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# The Professional Habitus in Religious Education

## Theory and Practice of Competence-Based Teacher Training – including Professional Simulation

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# 4. Professional Simulation (ProfiS ) – a new concept to form the professional habitus in Religious Education

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This chapter elaborates, in accordance with the term "simulation" (4.1), which importance simulations have for building a professional habitus (4.2), especially for an integral concept of habitus formation (4.3). Based on this a concept of Professional Simulation is developed (4.4) and a module for seminars in teacher education in Religious Education will be concretized (4.5). Thus it becomes evident how Professional Simulation can serve as a pivotal component in teacher training.

## 4.1 The term "simulation"

*Usage in daily life, etymology and theology*

In everyday speech and in its Latin conceptual history (cf. Röller 1995, 795) simulation is connoted rather negatively. A simulant is a person who deceives or pretends, e. g. the simulation of a disease, a social status or pretending to have competences one does not have in reality. A simulant fakes a disease he does not have, acting like a genuinely ill person by relating his actions to the actions of genuinely ill people and imitating their sufferance. Simulation in everyday speech thus rather refers to faking or pretending.

However, the Latin etymology of the term "simulation" has different roots (cf. Georges 1998, Negele 2018). *Simulacrum* has manifold meanings: image, likeness, portrait, silhouette, dream vision, ghost, allegory, effigy, visual image and delusion. *Simulamen* means imitation, *simulamentum* deception. *Simulatio* refers to deception, hypocrisy or the art of disguise. The verb

*simulare* means "to make something similar to something", "to recreate", "to imitate", but also "to pretend", "to create semblance" or "to deceive". *Simulans* means imitating. Simulation can also be ascribed to the adverb *simul*, meaning likewise, alike or simultaneous and at the same time. The adjective *similis* has the same word stem. It means similar and alike and refers to qualities of the same kind, e. g. simile, the stylistic device or the allegory.

What all these terms have in common is that they refer to situations, actions, processes and qualities which have an inner temporal connection of simultaneity and which are connected with each other. Between original and copy, there is:

a) No connection to a person's respective and former reality, but a more or less "real" connection to the reality of others, which causes an act of deception and pretension.
b) A realistic connection to their own former reality, which includes a genuine (likeness, copy) or a partial sameness.

We can also detect these different meanings of the term in theology. Firstly, humans are God's image. That humans were made in the image of God derives from *Genesis 1:26*. Theologically this represents the special relationship between God and man and his resulting supremacy within God's creation. Thereupon man is understood as "simultaneously as just and sinful" (Latin "*simul justus et peccator*"). Man is justified by God but a sinner at the same time. This tenet going back to Martin Luther is nowadays accepted by the Protestant and the Roman-Catholic Church alike.

In the theological discipline of Roman-Catholic canon law, one can find this understanding of pretension concerning marriage in standard comments (cf. Nelles 2015, 1328-1331). A rather young phenomenon is the discussion on simulation being a bridge between religion and natural sciences (cf. Donaldson/McConnell 2015, 355).

All in all, simulation is a term with a double semantic structure: it can refer to deception as well as to a relation of similarity. The term "simulation" will in this book merely be used in the second sense, a relation of similarity between the simulated as such and an outer reality. This relation can be used in processes of professionalization as a means of knowledge acquisition and competence development.

*Simulation in science*

Since the 1950s, simulations have been developing in different fields as computer simulations, which have become more and more complex through increasing computer performance (cf. Winsberg 2013). Nowadays simulations are being deployed in various professions and scientific disciplines. Frequently, simulations are used to analyse complex systems, mainly in natural sciences, economics, engineering, social sciences, in aeronautics and astronautics as well as in biotechnology and medicine.

