SIMULATION GAMES ARE POWERFUL PLAYFUL INTERVENTIONS. WE COME ACROSS SIMULATIONS OFTEN, IN ALL FORMS AND SHAPES. IVO WENZLER, SENIOR EXECUTIVE (PARTNER) AT ACCENTURE AND ASSOCIATE PROFESSOR AT THE DELFT UNIVERSITY OF TECHNOLOGY, HAS CREATED MORE THAN 30 SIMULATIONS OVER QUITE SOME YEARS. IN THIS INTERVIEW, HE TALKS ABOUT WHY SIMULATIONS WORK, AND WHAT EXACTLY IS THE 'ACTIVE SUBSTANCE' THAT MAKES PEOPLE LEARN FROM PLAYING SIMULATIONS. HIS OPENING STATEMENT: EFFECTIVE SIMULATIONS CREATE A BIG PICTURE, THEY ENTICE MEMORIES OF THE FUTURE, FACILITATE SHARED INTELLIGENCE AND MAKE CONFIDENT THAT YOU CAN SUCCEED.

Ivo Wenzler: 'Simulations as learning from the future'

BY ARNE GILLERT

Why do simulation games work? What is their hidden power?
Why simulation games can achieve the high quality outcomes (capability and decisions) is my view a combination of four things: big picture, memories of the future, shared intelligence, and confidence is success.
Simulation games are able to create a big picture by helping us identify critical elements of a complex problem, combine analysis of the whole with attention to detail, and get a holistic view of the change journey. They are also able to create memories of the future by helping us envision alternative futures within condensed time, test different approaches within a safe setting, and build our understanding of possible futures. Another property of simulation games is that they can create shared intelligence by helping us enable social construction of meaning, propagate ideas and skills, and enhance and facilitate communication. The fourth property is their ability to create confidence in success by helping us experience the benefits coming from change, build new knowledge, skills and behaviors, and build confidence in one's ability to perform.
Another way to look at the reasons to use simulation games is through retention, speed, and flexibility. Simulations create a significantly higher understanding and retention of content than traditional classroom training. Our research (Accenture) has shown that the content reaching learner's long-term memory is 25-50% higher. Simulations also allow for significant compression of training needed and much quicker and easily distributed rollout, when compared to traditional classroom training. The speed in which the participants are mastering the content is 40-70% faster. With their often modular and flexible structure simulations provide an effective and efficient framework for addition of further learning objectives (different segments of the workforce, different business processes, etc.).

What makes them work is (as already outlined above) their ability to effectively combine a creation of a big picture, memories of the future, shared intelligence, and confidence in success. What makes them work is also their ability to effectively combine a number of different learning approaches.

People have natural mechanisms for learning that allow them to master an enormous volume and variety of content during their lifetimes. Rather than fighting against these natural mechanisms, training should leverage them [natural learning].

There is really only one way to learn how to do something and that is to do it. In situations where it is too expensive or dangerous to allow participants to actually try out their skills real-time, we can provide realistic experience through simulations [learning by doing].

Real experts reason from entire libraries of cases. Most experts not only remember their experiences but they love to tell about them to others. These war stories have great educational value, because they enable us to learn through the experience of others [case based learning].

We label our experiences with respect to their outcomes. When the results match our expectations, we don't learn much. When the results fail to match our expectations we need to learn and recover from the failure and avoid repeating the same behavior next time [failure driven learning].

Goals drive what we do. When teaching relates to one's personal goals, rather than to those goals imposed upon them by others, we are eager to respond. To leverage the power of natural learning, we need to provide goals that we will willingly adopt [goal directed learning].

Teaching the facts that are important to know directly makes learning dull and difficult. The alternative is not to teach the facts at all, but rather to have the facts being discovered along the way as a response to what we wanted to know in the first place [incidental learning].

Everyone is interested in the parts of the world they believe relates to their own existence. This basic self-interest, if allowed to flourish intellectually, can lead to a wide variety of discoveries motivated by curiosity based on internal needs [learning by exploration].

While pursuing activities of interest, we generate ideas, hypotheses, and questions. When allowed to speculate, wonder, imagine, and be creative, our ability to understand and remember material will be enhanced [learning by reflection].

The essence of learning is the ability to manage change by changing oneself. It is an experiential process of discovery and play, not knowing what the final result will be, but knowing that you will be different when you come out at the other end [learning through accommodation].

Dr. Ivo Wenzler is a Senior Executive (Partner) at Accenture and Associate Professor at the Delft University of Technology. From his position in Accenture he currently works with large companies and government organizations undergoing business transformation, and helps them with development and implementation of their change and performance management approaches. In this work he often develops and implements a number of different simulation games that help these organizations improve their business performance. At the Delft University of Technology he teaches a master's course in simulation game design.

