



SIMULATION GAMES AS A SAFE ENVIRONMENT



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SIMULATION GAMES AS A SAFE ENVIRONMENT



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1 Simulation games as a safe environment¹

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Abstract

The label 'safe environment' is often used as a promotional catchword for simulation games, referring to the virtual character of simulation games. In this paper we challenge the common and unquestioned use of this characteristic. Our own diverging experiences as facilitators and researchers in different settings motivated us to question safety in different gaming situations, and to discuss an underlying reality that complicates learning from experience.

We wish to complete the general picture with a more realistic notion of safety based on an exploration of experiences of participants, as well as our own observations in simulation games.

In capturing the complexity of safety we formulate dimensions and characteristics of safety that distinguish participants' actual experience of safety as well as the lack of safety, and thus insecurity, in simulation games. At the one hand we look more closely at the safe character of simulation games and the effects on participants behavior in the simulation. On the other hand we distinguish several factors that may induce feeling of insecurity for the participants.

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Keywords

Simulation game; safe environment; safety; security; social psychological insecurity.

2 Introduction

In many text books on simulation games one of the main characteristics is the safe environment for learning and experimenting, provided by the simulation. To quote a few of these text books:

- ▶ "A game offers the players a safe environment in which they can test new strategies, tactics, ways of thinking and attitudes" (Geurts et al., 2000, p. 25).
- ▶ "Through their iterative and experiential nature, simulation games allow us to test different approaches within a safe setting, thus helping us to learn how to perform in the future" (Wenzler, 2008, p. 42).

A search on the internet, using the Google Search Engine, on the keys 'safe environment simulation' also reveals a vast amount of instances where this safe environment is stipulated as a prominent feature of simulation games, as the following three quotes show:

- ▶ Simulation games in itself are a 'model of reality' - an experimental model where real actors can try out, design, plan, decide and experience social-technological systems in a safe and dynamic environment ...(www.nginfra.nl)
- ▶ The simulation was developed to create a safe environment for students to get authentic experience in an online trading environment [...]to develop a functional prototype that would simulate this activity in a safe and secure environment ... (www.learnscope.anta.gov.au/learnscope)
- ▶ modeling and simulation technology gives liquefied natural gas (LNG) companies a safe environment to experiment with different variables and "what-if" scenarios [...]. While risk reduction is the most obvious benefit, other advantages include increased safety, reduced environmental impact ... (www.managingautomation.com/maonline/magazine/).

The main idea of a 'safe environment' is the fact that participants' behavior and decisions during the simulation game do not have direct (negative) consequences for real life situations. Safety is often used as a unique selling point of this type of simulation games when promoted to potential users. Whether simulation games are used for learning, exploring strategies, preparing decisions,

personal development, testing behavior of individuals or groups, or experimenting with new procedures, a 'safe environment' remains a powerful asset of simulation games.

Although we endorse this general meaning, we also have the feeling and the experience that the concept of safety is broader than the above meaning. We, therefore, wish to question the character of this 'safe environment'; what does 'safe' actually mean? Is safety rightfully taken for granted? We want to explore the general idea of a 'safe environment', by confronting the experiences of participants with our own observations facilitating different types of simulation games.

The claim of safety seems undisputedly valid when we consider the relation between what one does and decides in the simulated environment and the consequences for real life situations. For instance, when great losses are suffered in the simulation game, no real company will go bankrupt; when not enough food for the population is produced, famine and starvation will not really occur; and when important information is overlooked during decision making, no real damage will be done but instead awareness might be raised (e.g. after a thorough debriefing) to use that information in a follow up occasion in real life decision making.

Focusing however on the participants in simulation games, it may occur that participants also meet and cooperate in real life after the game is over. Even when a simulation is played with people who will never meet again, a personal confrontation between 'me in the simulation game' and 'me in the real life situation' may always occur.

From this perspective, unexpected and uncontrollable incidents may happen during the simulation game that might have undesirable consequences beyond the game, which turns the simulated situation not that safe at all, especially not at the personal level, where feelings of insecurity may interfere with learning processes.

