23. Effective Learning Through Gaming Simulation Design

Willy C. Kriz\(^1\), Matthias Puschert\(^2\), Angelika Dufter-Weis\(^2\), and Juliane Karl\(^2\)

Introduction

In order to survive, people, groups, organizations, and societies need to adapt continuously to the change of inner and outer conditions. Therefore, human beings and social systems must be able to learn. Learning on the individual level implies acquiring knowledge, skills, and competencies in order to cope successfully with different circumstances. Learners need to change their inner conditions. Through cognitive (re)construction of mental models, learners change their perception and interpretation patterns of reality. Simultaneously, individuals must deal with the environment in which they live. Learning at the level of social systems signifies the change of systems cultures and structures. Organizational learning affects the (re)construction of social representations and norms of groups and the development of social systems’ processes in order to create sustainable and humane societies.

With the use of gaming simulation, a general competence in dealing with change processes can be developed. Simulation games can also be used for supporting the acquisition of knowledge and competencies in a domain-specific context for the training of specific skills. Gaming simulation and the design of simulations with debriefing can be used as methods of training to foster individual learning processes. Simultaneously, the use and design of simulation games effects learning at the organizational level. New sensibilities and awareness, new team skills, competencies and cognitive capacities, new action rules, attitudes, and values that are formed in the run and design process of simulation games give direction, and are implemented to produce new organizational approaches, structures, and corporate cultures (Kriz 1998, 2001). Gaming simulation enhances a shift of existing organizational cultures and structures and in this way contributes to the change process of social systems. This leads to a preferred (re)construc-

\(^1\)Assistant Professor, Department of Psychology, Ludwig-Maximilians-University Munich, Leopoldstr. 13, D-80802 München, Germany; wkriz@edopsy.uni-muenchen.de
\(^2\)Ludwig-Maximilians-University, Munich, Germany
tion of real situations through the constitution of new action patterns, norms and roles, and the change of the physical and social environment itself. In this way, organizational learning, individual learning in organizations (e.g., in school, university, company, etc.), and the cultural change of organizations form the basis and offer fundamental social contributions to maintain healthy and peaceful societies.

A Training Course with Gaming Simulation Design

In the process of experiential learning, the playing of simulations games, their design, and debriefing are all important aspects of the learning cycle. We developed a 560-h gaming simulation-based training course on systems competence (the program takes 1.5 years). During the course, participants not only play simulation games and experience different forms of debriefing, they also learn how to facilitate and debrief simulation games (“train the trainer”). In addition, they design simulation games as well as debriefing sessions (“train the designer”). See Table 1.

The main contents and objectives of the program are: fostering of systems thinking (especially skills for analysis and sustainable development of complex system dynamics), fostering of teamwork skills (especially training of competencies for better problem solving, decision making, communication, and exchange of mental models in groups), and learning about methods of gaming simulation. Within the program, simulation games are designed that should contribute to the sustainable development and cultural change of selected social systems.

During Seminar 1, students participate in different simulation games in order to gain basic skills in systems competence and to learn about methods of gaming simulation (e.g., policy exercises, role play, pure games and experiential learning activities, simulation games and played simulations, computer simulations). In this seminar, trainers lecture on theory (lecture and discussion), present various techniques (e.g., tools for building models and systems analysis, brainstorming techniques, decision-making techniques, debriefing methods, etc.), and run illustrative simulation games.

During Seminar 2, the participants gather information and knowledge, and prepare methods, techniques, and simulation games in small project teams (with coaching by the trainers). The participants are the ones that lead the activities of the second seminar: facilitate and debrief simulation games, train methods and techniques (similar to Seminar 1). In addition, optional workshops are offered: a special course in outdoor training methods (e.g., with low and high ropes course elements and special combinations of outdoor exercises and gaming simulation), a seminar about computer simulation, and use of system modeling software and a workshop on large-group simulation games. Special problems and effects of large group games are not only discussed in theory, participants of the workshop also prepare and facilitate a large group game with more than 100 participants.