Types of Simulations

Market simulation is a representation of dynamic relationships between different actors within a certain market structure, where the behavior in the market is a direct result of the causal relationships between these actors and the decisions they make. The effect of causal relationships is based on actual decisions, assumptions, and decision rules, which are formalized by using mathematical equations, allowing for the simulation of the market behavior over time.

Policy simulation is a representation of a particular policy environment or issue, where the behavior of actors and the effects of their decisions are a direct result of the interaction between these actors and the relationship structure between them. This structure as well as the level and character of interaction is determined in most cases by actors themselves.

Dynamic business simulation is a representation of a dynamic behavior of a business system, where the behavior of the system is a direct result of the casual relationships between different elements of the system. The effect of causal relation-ships is based on assumptions and decision rules, which are then formalized by using mathematical equations, allowing for the simulation of the systems behavior over time.

Capability simulation is a representation of a dynamic behavior of an existing (or future) business process, where the behavior of the process is a result of a number of discrete events following one after another. The characteristics of these discrete events are based on assumptions and decision rules, which are then formalized by using mathematical equations, allowing for the simulation of the process behavior over time.

Day-in-a-life simulation is a one-to-one representation of a particular real-life business environment, with participants working in an integrated way with their new IT systems and processes, acting on their new roles and responsibilities, and using actual data and business cases. Everything is real, except the consequences.

Performance simulation is a representation of a particular business issue or environment, where all the elements of the business environment and the relationships between these elements are pre-designed and integrated into a computer program. Results of player's decisions are path-dependant.

Gaming simulation is a representation of a set of key relationships and structure elements of a particular issue or a problem environment, where the behavior of actors and the effects of their decisions are a direct result of the rules guiding the interaction between these actors. Most of the time the representation of the problem environment is a metaphoric or symbolic one, and at the higher level of abstraction.

I like this overview. And I am curious: how do you ensure that participants learn what was intended? And how can you influence that they apply what they have learned in their daily work practice, in a sustainable way?

I would make it even bigger, simulation games are not only about developing the right capabilities, but they are also used to help participants create quality decisions. In practice this means that a simulation game provides the environment where a group of decision makers test different approaches to a particular problem and use this environment to come to a specific set of quality decisions. An example could be the simulation game to test different ways in organizing a client service process, and resulting in concrete decisions on the structure of the process and the systems supporting it. These two outcomes (capabilities and decisions) will only have impact on performance if they are accepted by the audience, could be implemented, and are sustainable. The level of acceptance and the sustainability of the outcome are things that simulation games can influence to a great deal.

However, the implementation potential of the outcome is to a great extent determined by factors lying outside the simulation game itself. Simulation games can help people develop the right capability (awareness of the intent and the knowledge, skills, and behaviors to act), but the ability to apply it is primarily enabled or constrained by elements

outside the simulation game itself. The processes need to be right, the roles and responsibilities need to be clear and transparent, the IT systems need to work as intended, the work environment has to be appropriate to the tasks, and the people need to be given the authority to act on what has been learned. Simulation games can help in creating these conditions, but not in activating them. An example would be a simulation game that helped people learn how to use new IT systems in the context of new client related processes, but they can not apply what they have learned because the system is unstable and does not work as intended. The inability to apply what has been learned is then clearly not related to the quality of the simulation game, but to the quality of the process providing the conditions to apply what has been learned.

Where does the power of a simulation game to create these outcomes come from?

I understand your question as being about why simulation games deliver these outcomes and where does their power come from: in other words, what is their active substance.

In my view active substance can be defined in three ways, all of them on a different level. Active substance can be first seen as the ingredient that actually makes the simulation game work as intended (like the active substance in medicine). Secondly it can be defined as an ingredient that makes the game simulation taste and feel as intended (like salt in cooking). Thirdly, it can be defined as something on a more structural level (like a genetic code), determining the boundaries of what a simulation game is supposed to be.

I understand the first one as: the things that you wanted to happen in the game? As if the 'mechanics' of your structure and simulation work. Interesting question is then, after the definition: How do you ensure working 'mechanics'? What are the challenges?

This first definition of active substance is more than mechanics. It is looking into all ingredients that make the game really work as intended. The key ingredients from this perspective are steps of play, the rules of interaction, and the character of material being used. When designed and applied properly these ingredients will first ensure that the focus of participants during the simulation game stays on what is important and that the intent of what needs to be done is always clear and understood. Secondly they will ensure that the play is at the right level of abstraction (matching the objectives) and the required learning happens in the time available.