By adding additional variables, variations of similarities – besides realistic images – are being established (in contrast to the original model). If one varies the presets of the simulation by adding different variables, one will get different model varieties in simulation studies. Through this modality the effects of the collaboration of presets, e. g. in scenarios, become evident and the prediction of processes and products is enabled. In this sense, simulation offers a new quality level in the history of scientific techniques of prediction, which were developed in economics, physics, meteorology, astronomy and applied sciences such as nautics and navigation, strategy and ballistics (cf. Röller 1995, 795). Such modes of empirical analysis are widespread in climate research as well as in geoinformatics, e. g. for the research of pedestrian movements in big cities (cf. e. g. Jonietz/Timpf 2013), in architecture (cf. Gleichinger/Vrachliotis 2008) and in educational research (cf. e. g. Becker 2009; Ditton 2013).

In informatics and computer sciences, simulation is understood as a mathematical modelling of a complex system in order to elaborate structural qualities of this system. During the elaboration process of, at the first view, confusing systems, the mechanism of these systems is being examined and reconstructed. In this case simulation is a process of restoring complex systems to their structural qualities which make sure that the system works (cf. Oberkampf/Roy 2010). In economic science, the results and effects of a system are tested for a gain of knowledge.

In general, a simulation in this sense is a representative imitation of a process or a single procedural aspect by a different process. Both processes are being executed through a particular system – namely as a simulated and simulating system (cf. Hartmann 1995, 807). The validity of the simulation's result as theory-driven deductions depends on the correctness of the

initial hypothesis and the reliability of the deduction methods (ibid., 808). Simulation is the specific manufacturing and application of models that are abstractions of reality and that emerge by using mathematic or logical methods or assessments and which represent reality. In the aforementioned scientific contexts, simulations are being used to model sometimes highly complex systems, to conduct experiments and to interpret results and respective questions of verification and validity (cf. Gleichinger/Vrachliotis 2008; Braun et al. 2015; Short 2015). Simulation thereby includes three ideal-typical phases.


Fig. 9: Three typical phases of simulation

The German Council of Science and Humanities assumes that the importance and development of simulation will increase, also in human sciences (cf. German Council of Science and Humanities 2014, 8). During a scientific simulation, the simulated reality is depicted similarly to the outer reality by processes of modelling. It is the purpose of simulation to develop various scenarios in order to get clues for coping with real situations or aspects of reality. On the basis of simulated scenarios it is possible to make better decisions: What can be done against global warming? How are inner cities to be planned? What can be done to improve the educational or the health system?

Taking the temporal aspect into account, the following connection to a simulation can be established:


Fig. 10: Temporal component of simulation

What most simulation approaches have in common is that a model is built in accordance with reality, which serves as a starting base to build

something new or to change something. Model and reality intertwine in a similarity relation (with a reduction of complexity) and are connected through the simulation. In well-known fields of science, simulations not only have an original-copy relation but also mediate between theory and reality and serve as tools for analytical examination (cf. Mahr 2008).

This small selection of examples already leads to the conclusion that simulation in modern sciences, besides theories and experiments, has established itself as a third column of scientific cognition (also cf. Resch 2013 and Resch/Bez/Focht/Kobayashi/Patel 2014). The scientific practice is developing. However, one must not overlook the difficulties and dangers implied by reductions of complexity and predictions (cf. e. g. Nassehi 2015). These questions have to be asked: Is it part of the solution or merely an imitation of the problem if one always tries to calculate everything (cf. Lenhard 2015)? Do models create their own substantial reality which is an aesthetic hallucination of reality (cf. Baudrilliard 1982, 116)?

What seems to gain more and more importance is the perception of simulation as a tool to create a virtual reality. Here the simulation of sensory (e. g. visual or acoustic) is important. In contrast to simulations in science, the human being himself is in this case part of the simulation (cf. Hartmann 1995, 808).

## 4.2 Simulation in professional habitus formation

*Simulation and professional training*

Whilst simulations have been an integral part of technical and economic educational branches, the situation in school and university education is more differentiated.