We contend that the self-evident character of safety in a simulated situation relates only to the first meaning of safe environment, namely the logical absence of any direct real life consequences, due to the virtual character of the simulation.

With these observations in mind we intend to explore the meaning of the 'safe environment' in practice. The main grounds for our exploration are the mixed experiences we encountered while working in the field. We have been working with different types of gaming (ranging from management games with students to crisis simulations with professionals) and it is our experience that many participants see a simulation game as threatening, making them feel insecure and unsafe. Obviously these feelings of insecurity are related to a different aspect of the concept safety than the one referred to at the beginning of this section. But these experiences from practice caused us to reflect upon 'safety in practice' and what can be done to improve conditions related to un-safety or insecurity of the participants. Our main purpose is to stimulate discussion

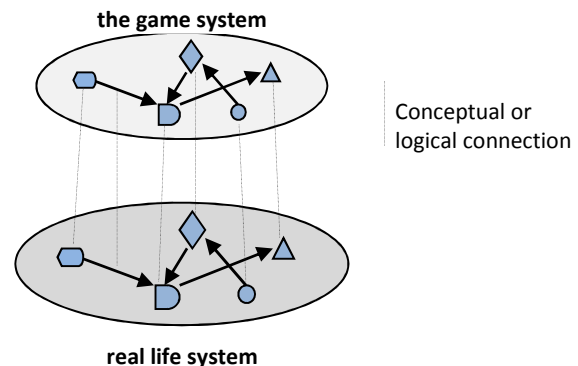
about the casualness of the characteristic 'safe environment', by exploring the nature of safety especially from the perspective of participants. We focused on the question what we could learn from experiences of participants in different games about the complex reality of 'safety'.

3 Two dimensions of the safe environment

Although 'safe' and 'secure' are practically synonyms, we nevertheless decided to distinguish between them as two dimensions of the safe environment. An etymology (www.etymonline.com) of the two words learns that the Latin origin of 'safe' *salvus* means: *uninjured, healthy*, while 'secure', derived from *securus* means: *without care, safe, untroubled*. From *securus* also evolved 'sure', which means: *mentally certain*. This captures the two dimensions of a 'safe environment', safety referring to characteristics of the simulated situation and the relation with the real life, security referring to social-psychological aspects of the simulation game. In the following we refer to these two aspects as safety and security. We expect both dimensions to be present in the actual simulation game, and to have consequences for the success of the game in stimulating learning processes.

3.1 Safety in simulation games

As said, safety pertains to the fact that poor performances do not result in negative consequences for real life situations. A real life situation and its simulation are two different worlds, two distinct systems, connected only conceptually. Real life elements and relations between elements are (in a reduced and abstract way) virtually represented in the simulation game. There is no direct link between the two systems and a connection is usually only made during the debriefing phase of the simulation game when participants try to infer and understand what might happen in a real life situation, based on the experience and reflection on their performance in that simulated situation.



This allows participants to try out new behavior and see where it leads to. This is sometimes metaphorically referred to in terms of a test drive or an orchestra rehearsal. Thus outlined, safety is an objective characteristic of a simulation game that refers to the system that is simulated.

Safety also relates to the simulation game in process. When a poor decision or an unfortunate choice results in a rude interruption of the ongoing processes in the simulation (e.g. all resources are exhausted), the facilitation staff may take measures or introduce a new rule in order to continue the process, something that would be unthinkable in a real life situation.

Although this feature of simulation games may help participants to explore and experiment without being too cautious, it might also invite less commitment, more risk taking behavior, and not going to the very end, since the participants may constantly be aware of the fact that "it is just a game".

Concluding, safety, interpreted as above, may on the one hand increase the opportunity to explore and learn more easily, but they may on the other hand be a threat for the validity of the results of the simulation game. (c.f. Peters et al, 1996; Vissers et al, 2001).

3.2 Security in simulation games

By distinguishing security from safety we introduce a social-psychological dimension, defined at the level of the individual.

From the perspective of the participants both systems (the real life situation and the abstract simulated situation) may not be as distinct as designers and advocates of simulation game say. For one, the person in the game is the same person as the person in the real life. In addition, participants in simulation games may be familiar with each other, either as colleagues, in a manager – subordinate relationship, or as representatives of cooperating organizations, and so on. The actual or possible encounter of participants later on in real life implies that the boundaries between the two systems may fade away and are no longer distinct.

