

Ingrid Schönwald, Dieter Euler, Albert Angehrn,
Sabine Seufert

EduChallenge

Learning Scenarios

Designing and Evaluating Learning Scenarios with a
Team-Based Simulation on Change Management
in Higher Education

SCIL Report 8
January 2006

Editors:
Prof. Dr. Dieter Euler, Dr. Sabine Seufert
ISBN: 3-906 528-44-8

Swiss Centre for Innovations in Learning
Institut für Wirtschaftspädagogik
Dufourstrasse 40a
CH-9000 St. Gallen

Phone: ++41 (0)71 224 31 55
Fax: ++41 (0)71 224 26 19
E-Mail: scil-info@unisg.ch
Web: www.scil.ch

About SCIL

The Swiss Centre for Innovations in Learning (SCIL) promotes competent and meaningful use of new technologies in university and corporate education. SCIL provides consulting, coaching, research, and moderation to accelerate progress towards enhanced quality in education. The centre was founded in March 2003. It is initiated and supported by the GEBERT RÜF FOUNDATION for five years.

Contents

1	Introduction	4
2	The Challenges of Change in Educational Organisations	5
3	Overview of the EduChallenge Simulation Design	7
3.1	The Scenario	7
3.2	The Mission	8
3.3	Task 1: Strategy Development	8
3.4	Task 2: Strategy Implementation	9
3.4.1	Interventions and Feedback	10
3.4.2	Unplanned Events	11
3.4.3	The Individual Dimension	12
3.4.4	The Political Dimension	12
3.4.5	The Cultural Dimension	13
4	Exploring EduChallenge Learning Scenarios	14
4.1	Games and Simulations	14
4.2	Potential Benefits of Simulations for Learning	15
4.3	Underlying Learning Theories and Models	17
4.4	Designing an EduChallenge Learning Scenario	18
4.4.1	Defining Learning Objectives for the Specific Target Group	18
4.4.2	Designing an EduChallenge Workshop Session	20
4.5	Facilitating an EduChallenge Session	21
4.5.1	Briefing	22
4.5.2	Playing the Simulation	22
4.5.3	Debriefing	23
5	Evaluation Research on EduChallenge	26
5.1	Context of the Evaluation	26
5.2	Objectives of the Evaluation	26
5.3	Evaluation Design	26
5.4	Results	28
5.5	Interpretation	31
6	Perspectives	33
7	Appendix	34
7.1	Test 1 (in German)	34
7.2	Test 2 (in German)	35

I Introduction

Traditional academic values and practices in universities are increasingly confronted with the manifold requests of the modern knowledge society, such as the creation of an European area for higher education through the Bologna reform, the integration of new technologies in academic teaching processes or changing student needs and prerequisites.

A large number of innovation efforts are taking place at universities at the moment, however many of these endeavours typically result in few changes and high frustration of the people involved – the change promoters feel dissatisfied by the perceived resistance of their colleagues, and the sceptics feel confirmed in their opinion that a lot of time and money is wasted for nothing.

Many academic leaders such as presidents, chancellors or deans are willing to accept the challenges of a ‘change agent’ in their organisation or department, however many of them lack the experience and knowledge to manage a successful organisational change process. How can change processes be guided effectively in universities?

The motivation to bridge the gap between the existing theoretical concepts and practical approaches on managing change in universities was the starting point for developing the EduChallenge Simulation. The EduChallenge Simulation is a computer-based simulation, which enables participants to explore the role of change agents in educational organisations in a risk-free environment. It constitutes an innovative learning tool to be used in a variety of learning scenarios for different target groups.

While the SCIL Report 7 “Behind EduChallenge” (Angehrn, Schönwald, Euler & Seufert, 2005) provides an overview of the underlying theoretical concepts of EduChallenge and describes the modelling of the simulation, this SCIL Report explores the design of learning scenarios with the EduChallenge Simulation. Thus this publication mainly addresses potential EduChallenge workshop facilitators might also find the interest of practitioners and researchers in the field of simulation-based learning as well as organisational change in higher education.

The paper starts with outlining the challenges of change in higher education in chapter 2. The structure and key design elements of the EduChallenge Simulation are described in chapter 3. Based on general reflections on using educational simulations, potential learning scenarios for EduChallenge are explored and analysed in chapter 4. The design and results from a first evaluation study on the effectiveness of different learning scenarios are presented in chapter 5. Perspectives on further evaluations are given in chapter 6.

2 The Challenges of Change in Educational Organisations

Permanence, rather than change readiness, appears to be the key characteristic of educational institutions. Universities are among the few organisations, which managed to survive from their foundation in the medieval times until today, operating from the same location, “with professors and students doing much the same thing, and with governance carried on in much the same way” (Kerr, 1982, p. 152).

Nevertheless, beyond the essentially superficial adoption of management fads like TQM (Total Quality Management) or BPR (Business Process Re-engineering) as documented by Birnbaum (2000), higher education institutions have increasingly come under pressure to improve their efficiency and effectiveness, as well as to face new expectation levels and forms of competition, and to harmonize processes. For instance, as discussed in Reichert & Tauch (2003), the Bologna Process is the most important and wide ranging reform of higher education in Europe. It provides a clear message and ambitious targets for European Higher Education Institutions and its implementation involves a significant rethinking of current teaching structures, units, methods, evaluation, the permeability between disciplines and institutions, as well as measures aimed at enhancing academic quality and the employability of graduates.

The key idea underlying the Bologna Process, similarly to analogous processes launched worldwide, is that conventional assumptions about learning, teaching, assessment and school management practices will not serve higher education well in the twenty-first century. Collectively, these trends clearly require educators, i. e. faculty members and administrators alike, to re-examine and transform current assumptions about the ways they engage learners in the educational process (for instance through the creative integration of new technologies), as well as design and manage the organizational contexts in which this process is supposed to take place.

Case studies like the one presented by Bottomley et al. (1999) or Hanson (2003), studies reviewing innovation theory and practice in the higher education context (Dooley, 1999; Kerr, 1987; Van Vught, 1989), excellent reviews and critical synthesis of research related to change in universities such as the one by Kezar (2001), as well as specific studies focusing on dimensions such as leadership (Barone, 2001) or organizational learning (Boyce, 2003), have contributed over the last few decades in extending the understanding of the challenges involved in managing successful change in higher education.

One of the key insights emerging from these studies is that change in universities is a very challenging task, even more challenging than in market-driven organisations, calling implicitly for innovative approaches to the development of higher levels of change readiness both at the individual and organisational level.

The identification and selection of change management models from the literature (as described in more details in Angehrn et al., 2005) provided the basis for designing a multimedia simulation addressing the dynamics of change, diffusion and resistance in university environments. This simulation is the key component of a learning experience (a simulation-based workshop of a half up to one day) targeting facilitated groups of participants (faculty and staff members in universities as well as decision makers in higher education contexts). It supports learners in extending their understanding of change management processes in higher education contexts, i. e. supporting and extending their understanding of the underlying complexity, such as acknowledging individual diversity, understanding and facing resistance, selecting effective change management and communication tactics, managing effectively diffusion processes, and addressing HE-specific cultural factors.

3 Overview of the EduChallenge Simulation Design

EduChallenge is a team-based multimedia simulation on the dynamics of change and change management approaches in educational organisations. The simulation was developed as a joint project of Prof. Dr. Albert Angehrn (INSEAD) and SCIL within the scope of the SCIL Fellowship Programme 2004/05. Core design principles and elements of EduChallenge are based on the 'Business Navigator' method, a framework for designing advanced management development tools (Angehrn, Doz & Atherton, 1995; Manzoni & Angehrn, 1998). The starting point for the development was the corporate scenario of the EIS Simulation (Angehrn, 2005), which was transferred to a higher education context to reflect the specific challenges of change in universities. The dynamic of the simulation was furthermore substantiated and fine-tuned based on core research insights from social psychology and higher education research (see Angehrn et al., 2005 for a detailed description of the EduChallenge modelling).

Two principles guided the design of the EduChallenge Simulation:

- increase the realism and credibility of the scenario,
- maximise the value of the experience in terms of triggering as many insights and issues as possible in each individual player, as well as on the team level.

3.1 The Scenario

The EduChallenge Simulation puts the participants into the role of change agents in a higher education organisation. The simulation is played by teams of 3–4 participants. These 'change agent teams' receive a mission that they are supposed to accomplish in two steps:

- First, the teams develop a strategy on how they plan to achieve their mission.
- Then, the teams try to implement their strategy, by using appropriate interventions in the change process.

