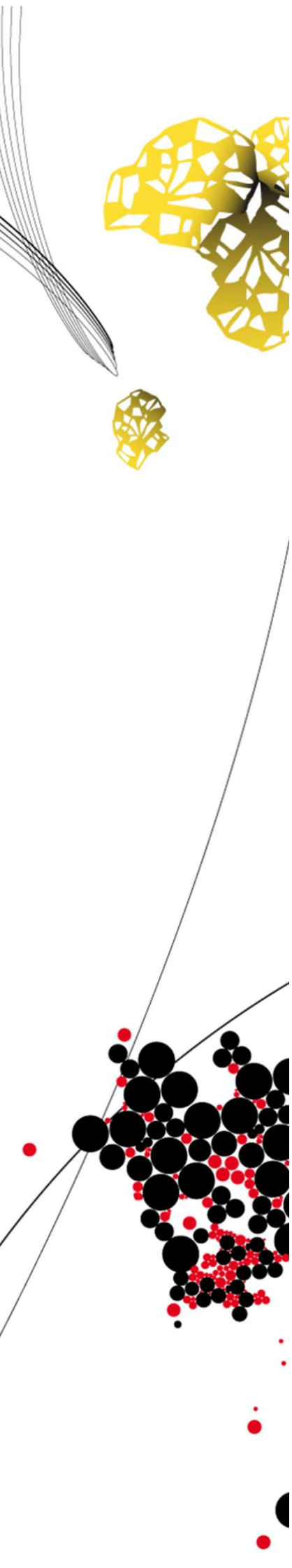

Faculty of Behavioural Management and Social (BMS)

Debriefing Open Simulation Games in Higher Education and Organisations: Practices of Experts

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Master Thesis

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Abstract

Simulation games are dynamic games which represent models of socio-technical systems with defining elements of players, rules and resources. Open simulation games have open objectives which allow for unpredictable, heuristic, satisficing outcomes to evolve. Debriefing is essential for learning from such open simulation games. Yet, little has been written on it. This paper aims to explore how experts approach debriefing when dealing with open simulation games through their self-report practices. This qualitative research uses semi-structured interviews as a research method. 21 experts in the field of simulation and gaming were interviewed. The data from the interviews was analysed and various themes were drawn from the data using Atlas Ti. The findings revealed that expert debriefers work closely with their clients to understand their needs before deploying open simulation games. Furthermore, the way that expert debriefers conduct their debriefing is influenced by their own views on success with regard to debriefing, and their personal preference in structuring their debriefing. They also adapt their debriefing to players' characteristics through conscious observations. This study provides a descriptive insight into the workings behind how expert debriefers conduct their debriefings.

Keywords: Debriefing, open simulation games, facilitation, experiential learning

Contents

Introduction

The modern use of simulation games stems back to the 1960s with the emergence of systems thinking and attempts to manage the increasing complexity brought about by urbanisation and technology advances (Duke, 1974; Mayer, 2009). Today, private and governmental organisations use simulation games for various purposes. Though much of the literature on the practical applications of simulation games lies in the education and training context, simulation games have also been used as heuristic tools to navigate complex situated-cases/policy problems, design problems, and are even perceived as valid agents of change (Grogan & Meijer, 2017; Jonassen & Hung, 2008; Kriz, 2017).

In a simulation game, human players interact with a dynamic representational model of a socio-technical system governed by constraints while utilising resources (game materials) to try to achieve certain goals (Klabbers, 2009; Kriz, 2003; Leemkuil & De Jong, 2012). Through game sessions, consequences of the players' actions and/or controlled changes to the rules and resources can be observed. Combining agent-based decisions and a 'replication of reality', simulation games provide an environment to experience, explore, experiment and evaluate current and future real-world systems (i.e. reference system in which the games imitate) in a holistic and relatively safe manner. Simulation games can be further distinguished as open simulation games and closed simulation games (von der Heiden, Bock, Richert, & Jeschke, 2011).

Open simulation games are open games with no pre-determined desired outcome, but rather, the game sessions allow for exploration and discovery with additional focus on emergent elements that develop from the game-player, player-player interactions (Leigh & Tipton, 2014; Mayer, Carton, de Jong, Leijten, & Dammers, 2004; Peters & Vissers, 2004). On the other hand, in closed simulation

games, players are guided towards a known solution or an optimal performance (Peters & Vissers, 2004). Leigh and Spindler (2005) argued that the unpredictability and diversity of outcomes create some level of chaos. Additionally, they argued that debriefers should be aware of dissonances and should facilitate learning without disrupting the chaos generated by the game. Fanning and Gaba (2007) also suggested that there is less certainty about how players should act when a debriefing session is supposed to address emergent objectives (i.e. objectives which are not predetermined but arise as a product of the game). The uncertainty and lack of pre-knowledge of outcomes and players' actions could explain why authors have pointed out that debriefing games of such nature are more complicated (Klabbers, 2009, 2014; Peters & Vissers, 2004). Even though simulation games may serve different purposes under different contexts, it can be argued that achieving these purposes through simulation games would require the participants to learn from their game experiences (Peters, Vissers & Van der Meer, 1998).

Debriefing is a purposeful post-activity discussion which consolidates its participants' reflection on, and analysis of the cognitive, affective and psychomotor processes that occur during that activity (Kriz, 2003; Kriz, 2010; Lederman, 1992; Pearson & Smith, 1985). It is widely acknowledged as a necessary phase which facilitates learning in simulation games (Crookall, 2010; Peters, Vissers, & van der Meer, 1997). Debriefing facilitates learning by supporting the players' reflective process (Leemkuil & Hoog, 2005). During debriefing, players make the intuitive knowledge they had gained through the simulation game explicit (Leemkuil & De Jong, 2012). This in turn allows the interactive communication between players which give them an opportunity to share a common understanding about the simulation game they had experienced. Consequently, they can compare the simulated reality with their own

frames of reality. In this manner, debriefing supports the transfer of the acquired knowledge to the real world (Kriz, 2003; Peters & Vissers, 2004). Over the years, many models of debriefing had been developed to describe the process and to provide guidelines about how debriefing should be conducted (Kriz, 2010; Lederman, 1992; Pearson & Smith, 1985; Petranek, 1994; Petranek, Corey & Black, 1992; Rudolph, Simon, Rivard, Dufresne & Raemer, 2007; Sims, 2002; Steinwachs, 1992; Zigmont, Kappus & Sudikoff, 2011). Many of these models are typically based on Kolb's (1984) experiential cycle and approach the topic of debriefing from an educational frame. For example, well-known debriefing models like Debriefing With Good Judgment (Rudolph, Simon, Rivard, Dufresne, Raemer, 2007) developed from research in medical training. Even general models, like Lederman's stepwise approach, also describe how debriefing should be done in an educational context (Lederman, 1992). However, while these models provide guidance on the generic questions to ask in debriefing and generally how to structure a debriefing, debriefers must make practical decisions to deal with the contextual factors (such as how they should manage a specific group of people during debriefing, how to formulate the right contextual questions to get people talking, et cetera) and adapt to the field (Krogh, Bearman, & Nestel, 2016). The complexity of these decisions seems to increase when debriefer have to deal with open simulation games.

The specific management of complications and entropy that arise with debriefing of open simulation games seemed only to be discussed theoretically in literature. There are little empirical studies that investigate the deviance from theoretical models for debriefing in open simulation games. There is also little discussion over the need to enrich these models to consider the openness involved. To explore the possible new themes involved in debriefing open simulation games used in higher education and

organisations, which are not given sufficient attention in previous discussions of debriefing models, this paper aims to gain insights from expert debriefers to discover and establish these themes.

The thesis would first cover the theoretical framework with a multi-disciplinary approach before presenting the research question. Thereafter, the methodology, followed by the results and discussion would be covered. Finally, suggestions for future studies will be provided.