Participating in a simulation game means a public performance, in which behavior of participants is put under a magnifying glass; participants are observed and evaluated in a micro situation and this may be experienced as confronting or threatening. As long as participants are observed and evaluated within the limits of the objective of the simulation game, one could say this is 'all part of the game'. But evaluation could easily and unintentionally go beyond this and include other aspects of their performances or even their personalities. The notion that this evaluation or assessment (by others or even by the participant himself) may have consequences outside the protected situation of the simulation game, and may result in feelings of insecurity.

Past performances in simulation games may directly influence future encounters in real life situations, or in future games. Expectations about future meetings or confrontations, but also past negative experiences with simulation game may negatively influence a person's performance during the simulation game, and may for instance act as a barrier to the desired outcome of learning (see Heldens et al., 2003).

After this conceptual exploration of the two concepts, we will now elaborate our own observations by presenting two small empirical explorations among participants of two different types of simulation games. One exploration among students, and one among professional workers.

4 An exploratory study of the safe environment

Our explorations combined two different empirical data sources. In one case we administered a questionnaire to students who participated in a management game, while in the other case a number of participants of a crisis management simulation were interviewed. We will shortly describe both studies.

4.1 The study among students, participating in a management game

4.1.1 Background of this study

This part of our study concerned students participating in the management game Lumière. Participation was mandatory for 150 students in business administration. The objective of Lumière was to provide students with a situation in which they could apply, explore and test competences (i.e. knowledge, skills and attitudes) so far acquired in their study.

Lumière lasted three full weeks. Students worked in teams of six persons as the management of a company that produces and sells lamps. There were 26 companies in competition with each other. The management game was an interactive simulation, implying that participants constantly had to interact, confer, negotiate and make decisions within their teams, together with other teams, or with the facilitation staff that performed the role of various important actors (such as the market, suppliers, the bank, the job centre, et cetera).

Within the teams each participant had his own responsibility in his function of either general manager, financial manager, human resources manager, logistics manager, operations manager,

or marketing manager. In addition they had a common responsibility, since the performance is valued at the level of the company, and the team as a whole is kept accountable for the results.

The teams were composed by the facilitation staff. Students applied for one of the six functions and they were assigned to teams based on their preference and the quality of their application. Earlier we experienced that students found this situation rather threatening, since they are forced to work together with other students they do not know very well. To reduce insecurity many students would come to us before the game and ask if they might apply as a group, which was declined.

Since Lumière represents a very complex situation with an abundance of parameters, most students felt overwhelmed by many things they had to take into account; on one hand they were excited that they could show what they had learned and how to use it, and on the other hand they also felt a bit frightened that now they had to show it in public.

After finishing the game students had a week to complete a final business plan for their company, in which they looked back at the performances of the past weeks and elaborated their future plans for their company.

After playing the simulation game, we asked them to fill in a questionnaire for our research on safe environment. This questionnaire consisted of 25 questions about themes such as:

- their earlier experience with (simulation) games;
- their preference for the composition of the team;
- their involvement in the management game;
- the extent to which they had felt (un)comfortable during the management game, and factors influencing this feeling;
- how serious they saw the game, and consequences for their behavior in the simulation game.

Unfortunately only 29 students sent back their questionnaire. This low response rate is undoubtedly due to the fact that the students were relieved that they had finished these very intensive weeks; for most of them holidays started after finishing the business plan, for some others a period of resits began. Although a group of 29 participants is rather small, we think it will suffice for this exploratory study, especially since all six functions in the game were represented and the respondents came from different teams.

4.1.2 Results of this study

In this section we sum up some of the results of this study.

