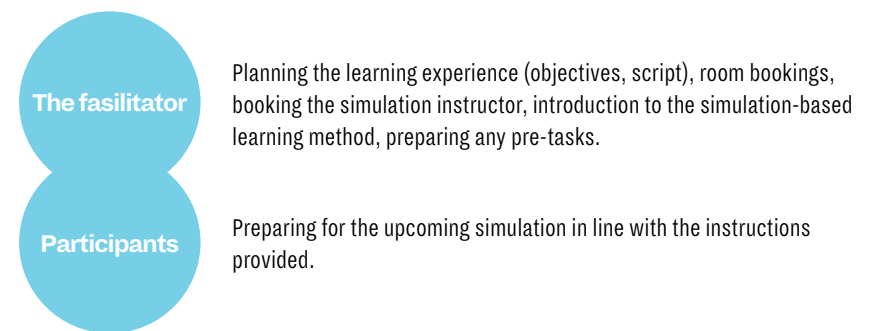
It is important to consider the following aspects when writing the simulation script:

- Define the learning objectives (technical/non-technical)
- Describe the learning environment
- Describe the starting point (how does the simulation begin?)
- State the number of participants and describe their roles
- Plan the follow-up tasks and make a to-do list for the debriefing discussions
- Describe what happens in the simulation (the script)
- State the duration of the simulation
- Describe a plan 'B': what happens if the simulation goes in completely the wrong direction and how can you get the simulation back on track?
- List and describe any equipment/devices needed
- Describe the criteria for bringing the simulation to an end

The instructor also needs to reserve the room(s), devices, and equipment needed for the simulation as part of their preparation. Delivery of the simulation experience may require the instructor to be present or, for example, the participation on an external expert (e.g. an experiential expert or an actor). If the simulation you are planning is intended to meet the needs of a

business or organisation, preparations also need to be made in collaboration with the entity in question.

In order for a learning experience to be truly successful, the participants should be familiar with the simulation-based learning method and informed about the practical arrangements. Participation in a simulation-based learning experience also requires the participants to have at least a passing familiarity with the topic or theme of the simulation in question. The participants can be introduced to the content of a simulation-based learning experience in advance through various preparatory tasks, such as self reflection, familiarising themselves with the relevant material or, for example, a piece of preparatory writing. If pre-tasks are not appropriate in a given situation, the participants should at least be informed of the theme or topic that the simulation will focus on. Degree students can be informed about the content of a simulation via the relevant e-learning platforms. An example of how participants in a simulation session for research and development purposes can be informed about its content is provided in appendix 1.



PRE-BRIEFING

It is important to familiarise participants with the simulation-based learning method during the pre-briefing phase if the method is new to them (Pehkonen et al. 2018). At this stage, it is a good idea to explain what simulation-based learning is, in what fields it is used and why. The facilitator should also explain the structure of the learning experience and the duration of the exercise(s) and debriefing sessions. The participants should also be introduced to the technical aspects of the learning environment, such as how to record video and sound, any requirements regarding gaining consent to be recorded, and the purposes for which the recordings will be used. It is also important to describe some of the key principles, such as the simulation being a safe space and the importance of confidentiality, during the stage. Another thing worth mentioning at this stage is that it is common for people taking part in simulations to feel nervous, especially if they are doing it for the first time, and that they can also be unsure of what to do. In most cases, participants tend to forget the cameras and microphones once the simulation gets started.

The pre-briefing stage also includes introducing the participants to the learning experience and the roles involved. When describing the simulation, you should be clear, motivational, and factual:

- Let the group know what the theme of the exercise is, the context, and the starting point (e.g. a patient handover on a hospital ward, discussing financial statements in a meeting, a sales pitch at a trade show etc.)
- Where possible, let the participants take on roles they of their choosing, e.g. in relation to their intended profession.
- It may sometimes be necessary to assign participants a role that is required for the simulation to work.
- Emphasise that participants are not being asked to act or perform. Participants make their own decisions during the simulation and act in as natural way as possible.

It is also very important to explain what the learning objectives are during the pre-briefing stage.

