Using Virtual Gaming Simulation: An Educator's Guide

USING VIRTUAL GAMING SIMULATION: AN EDUCATOR'S GUIDE

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Acknowledgement

We wish to acknowledge the researchers and educators whose work provided the foundation for this resource.

We wish to thank Stephanie Aguila for her work on this project.

ABOUT THE OPEN EDUCATIONAL RESOURCE

This open access textbook was developed as a resource for educators and simulationists who are using the Virtual Healthcare Experience virtual gaming simulations with their nursing students and potentially other healthcare students. This book includes **interactive content** and **videos** and is therefore **best viewed using the online Pressbooks format.** The book can also be downloaded in a pdf format.

Funding

This project is made possible with funding by the Government of Ontario and the Virtual Learning Strategy. To learn more about the Virtual Learning Strategy visit [eCampus Ontario's Virtual Learning Strategy webpage](#).

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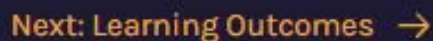
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LEARNING OUTCOMES

1. Describe the foundations of virtual gaming simulation.
2. Compare ways to use virtual gaming simulation in education.
3. Examine evidence-informed processes to integrate virtual gaming simulations in curriculum.
4. Prepare educators to teach effectively using virtual gaming simulation.
5. Identify methods to evaluate outcomes of virtual gaming simulation.

ORGANIZATION OF THE TEXT

The text consists of seven chapters that discuss the key components for effective teaching and learning with virtual gaming simulation. You can access the entire book or just the chapters that are relevant to you. Definitions for terms are shared within the text.

Chapter 1: Introduction to the Virtual Healthcare Experience Suite of Virtual Gaming Simulations

This chapter discusses the open-access resource, Virtual Healthcare Experience, which includes virtual gaming simulations for nursing education. Virtual gaming simulations and the evidence that supports their use in education are reviewed.

Chapter 2: Integrating Virtual Gaming Simulations in the Curriculum

This chapter links educators to open-source virtual gaming simulations and discusses the nuances of integrating virtual gaming simulations in the curriculum.

Chapter 3: Presimulation Preparation

The concept of preparatory work for learners prior to using virtual gaming simulations is discussed.

Chapter 4: Prebriefing

The rationale for conducting a prebriefing prior to virtual gaming simulation enactment is discussed. Strategies for conducting prebriefings are reviewed.

Chapter 5: Virtual Gaming Simulation Enactment

This chapter describes how to successfully enact or play virtual gaming simulations and discusses the critical role that facilitation plays in enactment.

Chapter 6: Debriefing for Virtual Gaming Simulation

The purpose of debriefing, the vital role debriefing plays in learning with virtual gaming simulation and the different debriefing formats are discussed.

Chapter 7: Evaluating Virtual Gaming Simulation

Different approaches to evaluating virtual gaming simulation are reviewed.

Key Features

This resource was developed to help educators teach effectively with virtual gaming simulations. The authors have included several features to meet that goal.

Videos: Virtual gaming simulation developers and educators share their experiences.

Boxes: The follow two types of boxes are provided throughout the etextbook:

- **Examples in Action:** Educators share actual examples of how they use virtual gaming simulation with learners.
- **Expert's Corner:** Key points and recommendations from educators with expertise in teaching with virtual gaming simulation

Tables and checklists: Numerous examples and practical strategies in the form of tables and checklists are included for the educator who is teaching with virtual gaming simulation.

References and Resources: The content for this resource was drawn from the exemplary work of numerous authors who are listed and highly recommended for further reading.

CHAPTER 1: INTRODUCTION TO THE VIRTUAL HEALTHCARE EXPERIENCE SUITE OF VIRTUAL GAMING SIMULATIONS

Learning Outcomes

1. Discuss the development of the Virtual Healthcare Experience.
2. Explore the use of virtual gaming simulation in nursing education.
3. Review evidence for the use of virtual gaming simulation in education.

VIRTUAL GAMING SIMULATION: WHAT IS IT?

In 2013, a team from Centennial College, Ryerson University and George Brown College began making virtual gaming simulations for nursing students to practice clinical decision-making in safe learning environments.

Since that time, the team has developed a suite of virtual gaming simulations designed to augment in-person clinical practice experiences. The virtual gaming simulations are housed in the [Virtual Healthcare Experience](#), an open access resource (or see below). Educators and learners can access the simulations individually or as a group at any time.

The virtual gaming simulations offer learning opportunities in different clinical areas such as pediatrics, mental health, gerontology, emergency, medical-surgical, and maternal health, and new virtual gaming simulations are continually being added. The virtual gaming simulations are based on learning outcomes related to course outcomes (including clinical courses) and their content is relevant to nursing students, practicing nurses, and potentially, other healthcare professionals.

The team defines virtual gaming simulation as, "High fidelity, **2D** immersive simulation using videos of simulated patients (played by actors) in which the user can make clinical decisions for learning in healthcare" (Verkuyl et al., 2019, p. 1). The virtual gaming simulations are 'serious games' in that their purpose is to promote learning (Lapum et al., 2018). Integrated in the virtual simulations are gaming elements designed to pique interest and challenge the learner to make decisions where the outcome affects client health. The learner encounters the client's health storyline and then works through eight to seventeen decision points with two to four options or choices regarding how best to assess or provide care. This branching scenario design engages learners and allows them to see the consequences of their decisions.

Some of the virtual gaming simulations in the Virtual Healthcare Experience include learning objects where the learner practices a specific skill. For example, in the prenatal virtual gaming simulation the learner listens to a fetal heartbeat as long as needed to determine the rate. In most of the simulations, the program saves each decision made by the learner and, at the end, the learner receives an individualized [summary report](#) outlining all decisions made during the game. The ones created in H5P have a summary page at the end.

The current term for persons teaching with virtual gaming simulation is 'simulationists'. The Simulationist Code of Ethics (2013): indicates 'simulationists' are professionals involved in providing simulation activities, products, and services (Kardong-Edgren, 2013, p.e561). However, in this text we will use the term educator or facilitator as these terms are more familiar to our readers and more broadly describe that role. The International Nursing Association for Clinical Simulation and Learning (INACSL) Standards Committee (2021) states "A

facilitator is the educator that assumes responsibility and oversight for managing the entire simulation-based experience" (pg. 22).

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https://ecampusontario.pressbooks.pub/vgsguide/?p=198#h5p-2

RESEARCH RELATED TO VIRTUAL GAMING SIMULATION

The virtual gaming simulations described in this resource have undergone considerable testing and evaluation to enhance the design and enrich the learner experience. The virtual gaming simulation development team conducted usability testing and multi-site qualitative and quantitative studies on the first and second virtual gaming simulations that were created; results are as follows:

- Usability testing, based on the Technology Acceptance Model, (Davis, 1989) concluded that nursing students and educators found the virtual gaming simulations were easy to use and useful in preparing for clinical practice (Verkuyl et al., 2016; Verkuyl et al., 2018).
- Qualitative study results indicated that Baccalaureate nursing students found the virtual gaming simulations provided an engaging, realistic clinical experience. Learners reported that they gained knowledge and that they wanted more virtual gaming simulation experiences (Verkuyl et al., 2017).
- A mixed methods study with learners bridging from the Registered Practical Nurse to the Registered Nurse program found that the authentic storyline enhanced the experience and resulted in knowledge gains, engagement, and increased self-confidence (Verkuyl & Hughes, 2019).
- A quasi-experimental study with Baccalaureate nursing students comparing an in-person simulation with a virtual gaming experience where the same scenario was used was conducted (Verkuyl et al., 2017). Results indicated that both groups made equal knowledge gains, the virtual gaming simulation group made greater self-efficacy gains, and both groups had high simulation experience satisfaction scores. Anecdotally, learners appreciated the safe learning environment and the ability to replay the experience provided by the virtual gaming simulation.

Positive outcomes provided from these, and numerous other studies, support the use of virtual gaming simulation in nursing and health care curricula (see Resources at the end of this chapter).

THEORETICAL FRAMEWORK

Kolb's (2015) Experiential Learning Model and Learning Styles four stage model provided the framework for the design of the virtual gaming simulations housed in the Virtual Healthcare Experience (**Figure 1.1**). The development team used Kolb's model and designed the virtual gaming simulations to provide a safe, concrete learning experience with ample opportunity for experimentation which encourages reflection. Through reflection, the learner gains insight into new and existing knowledge which can be transferred to future practice. Learners can replay the virtual gaming simulations as often as they want, exploring the consequences of different decisions, which advances learning and the transfer of that learning to clinical practice.

[Click here to download an accessible PDF version of Figure 1.1.](#)

Figure 1.1. Kolb's Model Applied to the Learner using Virtual Simulation (VS)

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INTENDED AUDIENCE

The intended audience for the Virtual Healthcare Experience virtual gaming simulations is baccalaureate nursing students, however, many of the learning objectives are transferable to bridging nursing students (Registered Practical Nurse or Licensed Practical Nurse to Registered Nurse), Practical Nurses. Some of the virtual simulations are also relevant to other healthcare disciplines.

A skilled educator can readily situate learning from the virtual gaming simulations to the appropriate learner level and discipline. With novice learners, the educator can provide greater context and information to encourage understanding and success. At the expert level, the educator can use scaffolding during the debrief and introduce more advanced concepts related to the virtual gaming simulations. For example, the debrief can focus on similar or different instructional or regional practices compared to those observed in the simulation.

LEARNER EXPERIENCES

The virtual gaming simulations, housed in the Virtual Healthcare Experience, have been used in the Ryerson, Centennial, George Brown Collaborative Nursing Degree program since 2015. Globally, there has been widespread uptake with over 1.5 million plays in 25 different countries as of April 2021. Learner enthusiasm and demonstrated knowledge gains have been the impetus for continued use and ongoing development of the virtual gaming simulations. Learners use the virtual gaming simulations in many different ways, including preparation for clinical, exam review, self-testing of course content, and overcoming gaps in clinical experience.

In the following **video**, Karen Owusu RN, BScN shares her experience with using the virtual gaming simulations to prepare for her NCLEX exam and pediatric clinical experiences.

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> *https://ecampusontario.pressbooks.pub/vgsguide/?p=242#h5p-4*

In the next **video** Czarielle de la Cruz RN, BScN, shares her experience with using virtual gaming simulations in a health assessment course and maternal and child course.