Theoretical Framework

Open Simulation Games

There are semantic disagreements about the term "simulation game" with differing views about the boundary between 'simulation' and 'game' (Sauvé, Renaud, Kaufman, & Marquis, 2007). A simulation can be defined as a "working representation of reality" (Ruohomäki, 1995). Meanwhile, a game pits a player or players against each other, or other forces, within the boundaries of rules to reach a certain objective, victory or reward (Sauvé, Renaud, & Kaufman, 2010). Distinctively, the value of pure games does not lie in its resemblance to reality whereas a simulation does not necessarily involve players (Klabber, 2009; Sauvé et al., 2010). Like pure simulations, simulation games provide dynamic representations of reality, yet they differ from pure simulation as they possess features of a game which are namely players, rules or constraints, and resources (Ruohomaki, 1995; Leemkuil & de Jong, 2012). The interactions between these features in a simulation game can be explained by Klabbers's (2006) generic model on simulation and games (See Figure 1). A simplified model of reality is represented by sets of rules and sets of resources in a game. The game material (e.g. the cards in a card game, the board and counters in a board game, the digital interface of a video game, the virtual environment of a 3D game) are referred to as resources. These

resources and are bounded by the written and unwritten rules and constraints of the game. Players in a simulation game are social actors. The value of the game comes from the interaction between players and the players' interaction with the resources while applying rules.

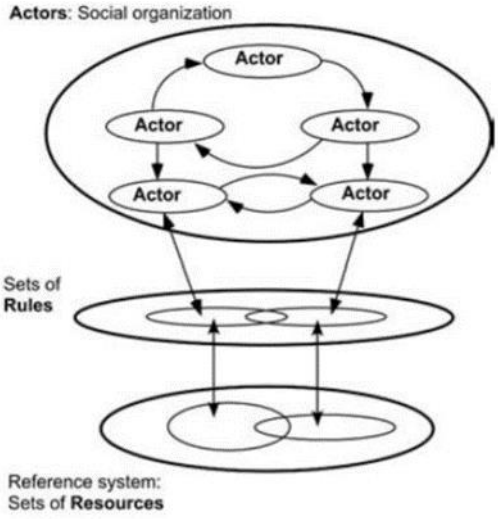

Figure 1. A generic model of games and simulation (Klabbers, 2006, p.42)

In this study, simulation games are defined as dynamic games which represent a model of socio-technical system with defining elements of players, rules and resources (Klabbers, 2009; Kriz, 2003; Meijer, 2009) Simulation games are typically described as dynamic as different inputs and decisions from the players, as well as the interactions between the players, would result in different consequences. Open simulation games are simulation games which allow the development of different solutions, strategies and ways to reach the goals in the game, in turn, providing an environment for unplanned learning objectives to emerge as the game scenario unfolds (Fanning & Gaba, 2007; Mayer & Veeneman, 2003; Peters & Vissers, 2004; Peters, Kieft, & De Goey, 2004). With this definition, training simulators that train for procedural skills, such as flight simulators, are excluded as users are usually practicing fixed sequences of processes.

Open simulation games are different from close simulation games in terms of the degree of agency that players have over gameplay and the end-state of the game. They have a wide range of applications. In higher education, open simulation games help develop students' understanding of various complex topics ranging from business strategy to ecology. For example, the Model United Nations is a popular simulation game. Through the game, students in international studies can experience the negotiations and decision-making process at a national and international level (Engel, Pallas, & Lambert, 2017; McIntosh, 2001). Students aim to reach resolution through negotiation in the Model United Nations. However, instructors do not have prior control over the resolution which would be reached. Additionally, the choice of topics tackled by the resolution are also highly dependent on the students (Engel, Pallas, & Lambert, 2017; McIntosh, 2001). In this context, even though players practice their skills and knowledge while interacting with each other, individual learning is usually the primary focus.

Beyond teaching complex concepts, open simulation games, through the introduction of a higher level of player agency, provide the affordance of gaining insights and sharing contextual knowledge embedded in current systems and exploring of contextual knowledge in future systems (Grogan & Meijer, 2017). In business corporations, open simulation games have been used for strategic planning, initiating change management, contingency planning, professional development, among others. An example of this is a game like Strategic Derby which aims at developing strategic foresight for small and medium-sized enterprises by allowing players to explore strategic thinking within their business context (Inlove & Gudiksen, 2017). Differing from the formal education context, the primary aim for this game is to building shared mental models and shared exploration. Business war games have also been used to

make crucial strategic decisions as they help manage uncertainty in real business decisions (Augier, Dew, Knudsen, & Stieglitz, 2018; Kurtz, 2003).

Open simulation games are also used in many cross-organisational collaboration projects between universities, business corporations, non-governmental organisations and governmental organisations. These projects usually serve different purposes for different stakeholders involved. Some examples are cross-organisational learning projects, participatory design projects, integrative assessments, organisational redesign projects, decision support system projects and policy evaluation (Grogan & Meijer, 2017; Kriz, 2017). In these applications, the focus is more on idea generation, collective learning and decision-making support (Kriz, 2017). Different stakeholders such as the players, the clients, and the researchers, may want to learn very different things from the same game session. Different open simulation games seem to have different focuses, so it is not hard to imagine that debriefing has to be angled to fit different purposes.

Debriefing Process

Debriefing can take on different denotations depending on the disciplinary context. Peters and Vissers (2004) suggested that insights from debriefing in the experiential learning context would serve as a good starting point when discussing simulation games. In her discussion about debriefing in experiential learning, Lederman (1992, p. 147) described debriefing as “the process in which people who have had an experience are led through a purposive discussion of that experience”. Pearson and Smith (1985) summarised the stages of the debriefing process into three core questions: (1) What happened? (2) How did the participants feel? (3) What does it mean? The stepwise debriefing models that developed thereafter seem to embody these three questions or at least the spirit of these questions (Eppich & Cheng, 2015; Kriz, 2010; Thiagarajan, 1992; Zigmont, Kappus & Sudikoff, 2011).

Van der Meij, Leemkuil and Li (2013) synthesized elements from various debriefing models (El-Shamy, 2001; Lederman, 1992; Lennon, 2010; McGaghie, Issenberg, Petrusa, & Scalese, 2010; Ments, 1983; Petranek, Corey & Black, 1992; Sims, 2002; Steinwachs, 1992; Thiagarajan, 1992; Vollmeyer & Rheinberg, 1999) and created a framework with example questions that encompasses the strength from each of the models could serve as a good tool for comparison between debriefing processes in practice (see Figure 2). While the theories provide debriefing topics and describe debriefing phases, interestingly, there is barely any empirical study that explores debriefers' preferences for specific debriefing topics and how these frameworks influence them.

Phases	Topics	Leading question(s)
Concrete experience	Events	What happened?
	Emotions	How did you feel?
Reflective observation	Empathy	How do you value this experience?
Abstract conceptualization	Explanations	What did you learn? What would have happened if . . . ?
Active experimentation	Every day	How are the game events and reality connected?
	Employment	How do you go on from here?
	Evaluation	What would you do differently?

Figure 2. A conceptual model for debriefing, with phases, topics, and leading questions (van der Meij, Leemkuil & Li, 2013)

Debriefing Open Simulation Games

In the previous section, the debriefing process has been discussed in a generic experiential learning context. In the context of simulation games, an important function of debriefing which must not be ignored is that it helps players step out of their roles in the game. Through debriefing, players regain the objectivity to draw parallels between the representations in the game and the real world (Garris, Ahlers, & Driskell, 2002;

Klabbers, 2009; Peters & Vissers, 2004). All simulation games possess some level of abstraction as they involve the simplification of reality, thus, there will always be an inherent gap between the game experiences and the application of their learning outcomes or other objectives in the real world (Klabbers, 2009; Salen & Zimmerman, 2004). Ideally, proper debriefing should help bridge or reduce this gap for players as it facilitates players in the process of reflecting, conceptualising and consolidating what they learnt from the experience and, in some cases, how they could bring what they have learnt from the game into actual practice (Kolb, 1984; Fanning and Gaba, 2007; Crookall, 2010). The paradigm that debriefing facilitates reflection is largely influenced by educational theories pertaining to reflective practice.

Reflection is defined as "an important human activity in which people recapture their experience, think about it, mull it over and evaluate it" (Boud, Keogh, & Walker, 1985, p. 19). The emphasised necessity of debriefing in simulation games is based on the core tenet that experience does not directly lead to learning but requires reflection (Loughran, 2002; Thiagarajan, 1998). Schön (1983) identifies two forms of reflection which are 'reflection-in-action' and 'reflection on action'. Framing it in terms of what happens during a simulation game, the former refers to the reflection that evokes mindful actions that occurs during the game session while the latter occurs after the game session when the participants think back about their actions (Gum, Greenhill, & Dix, 2011). Clapper (2015) argues that debriefing is important for both 'reflection in action' and 'reflection on action'.