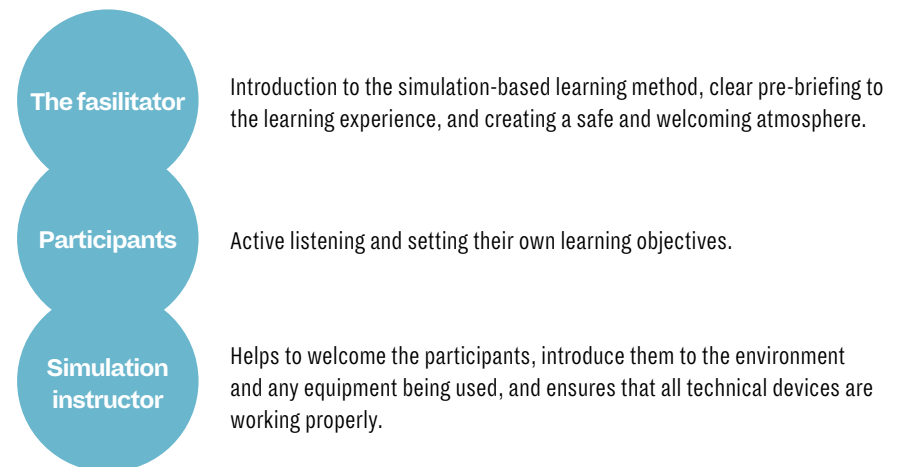
- This should be done clearly and briefly. It is a good idea to display the learning objectives on e.g. a whiteboard.

- Do not set too many or too demanding learning objectives. The intention is not to overload the participants but to foster a successful and high-quality learning experience.
- Stress that the simulation should not be thought of as a test or assessment, but rather as a learning or development opportunity.

Example: customer service development. The intention is not to evaluate professional expertise, but rather to examine the whole service process as a group and work together to identify and share ways of dealing with the challenging situations arising in working life settings. At the same time, participants will also figure out new ways of doing things in everyday situations and/or gain insight into a particular issue.

If the simulation-based learning experience you are planning requires the participants to use things in the learning environment, including any necessary tools, learning aids, or technical devices, make sure the participants are able to familiarise themselves with the environment and equipment before the exercise begins.

It is a good idea to allow at least 15-30 minutes for the pre-briefing, depending on any previous experience of simulation-based learning the participants may have.



SCENARIO / PRACTICE

The pre-briefing stage is followed by the learning exercise itself. This consists of the simulation scenario, which is carried out in e.g. the Simulation Centre or in an 'real' environment, in line with the facilitator's plan. Other groups can follow the scenario via live feed. It is a good idea to set the audience some observation tasks. These can help the participants immerse themselves in the learning scenario and improve the learning outcomes (O'Regan et al. 2016). The themes of the observation exercises stem from the learning objectives associated with the learning experience in question. It is important for the facilitator to concentrate during the observation work in order to have a good debriefing session.

The facilitator

Assigning the observation tasks, active observation of the learning experience, intervening in the session when needed (implementing plan 'B'); i.e. if the simulation begins heading in an undesired direction.

Participants

Carrying out the roles or the observation tasks assigned, as per the instructions provided.

Simulation instructor

Using any AV equipment, using the patient simulator, assisting the facilitator in any organisational matters connected to the learning experience.

DEBRIEFING

Debriefing discussions are an important part of simulation-based learning. The opportunity to debrief the participants and a learner-centred approach have a direct relationship with the effectiveness of the learning experience. (Ceng et al. 2016). Debriefing sessions can be held in several ways. In general, the debriefing session is the longest stage of the whole simulation-based learning process and consists of several elements intended to promote reflection and committing to the debriefing process. (Sawyer et al. 2017.) The facilitator is responsible for engaging the simulation participants in the debriefing process and for moving the discussions forward. This requires the facilitator to motivate and encourage the participants to commit to the debriefing and to make observations in relation to the learning objectives. In other words, the debriefing process consists of analytical reflection, careful consideration, and giving and receiving feedback.

There are several debriefing models. One option to use is the so-called diamond model of debriefing. This model directs participants to focus on what happens in the simulation, critically analyse the simulation, and apply the observations made (Jaye et al. 2015). The diamond model consists of four phases (c.f. appendix 2):

PHASE 1. The initial impressions the participants have of the simulation exercise

- How did the simulation feel?

PHASE 2. Description

- What happened?
- How did the simulation progress?

PHASE 3. Analysis

- Why did things happen?
- What were the strengths and weakness?

PHASE 4. Dissemination and application

- What was learned?
- What could be disseminated?
- What could be applied in your own work?



The facilitator

Taking the debriefing discussions forward, engaging the participants in the debriefing process.