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> *https://ecampusontario.pressbooks.pub/vgsguide/?p=242#h5p-5*

It is important for educators who are using virtual gaming simulations to be aware of the process for effectively using these resources including, how best to prebrief learners to make the most of their experience, how to enact or play the simulations effectively and how to debrief a simulation. Subsequent chapters in this text will provide educators with the information and strategies needed to build their capacity as virtual gaming simulation facilitators.

RESOURCES AND REFERENCES

There is a wealth of literature providing evidence for using virtual gaming simulation in healthcare education. In addition to systematic reviews, reference to research conducted with the Virtual Healthcare Experience virtual gaming simulations which are the subject of this resource is included here.

Evidenced-based Reviews

These references provide useful evidence in support of using virtual simulation in nursing education:

Duff, E., Miller, L., & Bruce, J. (2016). Online virtual simulation and diagnostic reasoning: A scoping review. *Clinical Simulation in Nursing, 12*(9), 377-384. https://doi.org/10.1016/j.ecns.2016.04.001

Foronda, C.L., Fernandez-Burgos, M., Nadeau, C., Kelley, C.N., & Henry, M.N., (2020). Virtual simulation in nursing education: A systematic review spanning 1996 to 2018. *Simulation in Healthcare; Journal of the Society for Medical Simulation, 15*(1), 46–54. https://doi.org/10.1097/SIH.0000000000000411.

Usability Studies

These articles describe usability testing that was conducted on the virtual gaming simulations:

Verkuyl, M., Atack, L., Mastrilli, P., & Romaniuk, D. (2016). Virtual gaming to develop students' pediatric nursing skills: A usability test. *Nurse Education Today, 46*, 81-85. http://dx.doi.org/10.1016/j.nedt.2016.08.024

Verkuyl, M., Romaniuk, D., & Mastrilli, P. (2018). Virtual gaming simulation of a mental health assessment: A usability study. *Nurse Education in Practice, 18*(31), 83-87. https://doi.org/10.1016/j.nepr.2018.05.007

Learner Outcomes

These references provide evidence regarding learner outcomes from virtual gaming simulation in education:

Verkuyl, M. & Hughes, M. (2019). Virtual gaming simulation in bridging nursing education: A mixed

methods study. *Clinical Simulation in Nursing, 29*(C), 9-14. https://doi.org/10.1016/j.ecns.2019.02.001

Verkuyl, M., Hughes, M., Tsui, J., Betts, L., St-Amant, O., & Lapum, J. (2017). Virtual gaming simulation in nursing education: A focus group study. *The Journal of Nursing Education. 56*(5), 274-280. https://doi.org/10.3928/01484834-20170421-04

Verkuyl, M., Romaniuk, D., Atack, L., & Mastrilli, P. (2017). A virtual gaming simulation for nursing education: An experiment. *Clinical Simulation in Nursing, 13*(5), 238–244. https://doi.org/10.1016/j.ecns.2017.02.004

References

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/10.2307/249008

INACSL Standards Committee, L., Belle, A., DiGregorio, H., Wilson-Keates, B., & Shelton, C. (2021). Healthcare simulation standards of best practice[TM] facilitation. *Clinical Simulation in Nursing*, *58*, 22-26. https://doi.org/10.1016/j.ecns.2021.08.010

Kardong-Edgren, S. (2013). Is simulationist a word? *Clinical Simulation in Nursing, 9*(12), e561. https://doi.org/10.1016/j.ecns.2013.10.001

Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development (2nd ed.)*. Pearson Education.

Lapum, J., Verkuyl, M., Hughes, M., St-Amant, O., Romaniuk, D., Betts, L., & Mastrilli, P. (2018). Design and creation of virtual gaming simulations in nursing education. In R.Gordon and D.McGonigle (Eds.), *Virtual Simulation in Nursing Education* (pp.143-158). Springer Publishing.

Simulationist Code of Ethics. (2013) Retrieved 30 October, 2021, from http://www.simprofessional.org/pdf/SimulationistCodeOfEthics.pdf

CHAPTER 2: INTEGRATING VIRTUAL GAMING SIMULATIONS IN THE CURRICULUM

Learning Outcomes

1. Review available virtual gaming simulations.
2. Explore considerations when integrating virtual gaming simulation in the curriculum.
3. Examine the concept of psychological safety in the context of using virtual gaming simulations.

INTEGRATING VIRTUAL GAMING SIMULATION IN CURRICULUM

When choosing a virtual gaming simulation, it is important to ensure that the curriculum influences the choice of virtual simulation and not the other way around. Before adopting virtual simulations, educators need to conduct a curriculum review; they should not be an 'add on'. Virtual gaming simulation adoption should be a well thought-through learning process where the simulations are integrated throughout the curriculum. Virtual simulations are useful when:

- Learners are struggling to understand a particular concept or having trouble developing a particular skill.
- Educators have identified sections of their course that could benefit from active learning.
- Learners need more opportunity for safe, immersive practice.
- Educators and administrators have identified a gap in providing quality clinical practice opportunities for learners.

The following article, 'Curricular uptake of virtual gaming simulation in nursing education' by Verkuyl et al., (2021) provides an historical account of one team's successful integration of virtual gaming simulation in a nursing curriculum. The authors share the lessons they learned about how to maximize curricular uptake. Educators can use this team's experience to develop their own path for embedding virtual gaming simulation in curriculum.

Examples in Action: Dr. Daria Romaniuk

In the following **video** Dr. Daria Romaniuk, RN, Ph.D. from Ryerson University discusses the following article:

Verkuyl, M., Lapum, J.L., St- Amant, O., Hughes, M. & Romaniuk, D. (2021). Curricular Uptake of Virtual Gaming Simulation in Nursing Education. *Nurse Education in Practice, 50.* https://doi.org/10.1016/j.nepr.2021.102967

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https://ecampusontario.pressbooks.pub/vgsguide/?p=271#h5p-6

Examples in Action: Dr. Jennifer Lapum

The following podcast by Dr. Jennifer Lapum, RN, PhD, provides a few examples of how virtual gaming simulation was embedded in different courses.

Click here to download a transcript of the podcast below.

Dr. Jennifer Lapum, RN, PhD, Professor, Associate Director of Quality Assurance, Daphne Cockwell School of Nursing, Ryerson University

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One useful strategy when integrating virtual gaming simulations in the curriculum is to create a program tracking system to map out which simulations are used across courses and years. This will help to ensure effective use of virtual experiences and avoid over-exposing learners to one type of learning strategy. At the course level, educators need to choose which simulation topic is the best fit for particular learning outcomes and where best to situate the virtual gaming simulation in the course. When thoughtfully selected and mapped in a program and courses, virtual simulations are more effective.

PSYCHOLOGICAL SAFETY

Psychological safety may be described as, "a feeling (explicit or implicit) within a simulation-based activity that participants are comfortable participating, speaking up, sharing thoughts, and asking for help as needed without concern for retribution or embarrassment" (Lioce et al., 2020, p.38). Creating a learning environment in which psychological safety is promoted is an important consideration when using virtual gaming simulations. Psychological safety can be enhanced when educators follow a process that includes **prebriefing** learners on the virtual gaming simulation, enacting, and then concluding with a structured debrief.

In the following **video** Dr. Sandra Goldsworthy, PhD, MSc, RN, CNCC(C), CMSN(C), CCSNE, from Nipissing University provides an overview of psychological safety related to using virtual simulations.

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> *https://ecampusontario.pressbooks.pub/vgsguide/?p=289#h5p-7*

When a safe learning environment is created, learners are comfortable making decisions, initiating actions and sharing their experiences. They do not feel they are going to be judged negatively or experience negative consequences as a result of their choices. Most learners will always feel somewhat vulnerable when sharing thoughts and feelings, however, the educator's goal is to create an environment where learners feel safe enough to embrace that feeling. Strategies for enhancing psychological safety during each stage of the virtual simulation are explored in subsequent chapters.

Both the virtual gaming simulation topics and how they are played influences learners' sense of psychological safety.

Examples in Action: Psychological Safety

The Therapeutic Communication and Mental Health Assessment virtual gaming simulation includes potentially distressing scenes. When our learners play this simulation asynchronously, we prepare them in a prebrief by discussing the sensitive content and provide learners with contact information for counseling if needed.

If the virtual gaming simulation is played in a group setting, the environment may impact the learners' comfort in making decisions and initiating actions, especially if they feel they are going to be judged negatively or experience negative consequences as a result of their choices. An effective facilitator takes steps to mitigate these challenges proactively in the prebrief. One step includes: preparing learners so they feel comfortable working through the scenario by providing clear guidelines and expectations. The educator should also create an environment that minimize disruptions, enhances privacy, and promotes learner participation by reminding learners their discussions should remain confidential.

SELECTING THE RIGHT VIRTUAL GAMING SIMULATION

Once educators have decided that virtual gaming simulations would enhance learning in their courses, they need to select the appropriate simulation to ensure the integration is learner-centered. When identifying appropriate virtual gaming simulations for a course, consider the learner's age, level, background knowledge, technology access and skills and type of nursing program. Key questions that should be asked include:

Who are the learners and what learning outcomes are being targeted?

It is imperative to ensure the course learning outcomes align with the virtual simulation learning outcomes. Begin by reviewing the virtual gaming simulation objectives and ensure they meet course-specific objectives and learner needs. Identify the virtual gaming simulation's intended audience and learner level. Engagement is enhanced when learners clearly see the connection between the simulation and the course learning outcomes.

Where does the virtual gaming simulation fit best in a course?

Review the virtual gaming simulations to see where the simulation's content is delivered in the course. Effective placement of these simulations is important; learners should be introduced to the content that will be covered in the simulation prior to using the simulation. This approach maximizes the impact of the virtual gaming simulation as learners can then apply new knowledge to the simulation practice scenario. Teaching a particular content area, followed by a virtual simulation game, then an in-person simulation prior to clinical practice, is a highly effective way to prepare learners for clinical practice.

What will be the educator's role regarding the virtual gaming simulation?