- On the question whether the students felt '(un)comfortable' (as an operationalization of (in)security) during the simulation game, 14 students indicated they had felt comfortable all the time; 12 students did not feel comfortable at the beginning, but that changed in the course of the management game; only 1 student had felt uncomfortable all the time and 2 students had felt comfortable at the beginning, but that had changed into feeling uncomfortable towards the end.
- The following aspects were mentioned as having influence on feeling more / less comfortable during the management game: (the lack of) knowing what is expected and being familiar with the procedures; the perceived quality of cooperation in the team; and the quality of the team performance. Evidently people feel more comfortable when having performed well.
- Eight students indicated the management game was more or less “just a game”, while the other 21 students indicated that it was “bitter earnest” for them.
- The answers on the question whether they thought they would have worked differently in a real-life situation, showed that students have taken more risks, did a less thorough analysis of the situation, and spent more time on grounding their decisions than they expected they would have done in a real-life situation. There were no significant differences in this respect between the “just a game”-group and the “bitter earnest”-group.
- Below are the average scores for some distinct characteristics of the management game, both for the group students who saw the management game as "bitter earnest" (I) and the group who saw the management game as "just a game" (II).

✍ “For me the management game was...”

	I	II	sig.
- fascinating	4.3	3.9	-
- instructive	4.2	3.1	**
- a safe environment	4.0	3.9	-
- a challenge	4.4	3.0	**
- threatening	1.8	1.6	-
- long-winded / boring	2.3	3.1	*
- confusing	2.7	3.1	-
- confronting	3.2	2.3	**
- an opportunity to test myself	4.0	2.5	***

5-point scales

mean scores for the “earnest”-group (I) and the “just a game”-group (II)

sign: * $p < 0,100$; ** $p < 0.050$; *** $p < 0.010$

As can be seen in this table, the word 'threatening' is a word that does not cross the mind of the students when they look back at the management game. It was our assumption beforehand, that these questions might reveal a difference between the two groups in the sense that the "bitter earnest" group (I) might score higher on aspects such as threatening, safe environment and confronting, reflecting the idea that people who take the management game more seriously will consider it both more exciting and more threatening. But the results show that this assumption is not verified (except for confronting).

- There is another interesting difference between the two groups, which relates to the extent to which the management game is considered as a situation in which one may learn and test oneself. These data show a tendency that students who say that the management game is "bitter earnest" also see the management game as challenging, instructive and as an opportunity to test oneself. On the other hand the "just a game"-group scores higher on 'boring and confusing'. Whether experiencing the management game as a "learning" opportunity is caused by or, on the other hand, is the cause of experiencing it as a "bitter earnest" affair cannot be inferred from these data, but is an interesting question for deeper research into this matter.

Unfortunately the size of the sample does not allow for more sophisticated analyses. We will shortly summarize the main findings of this study that helped us to clarify the general idea of safety and security:

- ▶ *Related to safety:*
Being aware of performing in a simulated situation seems to influence behavior, e.g. in the sense that more risks are taken.
- ▶ *Related to (in)security:*
Feeling more or less comfortable during the simulation game is related to knowing what to expect and being familiar with procedures, the cooperation between players, but also by the quality of the performance of the team;
- ▶ *Related, but unclear, to both safety and security* :
There seems to be a relation between how serious one sees the simulation game and the degree to which one sees the simulation game as a learning environment.

These findings leave relations still unclear, sometimes contradictory to our expectations. We decided to conduct a second exploration by interviewing participants, in order to clarify the social-psychological dimension of security and its counterpart insecurity as unwanted aspects of the safe environment. For this complementary study we choose a completely different context.

4.2 The study among professionals, participating in a crisis simulation

4.2.1 Background of this study

The second study concerned a different type of simulation game, a crisis simulation for a military air base in the Netherlands; the players were professionals who in their real life occupation have a responsibility to take the right measures whenever an accident or a disaster may happen in or around the air base. These participants are not only from the military (such as the command of the military air base, its own fire department, and emergency services) but also from civil authorities (such as the town council, civil fire department, health services, and police). The simulation game, named CrisisLab, starts with the administrative and operational coordination in simulated disasters; crisis managers and their supportive teams are confronted with the consequences of their coordination and decision making on a strategic, tactical and technical level. The scenario is about a disaster that has taken place, and the participants have to take adequate measures according to the contingency plan in order to start the assistance as soon as possible in the most effective way, and in order to keep damage as limited as possible. Within the context of this sce-

nario and introduced events the cooperation and communication between crisis managers from civil and military authorities can be exercised and tested.