Kolb's (1984) experiential cycle is another frequently cited theories. Kolb (1984) postulates that people learn with trial and error from their experience through a four-stage cycle: concrete experience (the learner encounters a new experience), reflective observation (the learner thinks consciously about the experience), abstract

conceptualisation (the learner forms hypothesis about his/her observations) and active experimentation (the learners plan how to test the hypothesis or theory formed). Ulrich (1997) links debriefing in simulation games to the experiential learning in the following way. When participants describe their feelings and the experience of the game session during debriefing, they are engaged in *reflective observation* where they are actively thinking about the experience. When participants compare and evaluate the significance of their game experience to existing theories and real-life during debriefing, they are engaging in *abstract conceptualisation*. The theoretical underpinnings of debriefing and their connections to simulation games have been discussed, but there are various other issues which can influence debriefing in practice.

Factors Affecting Debriefing Approach in Open Simulation Games

While the field of simulation and gaming certainly borrows literature from educational science to explain the theoretical underpinnings of debriefing, not many academic papers discuss the factors that affect debriefing with a specific focus on open simulation games. Open simulation games come with a level of uncertainty and debriefers face a multitude of decisions before and during the debriefing that would have an impact on how they approach debriefing. Leveraging on Kikkawa and Mavin's(2017) paper that identifies the gaps in debriefing research, four themes are identified as possible topics for investigation with the access to expert debriefers. The themes are loosely sequenced based on the phases before and during the debriefing. First, before the debriefing, the debriefer would need to understand the client’s needs before even knowing what to debrief. Second, their ideals of successful debriefing influence the way they conduct their debriefings. Third, the debriefers’ personal preferences also play a large role in how they debrief. Finally, the players’

characteristics would influence the game session and debriefing in a way that warrants the debriefer to adapt to the situation.

Understanding Client needs

According to Deason et al. (2013), a good debriefing begins with the planning stage of an activity. Kortmann & Peters (2017) described a 'phase 0' in using simulation games which involves evaluating the suitability of using a simulation game, adapting it to the situational context and managing the expectation of the clients and/or the participants. Peters & Vissers (2004) asserted that debriefing depends on purpose. Understanding the client's needs is already part of the interpretation of context and reality for the client before the simulation game is even created (Kriz & Hense, 2006). If the debriefer's mental model of the system that is to be simulated aligns poorly with the client's, the representational model in the simulation game will not reflect the key elements of reality, as such, it would be difficult to make links back to reality in debriefing. There are cases where a facilitator can use an off-the-shelf simulation game, rather than design a custom simulation game from scratch. Even in those cases, knowing the client's perspective would help the facilitator to prioritise focus in the debriefing such that it meets the client's goals.

The phase 0 process is also necessary to understand who needs to know what. Peters and Vissers (2004) had also pointed out that there may be differences in the way that debriefing is conducted when the primary aim of the simulation game is for researchers to learn from the simulation game rather than the participants. Grogan and Meijer (2017) also use a similar dichotomy to classify the uses of simulation games where the knowledge beneficiaries were divided in terms of participant (player) and principal (researcher/investigator). In other words, understanding the clients' needs is essential for establishing purpose yet searching through literature, little is written on

this process especially in terms of using simulation games. Searching through Scopus and Google Scholar with the combination of terms ‘simulation games’ and ‘clients’, ‘simulation games’ and ‘needs assessment’, ‘serious games’ and ‘clients’ and ‘serious games’ and needs assessment’ did show papers that discuss this, but no empirical studies were found.

Defining Success

The terms such as ‘proper-’, ‘effective-’, ‘productive-’, ‘successful-’ debriefing, in the context of literature specifically discussing simulation games, are often dealt with ambiguity rather than with discussions about elements which constitute the terms or provide instruments to assess debriefing. These terms seemed to be used interchangeably. Most of the literature that try to further identify the factors affecting successful debriefings tend to be research done in the simulation-based education in the medical field (Arora et al., 2011; Brett-Fleegler et al., 2012; Fanning & Gaba, 2007; Gururaja, Yang, Paige, & Chauvin, 2008; Waznonis, 2014) Some authors use the term ‘successful debriefing’ or ‘successful debriefing process’ in terms of the facilitator creating a climate of learning (Dufrene & Young, 2014; Fanning & Gaba, 2007; Wickers, 2010) Whereas some authors use the term ‘effectiveness’. Kikkawa and Marvin (2017) discuss the complexity of investigating debriefing effectiveness and its links to positive learning outcomes. Notably, Kriz (2010) had specifically discussed some quality aspects of debriefing in terms of simulation game such as the use of a nondirective facilitation style to support participants to draw their own conclusions, tolerating ambiguity and providing sufficient time for debriefing. In open simulation games, outcomes can deviate from the initial agendas of the stakeholders which makes it even harder to determine the success of a debriefing. Dufrene and Young (2014) found that there were very few research articles that reported on the effectiveness of debriefing and effects of debriefing.

The measurements of effectiveness are usually reflected by the players' ratings of the debriefing and the comparison of pre- and post- knowledge tests. To the best of our knowledge, there is no empirical research done looking at the success of debriefing from the perspective of the debriefers in practice.

Debriefers' Preferences

Interestingly, debriefers have control over quite a few factors that determine the debriefing process, for example, the choice of what to observe, how to manage situational constraints impinging on the debrief, what debriefing strategies and questions to use, what to focus on during the debriefing, and how to provide closure at the end of the debriefing (Lederman, 1992). In other words, debriefing is unavoidably exposed to the debriefer's subjectivity. Krogh, Bearman and Nestle's (2016) qualitative study regarding debriefing of immersive manikin-based simulations in clinical practice revealed an element of artistry to debriefing which is related to the expert's flexibility in blending debriefing models and techniques based on their personal preference perceived learner's needs and what they experience in the scenario. It can be argued that while the debriefers aim to facilitate reflection, as practitioners they are also engaged in their own reflection-in-action while reacting to the circumstances during debriefing. Kortman and Peters' (2017) paper investigating the competencies of game facilitators is a large step in recognising that debriefers are social actors, in their own right, whose actions are influenced by their internalised beliefs and experiences. The study of teachers' beliefs and their link to practical behaviour has long been established in educational research (Ertmer, 2005; Pajares, 1992), yet, few studies discuss this in the field of simulation and gaming. Taking this angle may be a possible way to further analyse new themes that may emerge from looking at the practical perspective of debriefing in open simulation games.

Players' Characteristics

As mentioned in the introduction, the outcomes of open simulation games can be unpredictable. More than a decade ago, Peters and Vissers (2004) had pointed out that the focus of a debriefing session should be adjusted to the difference in individual and group characteristics. Adult learners bring their past experience and their own motivations (Knowles, Holton & Swanson, 2012). During debriefing, the participants are expected to look back at their action in the simulation game with critical lens and attempt to understand the situation while adding to the discussion in the debriefing. As much as the participants can contribute to the debriefing, they can also disengage from the debriefing process or take the discussion in an unproductive direction (Der Sahakian et al., 2015). Additionally, Der Sahakian et al. (2015) implied that facilitators could set conditions to reduce the risk of debriefing becoming unproductive.

Unfortunately, in the same line of discussion about the factors involved in successful debriefing, Kikkawa and Marvin (2017) found a lack of empirical research on the topic of participants' characteristics in simulation-based learning. They found that there was consistently only one paper (Welke et al., 2009) used in the literature reviews in their study. Welke et al.'s (2009) paper found that there was no significant difference in effectiveness between personalised oral debriefing with an expert debriefer versus the use of multimedia instruction without a debriefer in the context of anaesthesia residents learning with simulated resuscitation scenarios. Welke et al. (2009) suggested that the participants' previous experience in using simulators might have a confounding effect. However, the study was not a direct study on the difference between participants with experience and without. Additionally, Kikkawa, Sugiura and Kriz (2018) also highlighted that there are still very little empirical studies into the

cultural differences in learners. Little is discussed in literature about how debriefers react to the players of different backgrounds.