The educator's role will depend on whether the learners will be playing the simulation synchronously (ie., as a group, with a facilitator) or asynchronously (independently, on their own time). No matter which way the virtual gaming simulation is played, learners need clear instructions about their role and the educator's role. It

is important to consider the level of the learner when preparing to use the virtual gaming simulation as this will influence how the virtual game is enacted or played. If the learners are novices or have never played a virtual gaming simulation, the educator may decide to take learners through the virtual gaming simulation together, as a class or in a small group rather than having them play independently. In addition, the debrief questions will be leveled to a novice-level exploration of concepts. More advanced learners, or learners who have used virtual gaming simulations in the past, can be asked to work through the experience individually, and the debrief can be adjusted to reflect more complex concepts.

What training do educators need to teach effectively with virtual gaming simulations?

Educators who are used to a lecture-style approach to teaching will need to embrace a different approach. They will need to understand simulation pedagogy which provides the foundation for these experiences. Simulation pedagogy posits that learning takes place through exploration and experimentation; therefore, educators will encourage learners to explore different pathways through a virtual simulation without fearing mistakes.

Educators also need sound **facilitation** skills; these can be learned through formal or informal training. Lastly, educators need to understand and use emerging best practices in virtual gaming simulation teaching. They need to understand how to prebrief learners to help them to make the most of their virtual simulation learning, how to enact the simulation effectively and in particular, how to debrief a simulation effectively. Theory and practice tips regarding prebriefing, **enactment** and **debriefing** with virtual gaming simulation are provided in subsequent chapters.

How should educators prepare to integrate virtual gaming simulations in a course?

Educators need to have an intimate knowledge of the virtual gaming simulation subject matter so that they can respond appropriately to the learners' questions. It is also important to play the virtual gaming simulation enough times to have a good understanding of all the potential decision pathways learners may take so they will have a thorough understanding of learners' experiences. This understanding helps the educator answer learners' questions and provide an effective debrief.

How often should virtual gaming simulations be used in a course?

Virtual gaming simulation use in a course should be judicious to avoid overloading learners with the same

teaching strategy. How often the same virtual simulation should be played is up to the learner. Learners often want to replay a simulation, exploring different decision pathways or aiming to improve their score, and they benefit significantly from that repetition. Replaying the virtual gaming simulation gives learners the opportunity to see what a clinical encounter may look like or to deliberately make mistakes in order to see the consequences of those decisions. Learners also find it beneficial to replay the virtual gaming simulation years after their first play to refresh their memory before going into a specific clinical setting or before writing an exam. Virtual gaming simulations can be used individually by learners or in groups; a full description of these different approaches is provided in [Chapter 5](#).

VIRTUAL GAMING SIMULATIONS IN THE VIRTUAL HEALTHCARE EXPERIENCE

The Virtual Healthcare Experience currently houses virtual gaming simulations situated in different clinical areas, each of which offers one to three different virtual gaming simulations. The activity below provides information about each virtual gaming simulation topic, appropriate learner level and learning objectives to help educators choose the appropriate virtual gaming simulation for their course and their learners. Click here to download a PDF copy of the activity below.

> An interactive H5P element has been excluded from this version of the text. You can view it online here:
> https://ecampusontario.pressbooks.pub/vgsguide/?p=299#h5p-11

TECHNOLOGY

When facilitating a virtual gaming simulation, it is important that educators and learners are proficient with both the technology and the game play. Take time to access the link to the game and explore different pathways through the game before using it with learners.

It is also critical that learners have a smooth experience with the virtual gaming simulation; being proactive to ensure the simulation is free of technological glitches will enhance the learner's experience (**Table 2.1**).

[Click here to download an accessible PDF copy of Table 2.1](#)

Table 2.1. Strategies for Managing Technology in Virtual Gaming Simulation

Strategy	Rationale
Refer learners to the Virtual Healthcare Environment suite of virtual gaming simulations.	The virtual simulations are openly available.
Ensure learners are advised of all technical requirements for virtual simulation in advance.	The Virtual Healthcare Experience virtual simulations include high resolution videos which require high-speed Internet. Limited internet bandwidth will cause the videos to load slowly and frustrate learners.
Recommend current versions of Chrome and Firefox browsers.	The virtual gaming simulation runs more smoothly when accessed on these browsers.
Advise learners that the virtual gaming simulations include audio and the volume can be adjusted.	Enhances accessibility.
Use of subtitle option (available for each video).	Enhances accessibility.
Orient learners to the game design and content depending on virtual gaming simulation experience and how simulation will be enacted.	Learners who will be playing the virtual gaming simulations individually and who are novices will need more orientation than learners who will play the virtual simulations in a facilitated group.
If attempts at troubleshooting are ineffective, contact the technical team or the virtual gaming simulation developer. Know where to direct your learners so they can get prompt, helpful technical support.	Prompt access to technical support is essential for a satisfactory learning experience.

GRADING

Educators frequently raise the question of whether or not to grade the virtual gaming simulation. The answer will depend on each individual educator's pedagogical approach or goal for using these simulations. Review **Table 2.2** to explore options for grading when using virtual gaming simulations.

[Click here to download an accessible PDF copy of Table 2.2](#)

Table 2.2. Virtual Gaming Simulation Goals and Grading Strategies

Educator Goal	Strategy
To offer an experiential learning activity where the learner can make mistakes in a safe environment.	• Do not assign a grade based on correct answers; that approach will stifle exploration. • Assign a participation mark for completing the experience to acknowledge learner time and effort and encourage learners to complete the virtual gaming simulations.
To assign a summative mark.	• The individual summary report can be submitted and a grade assigned, however, there is no way to validate that mark. • Instead, ask learners to complete a reflection after their experience and consider marking the reflection.
To test the learner's knowledge.	• The individual summary report can be submitted and a grade assigned. This means learners will take more time choosing an option as they play the virtual gaming simulations and they will not explore the different options provided for fear of getting a lower mark.

Expert's Corner: Grading

Whether you decide to assign a grade or not, it is critical for learners to be clear on that decision before they play the simulation as it may affect how they proceed.

Examples in Action: Participation Mark

We assign our learners a virtual gaming simulation as an individual experience and provide a participation mark of 1-2.5% of their final grade. In order to receive the mark, they need to hand in the summary report and self-debrief by a pre-assigned time. The learner either gets the participation mark or not, there are no partial marks. In our experience, 99% of the learners complete this assigned work on time.

LEARNER ANALYTICS

When learners play the virtual gaming simulations, data are automatically collected on their actions and decisions; that data set is called learner analytics. At the end of each virtual gaming simulation, the simulation generates a set of learner analytics in the form of an individualized summary report. The report includes a record of every decision the learner made and generates a total score based on correct decisions. The report can be used in a number of ways after individual play. Learners can use their individual summary report to identify areas of strength and improvement and use that information to develop a plan to address their learning needs. Learners can also refer to their report when they complete a self or group debrief. Educators can use learners' individual summary reports to determine what content areas to focus on in the debrief or in class.

In the following **video** Margaret Verkuyl NP:PHC, MN from Centennial College provides information on the learning analytics available through the virtual gaming simulations.

> An interactive H5P element has been excluded from this version of the text. You can view it online here:
> https://ecampusontario.pressbooks.pub/vgsguide/?p=336#h5p-8

Expert's Corner: Learner Analytics

Learner analytics are a type of 'real time' information that can be helpful to learners and educators such as the total number of correct decisions made by a learner. These analytics can help you answer the questions: Are learners actually learning? Are they improving? What course content areas should I spend more time on in the debrief or in class?

PROCESS

One of the most important principles of teaching with virtual gaming simulation is that educators need to follow a sound pedagogical process to maximize learning. The process includes prebriefing, enactment, debriefing and ongoing evaluation of learner knowledge gains and satisfaction. The four stages of virtual gaming simulation are addressed in: Chapter 4: Prebriefing; Chapter 5: Enactment' Chapter 6: Debriefing; Chapter 7: Evaluation.

The [Healthcare Simulation Standards of Best Practice](TM) for simulation is an excellent resource for teaching with virtual gaming simulations. There are, however, a number of nuances particular to the virtual environment that are not addressed in these guidelines. For example, the [Healthcare Simulation Standards of Best Practice](TM) recommend that the facilitator be present during the simulation in order to debrief the experience. If, however, the learner is playing a virtual simulation individually, from home, the facilitator will not be present. Subsequent chapters provide guidance to help educators navigate the nuances of using virtual gaming simulations.

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CHAPTER 3: PRESIMULATION PREPARATION

Learning Outcomes

1. Explore the concept of presimulation preparation in virtual gaming simulations.
2. Summarize different options for presimulation preparation before a virtual gaming simulations.

PRESIMULATION PREPARATION: WHAT IS IT?

As discussed earlier, it is important to follow a sound pedagogical process that includes a **prebrief**, enactment and debrief. There is also a step educators are advised to take before prebriefing learners: **presimulation preparation**.

It is important to differentiate between the presimulation preparation required to complete the virtual gaming simulations and the prebrief. These two areas are distinct components of the simulation process. Presimulation preparation ensures student have the knowledge needed to play the game, while the prebrief prepares learners for their roles and clarifies expectations for the simulation experience (INACSL Standards Committee, McDermott, et al. 2021).

Presimulation preparation is the action of making preparatory course materials available to the learner in advance of the virtual gaming simulation to ensure they are equipped to play the simulation. These materials provide content and background to the virtual gaming simulation and include book chapters, lectures, videos and journal articles. In addition, knowledge tests or assessments related to the learning objectives can be provided so that learners can assess their understanding of the content before playing the virtual gaming simulations. This is helpful because, as noted earlier, it is important for learners to understand content before applying it in a virtual gaming simulation, In general, the virtual simulation is not the place to be learning new content. In contrast, the prebrief sets the stage for the virtual gaming simulations experience by preparing learners for their roles and outlining expectations for the simulation (see Chapter 4: Prebriefing for virtual gaming simulation).

Examples in Action: Presimulation Preparation

When we assign our learners to play the prenatal virtual gaming simulation, we ask them to watch a

video on prenatal care and complete a self-test on prenatal nursing care as part of the presimulation preparation.

RESOURCES AND REFERENCES

INACSL Standards Committee, McDermott, D., Ludlow, J., Horsley, E., & Meakim, C. (2021). Healthcare simulation standards of best practice^{TM} prebriefing: Preparation and briefing. *Clinical Simulation in Nursing, 58,* 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

CHAPTER 4: PREBRIEFING

Learning Outcomes

1. Define prebriefing.
2. Review the rationale for conducting a prebriefing.
3. Describe the elements for best practice in prebriefing for virtual gaming simulations.
4. Use a checklist as a guide for conducting a prebrief before enacting a virtual gaming simulation.