In healthcare chaplaincy education (clinical pastoral education) in the United States and in Germany for example, simulations are being applied. One develops a situation or a safe environment as a representation of a real event in order to practice, learn, evaluate and test or to gain profound knowledge about systems or human action by participation (cf. Kraus 2008, 331). One can train new capacities for coping with fears, which

mainly occur in intensive medical care situations, to understand where improved action is necessary and to learn sensitive communication and empathy towards patients, family members and hospital staff. The students immediately get feedback from peers and supervisors as well as instant reactions from actors who play staff, patients and family members. Simulation enables evidence-based observations concerning the development and achievement of professional standards (cf. ibid.).

Since the 1970s, simulations have been applied in the context of microteaching and training. Recently, there have been various new approaches. For example, one attempts to combine simulation-based and video-based learning (cf. Ophardt et al. 2014). In a computer-simulated classroom, the operator takes the role of a teacher and interacts with the class (cf. Fiedler et al. 2007). With this tool, diagnostic competences, for example, can be experimentally analysed, which work as an addition to studies in real classrooms (cf. Südkamp et al. 2008, 273). Simulations can also be implemented in a course-related combination to educational internships (cf. Riegger 2009, esp. 68-73). Another advantage is that via supervisions experienced teachers or expert teachers can gain insights through simulations, which they would not be able to get by mere cognitive reflection (cf. Belardi 2013). The roundup of the state of research suggests that by using simulations, one can particularly develop interactive aspects of teaching and guarantee reflection and transfer (cf. Ophardt et al. 2014, 267).

The following aspects seem to be of particular significance:

- Creating differentiated, coherent learning arrangements with intertwining components.
- Simulation-based learning as a preliminary component before implementing new strategies.
- The connection of simulation and feedback.
- The simulation and reflection of precarious situations by educating "standardized students" and applying forms of "role switch" (cf. ibid.)

*Realistically modelled imitation or anticipation of professional situations*

In professionalization, simulation is understood as realistically modelled imitation or anticipation of professional situations, in order to purposely build competences of a professional and professionalized habitus.

Simulation is both conducive to practice professional situations (skills and prowess) through real-life imitations and complexity-reducing actions and also to be sensitized for the unpredictable. In pilot training, the landing is practised in a flight simulator in order to be able to manoeuvre in difficult real-life weather conditions. In dentistry, model training to treat a humanlike set of teeth is widespread. In medical training, fake patients are used to observe and train effective communication of students in emergency situations (cf. Schulz et al. 2007). In team sports, professional action is trained by imitating the qualities, tactics and moves of opponents to generate an appropriate strategy. By simulating the opponents' actions, their way of thinking and playing, one's own team can construct a strategic approach to win the game.

## 4.3 Simulation as a method of integral habitus formation

*Simulation as a means for building habitual competences*

Simulation is a method combining the various forms of the habitus and therefore it plays a pivotal role for integral habitus formation. Via simulation, scientific expert knowledge can interrelate with practical situations. Furthermore this process can be reflected upon and evaluated. Simulation thus succeeds in combining science, professional field and person. It is decisive to consider the conditions and phases (examined more closely below) of the respective simulation to properly implement the simultaneous habitus formation. Simulation crucially contributes to integral professionalization and to the establishment of an indispensable practical habitus.

Through the simulation of professional practice, professional actions are assimilated and incorporated. In this way a professional habitus is being constituted. In contrast to a mere knowledge-based building of competences, simulation aims at the application of knowledge in professional actions. While perpetuating and reflecting these actions, the professional habitus already starts to develop. Habitus development does not only happen by accumulating cognitive knowledge, but through one's own actions, by transforming knowledge into professional acting. Through simulation, processual knowledge structures and competences are being built which can be applied

in a positive manner. Such competences are precise perceptions of different actions, reconstructions of different actions, incorporations of these actions and the development of appropriate strategies for the extension of one's own repertoire. Simulation thus reveals how other people act and work and therefore it can contribute to transparency, in the sense of "visible learning" (Hattie 2014), as visualization of the conditions and methods of others.