In summary, this theoretical framework introduces some of the main terminologies and explores the extent of research pertaining to how debriefing of open simulation games is done in practice. Through the creation of the framework, some research gaps have been observed. Firstly, there are many narrative articles on debriefing simulation games, but very few empirical studies have been conducted. Secondly, many of the empirical studies are conducted in the medical education field which they usually involve training simulators or otherwise computer-based simulation games which are often closed simulation games with fixed outcomes so extrapolation of the conclusions in these simulation-based and game-based studies are used to form the theoretical framework. Thirdly, empirical studies on debriefing with the focus on debriefers' practice in the field with simulation games are uncommon as it requires access to specific groups of people who have competencies in using games and have experience with multiple game sessions. The access to expert debriefers provides an opportunity to address some of these gaps. Debriefing in open simulation games can be complicated and is influenced by multiple factors. Potentially, there are many factors which can be explored as little is written on how expert debriefers approach debriefing in open simulation games in practice. The choice of the four themes understanding client needs, defining success, debriefer's preferences and players characteristics are chosen to provide structure to the study and are also influenced by Krogh, Bearman and Nestle (2016)'s study which looked at self-reported practices of expert debriefers when debriefing manikin-based simulation. With this theoretical framework, the research questions are framed in the next section.

Research Questions

Looking at the broader topic of how experts approach debriefing in open simulation games in higher education and organisations, the following research questions are formulated:

RQ1. How do expert debriefers work with clients prior to the debriefing process?

RQ2. How do expert debriefers define successful debriefing when dealing with open simulation games?

RQ3. What are the similarities and differences in the self-reported process of debriefing that expert debriefers engage in?

RQ4. How do expert debriefers adapt their debriefing process to learner characteristics?

Methodology

Participants

Purposive expert sampling was used to select 21 interviewees with experience facilitating open simulation games. According to Baker, Edwards and Doidge (2012) suggested at least a sample of 14 experts for qualitative interviews involving experts. The interviewees were: (1) identified and referred by a member of the International Simulation and Gaming Association (ISAGA), (2) researchers who had published relevant articles in Simulation & Gaming, (3) researchers who had published relevant articles pertaining to the identified applications of open simulation games or (4) identified and referred by a researcher in University of Twente. Only interviewees with some years of experience with simulation games were included. All interviewees have experience designing simulation games even though it is not a prerequisite. Most of the interviewees identified using simulation games in multiple contexts, the areas of application have been classified and summarised. Organisational management covers

all forms of simulation games used by for-profit and non-profit organisation which cover management topics such as operational processes and interpersonal interactions. Education covers simulation games generally used for higher education.

Table 1. Description of interviewees

Respondent no	Descriptor	Years of Experience	Country	Areas of application
#1	University lecturer/ Researcher/Consultant	42	Australia	Organisational management/Education
#2	University lecturer/Researcher	25	United States	Education
#3	University lecturer/Researcher	56	United State	Education
#4	Researcher	15	Netherlands	Organisational management
#5	University lecturer/Researcher	30	Japan	Sustainable development/Public administration/ Spatial planning
#6	Consultant	10	United States	Environment/Policy/ Public administration
#7	Inhouse game designer	5	Netherlands	Organisational management
#8	Researcher	8	Netherlands	Infrastructure
#9	Consultant	26	Netherlands	Organisational management
#10	Researcher/Consultant	60+	Netherlands	Organisational management/ Policy/Infrastructure/ Public administration/Environment
#11	Researcher	15	Poland	Design
#12	Researcher	13	Sweden	Military/ Rescue services
#13	Consultant	20	Germany	Spatial planning/Organisational management
#14	Researcher	14	Netherlands	Spatial planning/ Infrastructure
#15	Consultant	58	United States	Organisational management
#16	Consultant	26	Switzerland	Sustainable development/ Public administration/ Organisational management
#17	Researcher	5	United States	Spatial planning/ Infrastructure
#18	Consultant	30	United States	Business strategy
#19	Researcher	8	Netherlands	Education/ Spatial planning

Respondent no	Descriptor	Years of Experience	Country	Areas of application
#20	Consultant	4	Netherlands	Spatial planning/ Infrastructure
#21	Consultant	11	Netherlands	Spatial planning/Negotiation/ Education

Research Design

This study is an exploratory qualitative research. Semi-structured interviews with experts were conducted to gain additional insight into how expert debriefers debrief open simulation games. Semi-structured interviews were chosen as it allows for clarification and probing for interesting and relevant answers from the interviewees (Bogner & Menz, 2009; Louise Barriball & While, 1994). This study was conducted with a constructivist proclivity and with lens from educational sciences.

Instrumentation

An interview protocol (see Appendix A) was developed to provide topical guidelines for the semi-structured interviews. Some questions were adapted from a similar research study by Krogh, Bearman and Debra (2016). The interview protocol was reviewed by two other researchers in the field of simulation and gaming, and changes were made according to their recommendations. Due to the thematic nature of the research, a denaturalised approach was used for transcription.

Procedure

Face-to-face and skype interviews were conducted with selected experts. Experts were contacted via email. Interviewees were briefed on the purpose of the study and would only proceed with verbal informed consent. The interviews were recorded and transcribed. The interviews lasted from 30 to 90 minutes ($M = 67.18$, $SD = 21.97$).

Data Analysis

Template analysis (King, 2004), a style of thematic analysis, was chosen as it provides the flexibility of using a priori themes while also allowing development of

additional themes and modifications inductively. The a priori themes are the potential areas of investigations highlighted in the theoretical framework. Initial codes were generated to identify meaningful segments relevant to the a priori themes. Meanwhile, interesting features of the data set were also coded for further identification of additional themes. Saldaña (2013) stressed the importance of reflection on the possible relationships and links between codes, patterns and themes. Relationships between initial codes were explore through preliminary sketches of networks between the codes and added to the analysis memo (see Appendix B). The template was further revised to include additional subthemes and to organise the codes hierarchically. A second cycle coding was done to reorganised existing codes into the revised themes and the codes were reviewed again to check for relevancy. Figure 3 shows the development of the final template with the hierarchy of codes to be discussed. The final analysis is done through the reporting of the findings in the discussion section.

Interrater reliability

3 out of the 21 interviews (14.2%) were coded by a second coder for interrater reliability using a codebook created based on second cycle codes. According to Lombard, Snyder-Duch, & Bracken (2010), 10% of the content of the study should be sufficient for an intercoder reliability test. The procedure for interrater reliability test was done with suggestions from Campbell, Quincy, Osserman and Pedersen (2013). The Krippendorff alpha was .407 before negotiated agreement and .828 after negotiated agreement. This falls under the acceptable range for reliability.

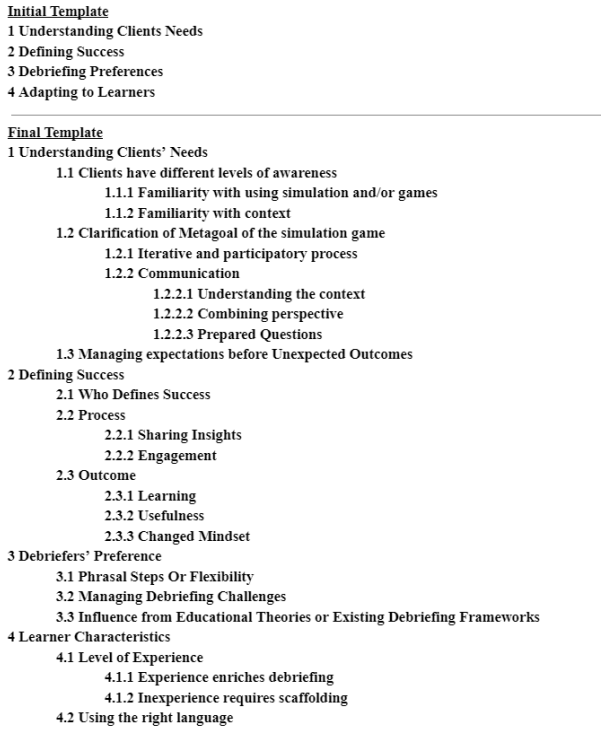

Figure 3. Development to Final Template

Results, Discussion and Conclusion

This section covers the implications of the findings with respect to the research questions as well the corroboration with existing literature. The findings are divided into the four overarching themes with the subthemes discussed in further details.

First Theme: Understanding Clients Needs

Relevant to our first research question, three subthemes have been identified. Respondent 2 and Respondent 3 dealt typically with higher education students. Therefore, they were not asked questions regarding clients.