PREBRIEFING: WHAT IS IT?

Prebriefing is an information or orientation session given by the educator to prepare learners for the virtual gaming simulations experience prior to enactment. The purpose of the prebriefing is to set the stage for a virtual gaming simulation by clarifying expectations and processes to assist participants in achieving learning objectives.

The [Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing](#) (INACSL Standards Committee, McDermott, et al., 2021) is a newly developed guide related to the standards of best practices for simulation prebriefing. This document provides a foundation for understanding the criteria related to prebriefing virtual gaming simulations. As noted in the previous chapter, prebriefing is different from Presimulation preparation. Preparation occurs one or more days in advance of the prebrief, and its purpose is to ensure learners have an understanding of the content that they will need to play a virtual gaming simulation.

By clarifying expectations and roles, the prebrief fosters psychological safety and ensures everyone receives the same instructions. It helps to ensure that the virtual gaming simulation will go smoothly and that everyone will get the most out of playing. When learners do not have a chance to prebrief, they report decreased confidence, increased anxiety, and feeling less prepared to play the virtual gaming simulations.

General Guidelines for Conducting a Virtual Gaming Simulation Prebrief

- Include introductory activities that help to create an environment of integrity, trust, and respect in the prebrief.
- Clearly outline expectations for the learners and the educator.
- Orientate learners to the virtual gaming simulations so they understand the virtual environment, technology, process, equipment and technical limitations.
- Ensure the prebrief is learner-focused. The length of the prebrief will be determined by learner's virtual gaming simulation and clinical experience, the content of the simulation and an educator's facilitation skills. Avoid overwhelming the learner with too much information.
- Promote a sense of psychological safety in the prebrief. Use verbal appreciation, validation, and consistency to help learners feel invited, acknowledged, and safe when it is time for the debriefing. Encourage input by directing questions to certain learners. Clearly address learners by name to convey personal regard for individual learners. Role model fallibility and share personal experiences. Openly sharing past failures and lessons learned from those failures helps to flatten hierarchy and promote

psychological safety.

- Consider the best prebrief format. The prebrief can be provided in advance, in person before the virtual gaming simulation or online via a web conferencing system such as Zoom, Blackboard or Teams. In addition, the prebrief can be recorded in video or audio format in advance of the virtual gaming simulation to standardize the process and content.

- Prebrief activities will vary depending on the way the virtual gaming simulation will be enacted. If facilitating the virtual simulation synchronously with learners, the educator will have to know how to access the technology and obtain technical support, however, the learners do not need that level of detail (Refer to **Tables 4.1 and 4.2** for key elements in different strategies for prebriefing).

PREBRIEF PROCESS

It is best to conduct the prebrief as soon as possible before the start of the virtual gaming simulation. When facilitating the virtual gaming simulations with a group of learners, the prebrief is conducted just before the simulation enactment. When learners will be playing the virtual gaming simulation individually, the prebrief should occur as soon as the virtual simulation is assigned.

Use a checklist to get started with prebriefing. Two prebriefing checklists for different virtual gaming simulation enactments are provided below. The first (**Table 4.1**) is oriented to a facilitator-led virtual gaming simulation. The second checklist (**Table 4.2**) is for learners who are playing a virtual simulation individually, without a facilitator. Some elements are common to both checklists and others are specific to a particular virtual gaming simulation strategy.

[Click here to download an accessible PDF copy of Table 4.1](#)
[Click here to download an accessible PDF copy of Table 4.2](#)

Table 4.1. Key Elements for a Facilitator-led Virtual Gaming Simulation (Group) Prebrief

Element	Rationale	Completed
Introduce facilitator (and if appropriate, co-facilitator) and state role(s).	Outlining facilitator's roles enhances group communication.	☐
Be present: arrive early, be open to questions, smile, nod, remain attentive and look at the screen.	Being present promotes a sense of psychological safety.	☐
Review learning objectives.	Informing learners of the virtual gaming simulation's content and goals helps them connect the simulation content to course learning outcomes. Promotes psychological safety.	☐
Orientate learners to the game play: Review how the virtual gaming simulation is played (video with sound). Game will be paused periodically for the group to make a clinical decision. Learners will then see the consequence of that decision and if correct, continue to the next decision. Alternatively, if the decision is incorrect a video will demonstrate the consequence and feedback will be provided. All learners will be able to download a summary sheet of each decision made.	Set the stage to maximize learning. Ensures organization and smooth flow during game-playing. Promotes sense of psychological safety. Gives learners a tool for assessing their learning.	☐
Advise learners that they can make mistakes while playing.	Promotes learning through exploration. Promotes psychological safety.	☐

Review and/or sign confidentiality forms related to the virtual gaming simulations answers and group discussion.
    Ask learners to minimize interruptions to the game.
	A sense of psychological safety is enhanced when confidentiality regarding emerging discussion is an expectation.
	    Confidentiality regarding answers reduces passing on simulation answers and enhances academic integrity.
		☐

Discuss/sign a fiction contract. This is an agreement among learners acknowledging the scenario is fictitious but that it will be viewed as real for learning purposes. Learners put themselves in the role of the nurse while making decisions during the game.	The fiction contract encourages learner engagement before, during, and after the virtual gaming simulation. The impact of the virtual gaming simulation is optimized when learners overlook unrealistic parts of the virtual gaming simulation. Suspending disbelief allows for an enhanced immersive learning experience.	☐

Element	Rationale	Completed
Establish ground rules for engagement related to flow and participation.	Ground rules set the stage to support the professional integrity of the virtual gaming simulation experience.	☐
Review how decisions in the virtual gaming simulations will be made by the learners. Some options are: • Discussion (small or large group) • Raising hands • Audience polling	Decisions can be made in different ways. The goal is for all learners to be involved in the experience and participate in the decision making.	☐
Discuss time allotment. Review how much time it will take to play the virtual gaming simulation and how much time can be spent on making decisions and discussing the scenario.	Enables learners to plan and fully participate.	☐
Review expectations regarding participation.	This will help learners understand their roles in the virtual gaming simulation.	☐
Advise learners clearly if they will be graded or not. If marks will be given for participation, explain how they will be allotted and if a marking rubric will be used.	Learners have the right to know if they will be graded. Grading will influence how learners play the game.	☐
Outline the debriefing process which follows the virtual gaming simulations.	This will give learners an understanding of the post virtual gaming simulation process and expectations.	☐

Table 4.2. Key Elements for an Individually Played Virtual Gaming Simulation Prebrief

Element	Rationale	Completed
Review learning objectives.	Informs learners of the virtual gaming simulations content and goals. Helps learners connect the virtual simulation to course learning outcomes.	☐
Orientate learners to the game play: Review how the virtual gaming simulation is played (video with sound). Game pauses periodically for the learner to make a clinical decision. Learners will then see the consequence of that decision and if correct, continue to the next decision. Alternatively, if the decision is incorrect a video will demonstrate the consequence and feedback will be provided. All learners will be able to download a summary sheet of each decision made.	Sets the stage to maximize learning. Ensures organization and smooth flow during game-playing. Promotes sense of psychological safety. Gives learners a tool for assessing their learning.	☐
Provide clear instructions on how the virtual gaming simulation works and technical requirements. Clarify the need for high-speed internet and Chrome/Firefox browsers.	A 'glitch free' experience is critical to learner satisfaction. High speed internet is necessary for videos to upload smoothly. These virtual gaming simulations are best accessed with these browsers.	☐
Review who/how to access technology support.	Technical issues will hinder learning and learner satisfaction.	☐
Review/sign confidentiality forms related to the virtual gaming simulation answers.	A sense of psychological safety is enhanced when confidentiality regarding emerging discussion is an expectation. Confidentiality regarding answers reduces passing on simulation answers and enhances academic integrity.	☐
Discuss/sign a fiction contract. This is an agreement among learners acknowledging the scenario is fictitious but that it will be viewed as real for learning purposes. Learners put themselves in the role of the nurse while making decisions during the game.	The fiction contract encourages learner engagement before, during, and after the virtual gaming simulation. The impact of the virtual gaming simulations is optimized when learners overlook unrealistic parts of the virtual gaming simulations. Suspending disbelief allows for an enhanced immersive learning experience.	☐
Discuss time allotment. Review how much time it will take to play the virtual gaming simulations and how much time can be spent on making decisions and discussing the scenario.	Enables learners to plan and fully participate.	☐

Element	Rationale	Completed
Advise learners clearly if they will be graded or not. If marks will be given for participation, explain how they will be allotted and if a marking rubric will be used.	Learners have the right to know if they will be graded. Grading will influence how learners play the game.	☐
Outline the debriefing process which follows the virtual gaming simulations.	Gives learners an understanding of the post virtual gaming simulation process and expectations.	☐

Examples in Action: Fiction Contract

During the following virtual gaming simulation, you will interact with different actors depending on the specific scenario. Virtual gaming simulation fosters an environment for active engagement in a relatively safe environment. As the developers of the virtual gaming simulations, we do all we can to make the simulation as real as possible. We do recognize that in this scenario the (input what is not realistic) is not realistic. As the learner, we ask you to engage in the simulation, with the healthcare team members and patient as if they were real. Using these experiences this way provides you with the best active learning opportunity possible.

Examples in Action: Confidentiality

During the virtual gaming simulations, we ask you to be non-judgmental and be open to learning from others in your group and from the simulation. It is important to remember that what happens in the discussion stays within the group. By maintaining confidentiality related to the virtual gaming simulations experiences, others choices/comments and the summary report, you help to create a psychologically safe learning environment and an effective experience for all learners. Does everyone agree to maintain confidentiality related to the class discussion? (Ask for permission to record any part of the virtual gaming simulations if you plan on recording it).

Examples in Action: Psychological Safety

Some of the virtual gaming simulations deal with potentially disturbing content, for example, suicide and domestic violence feature in the Therapeutic Communication and Mental Health Assessment virtual gaming simulation. It is important to address this with learners in the prebrief. Highlight that the virtual gaming simulation is designed for mature learners who are healthcare workers. Advise learners that if they have any unsettled feelings before, during or after the virtual simulation, they should talk with their educator or contact counselling services at their institution. (Provide contact information).