Participants

Actively engaging with the debriefing discussion, giving and receiving feedback in a constructive manner. Potential involvement of experiential experts in the debriefing discussion.

FOLLOW-UP WORK

The simulation-based learning experience also involves some follow-up work. The follow-up work includes returning the learning environment to its original state, ready for the next people using the space, collecting oral and written feedback from the participants, and further development of the simulation process on the basis of this feedback. If the simulation has been carried out in collaboration with corporate clients, it is also important that facilitator liaises with the contact person for the organisation in question and goes over the simulation experience with them, including the feedback received and any potential follow-up measures.



The facilitator

Collecting feedback, tidying the learning environments, continuous development of the simulations.



Participants

Giving feedback.



Simulation instructor

Switching off any devices and equipment used, potential maintenance/upkeep measures, continuous development of the simulations alongside the facilitator.

FAQ

Q How long should a simulation scenario be?

A Depending on the scenario's level of difficulty and the learning objectives, the average duration is 5-20 minutes.

Q How many participants should there be?

A This depends on the topic/theme of the simulation. In order to ensure an effective simulation scenario and the creation of an atmosphere of trust and confidentiality, the optimal group size should be around 7-15 people. If you know that more than 20 people will be taking part in the simulation, you may need to divide the group in two or consider alternative learning methods.

Q How many people should participate in the simulation scenario?

A This depends on the scenario. It is important that each person has a clear role/task in the simulation scenario. Not everyone taking part in the simulation needs to be actively involved in the scenario. Observing others is a good way to learn and develop.

Q How should the roles be assigned?

A Where possible, let the participants occupy the roles they choose in relation to e.g. their intended profession. If the exercise relies on several roles (e.g. salesperson and customer, carer and family member, line manager and junior employee), it is important that the participants do not end up in a role that is completely unfamiliar to them. For example, if a customer relations scenario requires one of the participants to play the part of a mother, it is a good idea if they are actually a mother. Another way of dividing the roles is in relation to the learning objectives: if the aim of the exercise is to practice being a line manager or supervisor, the role of the line manager can be given to a student who does not yet have any experience of working in this role.

Q What does the actually involve?

A In most cases, it is best to do everything that the situation requires. For example, if the exercise requires someone to wash their hands and put on gloves or call another person, it's much better to actually do these things than to say "now I am going to pretend to put my gloves on..." etc. Authenticity is an important factor in a successful simulation.

Q What do the observers do?

A The observers can be given different observation tasks based on the learning objectives or, for example, an observation checklist to complete.

Q What does the facilitator do during the scenario?

A The facilitator actively monitors the scenario as it progresses and writes down their own observations, which will later be used to inform the debriefing discussions.

Q Can participant's watch their own performance afterwards?

A Any recording and viewing of the simulation scenario is to be agreed upon in advance. The idea is that the simulation is a learning experience and not something to be assessed or graded. As such, watching the recordings should only be done for the purpose of learning.

Q Can the simulation scenario be interrupted?

A Yes, it can, and should be if, for example, the scenario starts heading in entirely the wrong direction. This could mean preventing the participants being placed in danger. Another example of when it is appropriate to interrupt the scenario is if the participants are endangering a patient or customer. It is a good idea to come up with a plan 'B' ("escape plan") when planning the simulation in order to rescue the scenario when needed.

Q What should I do if everything goes completely wrong?

A ‘Well planned is half done.’ In other words a well-planned scenario, escape plan, and a clearly defined and calm pre-briefing will only get you so far. If things go wrong despite a good plan, we can reassure ourselves by considering whether there really are situations in working life in which there is only one correct course of action. The debriefing discussion held with the group can also be a good source of development ideas for the simulation in question.

Q Should any mistakes or things that go wrong in the simulation be addressed?

A Yes, they absolutely should. Otherwise, an incorrect working method might remain unchecked. The reflective and analytical approach required in the debriefing is often facilitated by the participants identifying their own mistakes and bringing them to the table for discussion.

Q What should be done if participants get offended by feedback?

A Simulation-based learning is not based on looking for mistakes and dissecting them, but rather on constructive debriefing discussions. Giving feedback is a skill in and of itself and it is a good idea for each participant to carefully consider how to give feedback in a constructive manner. Establishing a safe, secure, and confidential atmosphere can also affect how feedback is received. If, despite all efforts, a person receiving feedback is upset or offended, it is a good idea to remember that the recipient of the feedback also has a responsibility to do so.