Clients have different levels of awareness

The respondents' answers revealed that there was a general difference in the level of awareness that clients have when engaging the experts to run a simulation game for their organisation. On one extreme, there are clients that are highly aware of the

context they are working with and have significant experience with the use of simulation and are clear about what they want. Respondent 12 who has experience working with rescue service organisations pointed out that his clients have both experience using simulation-based training and were clear on their objectives. Four of the respondents (R5, R13, R20, R21) specifically brought up the relevance of the clients' familiarity with the use of simulation games to the clients being clear on what they want from the simulation game. Respondent 13 explicitly states that it is easier to deal with clients who have experience with simulation games.

> *"If the client is trained or knows how to use simulation games, it is easier [than] when you have someone who just read about gamification." – Respondent 13*

Respondent 5 also added that the overall developments in the scientific community in the context of sustainable development had increased the exposure to the use of simulation games to communicate sustainable development issues.

Most of the respondents also acknowledged that their clients have some knowledge about the context of their problem, vision, or research interest (R5, R8, R10, R11, R12, R13, R16, R17, R18, R19, R20). However, there is a variance from the clients having only vague ideas (R8, R9, R16, R20) to clients who are specific on what they want to test (R18).

Clarification of the Metagoal of a simulation game

Despite the difference in the level of awareness that clients have, almost half of all respondents mentioned a process whereby they work with their clients to clarify the metagoals of the simulation games (R1, R6, R7, R8, R9, R10, R11, R12, R14, R20). At least five of the respondents have mentioned that this particular process is iterative

and participatory (R1, R6, R8, R9, R12). This is very much relevant to the development of the model of the simulation game itself. As Respondent 6 describes, "It has to be (sic) a lot of interaction with whomever the client is to be sure that you build as much richness into the game experience as you can but also as much specificity. Sometimes, we have design games where we've just thrown out. You go through this whole design process, and you decide that this particular game mechanic, this game system is not doing enough of what we want it to do. So, we are going to start over; we're going to try something else."

Aside from the direct clarification of goals with the clients, some respondents (R1, R11, R20) have mentioned the need to understand the context of the clients' problem. Respondent 11 even states that it is the first step in this clarification process.

"First of all, you have to understand the context of the problem. You try basically to construct this into [a] more understandable level. Because, sometimes, the problem is just a symptom of the actual situation and then your role as a moderator is to get to the bottom of the problem." – Respondent 11

Noteworthily, two respondents (R10, R21) stressed the need to get a multi-perspective understanding of the clients' goals or the goal of the entire project. Respondent 10, who has experience with large-scale national-level projects gave his opinion on this.

"It is very much more complicated. Then, you have interviews with several colleagues that are involved in the topic. Then, you very quickly will know this. That, they are talking about different goals and different issues. The issue becomes how can I combine these different positions into one position, into one perception, one point of view. That would then become the goal of the project." – Respondent 10

Out of the ten respondents that touch on this topic, two respondents (R7, R9) prepare specific sets of question beforehand to create a sort of criterion to discuss the needs that clients have.

Managing expectations before unexpected outcomes

Despite the preparations before the simulation, the outcomes of the simulation games might be undesirable for the clients sometimes. Clients may have their hidden goals and own expectations of what they can get from the simulation games. A few respondents have brought up this issue (R1, R18, R19). Respondent 1 addresses this during the communication with her clients.

"…you check the outcomes you are going to get, and you check that they agree that the outcomes may not be quite what they expect to…" – Respondent 1

Respondent 18 left an intriguing afterthought about the issue with his experience working with corporate wargames. Managing the expectations of clients and helping them understand the value of outcomes which might not fit positively with their expectations might set a more conducive stage for debriefing.

"We were talking about happy outcomes versus valuable outcomes. It may be that part of what makes a debriefing work or not work, is how you set expectations at the beginning of the project. If you set expectations, saying, "we are going to find a strategy that will work for you", I know that is very attractive to companies, but frankly I think that is lying. Because you can't guarantee that. And if you do try to guarantee that and you come to the end of the game and people are unhappy, then, the debriefing is going to be pretty sour. If you set expectations to say, and this what I tell people at the beginning of a wargame, I say, "I don't know what is going to happen here. I don't know if there is going to be a happy outcome or an unhappy outcome." – Respondent 18

Discussion of Findings with respect to RQ1

The need to understand design specifications before designing a simulation game is almost a given. Peters, Westelaken and Everwijn (2014) specifically include debriefing as part of the game design process. Thus, it is not surprising that most of the expert debriefers interviewed do work through a process of understanding their clients' needs, especially, to clarify their clients' goals. Fascinatingly, the findings reveal that clients may have varying levels of awareness regarding the use of games as well as the context of their problems. There are hints that there is a deeper level of intricacy in terms of how the debriefers adapt in their way of managing clients with better awareness as opposed to clients with less awareness. This issue is further compounded as open simulation games can result in very unexpected outcomes in both the game and during debriefing. From our findings, it seems that expert debriefers deal with this uncertainty of unexpected outcomes by proactively managing expectations beforehand to inform clients about the possible, unpredictable results. This finding elaborates more about the importance of managing clients' expectations discussed by Kortman and Peters (2016) before the debriefing phase. Additionally, it can also be inferred that clients may not necessarily understand the possible emergence which may arise from open simulation games and possibly managing their expectations can put them in a more open frame of mind to work with the results.

Second Theme: Defining Success

Exploring the second research question, one of the first interesting findings in respect to how debriefers define success debriefing stems from who they think should make this determination. Overall, the way the respondents describe their criterion of success can be largely grouped in term of the process and outcome of debriefing.

Who Defines Success?

Though the respondents were directed to answer the question about their criterions for success in the interviews, two respondents (R1, R10) brought up the issue that the debriefer may not be the only one that defines the success of a debriefing. Respondent 10 pointed out that players define the acceptable outcomes. Respondent 1 stressed that success could not be solely defined by her. In her interview, she explained that, as a debriefer, she might not be fully aware of the impact of a debriefing of a simulation game session beyond what she can observe. She brought up an example that two participants had worked on their working relationship after a debriefing and she would not have known the sort of change that the debriefing would have evoked.

"It always depends on the context and dynamics between the participants and the facilitator and the requirements of whoever it is who is asking you to conduct the learning. There is the participant, the facilitator and the people in the context. Success will depend on, any statement of success will depend on how all of those interact and what the expectations of each. So, I have to put that in context. Because there is no successful outcome that I could say always happens." – Respondent 1

Success as a Process

Some respondents describe success in terms of their observations of what happens during the debriefing. Two subthemes emerged from their descriptions of success in terms of debriefing as a process. The first is the observation that participants are sharing insights (R12, R13, R14, R15, R16, R20). The second is that the participants are engaged (R4, R6, R7, R8, R11, R13, R14, R19). The respondents described how their participants shared insights. The participants would share their experience and explain what they have gone through in the game as well as their thought process during the game. The general gist of the interviews implied that the debriefing is set up in a

way to provide opportunities for it to occur. As respondent 13 would put it, people in the session are also actively listening.

> *"The first, good debriefing is everybody hears what the other guy or the other man or woman is saying. The next step, for me, is a good debriefing is that someone is sharing his or her insights." – Respondent 13*

Respondents did not specifically use 'engagement' but describe their successful debriefing sessions as having very participative players, and two participants (R4, R9) described it in a sense that there was a sort of eagerness and intensity during the debriefing session.

> *"Everybody was focused, and it was as though we just into this fluid thing where you know each person was hanging on the words, the thoughts that whoever was speaking was saying. You could just feel that this is a dynamic kind of response, reflective reaction, just flowing from one person to the next. It was like people let go of their need to say something that they pre-thought and was just building on what the person before them had said. And, making a meaningful synthesis emerge." – Respondent 6*

Success as an Outcome

Success in debriefing was also evaluated in terms of the outcome of the debriefing. The three emerging outcomes are (1) learning, (2) usefulness and (3) mindset change. It should be noted that respondents did not exclusively discuss the criteria for success in debriefing as only a process or outcome. As expected, respondents brought up learning as one of the criteria of success in debriefing (R2, R3, R4, R9, R15, R17, R18, R21). Though the learning described ranged from learning about the message of the game to generically learning something new. Some of the respondents (R4, R8, R14, R16) also had a focus on address the useful objectives of

their games. For example, respondent 8 brought up in her interview a focus on real implementations in the real world after the simulation game. The particular successful experience she brought up led to true implications in the real world for the technical system that was modelled.