3 Overview of the EduChallenge Simulation Design

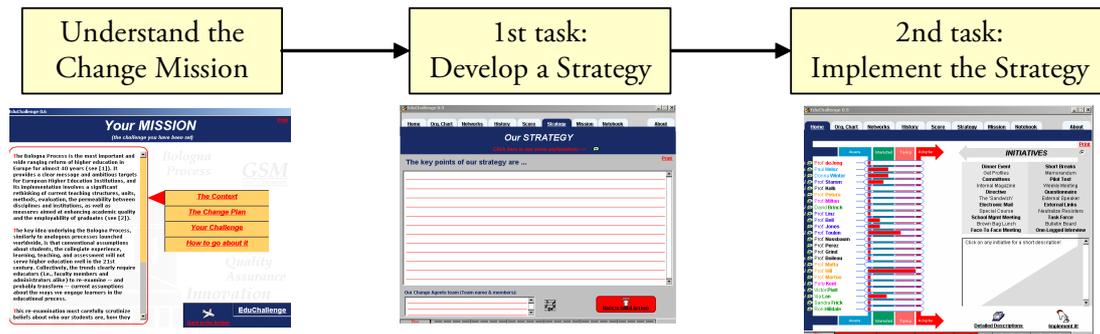


Figure 1: The EduChallenge Simulation scenario

3.2 The Mission

At the beginning of the simulation the teams receive an introduction into the scenario, which describes their change agents mission within the simulation. The mission can be outlined as follows:

Driven by the context of the Bologna Process in Europe, the overall change plan of the Humfeld University aims at the implementation of an university-wide quality-assurance system called 'AcadQual'. The implementation process has successfully evolved so far – apart from one exception: The Humfeld University's Graduate School of Management (GSM), a successful and highly renowned academic unit, is reluctant to adopt the new system. The president of the Humfeld University has now selected a number of faculty members and high-level administrative personnel and assigned them as 'change agents' in charge of a challenging mission: to persuade the Dean as well as the academic and administrative staff of GSM to adopt the new quality-assurance system within the next six months.

3.3 Task I: Strategy Development

The first task of the teams in the simulation is to develop an implementation strategy based on their assigned mission as change agents. The strategy statement should outline how the team will try to succeed in achieving their mission, considering

- values they want to take as guiding principles for their actions e. g. honesty, respect for the individual,
- the targeted direction of change e. g. top-down, bottom-up, horizontally,
- the kind of interventions they might favour.

The teams are asked to discuss potential implementation strategies, reach consensus and summarise the key points of their strategy.

The main learning goal of this task is to engage the teams in thinking strategically before they start the implementation process. It also offers good starting points for discussion and reflections in the debriefing session (see chapter 4.5.3).

3.4 Task 2: Strategy Implementation

After the teams have formulated their strategy, they get the chance to implement their strategy within the GSM. The task of the players is to help the twenty-four staff members of the GSM going through the four adoption stages of the change process:

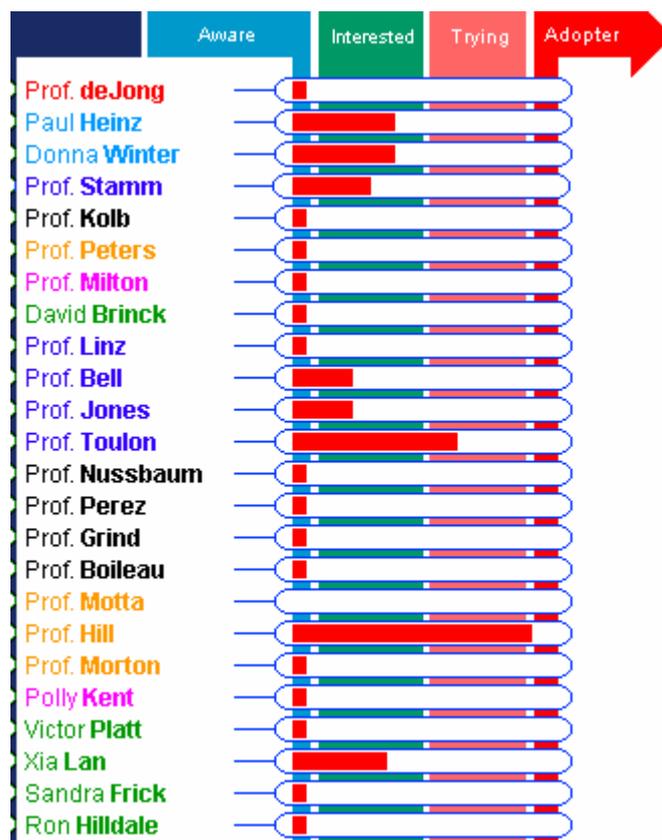


Figure 2: Phases in the individual change process

- **Aware:** In the awareness stage the individual is exposed to the innovation but lacks broad information about it and shows little concern about or involvement with the innovation.
- **Interested:** In the interest stage the individual becomes curious in the new idea and seeks additional information about it.
- **Trying:** In the trial stage the individual has made the decision to use the innovation tentatively.

3 Overview of the EduChallenge Simulation Design

- Adopter: In the adoption stage the individual decides to continue the full use of the innovation.

At the beginning of the implementation phase, all the targeted adopters are still ‘unaware’ of the innovation. The teams have to select adequate interventions to initiate and support the change process, and they receive immediate feedback on the impact of their intervention. The modelling of the impact feedback as illustrated in figure 3 reflects the individual, political and cultural dimension of change. In addition to the impact resulting from planned interventions there are also impacts from unexpected events.

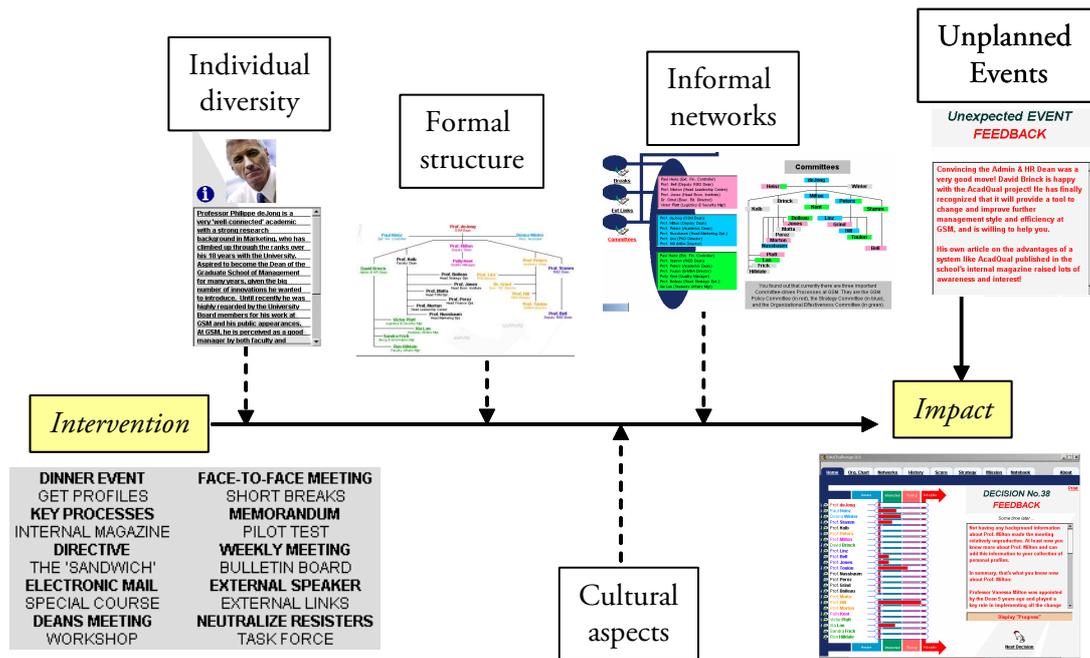


Figure 3: Dynamics of impact in the simulation

3.4.1 Interventions and Feedback

The teams have to select and apply suitable interventions to guide the change process. The choice of potential interventions includes formal and informal approaches, targeting at the individual, group or organisational level. They cover different forms of diagnostic activities (such as understanding individual characters or identifying informal networks) communication activities (such as electronic mail or face-to-face meetings), competence development activities (such as a course, or more informal activities such as brown-bag lunches), as well as some coercive activities (such as a ‘directive’).

Applying an intervention will cost the teams a defined time effort (from one to five days). After the implementation of an intervention the teams receive immediate feedback in two forms:

- Quantitative feedback: Changes in the change attitude level of the potential adopters, which were triggered by the last intervention, are displayed on the change readiness scales.
- Qualitative feedback: A short verbal comment provides some hints on the background of the response to the intervention. For instance, one comment after an unsuccessful attempt to invite the Dean for dinner is: Prof. de Jong was friendly but also very clear: ‘I appreciate you asking me and I would be honoured to do so, but currently I am really very busy. Let’s talk about it next month, or so.’

