GAMES: Virtual Worlds and Reality

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WHY DO GAMES WORK? In search of the active substance

Gert Jan Hofstede, Vincent Peters, Léon de Caluwé, Dennis Martens

Abstract

Richard D. Duke, one of the founding fathers of the discipline of simulation gaming, said about 20 years ago: ‘It works; that’s all we have’. Unfortunately the gaming society has not been able for the last two decades to disaffirm this statement. For a discipline that takes itself seriously it is not satisfying to establish that we are not able to explain adequately and conclusively why the instrument we use is effective and successful. The authors of this paper took the initiative to explore the question why games work and they invited professionals and scientists from different fields, from different disciplines, and from all over the world to share their expertise and experience pertaining to this intriguing question. These efforts resulted in a book on possible theoretical and practical explanations for the power of gaming.

This paper preludes on possible answers why simulation games work by surveying a number of ideas and theories about the active substance of gaming; by drawing up a frame of reference it offers a point of departure for the search for answering the question why games work.

Keywords: game; simulation; magic circle.

Introduction

“We all play occasionally, and we all know what playing feels like. But when it comes to making theoretical statements about what play is, we fall into silliness. There is little agreement among us, and much ambiguity”.

These opening sentences from Brian Sutton-Smith’s book, ‘The ambiguity of play’ (1997), struck us deeply and provided us with a challenge that we meet in this paper.

Simulation gaming (also known by many other names) is used all over the world as a way to make people learn new things. Many participants stated that they have learned more in one simulation than in all their previous classes. Some facilitators seem to be able to work miracles using simulation games. But why? What is it that makes simulation games such a powerful tool for learning?

To understand what we mean, think of an aspirin. Its active substance is acetylsalicylic acid, the stuff that is supposed to make your headache go away. But an aspirin contains many other substances. Some add a flavour to the pill, others make it look good, still others are needed to make all the substances stick together, and there are even some substances designed to overcome the nasty side effects of others. But placebo effects occur too: people who think they have taken an aspirin may have the same effects as people who really did take one, and their headache goes. Perhaps they were fooled by the flavour or the look, or even by the doctor who prescribed the placebos, and it worked for them.

By analogy, simulation games could also work for many reasons. What is their active substance? Is it to be found in the game design, the facilitator’s role or the dynamics of the gaming session, or is it a placebo effect?

We decided to write a book on this intriguing issue and we invite professionals and scientists from different fields, from different disciplines, and from all over the world share their expertise and experience in order to answer the questions that bothered us. In the process of composing the book we had several moments of interaction with the contributing professionals, where we shared experiences, discussed issues and exchanged perspectives. In this paper we report the outcomes of these preliminary interactions and exchanges and it aims to provide a frame of reference for investigating and answering the question why games work.

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1 This paper is an adapted version of the first chapter of the book ‘Who do games work. In search for the active substance’ (Kluwer, 2008), edited by the first three authors of this paper.
Simulation gaming

In the context of our question we will not be squeamish about the definition of ‘simulation gaming’. It could be a computer game, a role play or a board game. A central aspect is experiential learning in any form. This includes aspects such as improving the exchange of ideas, communication and decision making. And it includes getting to know and understand yourself better. The central question is: has the individual, the team or the organization learned from the gaming experience?

Simulation games are dynamic models of reality and they can take the form of role play, a card game, a computer simulation or an interactive game. There is a wide variety of forms, models, didactics and game designs that target learning. We do not want to exclude specific forms and models beforehand. Instead we use a broad working definition for the term ‘simulation game’. The simulation part refers to a dynamic model of characteristics or elements of a real or hypothetical system, process or environment. The game part refers to player(s) who play roles, take decisions, carry out activities and experience the consequences of their activities. The term simulation game combines these two concepts: it is a (simulated) model of a (real) system in which actors in different roles try to reach certain goals within a set of rules (Geurts et al., 2000). Goals can include individual-level, group-level and organizational ones that are simultaneously active.

Observations about gaming

Experienced game designers, facilitators and players harbour many ideas about what influences the ‘success’ of simulation games. These experiences may be a fruitful starting point for a search for the active substance. They include:

Context factors
- For collective learning processes you need a moderate group size, neither too large nor too small. Intense interaction for reflection must be possible.
- Technology can distract from the social process. It can act as a detractor and can inhibit communication.
- Participants take their culture with them, which includes their demographics and backgrounds. This might produce very different game runs and experiences for individuals from different backgrounds.
- History matters. Pre-existing relationships between participants can be very influential in the evolution of a game run.