"In the 3rd phase, we also ask them whether they think that these decisions are also applicable in real life and their real work. With this session, especially, with the debriefing, we were able to formulate certain requirements for the technical system." – Respondent 8

An element that some of the respondents brought up when describing their successful debriefing experiences was a change in the mindset of their participants after they receive a 'shock' from the game (R1, R2, R7, R15, R16, R18). When the participants receive a shock from their experience with the game session and process this in debriefing, it seems to make a lasting impression on not only the participants but also the debriefers. Respondent 16 gave an example on a sustainability game he played with university students and the 'shock' they received from the game and subsequently the debriefing and the intensity of the experience. The players were learning about didactics of teaching economics and business administration to secondary students and were confident that they could play the game well. However, they were shocked when their game led to the over-exploitation of common pool resources they had not expected and how they were controlled by the underlying system of the game.

"The combination of this shock and short, small game and a clear theory helped them. I think they took with them in this lesson. I still feel, as I talk to you, I still feel their shock. They were almost horrified of their own… You may have heard of these examples the power to punish people with electricity. They are well-known experiments. They were shocked at what the system did to them. I

mean there are other successful debriefings, but that was one example." – Respondent 18.

Discussion of Findings with respect to RQ2

From the findings, it was found that debriefers do not have a common interpretation of 'successful debriefing' which parallels the same problem in literature. While it is a legit argument that the success of a debriefing can be viewed from the perspective of stakeholders other than the debriefer, it is valuable to look at the measures of success from experienced debriefers when considering the context of the assessing debriefing in open simulation games. One of the key findings was the processing of the element of 'shock' that some of the debriefers identified as an element in their successful debriefing sessions. While many of the expert debriefers brought up experiential learning as an influence in their debriefing practice, none of the expert debriefers made links to transformative learning in the interviews. This 'shock' that the players get may come from the emergent aspects of the open simulation game where they are actively participating in creating the triggers that cause the 'shock' and disruption of their original assumptions regarding the issue at hand. The 'shock' seems to fit with the idea of 'disorienting dilemma' in transformational learning theory (Mezirow, 2000) which arise from getting an experience which does not fit with a person's existing mental model. Expert debriefers seemed to be able to identify and exploit these 'shocks' and allow them to be explored during the debriefing.

Third Theme: Debriefers' Preferences

Some general differences were found in terms of debriefers' preferences when they answered questions about their debriefing process.

Phasic Or Flexible

When the respondents were asked to describe their debriefing process, there were two contrasting groups of responses. Nine of the respondents (R1, R2, R6, R8, R10, R11, R13, R14, R15, R21) described their debriefing process with identifiable phases that they would carry out sequentially. On the other hand, there are respondents (R4, R9, R16, R18, R19) who clearly prefer flexibility than following specific phrases. For example, Respondent 9 answers frankly that he does not have a debriefing process as it depends on the situation. This opinion is also echoed by Respondent 18. The remaining respondents did not provide answers that were specifically one or the other.

Managing Debriefing Challenges

Some of the questions in the interview (5d, 5e and 7) were related to the debriefing challenges that debriefers may face during debriefing. While some of the respondents simply touch on how they would further discuss the issue with the participants, there were respondents (R1, R2, R4, R6, R8, R9, R15, R16) who provide descriptions of techniques beyond verbally address problems which include getting participants to write instead of just verbalising their thoughts, using visual aids to stimulate discussions about emotions, among others. Distinctively, two of the respondents (R9, R15) elaborated on how they explored and developed these techniques. Respondent 9 tested and adapted improv games into her debriefing whereas Respondent 15 developed games to use in the debriefing itself.

Possible Links Between Conceptual Foundations and Articulation of Criteria of Successful Debriefing

A comparative analysis of the answers between question 2, 2a and question 9 of the interview questions showed respondents who had to-the-point answers for both

question 2 and 2a on their criteria for defining successful debriefing and whether the openness of games influence their criteria also had more forthcoming and direct answers about the educational theories or debriefing frameworks that underpin their approach to debriefing. The answers regarding the how the openness of a game affects the criteria of successful debriefing was mixed with five respondents expressing that it does not affect the criteria while eight respondents described various ways that they are different without a strong emerging theme.

Discussion of Findings with respect to RQ3

Some differences were found regarding expert debriefers preference for flexibility over conducting the debriefing in fixed phases. Debriefing is often conceptualised as being phasic (Van Der Meij, Leemkuil & Li, 2013). While most of the expert debriefers conduct their debriefing in phases, some expert debriefers prefer not to go through the phases sequentially but prefer flexibility to manage the core questions in debriefing mentioned in the theoretical framework. Krogh, Bearman and Debra (2016) did mention flexibility in terms of debriefers using choosing the right debriefing methods or techniques from their repertoire too. However, in this study, the difference was in how they structured their full debriefing session. It can be argued despite the differences in the context of the simulation game (e.g. in the context that an open game is used as opposed to a closed game, how open-minded the debriefers are to adapt their debriefing process might still be limited by their preference in structuring their debriefing.

The pattern observed regarding the articulation of answers that expert debriefers provided with regard to success and their conceptual influences to their practice seem to hint that having a clearer view of the conceptual foundation of their debriefing practice enables the expert debriefer to externalise their tacit knowledge better,

verbally. It could be explained that some of the expert debriefers who are able to articulate their knowledge had an acquired 'language of practice' (Yinger, 1987) through their internalisation of educational and debriefing theories which allows them to articulate their views from their practice.

Fourth Theme: Players' Characteristics

Several topics on participants' characteristics were brought up during the interview however the most prominent variables in learner characteristics that was brought up was participants' prior experience.

Level of Prior Experience

One of the reoccurring subthemes that the respondents brought up was the influence that the prior experience that the participants had on debriefing. Participants who had background knowledge on the topic addressed in the simulation game can enrich the debriefing and provide more possibilities of knowledge transfer. On the other hand, when dealing with participants who have less knowledge or capability to bring the debriefing to a deeper level of discussion, a lot more prior preparation is required to provide background information for the participants to fully understand the context of the simulation game. Respondent 16 points out this difference in the following way.

"It changes according to the prior knowledge of the participants. Do they have a lot of contextual knowledge already? For example, if I do a business simulation with bachelor students, it is much a different thing if I do it with professionals in a company. If a company professional enters the game and have their own mindset of the whole company with him or her, that changes the debriefing. I can ask different questions. For bachelor students or lay people, I need to give during the debriefing or in advance some information."
– Respondent 16

Using the Right Language

Several respondents (R1, R3, R5, R13, R21) have pointed out the need to adapt their language for the different players they deal with. This goes both ways in terms of putting words in less technical terms for participants with less prior knowledge on the topic to using more technical, discipline-specific words and terms to communicate to the participants. Furthermore, it does not go one way. Respondents also had to immerse or learn about the subject so that they can understand the jargons. As Respondent 21 points out, it is possible that participants explain phenomena in the simulation game based on their background knowledge.

"For instance, someone who learns economics, those players like to explain about the terminology, the thinking field of economic phenomena, would be better to explain. Psychologist, the school of psychology or graduated from those kinds of university or college; they like to explain from the meaning of behavioural science, psychological explanation. In this sense, those kind of occasion or place for the debriefing becomes a fusion of their own original real characteristics given to make the place or occasion, attitude. That is an interaction. Of course, it is up to the facilitator's intention."
– Respondent 21

Discussion of Findings with respect to RQ4

One of the main findings is that expert debriefers know how to modify their briefing and debriefing to provide more scaffolding for players with less background knowledge and provide more space and triggers in the discussion for professionals to enrich the debriefing with their inputs and interpretations from their background expertise. Kriz (2010) introduced the idea of the interchanging roles that facilitators take while facilitating a simulation. The role of the coach is to promote "participants' capacity to attain solutions and decisions independently" (Kriz, 2010). From the findings, it seems that before the debriefer try to stimulate players to move towards

solutions or decisions, they have a responsibility to identify the possible knowledge gaps that players have before even implementing the game. Additionally, when players reached a sweet spot in the debriefing, when they can bring their discussion to a deeper level, the debriefer needs to know how to capitalize this.