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CHAPTER 5: VIRTUAL GAMING SIMULATION ENACTMENT

Learning Outcomes

1. Identify ways to successfully enact virtual gaming simulation.
2. Review practical considerations for enacting the virtual gaming simulations.
3. Discuss facilitation requirements for virtual gaming simulations.

VIRTUAL GAMING SIMULATION ENACTMENT: WHAT IS IT?

Enactment is the term used for playing virtual gaming simulations. There are a number of ways these simulations can be played. One way is to use the virtual gaming simulation as an individual assignment where learners play the simulation on their own, at their own pace, and at a time convenient to them. The virtual gaming simulation can also be played in a facilitated group of ten or less learners or as a large group of more than ten players. Facilitated group play can be enacted both in-person or virtually.

The next section describes the practicalities and nuances of each of these methods of playing the virtual gaming simulation. The approach an educator will choose will depend on the nature of the game, and course delivery factors such as time, space and comfort level in facilitating groups of different sizes. Educators will also want to consider their own pedagogical approach to teaching, learning outcomes, and the level of their learners. Many educators tend to use only one approach but educators should be open and flexible when selecting ways to enact the virtual gaming simulation.

Individual Enactment

With this approach, the virtual gaming simulation is assigned to learners to play individually. A major advantage of this approach is that the learner has control over the experience. Learners determine when and where to play the game, they can take as much time as they want to complete the game and they can choose to replay the experience as often as they want (Verkuyl et al., 2019). This approach means that learners play the virtual gaming simulation in a psychologically safe environment where they can make choices without the influence of others and where they can make mistakes in private. The individual approach gives learners the opportunity to obtain a true picture of their knowledge and skills related to the virtual gaming simulation content because they are making decisions independent of peer influence (Verkuyl et al., 2019).

One of the disadvantages of individual play is if the virtual gaming simulation content is sensitive or disturbing, the learner does not have a peer forum in which to work through any unsettled feelings (Verkuyl et al., 2020). In addition, an immediate, facilitated group debrief does not necessarily follow. Instead, the educator needs to decide how learners will effectively debrief following the individual play virtual gaming simulation. (See Chapter 6 for a review of the different debriefing formats).

Small Group Enactment

With this approach, learners enact the game in small groups, usually consisting of ten or fewer learners, with the guidance of a facilitator. The facilitator needs training and skills to ensure that all learners are involved and not just a few vocal learners (Verkuyl et al., 2020). This can be difficult as some learners do not feel safe making mistakes in front of their peers. It is therefore important for the facilitator to create a psychologically safe environment (See Chapter 2). The small group approach provides an opportunity for rich discussion among learners as they make decisions about client care throughout the scenario (Verkuyl et al., 2020). The game is paused at each decision point enabling the group to review different decision options and to explore the impact of different options on client outcomes. This approach allows for a natural debriefing throughout the virtual gaming simulation. After the simulation, the group can discuss the team decision-making process and the different roles that learners played. For a full description of small group benefits and challenges, see **Table 5.1**.

One of the disadvantages of small group enactment is that learners engage only with other learners in their small group; they do not benefit from the larger group discussion. Another disadvantage is that pausing the game regularly for decision-making disrupts the flow of the game.

Large Group Enactment

With this approach, the virtual gaming simulation is enacted in a large group of ten or more learners. It can be played in two ways: with the entire group playing the virtual gaming simulation and debriefing together or with the group breaking into smaller groups for debriefing (Verkuyl et al., 2020). Typically, educators show the virtual gaming simulation on a large screen and stop at each decision point to ask questions to encourage problem-solving and critical thinking from the group as they work through the scenario together. An advantage of this format is that it allows for a rich discussion of different perceptions of the client scenario and decisions and builds teamwork and conflict management skills.

The disadvantage or challenge with the large group enactment is creating a psychologically safe environment in which all learners feel free to engage in the experience (Verkuyl et al., 2019). It is critical to make sure learners are aware, right from the start, that making mistakes is how learning occurs. One way to mitigate this challenge is to use audience polling systems for decision-making during the virtual gaming simulations. Another option is to mix the small and large group formats. The large group is initially divided into groups of two to three learners who complete the virtual gaming simulation together (Verkuyl et al., 2020). After they play the game, they come together as a large group to debrief. The result is a large group whose members have taken different pathways through the virtual gaming simulation allowing for a rich debrief. For a full description of large group benefits and challenges, see **Table 5.1**.

Expert's Corner: Group Enactment

When facilitating a group to work through a virtual gaming simulation, each decision point becomes an opportunity for reflection and debrief. Since the content has been debriefed, post virtual gaming simulation debrief can take a different focus such as teamwork and conflict management during the group decision making.

Click here to download an accessible PDF copy of Table 5.1

Table 5.1. Factors to Consider when Choosing Ways to Enact the Virtual Gaming Simulations

Factor	Individual Play	Facilitated Small Group Play	Facilitated Large Group Play
Pedagogical approach	Learners play the virtual gaming simulation at their own pace and at a time and place convenient to them.	Groups of fewer than 10 learners play the virtual gaming simulation and debrief with a facilitator.	Groups of 10 or more learners play the virtual gaming simulation and debrief with a facilitator.
Time required	Up to one hour.	One to two hours.	One to two hours.
Debriefing	Debriefing needs to be arranged in terms of a self-debrief or large group debrief.	Can debrief throughout the experience and at the end.	Can debrief throughout the experience and at the end. May debrief as a large group or break into smaller groups.
Advantages	Flexible learning option. No facilitator required. Psychological safety is fairly easy to establish; no risk of embarrassment if wrong answer selected. Learners are motivated to improve their score. Provides learners with a clear picture of their own knowledge base. Can re-play as often as wanted.	Comfortable learning experience; learners are individually active and have group support. Relatively easy to facilitate. Psychological safety is fairly easy to establish; not overwhelmed by pressures of the large group. Generates rich discussion. Learners have technical and game play support. Learners approach sensitive topics with support of group.	Larger groups are less resource demanding than the small group format. Strong facilitation skills required. Learners are exposed to multiple perspectives. Opportunity to build team and conflict management skills. Generates rich discussion. Learners have technical and game play support. Learners approach sensitive topics with support of group.
Disadvantages	No group support for technology/ virtual gaming simulation issues. Learners experience sensitive topics alone. Learner does not benefit from others' perspectives.	Organizing and facilitating large numbers of groups makes this a fairly resource demanding option. Learners are less able to evaluate their own knowledge; may be influenced by peers.	Requires strong facilitation skills. Potentially more threatening to sense of psychological safety. May be intimidating for quiet/ shy learners. Learners are less able to evaluate their own knowledge; may be influenced by peers.

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CHAPTER 6: DEBRIEFING FOR VIRTUAL GAMING SIMULATION

Learning Outcomes

1. Discuss the purpose of debriefing.
2. Identify elements common to all debriefs.
3. Identify various debriefing formats that can be used to debrief a virtual gaming simulation.

DEBRIEFING: WHAT IS IT?

Debriefing is considered a critical component in all types of simulation (Eppich & Cheng, 2015). The debrief helps learners develop reflective practice skills and apply requisite knowledge, skills and abilities to their clinical practice (Taplay et al., 2021). Debriefing is an activity that occurs during or following virtual gaming simulation play where participants reflect on their decisions and actions with a view to gaining knowledge and improving professional practice. Debriefing differs from simple reflection in that it is a deliberate, systematic process. The debriefing may be done by the individual learner or facilitated by an educator. During the debrief, learners react to the client scenario, think critically about their performance and identify knowledge gaps so they can create a plan for future learning to apply concepts as a professional in clinical practice situations (Abraham et al., 2018).

An excellent starting point for guidance related to debriefing is the [Healthcare Simulation Standards of Best Practice^{TM} The Debriefing Process](). These standards outline the process and criteria for effective debriefing. In this chapter we will focus on the nuances specific to debriefing in the virtual game environment.

A virtual gaming simulation debrief can be conducted in many different ways: self-debrief, small or large group debrief and asynchronous debrief. The way educators choose to enact the virtual gaming simulation will inform their debriefing options. If the group virtual gaming simulation is be led by a facilitator, it makes sense to conduct an in-person debrief. The in-person debriefing process is well documented in the literature, therefore, it is not discussed in this resource. If the virtual gaming simulation is being played by learners individually, on their own time, then a self, asynchronous debrief, facilitated virtual synchronous debrief or combined debrief are viable options. This chapter will explore these types of debriefs in more detail.

In the following **video**, Dr. Sandra Goldsworthy, PhD, MSc, RN, CNCC(C), CMSN(C), CCSNE, from Nipissing University will provide an introduction into debriefing.

An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://ecampusontario.pressbooks.pub/vgsguide/?p=502#h5p-14

DEBRIEFING PRINCIPLES

Regardless of the type of debriefing approach an educator decides to use, it is important to be guided by the following principles.

Lead the debrief using sound facilitation skills

- The Virtual Healthcare Experience virtual gaming simulations are based on the experiential learning cycle in which a concrete experience (the simulation) is followed by observation and reflection on the simulation. Training in facilitation is important in leading learners through a reflective process where they examine the decisions and choices they made during the virtual gaming simulation and explore how those choices impact their clinical practice.

Mitigate psychological safety concerns

- Effective debriefing requires the learners to be authentic about their actions and clinical reasoning during the virtual gaming simulations. As a result, any risk to psychological safety will affect the learner's willingness to share.

Instruct learners on using analytics within the debrief

- At the end of each virtual gaming simulation, learners playing individually receive an individualized summary report (analytics) of all their decisions. Encourage learners to save the report as a pdf document. The report can be used to inform the debrief so that the individual or group debrief focuses on the learners needs.

Orientate learners to the experience by reviewing simulation learning objectives

- Highlighting general or specific learning objectives sets the stage for the debrief. In addition, time may have elapsed since the learner completed the virtual gaming simulation and this step reorients learners to the objectives.

Link to learning and course objectives

- Andragogic pedagogy emphasizes the need for adult learners to make connections between a learning activity and course objectives. This helps learners connect the virtual gaming simulation content and its relevance to their learning goals.

Develop questions based on a theoretical framework

- Debriefing questions based on a theoretical framework provide a way to structure questions in an evidence-based, purposeful way. When choosing a debriefing framework, take time to review the different types to find one that fits learner needs and the virtual gaming simulation content.

Provide clear instructions related to expectations and grading

- Learners need to know exactly what is expected and if/how they will be graded regarding the virtual gaming simulation. A clear understanding supports learning and promotes psychological safety during the virtual gaming simulation.

