

Simulation Games: a Stimulating Approach to Active Learning

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Holistic learning with simulation games

“Learning by doing“ is an old educational theory which today under the concept of hands-on learning is valued highly. The learners should actively come to grips with the material to be learnt by actively participating. This demand is excellently met by the simulation game, because it encourages the learners to activ, self-initiative, experimentalism and practice-orientated learning. The following characteristic aspects of simulation games (modified according to Capaul 2001) contribute to the promotion of holistic learning:

- The game system includes the cognitive as well as the affective dimension.
- The problems are in touch with reality, authentic and generally require an interdisciplinary approach.
- The game system promotes communication and interaction between the learners.
- The game system is aligned with the learners so that they can pick up on their previous knowledge and existing experience.
- Systematically looking back at the learning process is an integrated component of the game (debriefing). In this way the transfer to a future learning/practical field is prepared and the learning process is consciously completed.

The history of planning and simulation games

In the 18th century the first planning games were designed in order to run through military operational plans. After the initially almost exclusive use in the military context the planning game method entered the business application area from 1950 onwards. Based on the view that military leaders had to make similar decisions to managers the knowledge from the military simulation games was used to develop company games. Since then a number of so-called management games have been developed. Planning games are now widely used in business courses and management training. The planning game is the manager's equivalent of the flight simulator for pilots as it can depict networked and dynamic systems and simulate complex decision-making situations. In the 1960s the planning game method broke new ground in administration, politics, ecology and spatial planning. Lately a trend towards psychology, sociology and environmental training can be observed. (Capaul 2001)

In the simulation game the learners are immersed in a simulated, fictive reality which becomes an experimental field of the players. Game in this context means the fact-related decision, communication and interaction game in which hypothetic possibility worlds are created and creatively played through on an experimental level. The players adopt the roles of others and experience and observe situations from this new perspective. With simulation games training can be designed more complexly and closer to reality. They are particularly suitable for training social skills as well as problem-solving and decision-making capacity (Capaul, Ulrich 2003).

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Disaster Risk Management Game

Simulation games in capacity building

Simulation games can be used in various phases of training activities and fulfil different functions. At the beginning of a training session a game promotes getting to know each other and makes it easier to start a more in-depth workshop. Possible functions are:

- **Introduction to a new topic:** Introducing a new topic in the form of a game can make its complexity easier to grasp and conveys an initial overview of relations, links, and dynamics.
- **Identification of key aspects for the training:** The course of the game and the assessment that follows show what knowledge the participants already have and where there are still gaps. Core topics and needs for the training can be identified.
- **Creating a common reference framework:** The common game experience forms a shared experience which is used as a reference for the following discussions.
- **Applying new knowledge:** At the end of training newly acquired knowledge can be used and tested in game form.

■ Refreshing knowledge:

After completing a training course there is always a risk of losing this newly acquired knowledge. Learning games help to refresh already acquired knowledge in a playful way.

The Centre for Development and Environment (CDE) at the University of Berne was contracted by SDC/CO-PRET² to design and develop the learning and simulation game CONMICOM – Conflict Mitigation in Communities.

The simulation and learning game CONMICOM – Conflict Mitigation in Communities

Three extended families live around a lake, one family consists of rice farmers, another of vegetable farmers and the third one of herders. They all need huge quantities of water for their production and are dependent on using the water from the lake. At the beginning of the game the use and the regeneration of the resource water are balanced and the lake is used sustainably.

In the game each family is represented by its council of elders, which consists of a game team of three to five people. The task of each council of elders is to find means and ways to satisfy the needs of its own family. However, the lake water may not be excessively used as otherwise there is a risk of the resource collapsing. The growth of the population and new needs force the families to continuously increase their production in order to secure their subsistence requirements. If a family manages to extend its production area to

² *Swiss Agency for Development and Cooperation / Division Conflict Prevention and Transformation*

such a scale that its production exceeds the family's subsistence requirements, it can generate an income by selling the surplus. Every expansion of the production area leads to an increase in water consumption. Depending on the strategies developed by the councils of elders to satisfy their families, in the medium-term the sustainability of the water use is at risk and under certain circumstances later jeopardise the existence of all the families. If the use of the lake water exceeds a certain threshold the resource use is no longer sustainable and as a result the yields drop. The families now have to buy additional food in order to satisfy their needs.