The modelling of the impact of an intervention implies the following meta-rules:

- The impact that a specific intervention has on the change readiness of a person is influenced by the current change stage (e. g. awareness, interest, ...) of this person, as well as by his/her individual characteristics (individual dimension).
- The impact is furthermore a function of the influence of formal structures and informal networks modelled in the simulation (political dimension).
- The impact is a function of the specific culture of the organization modelled, which has a direct impact on individuals’ behaviour (cultural dimension).

3.4.2 Unplanned Events

Unexpected Events, i. e. dynamics which are not directly triggered by an intervention implemented by the players, but by internal rules, have been further included in the simulation. These events are intended to emphasize the impact of

- certain individuals (who use for instance themselves certain tactics – such as writing a negative article in the internal magazine – to influence their peers),
- the role of networks (for instance by making the teams aware of the negative or positive impact of the members of a given network), or
- the role of the culture of the organization (for instance by communicating to the players the negative consequences of ignoring or bypassing specific ‘gatekeepers’ in disrespect of local, organisational protocols).

Events have been inserted to address pedagogical objectives and triggering discussion in the debriefing phase on specific issues such as facing budget problems, allocating too few or too much time to the initial strategy-building phase, regularly reviewing the initially developed strategy, reacting to time pressure, or facing the fact that key individuals might suddenly leave the school during the implementation process. These events were also integrated to trigger discussion on the ‘manageability’ of planned organisational change processes.

3.4.3 The Individual Dimension

The simulation tries to convey that individual people react differently to change, as a function of

- their initial attitude towards change,
- their unique specificities as individuals e. g. personal traits, experiences.

The initial change attitude of each simulated character is modelled by one of Rogers (2003) innovation types e. g. innovator, early adopter, early majority, late majority, laggard. The innovation types are not explicitly apparent to the teams – only implicitly by the individual’s reaction to change interventions.

The diversity of characters of the 24 targeted adopters in the simulation is modelled by profile descriptions, which provide some hints on the individual’s history, motives, habits and opinions. These profile descriptions are available to the teams after applying specific interventions.

	Prof. Peters Head of Inst. of Social Science		Prof. Linz Chair of Microeconomics and PhD Director
<p>Professor Carl Peters is struggling with a pretty undisciplined faculty group. Some of the faculty members in the Institute of Social Science are producing good quality research, but many are not. A number of colleagues left two years ago after a dispute with the Dean on the school’s strategy, and now even the teaching dimension is problematic, with students complaining that they just get young and inexperienced faculty members to teach the courses. Knows that his job is at risk if results do not improve quickly.</p>		<p>Professor Paul Linz has been at GSM for over twenty-two years, holding different positions, including the one of Deputy Dean. He has developed a personal network of trusting individuals both within the faculty and the administration and also outside the School. Strongly believes in meeting high research standards. Travels regularly to all major international conferences because he thinks it’s the best way to keep in touch with what’s happening in the academic world and to compare the GSM standards with those of other PhD Programs. Not very outspoken at meetings, tends to be over-cautious and to manage the program in a quite paternalistic way.</p>	

Figure 4: Examples of two personal profiles in EduChallenge

3.4.4 The Political Dimension

Organisational change affects existing power and influence relationships. This implies that some individuals and groups (typically the suspected ‘winners’ of change) support the change project while others (typically the supposed ‘losers’ of change) oppose change. Supporters as well as opponents of change use their influence the change attitudes of their col-

leagues. Power and influence relationships are not only reflected by the formal organisational structure but are substantially shaped by informal networks.

The simulation models three types of networks, which typically exist in universities:

- *Committees*, where faculty members meet periodically in the universities committees, such as the academic programs committee.
- *Breaks*, where a number of people meet regularly e. g. for lunch breaks or for a coffee and share stories and news.
- *External links*, where people meet outside the universities for common leisure activities, e. g. as members of the local tennis club.

The teams can identify these networks by applying appropriate interventions. Analysing these networks provides them some important hints, e. g. which persons are informal key players in the diffusion process. The teams are also rewarded for this diagnostic efforts as the beneficial impact of influence networks are activated only if the users have acquired the information about informal networks, while the negative impacts are always active.

3.4.5 The Cultural Dimension

Based on their long traditions and normative goals of knowledge creation the cultural dimension plays an important role in universities. Participation in decision-making processes as well as autonomy in teaching are examples of the core values of academic culture. Due to the lack of formal procedures in universities, informal procedures are usually guiding the cooperation of faculty members.

The simulation has modelled some of the cultural features of universities, such as

- a communication culture that appreciates direct interventions such as face-to-face meetings as more effective ways to approach individuals than indirect interventions such as sending emails, which is perceived as impersonal and insensitive of the local culture,
- social protocols that include the necessity to persist meeting and reporting back to key individuals in spite of their rejecting attitude,
- a high value of autonomy which becomes manifest when the change agents apply strong-arm or covert interventions as they generate typically long-lasting negative reactions in the majority of the modelled individuals.

4 Exploring EduChallenge Learning Scenarios

The EduChallenge Simulation is a learning tool that offers a variety of applications in different learning settings. As each tool requires appropriate use, we recommend to use EduChallenge not as a stand-alone medium but to integrate the simulation within a coherent learning environment in order to maximise the desired learning outcomes.

Based on a literature review core concepts of using games and simulations in educational settings are presented in this chapter. Potential benefits and limitations are scrutinised and underlying learning theories outlined. Then relevant aspects in designing and facilitating an EduChallenge workshop are described in order to support potential facilitators to develop suitable learning scenarios for their specific purpose.

4.1 Games and Simulations

Education gaming is currently appraised as a major technological and educational trend for the coming years (The New Media Consortium National Learning Infrastructure Initiative, 2005). Prensky (2001, p. 8) promotes digital game-based learning as an engaging and effective way to learn, especially suitable for the current and forthcoming student generation. The current hype about simulation-based learning gives rise to the development of a variety of programmes, which are marketed under the label of ‘simulations-based learning’ or ‘game-based learning’. Gredler (1996, p. 521) critically comments on this development, as some so-called simulations are just some ‘truncated exercises’.

While the concepts of games and simulations are often used in similar denotations or integrated as ‘simulation games’, there are some approaches for differentiation in the literature.

Taylor & Walford (1978, p. 7) characterise simulations by three features:

- Participants take on roles which are representations of roles in the real world and then make decisions in response to their assessment of the setting in which they find themselves.
- Participants experience simulated consequences, which relate to their decisions and performances.
- Participants monitor the results of their actions and reflect on the relationship between their own decisions and the resulting consequences.

Leemkuil, de Jong & Ootes (2000, p. 5) identify four features of games:

- Some goal state must be reached.
- There are constraints and rules involved.
- There is some form of competition.

- Games are situated in a specific context.

Gredler (1996, p. 523) provides an elaboration on the similarities and differences of games and simulations. Both approaches transfer the participants to another world and put them in an environment in which they are in control of the action. However, the two approaches differ in three aspects:

- While games are competitive exercises in which the objective is to excel by winning, participants in an educational simulation are executing serious responsibilities, with the associated privileges and consequences.
- The event sequence of a game is typically linear, whereas a simulation sequence is nonlinear.
- Games consist of rules that describe permitted player moves, game constraints and privileges, and penalties for illegal (impermissible) actions, while the basis for a simulation is a dynamic set of relationships among several variables that change over time and reflect authentic causal processes.

Based on Gredler's categorisation, EduChallenge can be classified as a simulation, even though it includes some gaming elements such as a competitive aspect.

4.2 Potential Benefits of Simulations for Learning

Are games and simulations only a temporary fad on the educational market or are they becoming a seminal new learning approach, which substantially improves traditional teaching and learning practices? Billhardt (2004) admits that the recent hype of simulation raised some unrealistic expectations which lead to some disillusion on the use of simulations: "Overenthusiastic e-learning vendors have touted simulations in many areas where they should not have been used. Many companies that first adopted them were disappointed with the results. All too often, unfortunately, learning objectives were ignored in order to provide clients with the 'wow' factor. Simulations looked good, but little learning occurred."