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APPENDIX 1

An example of information given to participants:

A welcome message sent to an RDI company prior to attending a simulation session:

We are delighted to invite you to a simulation workshop on Friday 4th October, 8.30 am to 12.00 pm.

The aim of the simulation workshop is for your staff to learn how to use your organisation's new customer service tools and to develop customer engagement competencies.

The first part of the session will be spent using the simulation-based learning method to create scenarios in which the participants will discuss areas for developing customer engagement and come up with and share solutions and best practices.

The simulation-based learning method is a safe, practical, and fun way to develop various functions within your organisation (e.g. services, processes, leadership). It also provides participants with an opportunity to observe what other people do in their work, which is often not possible in their everyday life. Simulation is also an excellent way of disseminating the tacit knowledge that a particular team or department may have. By taking part in a simulation, you are also helping to develop and critically evaluate the simulation-based learning method. The method is currently being developed, for example, in an EU-funded project at Lahti University of Applied Sciences.

Participants in the simulation do not need to do any special preparations in advance. We will take time at the beginning of the workshop to familiarise the participants with simulation-based learning as a method, agree on any practical arrangements, and inform them of the schedule for the session. If you have any questions or requests prior to the session, you can contact us via email at:

APPENDIX 2

Debriefing:

(See also Jaye et al. 2015.)

Principles: Create a safe learning environment, remember to be learner-centric, strive to maintain an open and non-judgemental dialogue. Use open-ended questions.

The basic structure of the debriefing discussion

PHASE 1

The initial impressions the participants have of the simulation exercise

- How would you describe the scenario you found yourself in?
- How did it feel to take part?
- How did you feel as the simulation went on?
- How did your role feel to you?
- What, in your opinion, went well?
- What, in your opinion, was the most important aspect of this simulation?

Once the participants have had a chance to talk about their primary feelings, move on to describe the scenario from several perspectives

PHASE 2

Description: What happened? How did the scenario advance from one stage to the next? This may involve taking up any clarification tasks/questions that come up in this phase.

- Summarise what happened in the scenario.
- Consider the events that unfolded in the scenario in chronological order.
- What is your take on what happened? Does everyone share the same view of what happened?
- Focus on what happened. Avoid evaluating or assessing whether the scenario was a success or a failure.
- What happened first? And next? And after that? Why?
- Return to the learning objectives if needed.

Move on to examine what happened in the scenario in more detail.

PHASE 3

Analysis: Analyse why the scenario advanced as it did: what happened? Spend the majority of the available time on this phase and get the participants to analyse the specifics of what happened in detail.

- Remember to keep things positive!
- Reflect on the participants' answers and let them change, modify, correct or add things to their responses ("Did I understand you correctly when you said...?" "I interpreted this or that as meaning this or that: is that what you meant?").
- Analyse what happened and identify the strengths and weaknesses in the conversation. If needed, highlight the possibilities and the threats to these.
- How else might this have ended?
- What preconceptions did people have about the interaction?
- How did the situation feel and why?
- Highlight the perspectives the participants have from different roles (e.g. patient, carer, experiential expert).
- What was said, how was this received, what happened, and what caused the events?
- How did people react in different situations?

Now that we've discussed the scenario, let's move on to talking about what we can learn from it.

PHASE 4

Dissemination and application: What did we learn and how can this be disseminated and/or applied in our own work?

- Move away from looking at things in detail to generalisability and thinking about situations in which what has been learned can be applied.
- Could we have done something differently? How?
- What might you do differently and what might be a good thing to do in a similar situation?
- Would someone else have made a different choice?
- How did others interpret the situation and what thoughts did they have about the matter?
- How would you recognise similar situations in future?
- What would be good ways of moving forward in this kind of situation?
- How might this situation continue?
- What aspects of the scenario can you draw on in your own working life?

WHY CHOOSE SIMULATION?

Simulation-based learning is an effective and practical way of learning and developing, but what do we need to consider when planning, delivering, and evaluating a simulation-based learning experience? This guide is intended to be a common framework and support mechanism for the implementation of simulation-based learning, especially in a university of applied sciences setting. The examples provided come from Lahti, but are applicable to other locations, too.

The Publication Series of Lahti University of Applied Sciences, part 52

ISSN 2342-7507 (PDF)

ISBN 978-951-827-325-0 (PDF)