This is the exact leverage point of this book: by using simulations during the education of teachers, professional practice, e.g. conversation techniques in teacher-student discourse, is being imitated and simulated in order to react suitably in professional situations and in this way to build a professional habitus.

### *Preconditions of simulation in habitus formation*

Simulations resembling reality and reduced in complexity can be regarded as a form of situational learning. Simulations in broader learning environments enable the gaining of procedural and implicit knowledge (cf. Perrig 1996), which can be clearly distinguished from declarative (deliberate) forms of knowledge (cf. chapter 2).

Simulating reality creates distance to reality. Established reality patterns of stimulus and response are disconnected and even suspended. Creating distance then becomes a prerequisite for anticipations that enable prevention in the first place. The simulation of the possible in this way defies the bare necessity and helps in coping with reality.

The anticipation of events, situations and behaviour which have not yet taken place enables testing via trial and error and the concluding of consequences. This has a preventive quality. Thus simulation can develop from prevention and exceed it, because it can develop an inherent and disconnected dynamic out of touch with reality.

Different variations can be intended via simulation. Various content and time frames can be simulated. The past can be reinstated, the present can be represented, and the future can be anticipated.

### *Aims and effects of simulation*

The already elaborated building of the habitus contains the possibility of development and the disclosure of one's own opportunities for action.

Furthermore, concrete aims can be pursued: having participated in simulations, real-life situations will not be so daunting, can be analysed and understood more effectively, and will be coped with more successfully.

When it comes to possible effects, various outcomes can be pursued through simulation. For example, the concept of and relation to reality in professional action can be enhanced by identifying distinct contexts and their influence on professional action more precisely and rapidly. The simulation can provide a training field for real practical duties as well as disclose possible links to theoretical considerations. Moreover, perceptions can be (re)interpreted, whereby subjective interpretations are not only tolerated, but indeed deliberately included.

## 4.4. Concept of Professional Simulation

*Definition*

So far, we can elaborate the following definition of Professional Simulation:

| | |
|---|---|
| Professional Simulation | *is an "as if" action* |
| | *regarding the conception and application of a complexity-reducing and realistic model of reality* |
| | *in order to build habitual competences in a particular professional field* |

Fig. 11: Definition of the term "Professional Simulation"

The three components of our idea of Professional Simulation are described in the following.

*Simulation – an "as if" action*

To begin with, simulation is an action per se. This seemingly trivial proposition relates simulation to action-theoretical concepts which define learning through acting. Simulations of professional actions have two structures: representative interpretation and representative intervention.

Representative interpretation means that professionals interpret and analyse practical problems for their clients. Its logic draws on a specific pattern

or schema which enables the participants of simulations to interpret and analyse realistic professional problems (e. g. planning and conceptualizing lessons, classroom management, role assignment) from a representative distance (cf. Dewe et al. 1992, 81). This way, practical knowledge and scientific knowledge encounter each other, ideally on equal terms (neither knowledge form is of less value).

Representative intervention means that solely representative interpretation is not able to solve the problem (cf. Dewe et al. 1992, 81). We call this elaboration an intervention, as the professional directly intervenes in the privacy of the client, for example via educational processes or via medical action.

What is special about simulation is that representative interpretations and interventions are feasible in the first place. Participants of simulations use interpretations by selecting them. The different options can be perceived as suitable, corrected as partially suitable or denied as unsuitable in respective situations. As a result, the proclamation of a pure reception is prevented. The mere theoretical construct of the vicarious interpretation gets practical grounding through the actions during simulations. Autonomous and self-determined ways of acting are not only fostered, but also applied and reflected in the various situational challenges of the simulation.