The literature on simulations holds a variety of potential advantages of using simulations for instructional purposes compared to traditional lecture-led sessions (see for example Brandon Hall Research, 2005; Dekker & Donatti, 1981; Ellington & Earl, 1998; Ng & Ng, 2004, p. 60; Prensky, 2001, p. 106)

According to these studies simulations have the potential to

- improve the motivation and interest of the learners in the subject,
- enhance cognitive learning of factual information and the acquisition of concrete meaning for abstract terms,

- improve critical thinking skills,
- help learners develop more positive attitudes toward learning and the instructional process,
- help learners develop communication and social skills,
- enhance teacher flexibility,
- allow learning in a situation that resembles the learner’s actual work environment which eases the transfer process to other situations,
- provide participants a risk-free environment to explore roles, make mistakes and learn from assessing their mistakes,
- engage the participants in learning as they provide pleasure, interaction, emotions and passionate involvement,
- demonstrate applications of theory,
- develop library and research skills,
- act as an icebreaker,
- develop multi-faceted work related skills,
- emphasize inquiry, construction and acquisition of knowledge, problem solving, and reflective thinking.

While most of these supposed benefits are cited without deeper justification or just illustrated by anecdotes, the positive impact of simulations on the learners’ motivation is discussed more profound in the literature. Malone (1981) identifies three motivational factors of games: they offer challenges, raise curiosity, and allow students to fantasize. Billhardt (2004) assumes that when learners make mistakes in a simulated environment, “they’re probably more open to internalizing knowledge than if they had passively listened to a lecture.”

What are empirical findings on the supposed benefits of simulations compared to traditional learning outcomes of simulation? Dekker & Donatti (1981) concluded from a meta-analysis of 93 empirical studies that simulations as an instructional strategy are only more effective than the lecture method for attitude formation and that simulation characteristics and sample size of the simulation group are important variables of the efficacy. In a more recent study de Jong & Joolingen (1998, p. 181) conclude that diverse studies on the effectiveness of simulations do not offer a clear picture. They assume that the prior knowledge of the participants is an important success factor for the learning outcomes: in case of insufficient prior knowledge participants might have difficulties in stating hypotheses or making good interpretations of data and instead tend to engage in unsystematic experimentation (de Jong & Joolingen, 1998, p. 187).

Empirical studies also indicate that learners which are not used to complex and open learning environments, tend to play aimlessly and get lost in the learning environment (Stark, Graf, Renkl, Gruber & Mandl, 1995, p. 294). Based on their broad experience as facilitators in simulations Leigh & Spindler (2005, p. 65) confirm that students show diverse reactions to a simulation experience: "It is evident that different participants react differently to such a challenge. For some, it becomes an opportunity to explore themselves and their learning, whereas others question the process and experiences and assert that the process is not generating learning."

Leemkuil (2000, p. 30) emphasises the high relevance of instructional support in learning with simulations in order to turn the intuitive knowledge that learners acquired during the simulation into explicit knowledge by a subsequent phase of reflection or debriefing.

Based on the present research it becomes clear that simulations have to be facilitated effectively to make its use most suitable for the specific target group: "It's not only the game but what you do with it that counts" (Christopher & Smith, 1987, p. 133).

4.3 Underlying Learning Theories and Models

How do people learn from simulations? 'Learning by doing', 'Learning by failure', or 'Learning by stories' are some popular notions of the underlying theories of learning from simulations (e. g. Büning & Abendroth, 2000, p. 148).

The use of simulations for learning can be related to different learning theories, such as constructivist learning (as discussed in Diesbergen, 1998; Dubs, 1995, p. 28ff.; Spiro, Feltovich, Jacobson & Coulson, 1992) or problem-based learning (as discussed in Boud & Feletti, 1997; Gräsel, 1997; Van Til & van der Heijden, 1998).

A prominent model for simulation-based learning is Kolb's 'experimental learning cycle', that he developed based on the traditions of Lewin, Dewey and Piaget. Kolb (1984, p. 38) defines learning "as the process whereby knowledge is created through the transformation of experience." According to his model "learning begins with a concrete experience followed by collection of data and reflective observations about that experience. On the abstract conceptualization stage a learner makes generalizations, draws conclusions, and forms hypotheses about the experience. In the final stage, the learner tests these hypotheses and ideas through active experimentation in new circumstances" (Kiili, 2005, p. 17).

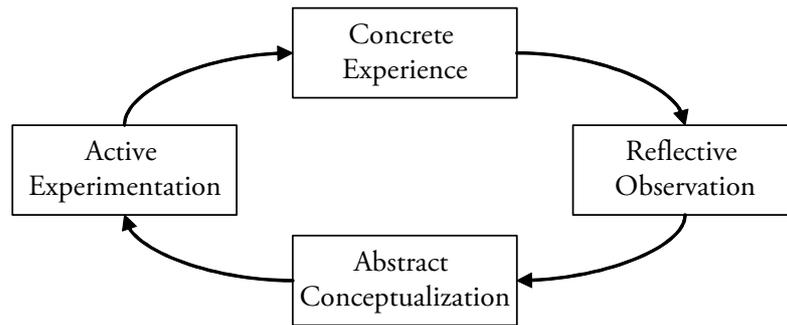


Figure 5: Kolb's experimental learning cycle (Kolb, 1984)

Experimental learning positions the learner to the centre of the learner process and changes the role of the educator from the final “authority over content and learning processes” to a more supportive role, where the educator “helps identify opportunities for learning, engages the learner in dialogue with these, and relinquishes authority to direct the learning process” (Leigh & Spindler, 2005, p. 53).

4.4 Designing an EduChallenge Learning Scenario

EduChallenge provides a flexible learning tool to explore approaches and challenges of a planned change process in educational organisations that can be used in a variety of learning scenarios. Basic considerations in designing a learning scenario should include the definition of appropriate learning objectives as well as the selection of a suitable learning approach for the specific target group.

4.4.1 Defining Learning Objectives for the Specific Target Group

The EduChallenge Simulation can be used for different target groups addressing their specific learning situation. Some examples on the potential use of the simulation for different target groups are outlined in figure 6.

Target Group	Potential Use of the EduChallenge Simulation
Change agents in educational organisations	Use the simulation as an experience-based access to seminal change concepts within a competence development programme for change agents
Students of psychology, pedagogy, management science or organisational science	Provide an experience-based approach to concepts on organisational change
Students of educational science	Provide a hands-on experience on experimental learning
Faculty and tutors	Use the simulation within a faculty development programme on simulations in educational settings

Figure 6: Potential use of the EduChallenge Simulation for different target groups

The pre-knowledge and pre-experience of the participants, e. g. regarding their learning experience with (computer-based) simulations or their content-wise experience with organisational change processes are to be considered in the design and the definition of learning objectives of an EduChallenge session.

Learning objectives indicate the kind and level of competencies the learner should be able to acquire during the learning process. Learning objectives can be classified due to two criteria (Euler & Hahn, 2004):

- *Competence fields* address three kinds of challenges of human beings: dealing with subjects (subject-matter competencies), dealing with other people in communication situations (social-matter competencies), and coping with the own person, e. g. with one's own emotions and attitudes (self-competencies).
- *Competence dimensions* differentiate three forms of competencies: Knowledge focuses on cognitive abilities, skills focus on the ability to perform action and attitudes focuses on affective and normative facets of competence.

The following list indicates potential learning objectives of an EduChallenge session, which have to be selected and specified for the specific target group and learning setting:

Subject-Matter Competencies

Knowledge	Attitudes	Skills
The participants <i>understand</i> <ul style="list-style-type: none"> – the relevance of different phases in the change process – the potentials and risks of different interventions – the relevance of formal structures and informal networks for the change process – the relevance of the existing culture for the choice of an appropriate communication strategy – potential sources, forms of resistance to change – approaches how to avoid resistance or deal with resistance in a constructive manner – different individual change adopter types and their concerns – ... 	The participants develop an <i>attitude</i> <ul style="list-style-type: none"> – of patience and reflection in dealing with change processes – of empathy towards the needs and perspectives of those who are affected by change initiatives – ... 	The participants are <i>skilled</i> to <ul style="list-style-type: none"> – outline an situation-appropriate change management strategy – plan appropriate interventions to implement their strategy – diagnose different forms of resistance and deal with it in a constructive manner during the change process – ...

Figure 7: Potential learning objectives regarding targeted subject-matter competencies

Social Competencies

Knowledge	Attitudes	Skills
The participants <i>understand</i> – the importance of two-way communication in the change process – the potentials and limits of different communication vehicles – different change facilitator styles (e. g. risk averse, reactive, proactive, engaged...) – ...	The participants develop an <i>attitude</i> – of understanding, rather than enforcement (by communicating with others) – of respecting individual differences – ...	The participants are <i>skilled</i> to – communicate with different stakeholders in a constructive manner – interpret communicative utterances with regard to their factual substance, underlying intentions, self-revelation and definition of relationship – work in a team and decide under time pressure – ...