The scenario of CrisisLab is highly recognizable for participants, since it is based on existing civil and military emergency plans and decision making processes. The environment is simulated but based on information comparable to real life situations. The role of the various participants and the way they are grouped into teams in the simulation game are as close as possible to their real function in the real life situation.

This simulation game is designed to assess the way the contingency plan is executed and to adjust it, if necessary. Since there is no real disaster, bad decisions in the simulation game do not directly affect the course of the rescue operation, but indirectly the experiences of the simulation game help to improve the procedures and help participants to be better prepared for their tasks in an unhelped-for situation. But on the other hand, since participants know each other and have to deal with each other in the real life situation, participating in this simulation game might induce feelings of insecurity, while participants may feel valued on their professional acting.

Seven participants to this crisis control game were in-depth interviewed after having played the game. These interviewees came from various positions in the military and the civil organizations. The interviews focused on topics such as

- ▶ experience with simulations (for some participants simulations are rather common tools),
- ▶ the perceived safety and feelings of (in)security during the simulation game,
- ▶ the extent to which interviewees behaved differently in the simulation game than they would have done in the real situation,
- ▶ and possible consequences of participating and performing in the simulation game for their current real life situation.

4.2.2 Results of this study

The most important results of this study can be summarized as follows:

- ▶ The experiences that connect to the issue of safety and security can be divided into three groups:
 - experiences of an entirely personal character, such as the enjoyment in playing games;
 - competencies of participants, such as being experienced in playing simulation games;
 - the interaction between participants and the game, such as unclear expectations, or the obligation to cooperate with unknown others.

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- ▶ As we expected, based on the first study, providing a more realistic setting by practicing their own emergency plans would reduce the feeling of participating in 'just a game' and enhance the 'bitter earnest' experience. Being confined to their real life role and occupation precludes any choice or control over the game.
- ▶ Being a professional in a crisis operational organization means being prepared for action, simulated or not; we expected less feelings of insecurity in a simulation game. Nevertheless, we found many instances of insecurity related to the process of playing the game of to the interaction between the person and the game.
- ▶ Being experienced and skilled in simulation games itself is a factor that contributes highly to feeling secure. This implies that feeling insecure in simulation game may be temporarily. Increasing familiarity with gaming (by playing many simulation games) may in time reduce insecurity.
- ▶ Concerning the professional role and skills of participants a similar pattern arises: personal lack of professional abilities and routines, lacking knowledge of rules and regulations, not being well trained or prepared for the game are all experiences reported as contributing to insecurity as well as to security when turned the other way around.
- ▶ Concerning the interaction between individuals and the game insecurity is affected by being unfamiliar with team members, other teams and unclear expectations of the course of the game, the tasks to perform and the roles to play. What particularly affects insecurity is being dependent upon others who appear to be less skilled and perform poorly.
- ▶ The fact that performance in simulations is public and easily lends itself for an assessment was stressed. Especially the way one is evaluated in public by superiors or by a high status facilitation team is mentioned as being stress inducing.
- ▶ Critical evaluation by others and self evaluation by participants were mentioned as stressing factors, too. There seems to be a fragile boundary between constructive assessment and the breakdown of (self)confidence, that is a negative experience in the light of realistic or feared real life consequences, sometimes resulting in a backlash against simulation game.
- ▶ Too complex scenarios or tasks can be experienced as a threat instead of as a challenge. As a counterpart we found that realistic scenarios and the opportunity to become familiar with the game beforehand, sometimes followed up by the announcement of coaching of those in need afterwards, were experienced as reducing insecurity. Especially this last example is interesting for our purpose as it lifts the weight of the nature of the per-

formance during the game because the professional future of the participants is not at stake.

Comparing this group of professionals with the first study focused on students in a management game that did not yet connect to a real life professional situation and that only existed in their imagination, we could say that reality plays a special part in crisis management games with professionals. Although it is not always recommendable to totally reduce insecurity, because without it learning from experience is hardly possible (Heldens et al., 2003), we still think correspondence of abilities, tasks and challenges and the adjustments made by facilitators on the basis of their good judgments are the only guarantee for the experience of just enough security to feel safe.