As in video-based analyses professional perception is mainly tested empirically (cf. Stürmer et al. 2013; Steffensky et al. 2015), the perception in general can be trained in simulation in addition to the conception of lessons, as during simulations concepts are created and tentatively applied which foster and promote learning. Real actions are intended to be improved, even though only in a simulated setting.

The professional action itself has a specific quality in simulations: it can be described as an "as-if action". In contrast to real daily actions in professional contexts (lesson, internships etc.), the simulation has a huge advantage: it does not have real consequences except for the actor himself. Thus it becomes a realistic "as-if action" in a protected environment with an almost playful character. The "as-if action" takes place in an "as-if reality", which is nothing but a framed "as-if setting" external to everyday life. Simulated reality is distinctly different to everyday life, even though con-

taining major aspects of it. This differentiation of two reality levels offers the chance to foster the discussion about a construction of an "as-if figure" in relation to the didactic of religion. Admittedly, simulated actions are on the one hand practice actions, as they initially do not have consequences and they are locally, temporally and dramaturgically limited (cf. Bernhard Dressel, Thomas Klie, Martina Kumlehn, esp. Dressel 2012). On the other hand, however, they can be described as authentic actions, as they have an implied relation to everyday life (the first level of reality) through realistic modelling, and they are merely distinguishable, but not separable, from everyday life, which can bring authentic experiences and results (cf. Mendl 2016b).

During the simulation process, actions take place to which a highly subjective meaning is attached (cf. Mendl 2013, 67). This is certainly artificial, yet it can be differentiated from artificial education processes in general. The participants individually attach meaning and importance to such actions (actively participating in the action or just by observing it) (cf. Riegger 2016, 4.2), which enables the differentiation of codes (cf. Roose 2006, 110) and which prevents a didactical monopolizing (cf. Dressel 2012, 38). Simulation holds aspects of gamification, as it is an action whose consequences merely become evident for the simulating participants within the "game" itself. The complex term of playing or gaming is, however, not only perceived as totally purposeless action, but also earmarked for a particular purpose (cf. Riegger 2002, 152-179). So sobriety, seriousness and goal orientation have to be paired with futility and joy.

### *Conception and application of a complexity-reducing and realistic model of reality*

The mode of the action, its modal character, is the conception and application of a complexity-reducing model of reality. In our understanding, simulation is to be connected with reality – imperatively. Through this, simulation has a distinct similarity relation to reality and cannot be observed as a separate entity. Complexity reduction and similarity within the model or within modelled situations are decisive qualities and prerequisites for this study.

During simulations a second-order reality is produced through modelling which can be most widely derived from a first-order reality (following extrapolable rules). Meanwhile allusions to theoretical concepts and practical considerations take place. This fragile connection in the transition point of these two reality levels is always endangered, which is why it can easily lead to an artificial production of a second-order reality in such modelling processes. This would be a mere suggestion of reality, a production of a hyper-reality lacking professional first-order reality. It is possible that much of the widespread pedagogic training runs the risk of adapting this fatal approach. Without realizing it, they, at a certain point of time, drift apart from first-order reality to practice modes of action which are not related to reality any more, at least for some participants.

The model can either be of a technical nature (e.g. a car simulator or special software) or it can be produced by humans in modelled situations. What they have in common is that they reduce and imitate reality. This modelling process of reduction and imitation is a pointing one with a pragmatic aim: it wants to gain insights on reality in order to successfully cope with its challenges. The model must not be regarded as reality as such, but always as an interpretive process to reduce the complexity of reality in terms of a certain aspect. Therefore the balancing and coordination of reality and the performing subjects is crucial.

*The formation of habitual competences in a particular professional field*

Simulation is thoroughly determined. During the simulation process, competences are being built which are trans-situationally available. A simulated surgery has no consequences for medical practice, as no real patient is involved in the process. However, it helps in training the competence of the surgeon. In the process of professionalization this can be of use as professional practice – which is never fully predictable – and can become more and more accessible and tangible. This can support building and establishing professional competence. The huge advantage simulation offers is that the simulated practice is simultaneously similar to real practice and it provides a safe and predictable training space in order to practice and to foster competences in particular areas such as medicine or pedagogy. In consequence, it helps in building habitual reflective competence in the

sense of religion pedagogic professionalization. By inserting different variables, scenarios can be simulated as chains of deduction. In line with that, the consequences and results of the respective simulated actions become evident.