Adapt the debrief to meet learners' needs

- Learners' needs are always the focus of the debrief as they make learning meaningful. Facilitators need to understand their learners so that the debriefing experience is designed to meet their learning needs.

PSYCHOLOGICAL SAFETY DURING DEBRIEFING

Regardless of the type of debriefing format you choose to use, it is important to clearly explain debriefing goals and processes and to invite learners to engage in the discussion. Educators should also familiarize learners with the virtual simulation environment and clarify policies regarding confidentiality, privacy and minimizing interruptions. The way you will achieve this will vary depending on the debriefing format. In an asynchronous debrief, this information is conveyed in the written or verbal instructions and the debriefing format.

In the virtual environment, there is opportunity to urge learners to speak openly and validate their responses to help them feel acknowledged (Goldsworthy & Verkuyl, 2021). Encourage input by directing questions to learners. When speaking to learners, clearly address them by name to convey personal regard. Throughout the debrief, remain attentive and interested and make eye contact with learners (Cheng et al., 2020). During the debrief, educators should reflect their own feelings and share personal clinical experiences when appropriate.

In the next section, we discuss different types of debriefing including facilitator roles and requirements.

SELF-DEBRIEF

A self-debrief is a structured process where individuals review their simulation, ideally immediately after enacting the simulation (Lapum et al., 2018). A major advantage of the self-debrief is that it allows learners to reflect on the decisions they made while those decisions are fresh in their minds (Lapum et al., 2018). Another advantage of the self-debrief is that learners have the opportunity to reflect on their decisions without the influence of their peers which is the case with group debriefing and it provides a debriefing option when a facilitated debrief is not practical (MacKenna et al., 2021). Because learners are debriefing alone, the self-debrief needs to be carefully structured. A major limitation of the self-debrief is that learners do not have the opportunity to hear what decisions their peers made and their educator's thoughts on those decisions (Lapum et al., 2018).

A self-debrief following virtual gaming simulation is accessed from a personal computer and learners can choose a debriefing place and time that is conducive to their learning. This means the debriefing is done asynchronously, without a facilitator. Typically, learners are given a set of questions to guide their reflection. These questions should be based on a debriefing theoretical framework (see [Healthcare Simulation Standards of Best Practice](#)^{TM}) and designed to reflect the learning objectives and the level of the learner (Lapum et al., 2018). When completing a self-debrief, learners are instructed to use their individual summary report (learner analytics) and class notes as they answer the questions.

Learners, because they are debriefing alone, generally feel psychologically safe reflecting on their decisions and providing authentic, honest responses (Verkuyl et al., 2018). That said, they might still be concerned about who might be viewing their responses and if they are being evaluated. Therefore, the educator should always inform learners about who will be reading their responses and if they will be graded.

In the Virtual Healthcare Experience, after each virtual gaming simulation, there is a self-debrief document for learners to complete if they are not going to an assigned/group debrief. As the facilitator, there are a number of key components to consider when providing learners with a self-debrief (**Table 6.1**).

[Click here to download an accessible PDF copy of Table 6.1](#)

Table 6.1. Essential Self-debrief Components

Self-debrief Component	Rationale
Ensure the debrief is carefully planned and organized by a trained facilitator.	Learners who are debriefing alone need a structured approach.
Include a confidentiality statement and outline who will read the self-debrief.	Enhances psychological safety.
Identify time to complete.	Supports organization and flow.
Provide learners with reflective questions in advance of the self-debrief.	Supports organization and flow.
Create facilitated questions based on a framework to meet learning objectives and level of learner.	Encourages reflection, analytical skills and learning.
Clearly indicate grading and type (participation or graded).	Enhances psychological safety; influences game play.
Use analytics or course materials.	Focuses the debrief and furthers learning.

Examples in Action: Sample Self-Debriefing Instructions

In the prenatal virtual gaming simulation, you assumed the role of a prenatal nurse Georgia Graham who was assigned to do a prenatal assessment on Madison (Maddy) Fraser. We would like you to answer some questions in relation to your simulation experience. While completing your self-debrief, reflect on the learning objectives of this experience.

The learning objectives of this simulation game are to:

1. Apply knowledge of physical and psychosocial prenatal nursing assessment.
2. Identify normal findings, abnormal variations and potential complications during a prenatal visit.
3. Demonstrate therapeutic interventions when caring for a pregnant woman.

There are 8 questions to be answered. It will take you up to 60 minutes to complete the questions. These questions will guide you through a facilitated reflection on your virtual gaming simulation experience. The debrief will help you express your reactions, analyze issues, reflect on your performance and make connections to future clinical practice.

Please note: Your answers are not being graded but you will receive a 2.5% participation grade for submitting your analytics and self-debrief. Please complete these self-debriefing questions then submit the completed document into dropbox by June 10, 2021 before 2300.

Confidentiality: Your self-debrief is confidential and will only be read by your course instructor.

Reminder: As you respond to the questions below, refer to your individual summary report sheet and your course material.

In the following **video** Margaret Vekuyl NP:PHC, MN from Centennial College discusses conducting a self-debrief for learners after a virtual gaming simulation.

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/vgsguide/?p=513#h5p-9

GROUP DEBRIEF

A group debrief is a facilitated activity that follows the simulation where learners, either in small groups or a larger group, answer a series of questions designed to promote reflection on a simulation. Strong facilitation skills are essential to manage group dynamics, encourage reflection and enhance learning. The theory regarding developing facilitation skills is extensive and beyond the scope of this etextbook, however, there are many informal and formal courses available to help educators develop facilitation skills.

The following are examples of facilitator comments and tips that can be used to encourage learners to reflect on their virtual gaming simulation experience during the debrief (**Table 6.2**).

Click here to download an accessible PDF copy of Table 6.2

Table 6.2. Debriefing Comments and Tips for the Facilitator

Facilitator Comments and Tips	Rationale
"Can you tell me more?" "Please go on."	Prompts participants to expand on what they said.
"Please go ahead and refer to your summary report and your self-debrief."	Encourages systematic process through use of summary report/or self-debrief questions.
"What do others think?" "Was this similar for anyone else?" "Did any of you experience this differently?"	Invites others to join in the discussion.
"Are there any more comments?" "Does anyone else have something to add?"	This is particularly important for a large group debrief so learners' comments are not missed.
Try not to respond with affirmation or denial as this could influence the group or keep members from responding honestly.	Encourages full and frank participation.
Maintain eye contact with learners.	Connection to the learners encourages participation.
Display friendly attending skills.	Encourages responses.

FACILITATED ASYNCHRONOUS DEBRIEFING

A facilitated asynchronous debrief is one that is conducted using a learning management system or other communication board. The discussion, monitored by a facilitator, takes place ongoing, at any time (Atthill et al., 2021). A major advantage of the facilitated asynchronous debrief is that the debrief can start immediately after the virtual gaming simulation while thoughts and feelings are still fresh in the learners' minds. It also provides learners with an opportunity to hear their peers' and educator's perspectives on the simulation. A disadvantage of this approach is that the flow of thoughts might be interrupted when peers post at different times over a period of time.

The discussion questions are crafted by the facilitator, and should be based on a debriefing theoretical framework (Healthcare Simulation Standards of Best Practice[TM]). Debriefing questions are leveled to the learner and help them achieve the learning objectives of the virtual gaming simulation. Provide pertinent questions and do not burden learners with a large number of debriefing questions (Miller et al., 2018).

An asynchronous debrief should take place over a minimum of 48 hours which provides the learner with an opportunity to reflect and respond to the questions provided (Atthill et al., 2021). Clear instructions about how the learner is expected to participate in the debriefing and the time commitment are key to facilitating an effective debrief (Miller et al., 2018). The learner should respond to the original debriefing questions posted as well as craft a response to other learners' posts and the facilitator's response.

The facilitator can respond at any time to direct the reflection, respond to questions and clarify any incorrect learner assumptions. The debriefing questions and access to the discussion board should be available when the virtual gaming simulation has been assigned or played, however, it should be limited to only those learners participating in the debrief (Atthill et al., 2021).   Other key elements in facilitating the asynchronous debrief are included in **Table 6.3**.

Click here to download an accessible PDF copy of Table 6.3

Table 6.3. Essential Elements in a Facilitated Asynchronous Debrief

Essential elements	Rationale
Ensure the debrief is led by a trained facilitator.	Debriefing is a learned skill.
Include a confidentiality statement including who will access the discussion board and if it can be downloaded.	Enhances psychological safety.
Restate learning objectives.	Supports learning; links virtual gaming simulation to course learning objectives.
Identify time to complete.	Supports organization and flow.
State number of questions provided.	Supports organization and flow.
Ensure the facilitator has an intimate understanding of the virtual simulation.	Supports content expertise and an understanding of the learner perspective.
Create facilitated questions to meet learning objectives and level of learner.	Encourages reflection, analytical skills and learning.
Identify participation expectations (the number of initial and response posts).	Enhances psychological safety. Promotes learning.
Clearly indicate grading and type (participation or graded).	Enhances psychological safety.
Encourage the use of analytics and course materials.	Supports learning.
Provide contact for technology support.	Supports organization and flow; promotes learner satisfaction.

Examples in Action: Asynchronous Debrief Instructions

In the prenatal virtual gaming simulation, you assumed the role of a prenatal nurse, Georgia Graham assigned to conduct a prenatal assessment on Madison (Maddy) Fraser. In reflecting on this virtual gaming simulation, we would like you to respond to some questions in relation to your simulation experience. When responding to the questions provided on the 'discussion board,' reflect on the learning objectives of this experience.

The learning objectives of this simulation game are to:

1. Apply knowledge of physical and psychosocial prenatal nursing assessment.
2. Identify normal findings, abnormal variations, and potential complications during a prenatal visit.
3. Demonstrate therapeutic interventions when caring for a pregnant woman.

There are 8 questions posted on the 'discussion board'. These questions will guide you through a facilitated reflection on your virtual gaming simulation experience. The debrief will help you express your reactions, analyze issues, reflect on your performance and make connections to future clinical practice. You are expected to complete **4 posts** related to the questions asked or to respond to another learners' comments. Your posts are to be clearly written to reflect the question and content.