Figure 8: Potential learning objectives regarding targeted social competencies

Self-Competencies

Knowledge	Attitudes	Skills
The participants <i>understand</i> – the value of reflection after experiences for their learning process – their own strengths and areas for improvement as a change facilitator – ...	The participants develop an <i>attitude</i> – of accepting setbacks – of openness to learn from their failures – ...	The participants are <i>skilled</i> to – apply learning strategies such as structuring complex information, mastering tasks in a given time-frame, distinguishing relevant from irrelevant information, self-evaluate one's performance, – apply meta-cognitive skills e. g. reflecting on one's learning and problem-solving process – learn from one's failures by reflecting on one's decisions – ...

Figure 9: Potential learning objectives regarding targeted self-competencies

4.4.2 Designing an EduChallenge Workshop Session

An EduChallenge workshop should last at least six hours. Figure 10 introduces two approaches to design an EduChallenge workshop session:

Inductive Approach	Deductive Approach
Briefing Phase (~30 min)	Theory Phase (~1 h)
Playing Phase I (~1.5 h)	Briefing Phase (~0.5 h)
Debriefing Phase and Theory (~2 h)	Playing Phase I (~1.5 h)
Playing Phase II (~1.5 h)	Debriefing Phase (~1 h)
Debriefing II (~30–45 min)	Playing Phase II (~1.5 h)
	Debriefing II (~30–45 min)

Figure 10: Two approaches for an EduChallenge session

The two approaches can be outlined as follows:

- In a *deductive approach* the participants are first introduced into seminal concepts of change management. They then get the opportunity to apply this knowledge in a (modelled) realistic situation when playing the simulation. Thus, the participants can reflect more profoundly on the value and maybe limitations of these theoretical concepts for practitioners.
- In an *inductive approach* the participants start directly with the simulation without any prior theoretical input. Only during the debriefing phase they are introduced to the underlying theoretical concepts. The underlying assumption of this approach is, that when learners first make their own (frustrating) experiences as change agents in the simulation on a trial-and-error basis they are more motivated to learn about theoretical concepts in order to understand their failures in the simulation.

In both concepts a second cycle of playing and debriefing is recommended. It helps to consolidate and deepen the learning results and thus support the transfer of learning into practice.

4.5 Facilitating an EduChallenge Session

Good facilitation is widely acknowledged to be a main contributing factor to the success of a simulation session (e. g. Billhardt, 2004; Christopher & Smith, 1987, p. 133; Leemkuil et al., 2000, p. 30).

Compared to traditional teaching the facilitation in an experimental learning setting requires different and sometimes contradictory skills of an educator: instead of orchestration of learning, the educator should provide support for learning. This requires a major shift in personal perceptions of the role and responsibilities of oneself as an educator (Leigh & Spindler, 2005, p. 53).

The role of the facilitator can be specified for the three phases of a simulation session:



Figure 11: Three typical phases of a simulation session

4.5.1 Briefing

In the briefing phase the facilitator introduces the participants to the subsequent playing phase. The participants receive the ‘EduChallenge Participants Handout’, from which they can learn about their mission in the simulation.

Participants are assigned in teams of three to five participants to play the simulation. The team formation can either be determined by the facilitator, made by random assignments or be left upon the choice of the participants.

Based on the prerequisites and expectations of the participants, the facilitator can decide to what extent to set expectations among the participants e. g. preparing them for a ‘challenging and maybe sometimes frustrating experience’ or to give some more hints on the simulation dynamics in order to avoid misconceptions. Christopher & Smith (1987, p. 138) indicate that when a game is introduced only with a brief explanation there will be a lot of unknown elements which will support differences in participant’s perception of the game – which might have a desired or undesired effect for the learning outcomes.

4.5.2 Playing the Simulation

We recommend a timeframe of one and a half hour for playing the simulation (half an hour for strategy building, one hour for implementation). This schedule is tight which is intended from a pedagogical perspective, as this will raise the stress on the players.

During the playing phase the facilitator can take a back seat and act as an observer and time-keeper. Some hints for facilitators in this phase include:

- Try to observe the group activities and note interesting situations that occur in the groups in order to tie in with these events during the debriefing phase.
- Keep an eye on the time schedule, e. g. remind the groups after the elapsed time of strategy building to continue with the realisation of their strategy. From time to time remind the teams of the remaining (playing) time to accomplish their mission.
- Normally a competing atmosphere emerges automatically when the teams hear the sound signals and the shouting and cheering of the other teams. If this is not the case with a team, you can try to raise their ambition by indicating them that other groups have already proceeded further.
- It is important for facilitators to withstand the temptation to give advice about content, if teams are frustrated. Instead ask them to reflect what would happen in a real situation.

- At the end of the given time let the participants stop playing the simulation, even if they have not finished. If the computers are connected with a printer you can ask the teams print their score graph.

4.5.3 Debriefing

Debriefing “is an instructional process that is used after a game, simulation, role play, or some other experiential activity for helping participants reflect on their earlier experiences to derive meaningful insight” (Thiagarajan, 1992, p. 161).

In the debriefing phase the participants should switch from the player perspective to the learner perspective. The playing of the simulation often triggers strong emotions among the participants. Thus it is helpful to emphasise at the beginning of the reflection phase, that the goal of the simulation was not ‘winning’ but ‘learning’, and that often the most interesting insights are made in those teams which had to cope with quite frustrating situations. Steinwachs (1992, p. 188) describes the role of the facilitator in the debriefing phase as a kind of catalyst “Your job is not to lecture or expound, but to maximize idea development and group interchange. Concentrate on how best to encourage individuals to reflect on their experiences and articulate their perspectives so that the group can explore these understandings and learn from them.” In order to apply appropriate interventions to support participants on their learning path from concrete experience to reflective observation as described in Kolb’s experimental learning model (see chapter 4.3), facilitators should be able to “cross-reference particular events and actions occurring in the simulation with theoretical constructs concerning the real world of which the simulation aims to be a representation” (Leigh & Spindler, 2005, p. 60).

Kriz & Nöbauer (2002) provide a good overview on different debriefing-methods, such as

- *Plenary Debriefing*: The facilitator triggers reflection and discussion by asking selective reflection-triggering questions according to the relevant learning goals.
- *Individual Reflection*: Introducing the debriefing with an individual reflection phase can help to explore the experiences of reserved individuals. The participants receive a questionnaire to fill out in order to reflect their individual experiences on relevant aspects of the gaming session.
- *Team Debriefing*: The participants form pairs and interview each other on their experiences and insights.
- *Small Group Debriefing*: As each team has made its specific experiences a team debriefing can be fostered by providing the teams with a list of questions that they should discuss within the teams.

These debriefing methods can be used as alternatives or can be combined. For example first a team debriefing can be made and then a plenary debriefing can be started by a short overview of each teams' main insights.

Choosing an appropriate debriefing method should take into account the experience of the participants with debriefing situations, e. g. for groups with no prior experience regarding debriefing situations the plenary method might be most suitable, while participants with prior experience might prefer some more self-directed debriefing methods. Especially with participants who are not used to shared reflection the facilitator should have some experience in group dynamics in order to deal with emerging emotions and conflicts.

In order to initiate interesting discussions among the participants as well as link their experiences in the simulation to the targeted learning objectives the facilitator can address specific questions.

The following list provides some ideas on reflection-triggering questions:

Reflection-triggering questions on the simulation experiences

- Looking at your initial strategy that you formulated at the beginning of the simulation, how did you try to implement your strategy?
- What were the main difficulties in implementing your strategy?
- What were your most successful activities? What were your most unsuccessful activities?
- How did the change attitude the individuals affect the success of your interventions?
- Who are the people in the simulation who were very hard to move? What were you doing about them?
- Who are the people in the simulation who helped you with your change effort?
- ...

Reflection-triggering questions on related change management concepts

- Why do people react differently to change?
- Why do people resist change?
- How do informal networks influence the change dynamics?
- How can interventions be used most effectively in change processes?
- What are personal requirements for change agents?
- ...

Reflection-triggering questions on the experienced team work in the simulation

- How did you organise your team?

- How did you make decisions about interventions in your team?
- What could you have done to improve the effectiveness of your team?
- ...

Reflection-triggering questions on the relevance and transferability of the simulation experience to the participants' practice

- How does the simulation relate to your own organisation? What are issues that are similar to your organisation, what are differences?
- Which kind of learning points do you think will be useful for your practice?
- What are your ten personal recommendations for change facilitators in HE?
- ...