Individual-level factors
- Simulation games activate implicit knowledge. Being able to do something is not the same as being able to talk about and reflect on it.
- Participants often have strong emotions during and after a game. The role of emotions in learning is a clear phenomenon.

Group-level factors
- Simulation games can have a strong symbolic effect on individuals and groups. A game run can form a collective memory of certain experiences.
- Participants can learn from the game and the facilitator but also from each other. They take clues from one another, imitate and follow the role models.
- Real-life decision-making stalemates occur during the game. They are frustrating, but can generate ways to overcome the problem or learn to live with it.

Game as a magic circle
- Not all participants experience a simulation game as a magic circle. Some participants can refuse to engage in the game. They prefer to stay out of it and they question the game and the facilitator.
- Game safety varies. Simulation games are supposed to be safe environments for learning. Some game sessions are not safe and participants may hurt one another or feel blocked.
• The magic circle might not work. Ultimately, for some participants the exercise seems silly and a waste of time.

Debriefing
• For the learning effects of using simulation games, the debriefing is of paramount importance. By many facilitators the simulation game is considered as an alibi to have a thorough debriefing.
• Debriefing sessions differ widely in the quality of the learning, both individually and collectively. Some people enjoy themselves, but cannot reflect on this verbally. Others can give razor-sharp observations, but lack intercommunicative skills.
• Some participants may frighten others or refuse to give up their role during debriefing. All these experiences are very well known to experienced gamers. They are just a small sample of the knowledge and experience that has been developed in the heads of gamers, who work with rules of thumb and practice theories to design and facilitate games. Others might have observations of a similar nature. If we understand what sources they stem from, we may obtain a closer understanding of the active substance of simulation gaming.

Standing on the shoulders of giants
We are not the first and certainly not the last to think and write about the active substance of simulation games. It is useful to summarize related concepts regarding these issues.

Sutton-Smith
Brian Sutton-Smith (1997) uses the term ‘rhetoric’ as a persuasive discourse, or an implicit narrative, wittingly or unwittingly adopted by members of a particular affiliation to persuade others of the veracity and value of their beliefs. The rhetoric of play express the way play is placed in a context within broader value systems which are assumed by the theorists of play. The tem rhetoric refers to popular ways of thinking and beliefs that create the cultures and subcultures we live in. They are indeed the proclaimed active substances of play.
Sutton-Smith (1997) describes seven rhetorics:

1. The rhetoric of play as progress. Here animals and children, but not adults, adapt and develop through play. Playful imitation is a form of children’s socialization and moral, social and cognitive growth. Play is about development, not about enjoyment.
2. The rhetoric of play as fate. This is applied to gambling and games of chance. It contrasts fully with the previous rhetoric. Human lives and play are controlled by destiny, except perhaps through the skilful use of magic or astrology.
3. The rhetoric of play as power. This is about the use of play as the representation of conflict and as a way to fortify the status of those who control the play or are its heroes. This rhetoric is active in competitive sports.
4. The rhetoric of play as identity. This occurs when the play tradition is seen as a means of confirming, maintaining or advancing the power and identity of the community of players.
5. The rhetoric of play as the imaginary. This idealizes the imagination, flexibility and creativity of the animal and human play worlds. It is sustained by modern positive attitudes toward creativity and innovation.
6. The rhetoric of the self. Here play is idealized by attention to the desirable experiences of the players – their fun, relaxation, escape – and the intrinsic or aesthetic satisfactions of the play performances.
7. The rhetoric of play as frivolous. This is applied to the activities of the idle or the foolish. It is not just the puritanical negative. It is also a term applied more to historical trickster figures and fools, who were once the central and carnivalesque persons who enacted playful protest against the orders of the ordained world.
How can we recognize these rhetorics? To illustrate them we have formulated fictitious quotes by players after a game for each of the seven rhetorics:

Â Progress: ‘I got to know my colleagues a lot better today.’ ‘Now I know how to take the company further.’ ‘We have grown today.’

Â Fate: ‘We were meant to meet today.’ ‘It was no accident that these people were together in this team.’ ‘This was a perfect storm.’

Â Power: ‘John has shown that he is a real leader.’ ‘This game made it clear to me who are the leaders and who are the followers in this joint.’

Â Identity: ‘There is something special about our team.’ ‘We have strengthened our team cohesion.’ ‘We have become friends.’

Â Imaginary: ‘This was real out-of-the-box thinking.’ ‘We came up with creative new insights.’ ‘We could never have imagined this without the game.’

Â Self: ‘I had a wonderful day.’ ‘I just loved watching you do that.’ ‘You showed an unexpected side of yourself.’