A high conflict potential results from this constellation of problems. How do the councils of elders deal with the dilemma of having to increase production faced with a growing shortage of resources? Do they blindly pursue their own best interests or do they seek compromises and are open to joint solutions? Do they use the power of the strongest or do they form alliances and co-operations? What course of action do they decide on and how do they deal with the conflicts arising?

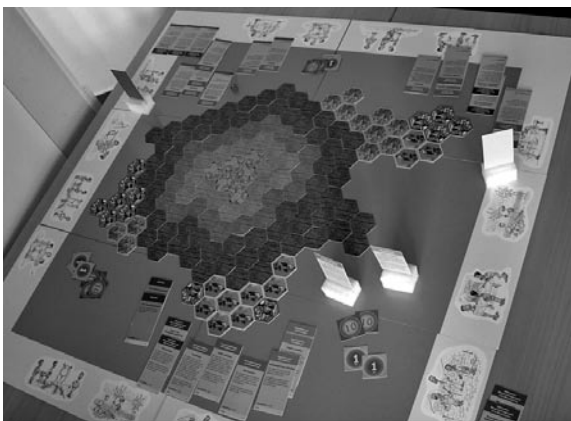
For the necessary balancing act between economic requirements, sustainable resource management and the individual and collective interests, various strategies are available to the players. Each family has a set of action



“Optimizing household strategies” used at a village level near Dushanbe, Tadjikistan.

cards outlining various options for action. These are allocated to four different strategies: a) power play to enforce self interests, b) trust-building and cooperation to start negotiations with neighbours, c) efficient water management and income generating alternatives to reduce the pressure on the resource water, as well as d) simply doing nothing if there is no need for action. Every action is connected with expenses, whether it is necessary financial or personnel resources. Therefore every action card has its price and the council of elders has to produce these investment costs in order to be able to play this card.

In every round of the game each family plays an action card. It can use this card to react to or act against any other family. From the action taken (cards played) generally profits or additional costs result for one or more of the groups of players. As the game progresses new options for action (action cards) are added, but not all parties can profit from them equally. The richest family (based on the size of its production area and its available financial resources) has the advantage of receiving the most new options and thus extending its room for manoeuvre. It may also start the new round of the game and can therefore *act* while others may perhaps have to *react*.



The Conmicom Board

The objective of each family is to enforce its own interests through clever strategies and negotiations and to secure its position whilst simultaneously optimising the use of the resource water so that it is not depleted. The end of the game is open, i.e. the game can end if one or two families drop out because they can no longer cover their subsistence requirements. On the other hand it can end with all three families jointly succeeding in creating a situation which enables them to sustainably secure their needs as well as the requirements of a sustainable use of the resource water.

The game takes 3-4 hours and is led by a game facilitator. He explains the rules of the game, monitors the progression and manages the game protocol in which the sequence of the cards played, the current water level as well as the respective assets of the parties are recorded. The game protocol serves for the traceability of the game and can be used as a discussion basis in the debriefing or evaluation phase. The game facilitator has a set of cards with which he can influence the dynamics of the game by bringing external influences into the events of the game.

Debriefing and learning transfer

Following the game there is a debriefing phase which, depending on the objective, can take another 2-4 hours. The debriefing or evaluation phase is an integral part of the simulation game. It is aimed at the reflection and evaluation of the course of the game and is central for the learning transfer. With the help of specific debriefing guidelines the facilitator raises questions about the various action strategies of the game, the formation of alliances, the communication behaviour within each family as well as between the families etc.. Specific game situations and their dynamics are analysed and discussed and - a particularly important point – compared with real life experiences from private and professional daily life of the learners. Finally important findings and lessons learnt about how to deal with conflicts as well as their mitigate and prevent them in the first place are formulated and - depending on the learning situation – aspects are identified which require more detailed examination.

Learning insights gained from the NRM game

“The result of the game we played showed that, against all expectations, creative approaches can indeed save systems doomed to failure. To this end you have to think beyond the existing limits and new solutions have to be found.”

“I was somewhat surprised that although most of the players started with every intention of acting as evil egoists they finally all acted socially and co-operatively. What stopped us from giving in to our nasty side – not even in the game?”