General Discussions of the Themes

Overall, the themes which emerged diverged from Krogh, Bearman and Nestel (2016) which inspired this study. First, the first theme in this study which involves the interaction between debriefer and client was not covered in Krogh, Bearman and Nestel' study. The significance of client influence in Krogh, Bearman and Nestel' study may be less prominent as more than half of the interviewees identified themselves as educators as opposed to the interviewees in this study who have to work closely with clients. Second, the subjectivity of success in debriefing was not highlighted in their study. Additionally, Krogh, Bearman and Nestel (2016) found that the structure of debriefing remained consistent with the context and level of learners' experience. However, in this study, level of prior experience can disrupt debriefing quite significantly. This might possibly be due to the knowledge expertise and power difference between the stakeholders that the debriefers interviewed in this study deal with as opposed to the medical expert debriefer in their studies. The medical expert debriefers may be able to maintain the structure of their debriefing and move through the phases of reactions, discussion and summarising sequentially as they could have 'correct' answers to particular procedures within the simulation that they are facilitating. On the other hand, the simulation and gaming expert debriefers may not be the subject matter experts that can always dictate that there is sufficient discussion in the debriefing. Sometimes, depending on the context, the interviewees in this study may not have full control over the debriefing especially when dealing with sensitive topics

in private organisations. In terms of the exploration of new themes regarding the discussion of debriefing models, the answers from the semi-structured interviews did not have the rigour to prove a particular debriefing model, but it was found that the models and theories do have an influence on practice for some expert debriefers. The discovery of an outcome versus process view of successful debriefing provides a new theme to explore during the discussion of debriefing models as there is no comparison of debriefing models in terms of their advocacy for outcomes or process.

In conclusion, the combination of the four research questions answers the overarching research question about how experts approach debriefing in open simulation games. Firstly, they work extensively with their clients to work out the context and the goals of the deployment of the simulation game which influence the general direction of the debriefing. Having their own determinations of success, the way they debrief is very much influenced by what they value in terms of flexibility or structure, how they prepare themselves to meet possible challenges and theoretical influences or the lack thereof. Though they may find out more about the players, and learn the jargons that resonate with the players, they have to adapt their debriefing accordingly to the players' characteristics that show during the gameplay and debriefing session so there a need for conscious observation and adaption.

Theoretical and Practical Implications

The general aim of the paper was to explore new themes with regard to debriefing in open simulation game, and the findings provided a perspective of looking at that topic from the view of the debriefers as an alternative to the usual emphasis on debriefing outcome. This paper adds to the knowledge of understanding the factors influencing debriefing in simulation games. A major contribution of the paper is that it provides insight into the various ways that expert debriefers view their success in

debriefing in open simulation games which had not been previously addressed in other literature. While this paper does not advocate a particular approach to debriefing over another, this paper serves to stimulate reflection from practising debriefers who deal with both closed and open simulation games in terms of looking at their own practice and their decisions and considering the impact they have on their own debriefs.

Limitations and Recommendations for Further Studies

The primary data from the interviews were extensive, so there may be other potential themes that might have been missed out. The term ‘expert’ might appear to be contentious due to the anonymity in the study, but several strategies was used to establish credibility. On top of having key contacts in the simulation and gaming field, intensive prior research on the publications of the interviewees had been done to ensure relevancy. Next, for interviewees who were non-researchers, additional background research on their organisations was done. Additionally, the interviewees were also asked to describe their background in the simulation and gaming field in the interviews. With qualitative studies, there is an underlying interpretative nature, and confirmability of the findings could be improved if the written report is discussed with the various experts again. This study was based on self-reported practice. Therefore, observatory case studies which look at how debriefers act in the actual context of their work would be valuable. An interesting further study is a mixed-method study to observe differences in how expert debriefers act when facilitating for a similar game with laypersons as opposed to professionals.

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Appendix A

Interview Protocol

Interviewee (Title and Name): _____

Interviewer: _____

Section Used:

_____ A: Interviewee Background

Themes:

_____ B: Beliefs/Epistemology 1

_____ C: Before the debriefing

Other Topics Discussed: _____

_____

Documents Obtained: _____

_____

_____

Post Interview Comments or Leads:

_____

Debriefing Open Simulation Games

Introductory Protocol

I would like to audio tape our conversation today. Please sign the consent form. For your information, only researchers on the project will be privy to the tapes which will be eventually destroyed after they are transcribed. In addition, you must sign a form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary,

and you may stop at any time if you feel uncomfortable, and (3) I do not intend to inflict any harm. Thank you for your agreeing to this interview.

I have planned this interview to last no longer than one hour. During this time, I have several questions that I would like to cover.

Introduction

I/we really appreciate the chance to have this interview with you and hope to gain insights from you regarding your experience debriefing open simulation games.

The aim of our research is to understand how experts approach debriefing in open simulation games. In the end, we hope that the organized information could help other game facilitators. We are looking at the scope of players from higher educational institutions, corporations and organizations. In this study, we define simulation games as dynamic games which represent a model of socio-technical system with defining elements of players, rules and resources.

A. Interviewee Background

1. Could you talk a bit about your background in simulation and gaming?

1a. How long have you been_____ facilitating simulation games?

1b. What systems do you usually simulate?

1c. What outcomes do you typically pursue?

1d. Who are the players?

B. Beliefs/Epistemology 1

2. What criteria defines a successful debriefing?

2a. How would the criteria change based on the openness of the simulation game?

2b. How would the criteria change depending on who is supposed to learn from the game?

C. Before the debriefing

3. Do clients usually know what they want to find out?

3a. If no, how do you help them in this process?

4. How is the end-state of the game determined?

D. During the debriefing

5. Please describe your debriefing process.

5a. How does it change depending on who is supposed to learn from the game?

5b. To what extent do the characteristics of the player affect the debriefing?

5c. How do you involve the players to contribute to the debriefing?

5d. How do you elicit underlying knowledge?

5e. How does the objectives of the game affect your debriefing process?

6. Please describe a particularly successful debriefing session you have conducted.

6a. What happened? Why was it valuable?

7. How do you know when things have not gone well?

8. What do you think is the hardest part of debriefing?

E. Beliefs/Epistemology 2

9. What educational theories underpin your approach to debriefing?

9a. Are there specific debriefing frameworks you prefer?

10. What are your views on the generation of knowledge through open simulation games?

F. Additional Questions

11. How do you view your role as a debriefer?

12.Do you think that different fields require different approaches to debriefing? If yes, how?

Post Interview Comments and/or Observations:

End: What resources, either other people or published materials, do you regard as essential to the study of my topic/question? Is there anything else you'd like to add that hasn't been covered by the questions I've already posed?

Appendix B

Analysis memo

Initial Template
1 Understanding Clients Needs
2 Defining Success
3 Debriefing Preferences
4 Adapting to Learners

Final Template
1 Understanding Clients' Needs
- 1.1 Clients have different levels of awareness
  - 1.1.1 Familiarity with using simulation and/or games
  - 1.1.2 Familiarity with context
- 1.2 Clarification of Metagoal of the simulation game
  - 1.2.1 Iterative and participatory process
  - 1.2.2 Communication
    - 1.2.2.1 Understanding the context
    - 1.2.2.2 Combining perspective
    - 1.2.2.3 Prepared Questions
- 1.3 Managing expectations before Unexpected Outcomes

2 Defining Success
- 2.1 Who Defines Success
- 2.2 Process
  - 2.2.1 Sharing Insights
  - 2.2.2 Engagement
- 2.3 Outcome
  - 2.3.1 Learning
  - 2.3.2 Usefulness
  - 2.3.3 Changed Mindset

3 Debriefers' Preference
- 3.1 Phasic/Flexible/Unspecific

3.2 Descriptive Techniques
3.3 Influence from Educational Theories or Existing Debriefing Frameworks
4 Learner Characteristics
4.1 Level of Experience
- 4.1.1 Experience enriches debriefing
- 4.1.2 Inexperience requires scaffolding

4.2 Using the right language

Intial Coding
CHR - Clients help
DPR - debriefing process
LCXCR - learner characteristics
SDXR - Success
TYPOCR - the type of outcome
DPRC - challenges
DPRCP - practical solution