*Active and passive dimension*

Professional Simulation has an *active* and a *passive* dimension. In the active dimension, the simulating person deals with a situation from his professional field, which simulates reality. In the passive dimension, habitual dispositions or competences are thereby being established which have to be reconsidered actively. The two dimensions have an iterative relation of permanent reciprocity accompanied by a process-related reflection of one's own action as well as its effect on the habitus. In this way, competences in the professional habitus are being established systematically.

*Summary*

The simulation-based development of competences takes place in a second-order reality: first of all, a first-order model is created (modelling and conceptualizing), then, during simulation, it is applied and results are being intended and produced. The model is conceptualized by determining the central question or thesis, based on which the simulation is created through an abstraction from a first-order reality. Then an introductory scene is conceived. The central question, the scene and the concept are permanently compared to each other with a first-order reality in order to test the coherence and appropriateness of the model. The original model is crucial for a successful simulation. The approach consists of the implementation of the simulation in order to conceive variants of the model. The value of this process is as indispensable as the results of the simulation. This is afterwards evaluated by presenting the results, by reflecting and reconsidering them, and by reconnecting them to the first-order reality in a comparative mode. Figure 12 illustrates these steps and aspects.

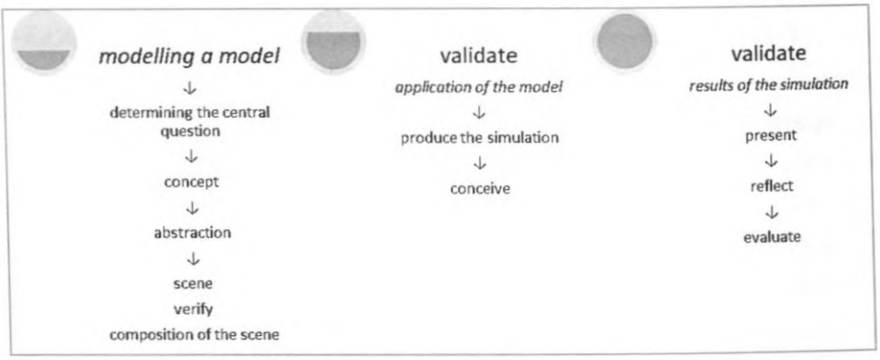


Fig. 12: Simulation-based competence development

## 4.5 Professional Simulation in practice: an elaborated module

The module was designed to professionalize the habitus in universities and in seminars as well as in institutions and courses for further education. It consists of several individual modules summarized in one comprehensive module: the course of the actual simulation in five well-matched action steps; the conditions responsible for a successful simulation; the habitual links of the simulation and the interconnection to other approaches. The module as such can only be fruitful when all the respective individual modules are diligently put into effect.

### 4.5.1 The simulation process in five action steps

Professional Simulation is not a static approach, but a process containing five individual steps. During the simulation the participant ideally fulfils five steps geared to each other which correspond with professional action and which can be reconstructed empirically (cf. Heil 2013, 97ff.; Schön 2000). These five steps are:


Fig. 13: Five steps of Professional Simulation

As possible parallel actions to every step mentioned, the actions "stopping" and "reflection" can be added as a specific option of the simulation. The five steps structure the process of simulation and condition each other. They hold specific qualities which can be elaborated and learned successively during the process of simulation.