Please note: Your answers are not being graded but you will receive a 2% participation grade for providing 4 posts. Please complete your posts by XX, XX before 2300. Please note that this 'discussion board' will not be available to learners after the due date.

Confidentiality: The 'discussion board' is password-protected, so only your peers in your group and your faculty will see your responses. All the responses posted in the 'discussion board' are confidential, therefore, learners are not to share any of the learners' responses verbally, through pictures, or social media. The 'discussion board' posts will be deleted once this course ends.

Reminder: As you respond to the questions on the 'discussion board', refer to your individual summary report sheet and your course notes.

In the following **video** Dr. Stephanie Atthill, RN, Ph.D, from Georgian College discusses conducting an asynchronous debrief for learners after a virtual gaming simulation.

An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://ecampusontario.pressbooks.pub/vgsguide/?p=530#h5p-3

FACILITATED VIRTUAL SYNCHRONOUS DEBRIEF

A facilitated virtual synchronous debrief is one that is conducted using a web conferencing medium, where the discussion, facilitated by an educator, occurs at a set time (Verkuyl et al., 2020). It can be used following a virtual gaming simulation that is facilitated over a web conferencing system or at a later time if learners complete the virtual simulation asynchronously. Facilitated virtual synchronous debrief offers scheduling flexibility for both the learners and the facilitator (Goldsworthy & Verkuyl, 2021). A major advantage of the facilitated virtual synchronous debrief is the opportunity to hear their peers' and educator's perspective on the scenario. Conversely, there is less of an opportunity for individual authentic reflection on the experience. Another challenge is that learners and educator need to schedule a common meeting time (Goldsworthy & Verkuyl, 2021).

The facilitated discussion questions are crafted by the facilitator, and based on a debriefing theoretical framework. Debriefing questions should be leveled to the learner and help them achieve the learning objectives of the virtual gaming simulation. The synchronous debrief should take place within two weeks of learners completing the virtual gaming simulation and not last longer than 50 minutes (Goldsworthy & Verkuyl, 2021). Effective facilitator skills and clear instructions about how the learner is expected to participate in the debrief are key to facilitating an effective debrief (Goldsworthy & Verkuyl, 2021).

The facilitated virtual synchronous debrief follows the [Healthcare Simulation Standards of Best Practice](#)[TM] with some nuances related to using the virtual environment. When facilitating this type of debrief from Goldsworthy & Verkuyl (2021), there are a number of essential elements to consider to enhance psychological safety:

- Ensure the chat is monitored, otherwise disable it because the chat option can be used inappropriately which can draw the learners attention away from the virtual debrief,
- Consistent bandwidth is needed or consider having teleconferencing available as a backup
- Promote the use of the video camera. It is helpful for the facilitator if all learners have their videos on because it promotes engagement, however, this can be a deterrent for some learners.
- Ensure the learner has enough time to adequately reflect on the virtual gaming simulation decisions and performance or to review their analytics prior to the debriefing.
- Provide instructions to learners related to their environment such as: ensure good lighting, remove distractions, turn phones off, connect from a private space.
- Recording the virtual debrief is not recommended because it can reduce a sense of psychological safety
- Groups should be limited to no more than 10 learners

A description of the process that is typically followed for a synchronous debrief is included in **Table 6.4**. When using this type of debrief, use the Table as a checklist.

[Click here to download an accessible PDF copy of Table 6.4](#)

Table 6.4. Facilitated Virtual Synchronous Debrief: A Process

Process	Rationale
1. Ensure that the debrief is led by an experienced debriefing facilitator.	Debriefing requires skill.
2. Determine who will lead the debrief when co-debriefing is taking place.	Supports organization and flow. Offers an opportunity to monitor learners' reactions.
3. Ensure the facilitator understands both the content and the possible decision options available to learners in the virtual simulation.	Supports content expertise and an understanding of the learner perspective.
4. Open the web-conferencing system prior to launching the session. Check that the camera provides a clear picture and that there is adequate lighting. Check audio.	Supports organization and social presence. Promotes learner satisfaction when the experience is 'glitch free'.
5. Welcome all learners when they arrive.	Promotes social presence and a sense of inclusion.
6. Provide technology guidelines: advise learners if the session will be recorded; appropriate use of video, microphone, chat, quiet space.	Enhances psychological safety. Promotes learner satisfaction when the experience is 'glitch free'.
7. Establish ground rules: Confidentiality statement; Use of hand raising to minimize interruptions. Let learners know they will be called on and asked to share initial reactions to the simulation so they will be prepared.	Enhances psychological safety.
8. Review Flow: Describe what will happen in the debrief (i.e. initial reactions, what went well, what did not go as well, take home messages, final thoughts).	Enhances psychological safety.
9. Re-introduce the patient and the simulation learning objectives; with virtual simulation learner time elapsed since playing the simulation will vary. This gets everyone back on the "same page" to start.	Supports organization.

Process	Rationale
10. Ask learners to access and review analytics or summary report of their virtual simulation experience during debrief (if used).	Encourages reflection and analytical skills.
11. Ask the group questions but also post each question in the chat box so that learners can reread the question at any time.	Supports inclusion and organization.
12. Start with initial reactions (In a few words, how did that simulation feel?).**	Encourages reflection.
13. Continue the discussion by asking learners to describe what went well in the scenario? (What did they feel comfortable with, what exactly would they do the next time?).**	Encourages reflection and analytical skills.
14. Discuss 'What didn't go so well' in the scenario and/or 'what would you change for next time?'**	Encourages reflection and analytical skills.
15. Discuss 'At what point did you feel something was wrong? What did you do?'**	Encourages reflection and analytical skills.
16. Review key takeaway messages/key points (use white board or powerpoint slides to promote discussion).	Supports application to practice.
17. Invite final thoughts and one key take- home message that learners will use in their practice. Invite each learner to comment.	Supports inclusion and practice application.
18. In closing, thank everyone for participating.	Supports social presence.
19. Offer to be available for further discussion or questions.	Supports learning, inclusion.

Process	Rationale
20. Evaluate the learner and the faculty experience.	Encourages faculty development.
21. Refine strategy for next time.	Encourages faculty development.

** These items may vary depending on the debriefing framework used.

This table originally appeared from the article by Goldsworthy, S. & Verkuyl, M. (2021). Facilitated virtual synchronous debriefing: A practical approach. *Clinical Simulation in Nursing*, https://doi.org/10.1016/j.ecns.2021.06.002. It has been modified for this etextbook.

In the following **video** Dr. Sandra Goldsworthy, PhD, MSc, RN, CNCC(C), CMSN(C), CCSNE, from Nipissing University discusses conducting a facilitated virtual synchronous debrief for learners after a virtual gaming simulation.

> *An interactive H5P element has been excluded from this version of the text. You can view it online here:*
> *https://ecampusontario.pressbooks.pub/vgsguide/?p=541#h5p-10*

COMBINED DEBRIEFING

Combined debriefing is when the facilitator uses two types of debriefing, making use of the benefits of both types (Verkuyl et al., 2019). Two types of debriefing that are often combined are self and group debriefing. This combined approach is especially useful when learners complete the virtual gaming simulation on their own, at a time convenient for their learning. The following options have been researched (Verkuyl et al., 2019):

- Self-debrief plus facilitated in-person or virtual small group debrief
- Self-debrief plus facilitated in-person or virtual large group debrief
- Self-debrief plus facilitated asynchronous group debrief

One benefit of combined debriefing is that the self-debrief can immediately follow the virtual gaming simulation enactment and allows learners to engage in a timely analysis and reflection with a complete focus on their own experiences and decision- making before they encounter their peers' perspectives (Verkuyl et al., 2020). It also gives learners the opportunity to collect their thoughts before sharing those with their peers. When the learner has had time to consolidate their personal understanding of the experience, they are better situated to actively and critically listen to their peers' perspectives in the group debrief (Verkuyl et al., 2020). In this way both individual and group input are encouraged and learning is enhanced.

Recommendations are now emerging for using the combined debriefing method. (**Table 6.5**).

Click here to download an accessible PDF copy of Table 6.5

Table 6.5. Self-debrief Plus Group Debrief (Combined Debriefing): A Process

Process	Rationale
Begin by reviewing the self-debrief process and the facilitated in-person or virtual large group debrief with learners.	Improves flow and learning when learners are clear on purpose and rationale for this approach.
Learners complete their self-debrief individually right after completing the virtual gaming simulation.	A timely self-debrief encourages analysis and reflection while emotions are current.
When providing instructions for the facilitated group debrief, instruct learners to bring their individualized summary report and their completed self-debrief.	Learners who have self-debriefed have thought deeply and independently about the client scenario before starting the group debrief. This will help them recall, and voice, their thoughts.
The questions used in the group debrief should be the same as or similar to the self-debrief questions.	Using the same questions enhances psychological safety and allows for learners to refer to their self-debrief to provide a thoughtful response.
Before concluding, ask learners if there were any questions that came up in the self-debrief that were not addressed in the group debrief and provide an opportunity to discuss them.	The self-debrief allowed for additional time and space to think deeply and identify knowledge gaps. Learners may be frustrated if they cannot explore those reflections before concluding.
While the self-debrief offers an immediate debrief, the group debrief should be offered as soon as possible after the self-debrief, certainly within two weeks.	Offering the group debrief after two weeks have passed decreases learner recall of the virtual gaming simulation experience.

In the following **video** Margaret Verkuyl NP; PHC, MN from Centennial College discusses conducting a combined debrief for learners after a virtual gaming simulation.

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/vgsguide/?p=549#h5p-15

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CHAPTER 7: EVALUATING VIRTUAL GAMING SIMULATION

Learning Outcomes

1. Explore different approaches to evaluating learner outcomes with virtual gaming simulation.
2. Review ways to evaluate facilitation skills.

EVALUATION

Educators routinely evaluate their teaching and learning activities and virtual gaming simulation should be no exception. Responsive evaluation, where educators evaluate and apply what they learn to their practice, helps improve the learner experience, promoting learning and learner satisfaction (Stake, 1975).

Evaluation questions may include:

- Did the learners learn?
- What actions or activities contributed to learning?
- Was my facilitation technique or strategy effective? What could I do better?

An important principle of evaluation is not to try to answer all questions in one evaluation. It is a good idea to clarify the scope of the evaluation in the initial planning stage. A helpful way to get started is to develop a list of questions that the teaching team most wants answered and which *can* be answered. Once those questions/outcomes have been identified and prioritized, educators should ask: which group should be the focus of the evaluation, what data collection method should be used, how will the analysis be conducted and who will do the analysis?