5 Evaluation Research on EduChallenge

One first attempt to gain some experiences on the application of EduChallenge was an evaluation of a seminar with students at the Bachelor level at the University of St. Gallen. This was the first formal evaluation of EduChallenge. Perspectives on further evaluations with other target groups are described in chapter 6.

5.1 Context of the Evaluation

Basically, EduChallenge is supposed to serve two main purposes:

- For students, it may provide a learning environment to develop an understanding on the determinants of change processes, an insight on how to apply knowledge on change theories and some skills on how to plan change strategies within educational institutions.
- For change agents, it may provide a frame for devising strategies and action plans related to the change processes within their institution.

The following evaluation is directed to the first group. It has been conducted during a seminar on change management, which was part of a course on educational management for forty bachelor students at the University of St. Gallen.

The session on this particular topic took five hours, whereof four hours were devoted to shaping the learning experience and one hour to a test.

5.2 Objectives of the Evaluation

The evaluation aimed at answering the following questions:

- Is the simulation effective in terms of knowledge acquisition and knowledge application related to change management?
- Is the simulation superior to applying a case study for achieving the objectives set out above?
- Which teaching approach for the simulation – inductive or deductive – is more effective to achieve the targeted teaching objectives?

5.3 Evaluation Design

The evaluation was conducted along the following procedure:

1. One week prior to the seminar a pre-test was carried out in order to find out predispositions of the students related to

- prior experiences with the two teaching methods applied in the seminar (simulation vs. case-study);
- expert knowledge on relevant aspects of the theories referred to in the seminar;
- motivation for both the teaching methods and the content.

The pre-test was undertaken with a self-assessment questionnaire. The main purpose was to gain a basis for splitting up three groups in the following seminar with similarly distributed pre-knowledge and motivation structures.

2. The underlying concept was to introduce the same theoretical concepts but deliver them in different learning environments. The EduChallenge Simulation was wrapped up in two different settings, one group experiencing an inductive approach, a second group being exposed to a deductive approach. A third group learned the content with a case study.

In the seminar, the students were divided into three groups of 13–14 students each. Each group was split up into teams of 3–4 students. The groups were exposed to three different settings of learning environments:

- *Teams in Group 1: Simulation – Inductive approach*
 Short introduction into EduChallenge (15')
 Playing the simulation (4 teams with 3–4 students) (90')
 Debriefing on the simulation and presentation of relevant theories related to the concepts touched in the simulation (90')
- *Teams in Group 2: Simulation – Deductive approach*
 Presentation of relevant theories (60')
 Short introduction into EduChallenge (15')
 Playing the simulation (4 groups with 3–4 students) (90')
 'Light' debriefing (30')
- *Teams in Group 3: Case Study*
 Short introduction into the topic (15')
 Case Study, representing the same content and introducing similar characters as in the simulation (90')
 Debriefing on the case study and presentation of relevant theories related to the concepts touched in the case study (90')

Related to the 'relevant theory' the three facilitators agreed beforehand on a set of presentation slides covering the content which was mandatory in all groups and which was also the basis for the test following the learning experiences.

3. Just following the different learning experiences, a first test (open book, 45') was conducted. The test was directed to the following learning objectives:

5 Evaluation Research on EduChallenge

- Understanding the stages of the change process
 - Understanding the importance and characteristics of an organisational diagnosis
 - Understanding the relationship between strategy and interventions
 - Understanding modes of resistance and applying adequate tactics
 - Analysing and evaluating the application of interventions
 - Analysing change management strategies
 - Transferring knowledge on different situational contexts
4. Some eight weeks after the learning experience a second test was conducted, representing the same structure and objectives as the first test. This test was part of the final exam, which was the basis for the allocation of the credit points for the whole course. 38 students finished both the first and the second test. Seven students only joined the first one, 15 only the second one.
 5. The students were asked to provide feedback on the learning experiences in the online discussion forum of the course.
 6. The log files of the simulation were evaluated to analyse how the groups proceeded and which results they achieved.

5.4 Results

As regards to the overall results in the tests, the three different groups showed the following performances.

Table 1: Average points in test 1 (max. 20 pt.) following the seminar; N=45

Deductive	Inductive	Case Study
7.7	6.4	6.2

Table 2: Average points in test 2 (max. 20 pt.) eight weeks after the seminar; N=38

Deductive	Inductive	Case Study
11.75	10.9	11.1

The average score of those students not participating in the seminar but showing up in the second test (N=15) was 9.68 points.

The charts indicate a slight advantage of the deductive simulation approach. This difference was higher in the first test than in the second. The overall increase of the scores meets the expectations as the second test is part of the overall mark relevant to the awarding of credit

points. Most of the students performed much better in the second test, one student increased the score by 11 points.

There is also a comparison on the range of points the students achieved within the three groups:

Table 3: Range of points (min–max) in test 1; N=45

Deductive	Inductive	Case Study
5.5–10.5	2–9.5	2.5–10

Table 4: Range of points (min–max) in test 2; N=38

Deductive	Inductive	Case Study
6.75–14	8–16	8–14

These results do not allow to draw clear conclusions, although one may point out that the deductive group made less progress than the others.

Further emphasis was put on the investigation of the results related to the different levels of cognitive aspirations. The results can be summarised as follows:

Table 5: Average points related to questions testing the ‘understanding’-level

	Deductive	Inductive	Case Study
Test 1 (max. 4 pt.)	1.7	1.8	1.4
Test 2 (max. 4 pt.)	2.67	3.4	2.46

Table 6: Average points related to questions testing the ‘application’-level

	Deductive	Inductive	Case Study
Test 1 (max. 5 pt.)	1.37	1.0	1.23
Test 2 (max. 5 pt.)	3.07	3.0	2.77

Table 7: Average points related to questions testing the level of ‘analysis, synthesis and evaluation’

	Deductive	Inductive	Case Study
Test 1 (max. 11 pt.)	4.63	3.58	3.62
Test 2 (max. 11 pt.)	7.13	5.8	6.62

Whereas the inductive simulation approach scores better on the ‘understanding’-level, the deductive simulation approach did better on the level of ‘analysis, synthesis and evaluation’. The case study approach scored slightly worse without being shaken off.

The *distribution of scores* within the student teams (3–4 students) revealed no clear patterns. All types could be found, an even distribution as well as the pattern that one team member scores higher or lower than the others.

What about the *relation between the result achieved in the simulation and the test scores?*
The evaluation brought the following results:

Table 8: Relation between the result achieved in the simulation and the test scores

	Adopters	Attitude Points	Average Points Test I	Ranking Test I
Team 5 (ded.)	21	243	7.75	3
Team 8 (ded.)	14	208	7.50	4
Team 7 (ded.)	7	157	7.17	6
Team 6 (ded.)	4	91	8.13	2
Team 1 (ind.)	2	68	4.13	8
Team 4 (ind.)	1	76	7.33	5
Team 2 (ind.)	1	46	5.83	7
Team 3 (ind.)	0	71	9.00	1

The higher the number of adopters and/or the attitude points achieved, the higher the groups scored in the simulation. As regards the results in the simulation, all teams following the deductive approach performed better. On the contrary, the team performing worst in the simulation scored best at the test.

As pointed out earlier, a *feedback of the students* was asked for and collected in a discussion forum. There were twenty-two postings allowing the following summary:

- All three learning environments were regarded as motivating and challenging. Important factors triggering off interest were the general objectives set out for the teams, the autonomy in being allowed to decide on actions, the chance for following the own learning pace and (related to the simulation) the novelty of the method.
- Similarly, the linkage between theory and practice, acting and reflecting, singular and general considerations was highlighted by all teams.
- There was ample evidence on the importance of student characteristics, as the same events were evaluated differently on many occasions. For example, some students felt encouraged to do better when experiencing a setback in the simulation while others felt almost frustrated. Some liked the deductive approach providing theory prior to the simulation while others felt demotivated as to them it seemed to repeat the same old style of teaching.
- Further indication of the motivational effect of the learning environments can be derived from the students views that there was hardly enough time to fulfil the task properly. Some explicitly stated that they wanted to continue in order to gain further learning experiences.