The five steps are tied to the model of the professional habitus: steps one to four describe the correlation of "expert repertoire" and the problem-orientated "empirical case relation", where the structures "individual" and "institution" are implicit. This relation is established in the varying usage of abduction, induction and deduction (DIA). Steps one to four slow down the interpretation process of reality by reflecting it deliberately through building hypotheses as correspondences with the phenomena perceived in reality. Step five refers to the activation of competences from all four structures (expert repertoire, case relation, individual and institution). This step, referred to as intervention, is the result of the interpretation process. It is an accelerated process, as professionals have to work under time pressure, which is being simulated. The following graphic depicts the individual action steps at a glance.

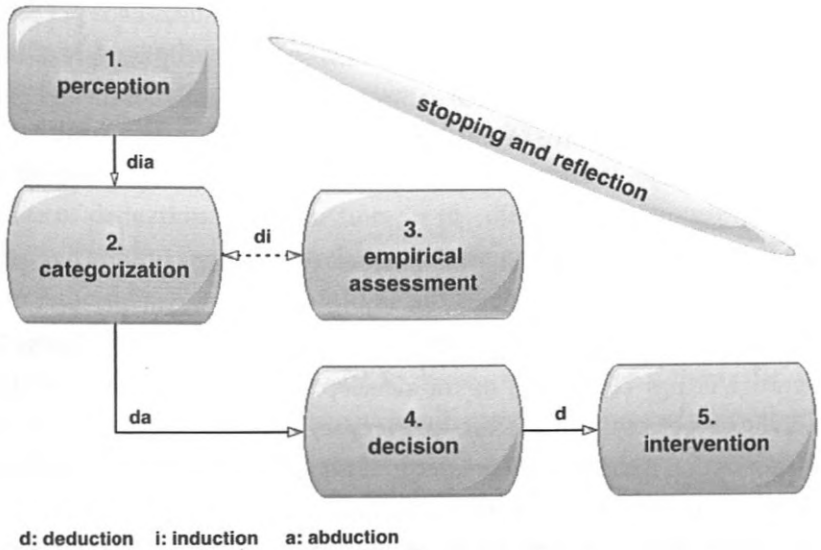


Fig. 14: Professional Simulation in action

### *Perception*

Every simulation begins with the professional perception of a situation from daily work. Professional perception is understood as gathering and processing internal and external sensory perception through different neuronal receptors during particular professional situations. Visual, auditive, gustatory, olfactory, tactile, kinaesthetic or emotive stimuli, which are processed through neuronal receptors as well as filtered and interpreted through the current imprinting of the habitus, are relevant for this procedure.

The filtering of these stimuli immediately initiates incorporated patterns (schemata and scripts) of the habitus through which they are being evaluated. The process of ascribing meaning to these stimuli after having perceived them is highly influenced by both cognitive and emotional constituents, as well as by physiological processes which display a crucial factor in the act of perceiving itself. The professional habitus therefore reacts automatically through the previous activation of the aforementioned patterns and by comparing the stimuli with stimuli already known to the brain, which had been stored and incorporated in schemata. In this way the brain automatically ascribes meaning to the perceived stimuli. Thus selective perception is always to be regarded as a simultaneous process of interpretation. Professional perception aims to make people aware of these processes as an interaction of the habitus and reality and to train and guide one's own perception in a professional way.

### *Categorization*

After deliberate perception, the process of categorization takes place which includes an ascription of meaning to the content perceived (cf. Heil 2013, 98). Categorizing is the abstraction of individual objects (cf. Wentura/Frings 2013, 125) as the development of hypotheses for these individual objects. In contrast to everyday categorization, professional categorization is the deliberate interpretation of perception through standardized categories from the respective discipline.

Categorization as a connection of perceived content with standardized categories can be put into effect through three different approaches: deduction, induction and abduction. Deduction derives content from predefined

categories. Induction subsumes content to existing categories. Abduction combines categories in a new way (cf. Heil 2006). Accordingly, this enables professionals not only to react and assess situations reflectively, but also to deliberately interpret them through scientifically established categories.