Just as specific learning outcomes drive an educator's choice of virtual gaming simulation, they also drive the evaluation strategy an educator will use. There are several evaluation methods that can be used: learner testing, focus groups, surveys, facilitator self-reflections and peer feedback. Sample outcomes and evaluation strategies are outlined in **Table 7.1**.

[Click here to download an accessible PDF copy of Table 7.1](#)

Table 7.1. Evaluating Learner Outcomes and Evaluation Strategies

Outcome	Approach
Learner knowledge gains	• Pre-post multiple choice knowledge test • Survey with open-ended items • Reflective practice activities • Analytics
Learner virtual gaming simulation satisfaction (including the debrief)	• Informal discussions • Surveys • Focus group interviews
Impact on practice	• Survey with open-ended items • Reflective practice activities • Learner feedback
Learner team building skills	• Informal discussions • Reflective practice activities • Surveys
Learner self-efficacy	• Informal discussions • Surveys
Facilitator skills	• Learner feedback • Peer mentoring/review • Co-debrief the virtual gaming simulation

Be sure your evaluation plan is feasible; avoid developing a plan that takes too much time or resources. Consider what, if any, specialized data collection or analysis skills will be needed to conduct the evaluation. For example, a basic knowledge of how to run and interpret statistical tests will be needed for measuring pre and post activity knowledge gains. Educators should think through their choice of evaluation method and ensure they have the necessary resources.

Examples in Action: Assessing Knowledge

In response to the question, "What do we really want to know?" we wanted to know if learners gained knowledge by playing the virtual gaming simulation on neonatal care. We asked learners to complete a 10 item multiple choice quiz, based on neonatal care virtual gaming simulation learning outcomes, online, before playing the simulation and again one week after playing the virtual simulation. The data were collected on Qualtrics (an online survey software package) and a member of our team used the statistics generated by Qualtrics to see if learners' scores increased, providing evidence of knowledge gains.

Another important point to consider is how the evaluation results will be used. There are two main types of evaluation that apply to virtual simulation: formative and summative.

TYPES OF EVALUATION

Formative Evaluation

Formative evaluation is the most common evaluation associated with virtual gaming simulations. The purpose of formative evaluation is to help educators and learners gauge whether or not learners are learning, It helps learners and educators act quickly to adjust teaching and learning strategies in a timely way to better meet learners' needs. Because the virtual gaming simulations generate a score, learners are encouraged to play the simulation often to improve their score without worrying about the impact of their score on their final grade. The score is simply used as a measuring stick for learners to gauge their own understanding of the simulation content. Formative evaluations are typically done informally and may not be graded or, if graded, the mark does not contribute to a final grade. Formative evaluation helps educators determine if they need to revisit a concept or explain it differently.

Examples of formative evaluation activities applied to virtual simulation include:

- Learners play a virtual gaming simulation and receive a total score but the score does not contribute to their final grade
- Learners are asked to describe a key concept learned from the virtual gaming simulation in their own words
- Learners are asked to take one minute and answer: "What is helping your learning with the virtual gaming simulation process?" "What is making learning difficult?"

Summative Evaluation

The purpose of summative evaluation is to evaluate learning by comparing it to specific learning outcomes. It is considered 'high stakes' evaluation because it is a formal process where the learner is graded and where the result counts towards the learner's overall grade. Virtual gaming simulations are not often used for summative evaluation purposes as their primary role is to promote learning. That said, they have the potential to be used for summative evaluation.

Examples of summative evaluation activities applied to virtual gaming simulation include:

- Learners play a virtual gaming simulation on pediatric health and their total score at the end of the simulation counts for 5% of their total grade.
- Learners play a gerontology virtual gaming simulation with a focus on decision-making in a complex

clinical case as part of an OSCE (objective structured clinical exam).

EVALUATING FACILITATION SKILLS

Facilitating a virtual gaming simulation effectively requires planning and preparation to motivate and engage learners. A successful virtual gaming simulation experience goes beyond simply offering learners access to a virtual simulation and requires a facilitator to understand the learners' needs and create a welcoming and inclusive virtual space. Virtual facilitators use numerous techniques to engage learners, communicate effectively, and manage group dynamics and behaviors during the virtual gaming simulation. Continuing professional development is key to further strengthening facilitation skills. The [Healthcare Simulation Standards of Best Practice](#)^{TM} provides excellent strategies for staying current in the evolving field of simulation.

There are a number of ways for educators to obtain feedback on their role. They can start by asking their learners for feedback. This can be done formally using written feedback or informally through verbal feedback. They can ask an expert facilitator to participate in some sessions and provide critical feedback, or form a group of peers to review each other's sessions and provide critical feedback. Another option is to co-debrief the virtual gaming simulations, then provide an opportunity for both facilitators to debrief the experience, in other words to, 'debrief the debriefers' (Cheng et al., 2015). Being open to feedback is critical to growth in the role as an educator facilitating virtual gaming simulation.

Examples in Action: Co-Debriefing

When preparing to teach using virtual gaming simulation, a faculty member, new to virtual debriefing, wanted to be sure the debrief would be effective. The novice faculty invited a faculty member experienced in virtual debriefing to co-facilitate the debriefing session. Before the session, the two faculty met to plan the session and discuss individual roles and responsibilities. They agreed to support each other and work as a team during the debriefing. They took turns facilitating

and deliberately modeled respect for each other. After the session, they met to debrief their own debriefing session.

Examples in Action: Assessing Facilitation Skills

After teaching with the mental health virtual gaming simulation for two semesters we wanted to evaluate our facilitation techniques. We posted two open-ended questions online and asked learners: "What are we doing well when facilitating the virtual simulation?" and, "What should we change or improve? " We sifted through the responses, coding key concepts and identified major themes for the analysis.

RESOURCES AND REFERENCES

Cheng, A., Palaganas, J., Eppich, W., Rudolph, J., Robinson, T., & Grant, V. (2015). Co-debriefing for simulation-based education: A primer for facilitators. *Simulation in Healthcare: Journal of the Society for Medical Simulation, 10*(2), 69-75. Http://doi: 10.1097/SIH.0000000000000077

Global Learning Partners (2012). *Ten tips for co-facilitating.* https://www.globallearningpartners.com/blog/10-tips-for-co-facilitating/

Stake, R.E. (1975). Program evaluation, particularly responsive evaluation. In Madaus, G.F., Scriven, M. & Stufflebeam, D.L (Eds.), *Evaluation Models* (pp. 287-309). Kluwer-Nijhoff Publishing.

CONCLUSION

Virtual gaming simulations are a relatively new teaching and learning activity and for many, their uptake was sudden and unexpected during the pandemic. This open access textbook was developed as a resource to help educators effectively use the Virtual Healthcare Experience virtual gaming simulations in particular, however, the principles may apply to other virtual simulations. Although intended for nurse educators, we hope other healthcare educators will benefit from the theory and tools provided in this resource.

Virtual gaming simulation learning is optimized when educators follow the simulation process of prebrief, enactment, debrief and evaluation and we hope that this resource will help educators understand what is involved in each stage and how to conduct each stage effectively with their learners. We encourage you to be open to exploring different ways of teaching and learning with virtual gaming simulations and to evaluate learner outcomes. It will take time and effort to become comfortable and proficient using virtual gaming simulation. The rewards that come from teaching and learning through virtual gaming simulation for both you and your learners will be worth it.

GLOSSARY

2D

2 dimensional

Debriefing

The activity that occurs during or following virtual gaming simulation play where participants reflect on their decisions and actions with a view to gaining knowledge and improving professional practice.

Enactment

This is the term used for how the virtual gaming simulation is played.

Facilitation

The process that guides learners through the virtual gaming simulation so that learning outcomes are achieved.

Learner Analytics

Data collected automatically on the learners' actions and decisions throughout the virtual gaming simulation.

Prebriefing

The information or orientation session given by the educator to prepare learners for the virtual gaming simulations experience prior to the simulation.

Presimulation preparation

The action of making preparatory course materials available to the learner in advance of the virtual gaming simulation to ensure they are equipped to play the simulation.

Virtual gaming simulations

High fidelity, 2D immersive simulation using videos of simulated patients (played by actors) in which the user can make clinical decisions for learning in healthcare.

APPENDIX

This list contains and outline of the Figures, Tables, and Videos/Podcasts in this book. Each item on this list is linked to the page of the book where it can be found.

Figures:

- Figure 1.1. Kolb's Model Applied to the Learner using Virtual Simulation (VS)

Tables:

- Table 2.1. Strategies for Managing Technology in Virtual Gaming Simulation
- Table 2.2. Virtual Gaming Simulation Goals and Grading Strategies
- Table 4.1. Key Elements for a Facilitator-led Virtual Gaming Simulation (Group) Prebrief
- Table 4.2. Key Elements for an Individually Played Virtual Gaming Simulation Prebrief
- Table 5.1. Factors to Consider when Choosing Ways to Enact the Virtual Gaming Simulations
- Table 6.1. Essential Self-debrief Components
- Table 6.2. Debriefing Comments and Tips for the Facilitator
- Table 6.3. Essential Elements in a Facilitated Asynchronous Debrief
- Table 6.4. Facilitated Virtual Synchronous Debrief: A Process
- Table 6.5. Self-debrief Plus Group Debrief (Combined Debriefing): A Process
- Table 7.1. Evaluating Learner Outcomes and Evaluation Strategies

Videos:

- Student Experience (Karen Owusu)
- Student Experience (Czarielle de la Cruz)
- Curricular Uptake (Dr. Daria Romaniuk)
- Embedding Virtual Simulation into Courses (Dr. Jennifer Lapum)
- Psychological Safety (Dr. Sandra Goldsworthy)
- Learning Analytics (Margaret Verkuyl)
- Introduction into Debriefing (Dr. Sandra Goldsworthy)
- Conducting a Self-debrief for Learners after a VGS (Margaret Verkuyl)

- [Conducting an Asynchronous Debrief for Learners after a VGS (Stephanie Atthill)](#)
- [Conducting a Facilitated Virtual Synchronous Debrief for Learners after a VGS (Dr. Sandra Goldsworthy)](#)
- [Conducting a Combined Debrief for Learners after a VGS (Margaret Verkuyl)](#)