5 The safe environment reconsidered

We started our exploration of the concept of safety with our own experiences as facilitators and a conceptual clarification of the concepts. Next we presented two studies among participants, investigating their perspective and experiences. In this section we combine the available information and report our reflections on these findings. These results are not fully 'evidence based' but stem from the deliberations and discussions of the literature, our experiences and the findings of the two empirical studies. They function more or less as challenging hypotheses to be studied further than empirically founded results.

We started our discovery tour by distinguishing between safety and security as two separate dimensions of the concept of 'safe environment'. In the rest of our study we felt supported in this since we definitely saw two different aspects related to 'safety'. In the next paragraphs we clarify our considerations for both aspects respectively.

5.1 Safety

The findings in respect to the aspect of safety fairly matched the ideas we had beforehand. In both simulations most of the participants indicate that they see the simulation as a serious situation in which their capabilities are tested, and from which they can learn a lot. It is not just a nice game, but they experience it as a challenging situation, in which they have to perform optimally.

Nevertheless, they are constantly aware of the fact that whatever they do and decide does not really affect reality. This feeling affects the behavior of many participants in the simulation game,

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since they indicate (in both studies) that they think they would behave differently in real life situations. E.g., in the simulation game they say they

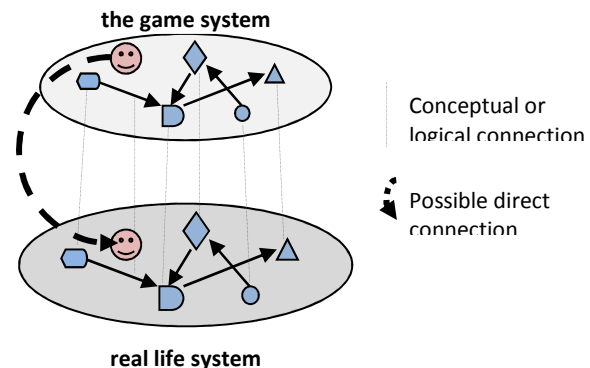
- take more risks
- take or have more time to deliberate their decisions
- avoid conflicts
- come more easily to consensus
- are willing to settle for sub optimal-solutions.

This means, on the one hand, that safety in a simulation game encourages participants to explore new behavior and solutions, but on the other hand it also allows participants to behave (slightly) different than they would have done in real life situations.

Thus, although the safe character of simulation games may help participants to explore and experiment easier without being too cautious, it might also ask for less commitment, more risk taking behavior, and not going to the very end, since the participants may constantly be aware of the fact that "it is just a game". Thus, the aspect of safety may increase the opportunity to explore and learn more easily, it also may be a threat for the validity of the results of the simulation game (c.f. Peters et al, 1996; Vissers et al, 2001) and thus to the contribution to learning processes.

In the first section we pointed at the strict separation between the real life system and the game system and we used that feature to explain that behavior in the simulation game will not directly affect the real life system. In other words this is the basis for the characteristic of safety. But having heard the participants we are aware that this segregation between the systems is not absolute. The element that is actually present in both systems, and thus the link between the two systems, is the participant. The participant, consciously or unconsciously, takes along the experience and ideas from the simulation game into the real life situation.

We can imagine a direct negative relation between the simulated situation and the real life situation in case people acquire 'wrong' knowledge in the game, draw false conclusions or learn inadequate pro-



cedures. Applying these in real life situations may have negative consequences in / for the real life system, let alone on personal as well as professional level.

5.2 Security

The second aspect of "safe environment" we have distinguished, representing the individual dimension of it, was referred to as security. In the two studies, and especially in the interviews with the professionals, this aspect prominently came to the fore. The respondents acknowledged this aspect clearly and talked vividly about it. They used terms such as 'to fall short', 'discomfort', 'uneasiness', 'tension', 'the risk of being harmed', 'the fear of not meeting the standards'.

Based on our preliminary ideas, the results of the interviews, and on our own reflections in relation to this concept, we conclude that feeling (in)secure in a simulation game is directly related to confrontations and evaluation.