- There were a couple of postings dealing with the specific advantages of the simulation in comparison with the case study.
 - For example, it was pointed out that the case study was comparatively static as it set out a context not changing during the learning process. On the contrary, within EduChallenge there was a continuous flux of new events emphasising the process of change but also making reflection much more difficult.
 - While some students of the case study group expressed their desire to get the (right) solution at the end, the students working in the simulation environment did not.
 - Related to that was the observation by some of the students that the case study does not allow for experiencing the impact of decisions on the actors. Considerations and actions remain somehow abstract, whereas the simulation provides immediate feedback on the own activities. This sets the context for learning from mistakes.
 - The potential of the latter point is only realised if the reflection on what happened covers a considerable amount of time within the learning process. The postings give rise to the assumption that reflection stood back in most of the teams. The focus was put on trial and error initiatives; there was hardly any influence of the strategy decided on by the team at the beginning on the implementation activities. This is in line with the statement from students acting within the deductive simulation approach that the prior input of theories did not have much influence on their actions within the simulation. Playing prevails.

5.5 Interpretation

The interpretation of the results needs to be done carefully. Firstly, the data do not show clear-cut distinctions between the different treatments. Secondly, not all of the intervening variables could be controlled sufficiently. For example, the irrelevance of the first and the high relevance of the second test may have influenced the behaviour of the students considerably. Some may have put much effort into being prepared for the second test, as this had a major impact on their grades for the course.

Taking the overall view, the simulation environments resulted in a slightly better score. Given that most applications use an inductive approach, it may be surprising that this setting led to comparatively bad results on testing the level of ‘analysis, synthesis and evaluation.’ It may well be that the degree of reflection required to perform these higher order cognitive skills had been even less developed than was the case with the two other approaches.

In general, the evaluation does not provide much information on the processes of learning and reflection taking place in the application of the three approaches. Further research has to focus on the process dimensions of learning.

Some hints may be derived from the feedback of the students. There is a clear indication that the degree of reflection was rather low within the simulation, both in terms of following their own strategy set out at the beginning and exploiting the learning potential provided by the simulation itself. Taking that into account, it raises the question on how reflection might be stimulated by the facilitator. Apart from these pedagogical interventions, for many students it seems justified to play the simulation twice, alternating action and reflection in different ways.

6 Perspectives

Further research efforts might basically be related either to the learning process or the learning results of the scenario. In reference to the learning results, some of the following questions might inspire the development of research designs:

- How does the competence for managing change processes at educational institutions develop over a period of x months? What kinds of contributions can a learning scenario embedding EduChallenge make in that process?
- Are there major differences in the development of these competences when distinguishing (1) knowledge on change processes, (2) readiness in proactively applying the knowledge, (3) skills in conducting change processes? What dimensions are touched by the learning scenario? What needs further efforts beyond EduChallenge?

With respect to the learning process, the following questions might be pursued within an appropriate research design:

- What degree of elaboration does the implementation strategy at the start of EduChallenge represent? Are there any patterns with different target groups?
- What specific interventions are preferred by what target group?
- To what extent is there a link between the content and elaboration of the implementation strategy and the readiness of the learners to pursue their strategy in the course of the simulation?
- How does the switch between action and reflection work within the scenario? (indicators: time spent for strategy building, time spent for diagnosing the individual characters, extent and depth of discussion on feedback following own interventions or experiences triggered off by the simulation)
- What points of (dis)encouragement are there in the process of playing the simulation? What constitutes (de)motivation?
- What effect do different facilitation styles have on the motivation and competences of the learners?

7 Appendix

7.1 Test I (in German)

1. Nachfolgend werden einige Verhaltensweisen von Mitarbeitern während der Einführung eines Qualitätsmanagement-Systems (QM-System) beschrieben. Ordnen Sie die Phase zu, in der sich der Mitarbeiter mindestens innerhalb des Veränderungsprozesses befindet:
 - a) Mitarbeiter abonniert eine Fachzeitschrift, die sich u. a. mit der Optimierung von QM-Systemen beschäftigt (1 Punkte)
 - b) Mitarbeiter schaut auf dem Intranet einen Newsletter über das QM-System an (1 Punkte)
 - c) Mitarbeiter erklärt sich bereit, in einer Task-Force an der Weiterentwicklung des QM-Systems mitzuwirken (1 Punkte)
 - d) Mitarbeiter lässt sich im Intranet für einen Pilottest des neuen QM-Systems registrieren. (1 Punkt)
2. Als Strategie für die Gestaltung eines Veränderungsprozesses wird formuliert: „Zunächst den Rektor überzeugen, damit er entsprechende Anweisungen an die Fakultäten gibt! Dabei ist mit Anreizen zu arbeiten.“
 - a) Erläutern Sie zwei geeignete Massnahmen, mit denen die Strategie umgesetzt werden kann! (2 Punkte)
 - b) Beurteilen Sie die Strategie im Hinblick auf mögliche Grenzen und Probleme! (2 Punkte)
3. Sie haben den Eindruck, dass die Fakultätsleitung zwar recht interessiert an dem Veränderungsprojekt ist, aber ein stärkeres Engagement noch scheut. Erläutern Sie drei Massnahmen, die Sie in dieser Situation einsetzen würden! (2 Punkte)
4. Sie haben die Mitarbeiter der Ingenieurwissenschaftlichen Abteilung zu einem zweitägigen Workshop eingeladen, um mit ihnen die Vorzüge die QM-Systems zu diskutieren. Umgehend teilen Ihnen vier der Professoren mit, dass sie für einen solchen Anlass keine Zeit hätten.
 - a) Analysieren Sie diese Situation und erörtern mögliche Gründe! (2 Punkte)
 - b) Welche Massnahmen wären aufgrund Ihrer Diagnose angemessener gewesen als der Workshop? (3 Punkte)

5. In einem Unternehmen soll der Wissensaustausch zwischen den Abteilungen verstärkt werden. Dazu soll ein Wissensmanagement-System eingeführt werden, das u. a. neue Möglichkeiten der Kommunikation über eine elektronische Plattform bietet.
 - a) Was würden Sie neben der Strategieentwicklung tun, bevor Sie eine erste Maßnahme auslösen? Begründen Sie Ihr Vorgehen! (2 Punkte)
 - b) Ein Kollege aus dem Bildungsmanagement schlägt vor, eine gute Einstiegsmaßnahme sei die Durchführung eines Pilottests mit der Plattform. Dann könnten sich die Mitarbeiter von dem Nutzen der Innovation überzeugen. Beurteilen Sie diesen Vorschlag! (2 Punkte)

7.2 Test 2 (in German)

1. In einer Grossbank soll die Weiterbildung der Mitarbeiter verstärkt in selbstgesteuerten Lernformen erfolgen. Dazu führt das Unternehmen eine Lernplattform ein, auf der den Mitarbeitern virtuelle Lernangebote zur Verfügung gestellt werden. Nachfolgend werden Verhaltensweisen von Mitarbeitern während der Einführung dieser neuen Lernform im Unternehmen beschrieben. Ordnen Sie die Phase zu, in der sich der Mitarbeiter mindestens innerhalb des Veränderungsprozesses befindet:
 - a) Mitarbeiter besucht eine Informationsveranstaltung über die neuen eLearning-Weiterbildungsangebote (1 Punkt)
 - b) Mitarbeiter füllt nach Abschluss eines eLearning-Kurses ein Feedbackformular aus, und gibt darin Anregungen zur weiteren Verbesserung des Systems (1 Punkt)
 - c) Mitarbeiter erklärt sich bereit, den Kollegen seiner Abteilung als Ansprechpartner für Fragen zu den eLearning-Angeboten zur Verfügung zu stehen (1 Punkt)
 - d) Mitarbeiter registriert sich für seinen ersten Online-Kurs auf der Lernplattform (1 Punkt)
2. Als Leitspruch für die Gestaltung des Veränderungsprozesses wird formuliert: „Die betroffenen Mitarbeiter zu Beteiligten machen.“
 - a) Erläutern Sie zwei geeignete Massnahmen, mit denen diese Strategie umgesetzt werden kann! (2 Punkte)
 - b) Beurteilen Sie diese Strategie im Hinblick auf Vorteile und potentielle Grenzen bei der Gestaltung des Veränderungsprozesses (2 Punkte)
3. Die Trainer der Weiterbildungsabteilung stehen der Einführung von eLearning im Unternehmen skeptisch gegenüber. Sie befürchten, dass dies nur wieder eine Kostensenkungsmassnahme des Unternehmens ist. Erläutern Sie drei Massnahmen, die Sie in dieser Situation einsetzen würden! (3 Punkte)