Â Frivolous: ‘Bo has been playing the fool.’ ‘I am not going to say this aloud, but I think I learned more than all of you put together, because I placed some of you in a position where you showed your true face.’

These seven rhetorics can explain the beliefs and orientations of game designers, game facilitators, individual players or groups of players. And these beliefs may not always overlap or coincide! That might explain fundamental contradictions and conflict in preparing, doing or debriefing a simulation game. The experiences of the actors in and around a game might be fundamentally different, depending on these rhetorics. For instance, players might be concerned with power and identity, while designers are concerned with progress. The seven rhetorics give an overview of the basic assumptions about play: they are the root metaphors of games. Figure 1 allows you to reflect on them.

Figure 1: Ways of playing with the same rope according to Sutton-Smith's seven metaphors

Duke & Geurts

Duke and Geurts (2004) introduce five key concepts (the five Cs) for working with simulation games. These are about what games can do, a question closely related to the one we address in this book. They are:

1. Complexity:

   simulation games are a method for handling the complexity of problems in which many different sources and types of data, insights and tacit knowledge can be integrated in a problem-
specific knowledge household. They allow for the exploration of possible strategies and permit us to test these in advance. It is possible to create a future and to ‘look back’ from that future.

2. Communication:
simulation games provide an overview and stimulate Gestalt communication. They allow many people with different perspectives to communicate with each other using different forms of communication in parallel.

3. Creativity:
simulation games can combine creativity with experience to find a new, original, inspiring and adequate pathway into the unknown. Huizinga (1955) puts forward the thesis that innovation can only be achieved by play. In the free and safe activity of play, and consequently in the free spirit of the playful mind, the individual can go beyond the borders of the limiting forces of everyday life. Only through play can new combinations be developed which, according to Schumpeter (1934), is precisely what innovation means.

4. Consensus:
simulation games help to avoid a major threat involved in other forms of finding consensus. They are based on proper collective analysis and on looking beyond the borders of traditional perspectives. Win-win options might be discovered and win-lose situations might be avoided.

5. Commitment to action:
simulation games can create a commitment to action for those people whose energy and endurance are vital to success. It is essential that all members of a group move into uncharted territory at the same time, that they understand the problem, see the relevance of the courses of action, understand their roles and feel confident that they will be able to act them.

These five key concepts apply to most simulation games. There might be a small bias towards working with groups or organizations in them; communication and consensus do not apply to gaming situations in which one learner works on a computer simulation, unless these are simulated as well.

To illustrate these five key concepts we have formulated fictitious quotes by players after a game using the five Cs:

- **Complexity:** ‘Now I see the big picture.’ ‘This showed me what our possibilities are.’ ‘We learned how the system works.’
- **Communication:** ‘Finally we are on the same wavelength.’ ‘We are now exchanging meanings, not just words.’
- **Creativity:** ‘Today we have glimpsed our future.’ ‘I would never have expected that we could invent this.’
- **Consensus:** ‘We went from win-lose to win-win.’ ‘Now I can see your point of view.’
- **Commitment to action:** ‘We now know that something has to change.’ ‘This has given us the confidence that we can make this thing work.’

**What gaming professionals say**

To get insight in what makes games work we formulated four questions. The first is really a restatement of the overall objective, while the other three are related questions that are relevant to people who wish to create or use simulation gaming.

1. What elements of a simulation gaming experience make it work?
2. How should simulation games be designed, organized and facilitated to make them work?
3. To what domains can simulation games be successfully applied?
4. What elements are affected by simulation games?

We asked these questions of ourselves and of gaming professionals assembled at the ISAGA (International Simulation and Gaming Association) conference 2007. What follows is an integration of the insights we obtained.
What makes game sessions work?
The answers that the professionals give to this question revolve mainly around two themes: emotion and relationships. First, games provide emotional satisfaction. They provide a challenge, something new in which a player has a clear goal, a chance of winning, and no great risk of losing. Keywords are enjoyment, engagement and immersion. Some professionals stress the fact that a game should have the proper level of frustration – ‘no pain, no gain’ – but there should be a degree of safety and a chance to achieve a measure of mastery over the task that is set.

Second, many games are collaborative adventures in which teams strive for joint goals. These games generate feelings of belonging and group cohesion. Such experiences can be particularly valuable for teams that are also teams in the real world.

Both emotion and relationships are themes deriving from the fact that games set a challenge that is novel and distinct from the rest of the world. They create a magic circle, a self-contained world that is both fictitious and super-realistically available for exploration.