In the micro worlds of simulation games participants can not hide, their performance is public and as it were put under a magnifying glass. Often the tasks to be performed are new and time pressure is heavy. These elements may contribute to the feeling being observed by others, and performance being constantly valued. These confrontations may be linked to other persons ('my colleagues may notice that I lack some knowledge') or they may be induced by individuals themselves ('I realize that I am not the vigorous leader I thought I was')

More specific we can distinguish four separate factors that may induce a feeling of insecurity by participants in a simulation game:

Feelings of (in)security in a simulation game may be induced by

- expected or actual confrontations or evaluations of
- the "behavior" of the participant in the simulation game or the "behavior" of the participant in his own real life situation in relation to
- central issues of the simulation game (addressed by the game objectives) or peripheral issues in the simulation game (not addressed by the game objectives)
- induced by the gaming elements or by other people.

We will elaborate these factors now.

- The first factor indicates that feeling insecure might be induced by actual events or confrontations during a simulation game that are considered as threatening, but also by expectations about such confrontations, without these confrontations actually taking

place. These expectations may be based on previous experiences with simulation games. Participants may feel threatened because they perform poorly as a manager in a simulation game ("I experience I'm not a good manager in the game"), but they may also expect and fear a poor performance beforehand. ("I'm afraid I will not be a good manager in the game").

- The second factor indicates that the (actual or expected) confrontation will take place within the context of the simulation game; the participant performs poorly in his role ("I can't deal effectively with all the available information"); on the other hand these feelings may concern the behavior of the participant in his real life situation: while playing the game the participant finds out that he performs poorly in his real life situation ("Now I experience that I did not very well in my own job").
- The third factor focuses on the relation of the behavior, skills, attitudes, etc. that induce feelings of insecurity, and the objectives of the simulation game. These feelings of insecurity may emerge in a field of behavior that is addressed explicitly by the simulation game (i.e. that is included in the objective of the simulation game) or these feelings may relate to behavior that is outside the scope of the objectives of the simulation game. If the objective of a simulation game is e.g. to train a specific leadership style, feelings of insecurity may be induced in relation to being a leader ("I experience that I do not have the appropriate skills for this leadership style"), but these feelings may also occur in relation to other kinds of behavior, skills or attitudes, that are not directly related to the leadership style, but occur in the simulation game ("I feel awkward in situations with people who are unfamiliar to me"). The issues that are explicitly addressed by the simulation game will be subject of the debriefing (between rounds or the final debriefing), while the peripheral issues are not.
- And lastly, the feelings of insecurity may be induced by elements of the simulation game (like the time pressure, the complexity and ambiguity of the situation), or they may be induced by the behavior or other people ("I am annoyed by the way that person behaves"). And these 'other people' may concern other participants, but also members of the facilitation staff.

These four factors are independent of each other, meaning that they may occur in all combinations. This results in 16 distinct conditions that may increase the feelings of insecurity for participants in a simulation game. In Figure 1 we have brought all these factors together.