4. Sie haben die Führungskräfte des mittleren Managements zu einer halbtägigen Workshop eingeladen, um Sie auf ihre Rolle als Lerncoach bei der Förderung der Lernkompetenzen Ihrer Mitarbeiter zu vorzubereiten. Von den dreissig eingeladenen Führungskräften erscheinen nur drei Personen, zwei weitere schicken Vertreter.
 - a) Analysieren Sie diese Situation und erörtern mögliche Gründe! (2 Punkte)
 - b) Welche Massnahmen wären aufgrund Ihrer Diagnose angemessener gewesen als der Workshop? (3 Punkte)
5. In den neuen Leitlinien einer Universität wird die Förderung interdisziplinären Denkens als strategisches Leitziel formuliert. Dazu sollen von den acht Fakultäten verstärkt interdisziplinäre Lehrangebote angeboten werden, beispielsweise in jedem Semester eine Vorlesungsreihe zu einem aktuellen interdisziplinären Leitthema.
 - a) Was würden Sie dem Rektor dieser Universität als ersten Schritt zur Umsetzung dieser neuen Zielstrategie raten (2 Punkte)
 - b) Der Rektor schickt am Semesterende ein Rundschreiben an alle Professoren, in dem er um ihre Themenvorschläge für diese Vorlesungsreihe im nächste Semester bittet. Beurteilen Sie diese Massnahme! (2 Punkte)

References

- Angehrn, A. A. (2005). *Learning to Manage Innovation and Change through Organizational and People Dynamics Simulations*. Paper presented at the International Simulation & Gaming Association Conference (ISAGA 2005), Atlanta.
- Angehrn, A. A., Doz, Y. & Atherton, J. E. M. (1995). *Business Navigator: The Next Generation of Management Development Tools*, CALT Working Paper 1995-1. Retrieved 1. 11. 2005, from <http://www.calt.insead.edu/eis/documents/BN%20Paper.pdf>
- Angehrn, A. A., Schönwald, I., Euler, D. & Seufert, S. (2005). *Behind EduChallenge. SCIL Report 7*. St. Gallen: Swiss Centre for Innovations in Learning (SCIL). <http://www.scil.ch/publications/>.
- Barone, C. (2001). Conditions for transformation. Infrastructure is not the issue. *Educause Review*, 36(3), 41–47.
- Billhardt, B. (2004). *The Promise of Online Simulations*. Retrieved 1. 11. 2005, from http://www.clomedia.com/content/templates/clo_feature.asp?articleid=382&zoid=29
- Birnbaum, R. (2000). The life cycle of academic management fads. *The Journal of Higher Education*, 71(1), 1–16.
- Bottomley, J., Spratt, C. & Rice, M. (1999). Strategies for Effecting Strategic Organisational Change in Teaching Practices: Case Studies at Deakin University. *Interactive Learning Environments*, 7(2–3), 227–247.
- Boud, D. & Feletti, G. (Eds.). (1997). *The Challenges of Problem-Based Learning* (2nd ed.). London: Kogan Page.
- Boyce, M. E. (2003). Organizational Learning is Essential to Achieving and Sustaining Change in Higher Education. *Innovative Higher Education*, 28(2).
- Brandon Hall Research. (2005). *Applying simulation-based content to learning*. Retrieved 25. 09. 2005, from <http://www.brandonhall.com/bhrnews/BHRN7Sept05.htm#1>
- Büning, N. & Abendroth, J. (2000). Unterstützung des Strategiewandels durch Performance Simulation bei der Siemens AG. In W. Gattermeyer (Ed.), *Change Management und Unternehmenserfolg. Grundlagen – Methoden – Praxisbeispiele* (pp. 139–157). Wiesbaden: Gabler.
- Christopher, E. M. & Smith, L. E. (1987). *Leadership training through gaming*. London: Kogan Page.
- de Jong, T. & Joolingen, W. R. v. (1998). Scientific discovery learning with computer simulations of conceptual domains. *Review of Educational Research*, 68(2), 179–201.

References

- Dekker, J. & Donatti, S. (1981). The integration of research studies on the use of simulation as an instructional strategy. *Journal of Educational Research*, 74(6), 424–427.
- Diesbergen, C. (1998). *Radikal-konstruktivistische Pädagogik als problematische Konstruktion eine Studie zum Radikalen Konstruktivismus und seiner Anwendung in der Pädagogik* (Vol. 22). Bern et al.: Lang.
- Dooley, K. E. (1999). Towards a holistic model for the diffusion of educational technologies: An integrative review of educational innovation studies. *Educational Technology & Society*, 2(4), http://ifets.ieee.org/periodical/vol_4_99/kim_dooley.html.
- Dubs, R. (1995). *Lehrerverhalten ein Beitrag zur Interaktion von Lehrenden und Lernenden im Unterricht* (Vol. 23). Zürich: Schweizerischer Kaufmännischer Verein.
- Ellington, H. I. & Earl, S. (1998). *Using games, simulations and interactive case studies: a practical guide for tertiary-level teachers*. Birmingham: SEDA Publications.
- Euler, D. & Hahn, A. (2004). *Wirtschaftsdidaktik* (1. Aufl.). Stuttgart: Haupt.
- Gräsel, C. (1997). *Problemorientiertes Lernen*. Göttingen: Hogrefe.
- Gredler, M. E. (1996). Educational games and simulations: A technology in search of a (research) paradigm. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 521–540). New York: McMillan.
- Hanson, J. (2003). Encouraging lecturers to engage with new technologies in learning and teaching in a vocational university: The role of recognition and reward. *Higher Education Management and Policy*, 15(3), 135–149.
- Kerr, C. (1982). *The uses of the university* (3rd ed.). Cambridge, MA: Harvard Univ. Pr.
- Kerr, C. (1987). A Critical Age in the University World: accumulated heritage versus modern imperatives. *European Journal of Education*, 22(2), 183–193.
- Kezar, A. J. (2001). *Understanding and facilitating organisational change in the 21st Century. ASHE-ERIC Higher Education Report, Volume 28, Number 4*. San Francisco, CA: Jossey-Bass.
- Kiili, K. (2005). Digital game-based learning: Towards an experiential gaming model. *Internet and Higher Education*, 8, 13–24.
- Kolb, D. A. (1984). *Experiential learning experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kriz, W. C. & Nöbauer, B. (2002). *Teamkompetenz. Konzepte, Trainingsmethoden, Praxis*. Göttingen: Vandenhoeck und Ruprecht.
- Leemkuil, H., de Jong, T. & Ootes, S. (2000). *Review of educational use of games and simulations*: University of Twente.

- Leigh, E. & Spindler, L. (2005). Simulations and games as chaotic learning contexts. *Simulation & Gaming*, 35(1), 53–69.
- Malone, T. W. (1981). Toward a theory of intrinsically motivating instruction. *Cognitive Science*, 5(4), 333–369.
- Manzoni, J.-F. & Angehrn, A. A. (1998). Understanding organizational dynamics of IT-enabled change: a multimedia simulation approach. *Journal of Management Information Systems*, 14(3), 109–140.
- Ng, D. F. S. & Ng, P. T. (2004). Computer simulations: a new learning environment for professional development of educational leaders. *Educational technology, Nov-Dec 2004*, 58–60.
- Prensky, M. (2001). *Digital game-based learning*. New York: McGraw-Hill.
- Reichert, S. & Tauch, C. (2003). *Trends 2003. Progress towards the European Higher Education Area*, from <http://www.eua.be/eua/jsp/en/upload/Trends2003final.1065011164859.pdf>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.
- Spiro, R. J., Feltovich, P. J., Jacobson, M. J. & Coulson, R. L. (1992). Cognitive Flexibility, Constructivism, and Hypertext; Random Access Instruction for Advanced Knowledge Acquisition in Ill-structured Domains. In T. M. Duffy & D. H. Jonassen (Eds.), *Constructivism and the Technology of Instruction*. Hillsdale, NJ: Lawrence Erlbaum.
- Stark, R., Graf, M., Renkl, A., Gruber, H. & Mandl, H. (1995). Förderung von Handlungskompetenz durch geleitetes Problemlösen und multiple Lernkontexte. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 27(4), 289–312.
- Steinwachs, B. (1992). How to facilitate a debriefing. *Simulation & Gaming*, 23(2), 186–195.
- Taylor, J. L. & Walford, R. (1978). *Learning and the simulation game*. Beverly Hills, CA: Sage.
- The New Media Consortium National Learning Infrastructure Initiative. (2005). *The Horizon Report 2005*. Retrieved 15. 09. 2005, from http://www.nmc.org/pdf/2005_Horizon_Report.pdf
- Thiagarajan, S. (1992). Using games for debriefing. *Simulation & Gaming*, 23(2), 161–170.
- Van Til, C. & van der Heijden, F. (1998). *Problem-Based Learning Study Skills*. Maastricht: Department of Educational Development and Research.
- Van Vught, F. A. (1989). Creating Innovations in Higher Education. *European Journal of Education*, 24(3), 249–270.