The main challenges are also the same. For instance: how to structure the steps of play so that the focus on what the game is supposed to achieve keeps being reinforced (how many steps, how long, how iterative, how intuitive, and how interactive) or what is the right level of symbolism of materials being used to ensure the intent is not only understood but understood at the right time.

I understand your second perspective as: the simulation feels like real life (if that was intended). Interesting question to me here is: how do you achieve that? And what are other criteria than 'close to real life' that one could use?

This second definition of active substance is focusing on the ingredients that make the game feel as intended. What I mean by feel as intended (as opposite to work as intended) is the ability of a simulation game to be perceived by participants in a specific way on a more physical and emotional level. The feeling of reality is one part of it. The ingredients (steps, rules, and the material) are the same as in the first definition, but they are used to ensure the right level of discomfort, difficulty, fun, and suspension of disbelief. Extending the boundaries of comfort, like giving managers the role of employees and vice versa, is very often important in achieving the learning objectives. The same is with the level of difficulty. The combination of steps, rules and materials should ensure that players feel the pain of failure as well as the joy of success. The right level of fun is important as well, because it provides a safety valve if the pressure becomes too high. Most of the time this is achieved through the character of materials we use (like using the LEGO pieces to symbolize people or things). The fourth thing that needs to be achieved is the suspension of disbelief, with participants continuously feeling that the simulation game is the only reality at the time.

Being close to reality is not a criterion in itself. It is a choice that is made by designers when deciding on what I call a 'story line'. The range of options is from one-to-one relation

to reality (for instance in day-in-a-life simulation games) to a full metaphor. A good example is a game 'The end of a line' by Fred Goodman where he uses a rope of different lengths to tie participants to their chairs to symbolize the restrictions in movement of old people.

What about the third perspective on 'active substance'?

Active substance can be also defined as something on a more structural level (like a genetic code), determining the boundaries of what a simulation game is supposed to be. When looking at this third level there are four basic components we can look into: context in which it is taking place, the character of the playing participants, process the players are going through, and the environment in which the simulation game is taking place.

This third perspective is different from the first two because it looks at the possible options for each component when designing a simulation game. It is a vehicle to define the possibilities and guide decisions. For instance one dimension of the 'context' component is the storyline. When we are deciding on the storyline there is a range of possibilities, from fully metaphor based to the one fully based on the reality at hand. It is important to note that all three perspectives work from the same list of components and dimensions.

Can every question be resolved with a simulation game?

I do not believe that every learning challenge can be addressed with a simulation game, although on a more fundamental level I could argue that everything we do is a sort of simulation. Our brains are continuously (and subconsciously) creating a whole series of possible future scenarios (simulations) and at the moment of action we draw from these memories of the future. Thus every action we take is based on learning form the past (past memory) and learning from the future (simulations).

Really like these thoughts! Simulations as learning from the future? You also mentioned 'memories of the future' as an ingredient?

The more we learn about the working of a our brains, the more evident it becomes that it is a fantastically complex machinery with optical analyzers, motion guidance systems, simulations of the world, databases on people and things, goal-schedulers, and conflict-solvers. According to Steven Pinker natural selection has designed this machinery to be an information processor, and now it perceives, imagines, simulates, and plans. It is not driven by a 'Thou shalt...,' imperative but by a constant process of 'If...then...else.'

In other words, our mind is constantly attempting to make sense of the future. Every moment of our lives, we consciously and unconsciously create a large number of plans and programs (time paths) for the anticipated future, with each of them combining a future hypothetical condition of the environment with an option for action. While writing this I am not only going through a whole series of 'what ifs' regarding what and how to say what I wish to say, but I am also thinking about will I finish this paper in time, what if I am late, how does that reflect on my schedule for the coming days, what are my options, what would each of them require, etc.

According to a theory by David Ingvar (and so eloquently presented by Arie de Geus) not only does our mind make those time paths, it also stores them. We visit these alternative futures and we remember our visits. We have, in other words, memories of the future continually being formed and optimized in our imagination and we revisit them time and time again. Any signal coming from the environment around us can be perceived as meaningful only if it fits meaningfully with our memories, both past and future.

For those organizations that are undergoing transformational change, it is essential to build up an organizational memory of the future. It makes them prepared. Instead of trying to predict the future (which is more often than not an exercise in futility), they could rely on their memory of the many futures they have already visited. Simulation games help them achieve that. They allow organizations to test different approaches and solutions within a safe setting, thus helping them learn how to perform in the future. By facilitating such rehearsals of the future and by helping organizations envision and explore a multitude of time paths, simulation games can effectively build their memories of the future(s). The results are not only the key insights on what are the value-creating opportunities, but an increased ability of the organization to adapt to the changing environment.