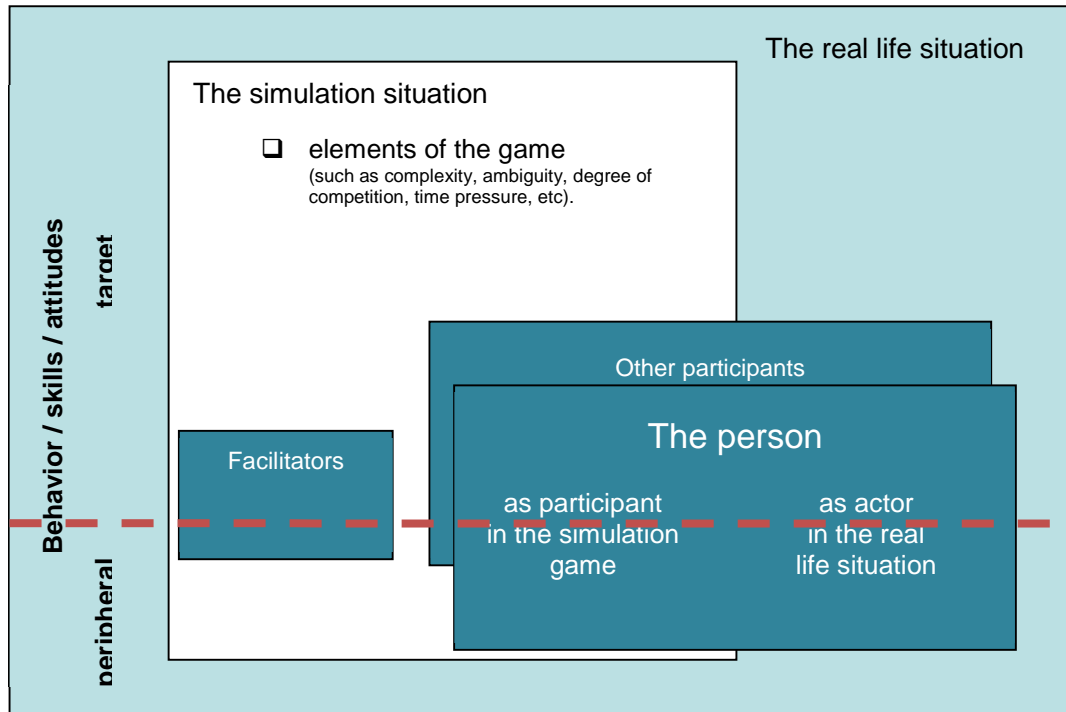


Figure 1 Factors influencing the feelings of insecurity of participants in a simulation game.

So far the results of our mental, theoretical and partly empirical explorations. We have been able to explore and refine the concept of a 'safe environment' that is often used in relation to simulation games. The slogan seems to be connected especially to the aspect of safety, but a 'safe environment' also entails another very important component, namely the social-psychological component concerning feelings of security and insecurity of the participants.

The value of this exploration is that it enhances our sensitivity to how participants (may) experience playing a simulation game and what factors may induce feelings of insecurity, such as feeling uncomfortable, not at ease, anxious, to fall short, et cetera.

From this line of reasoning the question follows what game designers and facilitators can do to deal with the (in)security. That question is beyond the scope of this article, but it may be an in-

interesting question for further research. The distinction between the factors that induce feelings of insecurity may give a clue for the game designers and facilitators in relation to the game design, the game preparation, playing the game, debriefing the game and the aftercare.

In the next section we will formulate a few conclusions about our findings.

6 Concluding remarks

First of all, we have addressed the issue of security and we have looked for factors that may induce the insecurity. These factors may also be the crowbar for taking care of a situation where participants feel at ease and secure. But we want to stress, that in order to learn a certain degree of ambiguity and imbalance are necessary. In turn, these factors may also cause insecurity in participants. Therefore a fully stress-free and secure situation is not a realistic or even desirable point of departure for learning processes. The issue is at what point a healthy degree of insecurity becomes hampering for learning .

Factors considered as threatening must not always be taken away; they may be very functional from the perspective of learning , but they will have to be used very considerably and consciously.

Managing the possible causes for insecurity is not limited to factors in the simulation game itself. Our exploration, as summarized in the scheme of Figure 1, indicates that there are also (in)security affecting factors beyond the simulation game.






Game designers and facilitators can do many things to deal with insecurity, but our exploration shows that there are several factors beyond the influence of the facilitator that may induce feelings of insecurity. For instance: participants indicate that if their scores in the game are low, they feel insecure.

Our project was based on a combination of theoretical considerations, our experiences as facilitators, empirical data and reflections on these data. For further elaborations and concrete recommendations for game designers, facilitators and even participants, further research is needed. As mentioned, research on the role of game designers and facilitators in respect to the factors threatening security and safety may yield interesting results. In addition, insight in safety and security may increase when other types of simulations and games are included in future research, such as computer based games, role playing.



After questioning the undisputed phrase about the safe environment, the question still remains how to deal with this concept before, during and after the game. Our research did not yet answer this kind of questions. But this research did help us to move from the state of 'unconscious incompetent' to 'conscious incompetent', meaning that we know we still have to go a long way to become 'conscious competent' in relation to optimizing safety as well as security in simulation games.

7





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