“I love playing games and had a great deal of fun in playing this one. I wonder however if those who are not such keen players get enough benefits out of the game to make up for the fun factor.”

“The game confirmed that intensively searching for win-win factors can be worthwhile.”

“How did our game develop? How did we succeed in avoiding Darwin's power play and instead survive well in a kind of social market economy? What did my own behaviour contribute to this? In each answer “trust in the others” was part of the response. Trust and credibility as the prerequisite for the joint success.”

CONMICOM learning goals

In the CONMICOM game the players experience how tensions develop, become more serious and finally escalate into concrete conflicts, but also how they can be defused and how a considerate approach and co-operation can contribute to preventing and solving conflicts. The players realise what impact power play has and how alliances are formed, and the importance of trust-building measures, consensus and co-operation.

Just like other simulation games CONMICOM also makes it possible to test actions in a complex, simulated environment and encourages the players to see things from the other persons' point of view. Specific learning goals of CONMICOM are:

- The players experience themselves in a simulated conflict situation and get to know themselves and their conflict behaviour better.

- The players are made more aware of the range of possible actions which are available to defuse but also escalate a conflict situation, and of the material and social price connected with each option.
- They learn about the dynamics of conflicts, what escalates them and what can contribute to de-escalation.
- The players achieve a better understanding of their own experiences in real conflict situations and gain important insights with regard to preventing and dealing with conflicts.



“Optimizing household strategies” in action.

Experiences with CONMICOM

Practical experiences with CONMICOM are so far limited to a series of test games in different contexts in Switzerland and in Central Asia and to various groups of people both from development cooperation and elsewhere. In summary it can be concluded:

- The players generally enjoyed the game and found it appealing. Although initially the game appears to be somewhat complex and complicated, the topic and the set-up of the game were comprehended quickly.
- The players are well able to create the link to reality.
- The game depicts aspects of reality well (e.g. that investments in efficient water management are high and that the available resources are often not sufficient, or that short-term thinking can be necessary for survival).
- In addition to the overall dynamics of the game, the dynamics within the individual families is very interesting.
- The test series has shown that the game can most definitely have different endings: either it ends because one or two families drop out, or the three parties find a modus vivendi that enables a long-term, sustainable use of the lake water.

What are the application areas for CONMICOM in development cooperation?

The specific contents of the game were chosen in such a way that it is generally applicable to different regional and cultural contexts. With little effort specific adjustments to a given context are indeed possible.

CONMICOM can be used in different contexts. However, it has primarily been designed for two application areas: On the one hand for the use in training programmes and activities in the field of conflict management and mediation. It is both suitable for training in the back office as well as in the field. The game should not be used alone, but will optimally be embedded as an element in a training unit, whether to launch a topic or to test what has been learnt. A second application area is the project level for creating awareness for and training of project and field workers who in their direct work with user groups move in a field where undercurrent conflicts exist surrounding the use of natural resources. However, it is strongly recommended not to use the simulation game directly in a conflict situation, because lack of distance to the conflict can lead to a more acute dynamic and a worsening of the situation. Apart from these two main areas CONMICOM might also be used in other training contexts where the subject of dealing with conflicts is covered, for example in training agricultural advisors or for employees of governance programmes.

These two simulation games also developed by CDE are successfully used in Central Asia in training for village development and risk management:

Optimising household strategies

Up to 15 people can participate in the game which is supervised by a facilitator. Households consisting of 1-5 people discuss options for diversification of household strategies. Players participate very actively, as the game stimulates lively and interesting discussions. They explore different ways to model their own household strategies and discuss risks and opportunities. Reflections on the course of the game continually refer to the real-life situations of the participants.

Local Natural Disaster Risk Management

This game was developed as a training tool for risk management. It imparts important rules of conduct and knowledge of measures to take in prevention and in case of emergency. The game is moderated by a facilitator and lasts for 3-4 hours. It can be played by 10-15 inhabitants of a village and representatives of local and regional administration. This game is regularly used in training programmes in Central Asia.

Contacts:

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More information about simulation and learning games: http://www.cde.unibe.ch/Tools/ALS_ProdServ_Ts.asp#sg

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For further information: www.cde.unibe.ch/Tools/ALS_ProdServ_Ts.asp#sg

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