Notes and Decisions

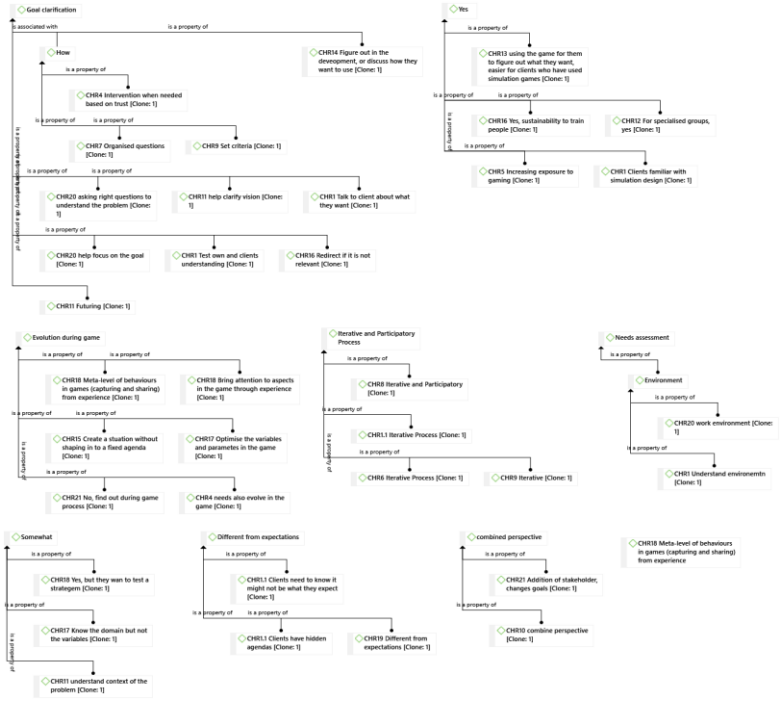
1. I coded according to a priori themes with meaningful segments.
2. I looked at the segments for patterns and themes (Learning Needs). Initial codes were grouped and regrouped together for connections to form
3. Re-establish new themes
4. Check codes based on new themes
5. I revaluated the theme for managing expectations and removed emergence as it is close to the debriefing process and reduced it to managing expectations of unexpected outcomes.
6. For the Debriefing Process, I tried to look at patterns in the initial codes, but they were too varied. I relooked at the data in terms of the specific phases the respondents mentioned, but it wasn't complete enough. Taking a level up, there was a distinction between respondents who were very clear on the sequence they take in debriefing as oppose to others who prefer a more flexible approach depending on the situation. I renamed the theme and debriefer's preferences.
7. The headings in the findings were edited in the presentation of findings in the thesis.

—-

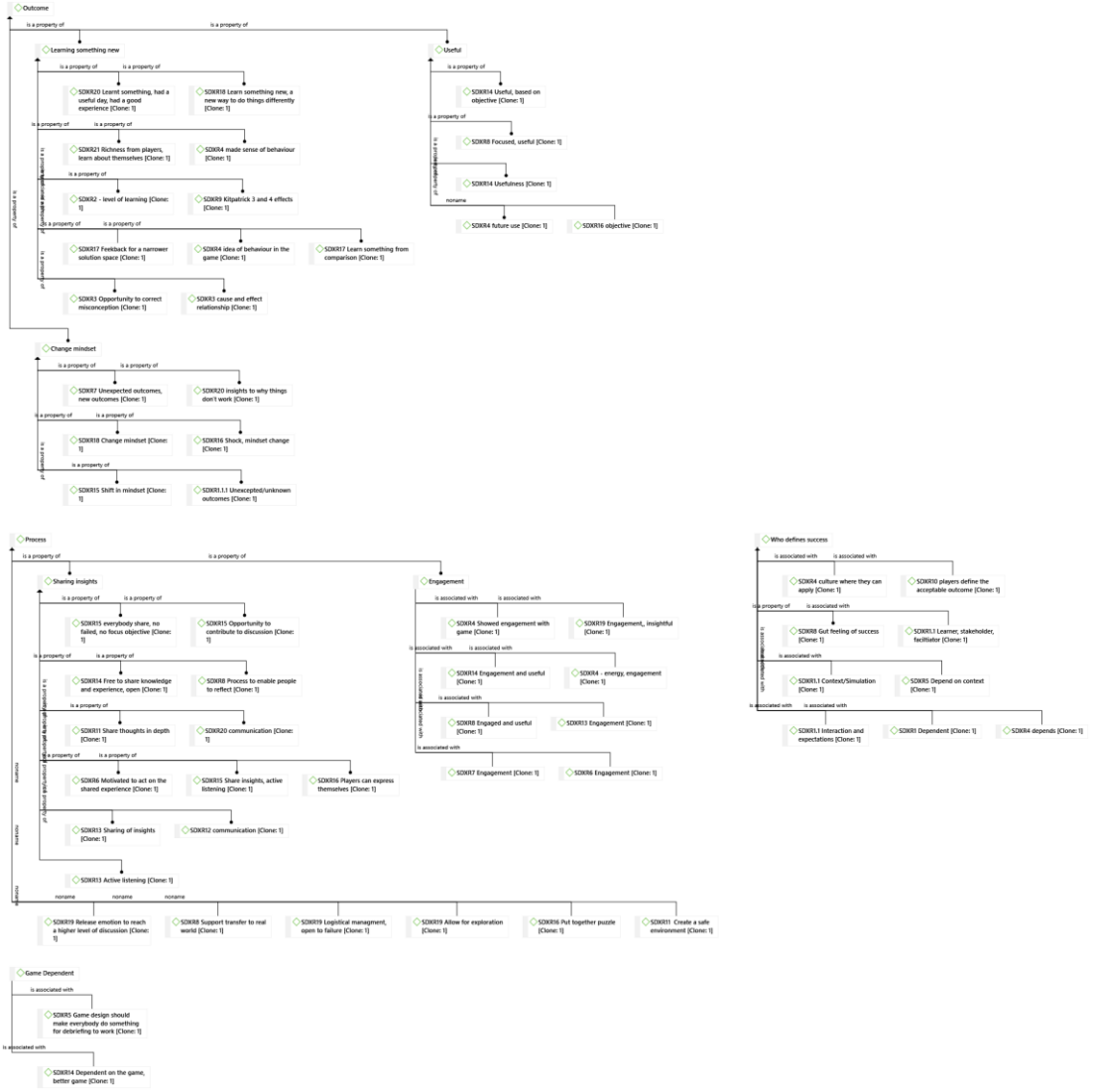
Development of Secondary Codes and Subthemes

The stable link for a full view of development work via network diagrams created with Atlas Ti can be seen from the project file here: https://www.researchgate.net/project/Debriefing-Open-Simulation-Games-Practices-of-Experts

1 Understanding Client Needs



2 Defining Success



Codes were grouped and chosen.

3 Debriefers' Preference

	Success	Openness	Framework, Influences
1	Context dependent	Context dependent	Cynefin framework because it helps me understand
2	Knowing what the participants learn	No direct answer on debriefing	No direct answer (Focus group theory)
3	No direct answer on debriefing	No direct answer on debriefing	No particular theory, want to understand what the s
4	Showed in debriefing that they engaged	Rule book to access behaviour vs performing e	Debriefing theories
5	Tasks in the game for the players so tha	Described openness in terms of access	Academic writings about debriefing
6	Relate game experience to real world is	Close games- remember the right answers/ vs	Open space methodology (OST)
7	No fixed criteria. Through experience, e	No direct answer on debriefing	Did not study debriefing methods, learn on the job
8	Support transfer of learning	Debriefing may be less important in closed gan	Experiential Learning, Debriefing theories (Kriz)
9	Kirtpatrick Levels (Learning/Evaluation)	For open games, clients must share the same c	Constructivism
10	Debriefing allows for reflection, particip	No direct answer	No direct answer
11	Sharing of insights, create a space to sh	No, it doesn't	Debriefing theories
12	Communication between instructor and	Debriefing in open games are more about cour	Read research on debriefing
13	Sharing insights, active listening	Close games allows you to use debriefing sets	Debriefing theories, thiagi / not much about educati
14	Open and free to speak	No, it doesn't	Kriz
15	Opportunity to speak	No, it doesn't	Experiential Learning, active based learning
16	Address goals and objective, make thing	Open games requires players to have more op	Experiential Learning, Petranek
17	No direct answer/ Not concerned	Did not pursue further in interview	No educational theory
18	Players learn something new	No, it doesn't	Socrates
19	Releasing emotion before reflection	Debriefer has to be more open and faciliate m	Vincent Peters, Willy Kriz
20	experience in game session translate to	No, it doesn't	No direct answer, human approach, depends
21	Useful day, learnt something	Closed game - teaching. Open game is hard to	Experiental play, no debriefing framework

4 Learners' Characteristics