How should games be designed, organized and facilitated?
We can discern various stages in the life cycle of a simulation game. First, someone becomes aware of a problem for which gaming would be appropriate. A design phase then starts, in which a game is conceived, either off the shelf or tailor-made. Once designed, the game is played one or more times, perhaps a great many times. These runs may or may not involve facilitators. People are involved in a variety of roles, perhaps combined in one person. They are, in order of appearance:

- Someone who pays the bill. This can be problematic in that games are seen as frivolous. It is our mission to show that even though games may be fun, playing them can be vital and their effects should be taken quite seriously.
- Someone who designs the game. In fact, design often involves both content experts and game designers. The former can ensure that the world model in the game is believable while the latter can ensure that the game is challenging and playable.
- Someone who prepares facilities. In the case of computer games, this task is obviously vital. Computer games typically make large claims on resources, especially if they are played over a network. In the case of non-computer games, getting the conditions right is also very important.
- Someone who facilitates game sessions. This requires a subtle combination of organizing skills, intellectual skills, authority and empathy.
- Players. The personalities, backgrounds and expectations of players matter greatly, and so do group composition and size.

Different opinions can be found among ‘our’ professionals regarding the most crucial elements of a game’s life cycle. Is it the design of a collaborative setting, an incentive structure, or a world model? Is it the expectations of the participants, the support of their bosses, or the facilities during a gaming session? Is it the attitude of a facilitator during a session, or the quality of a debriefing session afterwards? All of these factors are mentioned by the professionals. It takes a lot of experience to disentangle their effects, and evaluation of games is a tricky issue.

To what domains can games be applied?
Games are ubiquitous. They are used in all spheres of life, and not only by children. Sports, gambling, lotteries and leisure activities are obvious examples. Power play during meetings, investing on the stock market, and bargain hunting are less obviously frivolous examples. In fact the applicability of games is virtually unlimited, although practical considerations and taboos do limit their application. Any cognitively complex task can be modelled in a game, and the same holds for socially complex tasks or tasks that involve ambiguity. But the most enticing element in games is a balance between competition and collaboration. In this regard games mirror societies at large. Some societies are more competition-oriented while others are more collaboration-oriented, and the games in these societies show a corresponding variation. The domains simulation games may be applied are
various. The professionals we consulted in our quest for the active substance come from a variety of fields and disciplines, ranging from second life to warfare, from industrial production to psychotherapy, from education to business. This shows that simulations are applicable and are applied in very diverse domains.

**What elements are affected by simulation games?**

This is a tricky question. Games necessarily work at the level of the participants’ experience: they have or have not enjoyed playing, and they have probably made an emotional investment in the game, which they subsequently remember. They are especially likely to remember how successful they were and who their friends and enemies were. In short, what they remember is most certainly the emotional and relational side of the game experience.

But the game might or might not work at another level as well. As a consequence of our delineation the type of games considered in our search were designed or organized with the aim of achieving some kind of change or learning in the participants. This ‘objective of the game’ may have been quite different from the ‘objective in the game,’ which the participants were pursuing.

The objectives of designers, facilitators and clients revolve mostly around cognition-in-action. They are aimed at people who are unconsciously incompetent in a certain task or domain. Games are self-contained worlds. They contain some kind of model of a part of the world that the player manipulates or of which he or she is an integral part. The player thus learns about actions and their consequences in this simulated world. This learning can be direct, leading to unconscious competence, or more typically it can be the result of reflection during debriefing. The central issue in debriefing is the link between action and cognition: players become consciously incompetent, or even consciously competent.

In this respect, our professionals have mentioned the following affected elements: holistic knowledge, dynamics, coping with chaos and feeling out the response of others. Another family of affected elements is more strictly cognitive: not being overburdened with information, using information scaffolds, chunking information, seeing emergent patterns and experiencing repetition. There are also some possible motivational cognitive goals: tackling ‘why’ questions and changing dysfunctional behavioural patterns.

**To conclude**

Above we have described the results of our investigation on possible answers to the question why games work. Based on literature and interactions with professionals working with simulation games in a broad variety of domains, we have elaborated what elements of simulations games might be considered as active substance that make them work as they do. In the book *Why do games work: In search for the active substance* each of the participating professionals extensively describes and explains what he or she sees as the most powerful elements of simulation games. The preliminary search we have reported here and the extensive statements of the participating professionals in the book help us to provide some more insight in the question that was the point of departure for our quest. Dick Dukes statement of the early nineties still holds nowadays, but we think that we may rephrase that statement now a little bit: “*It works, and we now start to understand a little bit why!*”.

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