Game on

Learning by doing. Being immersed in a situation so you are able to experience it and learn from it. This is the backbone of serious gaming. Maritime by Holland Magazine takes a closer look at how the game is played.

"People often comment that there is a gap between theory and real life situations", comments Rob van Leeuwen of Integraal Samenwerken (a Dutch term for integral cooperation), a type of joint industry project aimed at enhancing cooperation between companies within the shipbuilding industry and schools and looking for creative solutions. "This is also true for the way in which training is approached. The teacher will stand in front of his students, sharing the information he is required to share, which often leads to people feeling overwhelmed and forgetting more than half of what they have heard." Serious gaming puts the participant central in the training. What does he or she want to learn, which information or even better, which 'understanding' is necessary to achieve this and how can this be implemented? The eventual goal is to deliver a participant who actually has a high level of 'situational awareness' and in the end, 'situational competences'. Meaning he or she is able to practice his or her knowledge in all situations and under all kinds of circumstances.

Innovative, but not creative

"Social innovation", continues Van Leeuwen. "That is one of the main goals of Integraal Samenwerken. To bring together companies and develop the communication lines. We have eleven projects, from p1 to p11, and serious gaming is part of project p1, aimed at processes and social conduct, and p4, which entails merging education and real life. We aim to create a bridge to close the divide. What makes a student or participant happy? The maritime industry is incredibly innovative, yet it is not always creative. The technical side of the industry attracts a type of person that is highly educated in technique but a little less communication wise and in social dynamics. Nothing wrong with that, but in order to reach higher levels of innovation power within the maritime industry we have to synthesise a diverse pallet of knowledge. Knowledge of products as well as processes. And that of course needs other qualities than only the knowledge itself. It needs integration and unity. This is a creative struggle and exposes the more 'human' side of the industry. Serious gaming surely can be one of the means to reach that."

A board game come to life

Van Leeuwen, along with the other participating companies and students within the project have developed a board game. This game aims to take the participant out of his or her comfort zone and to immerse him or her in the 'learning' situation'. "The basis is of course what the participants wants to learn", enforces Van Leeuwen, "yet I also want them to think about more than themselves. To reflect on the way they share information with colleagues, to think about what something means and what they are able to do with the information given to them. Who am I? Which role am I playing? What is my responsibility? And what are the subparts of my role?" Van Leeuwen views serious gaming as a

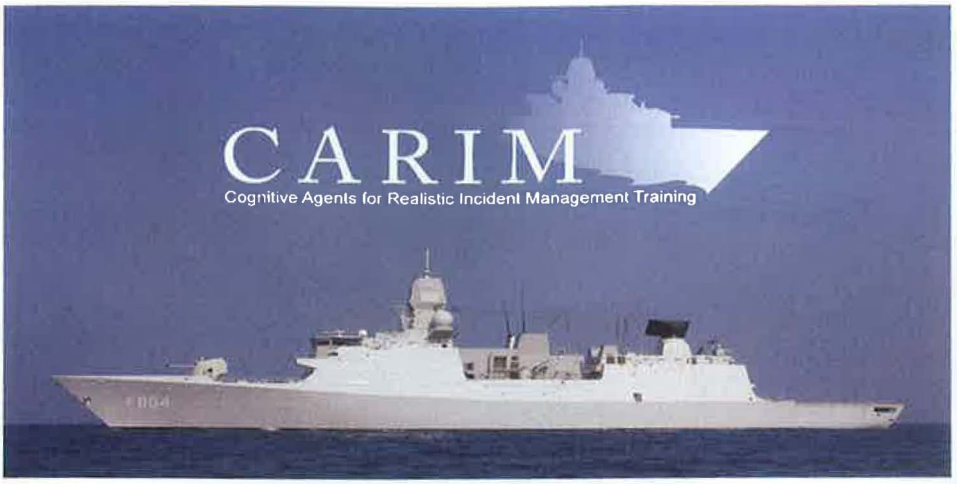
type of zip, melting together the 'hard' knowledge of product and the process with the 'soft' aspects of personal and social skills, leading to a better group-performance. The board game is still in a concept phase and was tested successfully in July 2013. Van Leeuwen comments on the board game: "It is very hands-on and tangible, aimed at the participant enjoying the experience of learning. I would like people to enjoy their jobs and to do their best to make it successful."

Applied gaming

Board games are one of the many ways serious gaming can be approached. Other types of games are computer based and can embed simulation models. TNO, the Netherlands Organisation for Applied Scientific Research, has been working on serious gaming for several years, although they call it applied gaming. The term 'applied' refers to the fact that the game is applied to reach a certain goal and not played just for fun. Annerieke Heuvelink, research scientist at TNO, explains: "Serious or applied games give participants a safe environment in which they can learn required tools, techniques or competencies by discovery. Plus, games allow you to easily add or deduct parts. You could for instance add a time element, forcing the participant to prioritise what needs to be done. Adding a competitive element can have a strong motivating effect."

New game, different roles

"Applied gaming also means the teacher takes on a very different role. Instead of conveying information the teacher now helps with synthesising the knowledge gained in the game by asking reflective questions after-action: what went well, what could you do different? But when do you use applied gaming?" continues Heuvelink. "As a company, you need to figure out what will work in your situation. Sometimes a board game is sufficient, or even an online game, and other times a simulator can offer the correct means. The great thing about a game is that you can go back and try again. For example, one of our team-training games starts with a personality test. The results allow you to place a person in a situation they will be uncomfortable in. Say the test shows some a person would rather remain in the background, for the sake of the training you can make him a leader. You know this will fail, but the game gives you the opportunity to take a time out, evaluate what is happening or going wrong and then proceed with a pointer here and there. As I said, a safe environment, where mistakes do not mean anything serious."



Make learning fun

TNO works in partnership with game studios on the design and implementation of applied games. TNO, with its broad domain knowledge and knowledge of game design, ensures that applied games have the intended learning effect. So, TNO does not actually make the games used in applied gaming. Their role is to consult companies and to help develop the learning method. Heuvelink: "We have partners who make the games for us. Now, unfortunately, the budgets are not as large as they are for commercial games you can buy, yet they still look good and serve their purpose. The game in itself is a huge part of the experience, but moreover it should be clear what needs to be imprinted or learnt by the participants. The game offers you the means. Even a game like Tetris can provide improvement in your spatial awareness. Plus, games have the added bonus of making learning fun."

CARIM

A good example of applied gaming is CARIM, developed by TNO and Vstep, a creator of serious games and simulators. Within this project a desktop-simulation training embeds virtual players that can act independently and intelligently. It was designed as a training for decision making in complex environments, such as crisis management. CARIM, Cognitive Agents for Realistic Incident Management training, is aimed at firefighting on naval ships, a task in which commanding marine officers need to be trained. Within the game the participant plays the role of the commanding officer, the four team members are played by so-called intelligent agents. These intelligent agents were modeled as experts in their task and were developed by using the Belief Desire Intention (BDI) paradigm, a human practical reasoning model. The results mean a low-cost training solution for the Dutch Navy. Also, the game can be done at any time.

Van Leeuwen hopes that as serious gaming kicks off, more understanding will be created for the means necessary for the training of personnel and the ways in which to do so. The classical teacher/student relationship is dated and needs enrichment. Serious games offer an experience for participants and as such developing insight into the way they work. "It is so interesting", Van Leeuwen smiles. "Gaming – experiential learning – has never been more useful."

Rebecca McFedries

Serious gaming offers a safe environment to learn