The theory of professionalization describes the process of categorizing with various terms: Schön calls categorizing "framing" and later "reframing" (cf. Schön 2000). Goodwin (1994, 626) describes it as the "ability to shape events in the domain of its scrutiny into phenomenal objects around"; Sherin and van Es (2009) call it "knowledge-based reasoning". What these descriptions have in common is that perceived content gains meaning that the professional domain acknowledges. Simulation can prompt the training and usage of this process.

After the step of categorization has been put into effect, two action steps are possible in principle: if the categorization is clear and fits to the perceived content, the professional process will immediately proceed to the step of decision-making. However, if there are still questions and ambiguities, one will have to resort to the interim stage of empirical assessment.

*Empirical assessment*

In order to examine them, the categories can be empirically reconnected to the step of perception in order to collect more empirical data which make the hypothetical categories more evident. Schön calls this process the "testing" of the previous "frame" of reality (Schön 2000). Empirical assessment is a reciprocal process between category and empirical data in an interchange of deduction and induction: in the direction of the category the deduction works as an if-then relation between category and quality. If category A is applicable, then it has to be possible to find certain qualities and features of A that fit their respective quality in an empirical analysis. One closely looks for these qualities of A in the aforementioned if-then relation. Induction allocates the qualities to certain categories and excludes others; therefore the direction of the arrow points from empiricism to category. If no empirical data can be related to a category, then the category (hypotheses) must be discarded. The professional has to find new categories.

The correlation of perceived data and categorization receives strengthened empirical evidence by the method of reconnection. As a result, empirical

assessment is the purposeful search for further empirical qualities in order to confirm or to discard the hitherto consulted hypotheses (categories).

*Decision*

Professionalism includes and demands appropriate action under time pressure. As distinct from scientists, professionals frequently have to make quick decisions. This is a competence which has to be well-trained. The professional has to decide which category is to be applied in order to cope with the challenges of the situation. Decision-making therefore is an integral part of professional acting and can be trained during the simulation process. Decisions can be made either deductively or abductively in the process of building hypotheses. Deduction logically generates the decision from the category. The criterion for the decision is the necessity itself. Abduction generates decisions in the form of a hypothesis concerning the best category. The criterion for the decision is the plausibility, meaning that the decision concerning the category is not necessary, but hypothetical. Nevertheless, the decision has to be made in order to act in a professional way. Decision-making includes two subsequently interrelated actions: the decision for the appropriate category and the decision for a suitable strategy of action. The decision for a certain category is based on the empirical assessment as a third action step or it can be immediately made after the step of categorization when the category is obvious and undisputable.

If an intervention is not necessary, the professional action can be fully administered at the step of decision-making. Sometimes it is sufficient to interpret the perceived content as a form of representative interpretation. Even though the professional does not or cannot practically intervene himself, the professional action is fully accomplished with this step.

*Intervention*

After the decision for the appropriate category has been made, the intervention in the professional situation takes place. This requires the necessary professional competences that enable such an intervention or delegating these spheres of competences to a professional. Which category and which strategy is chosen for intervention is a decision that is always bound to habitually acquired competences. This is where a clarification of the ob-

ligatory competences of a professional is indispensable (Heil 2013, 110). Especially when it comes to teaching professions, a delegation is extremely difficult, and conflicts could emerge if there is a lack of adequate competences. The intervention results distinctly from the step of decision-making. The deduction as a method with an if-then relation is heuristically appropriate.

From a profession-theoretical point of view, steps 1–4 refer to a representative interpretation of phenomena (cf. Oevermann 1996), whereas the fifth step provides a solution of the problem by the professional. During the act of representative interpretation, the professional recounts his individual assessment, his personal interpretation, to the client – in the representative intervention he or she directly intervenes in the privacy of the client. The classic example of this act is surgery. Nevertheless, an intervention is also essential in the daily routines of a teacher, if, for example, the intended learning content and aims cannot be achieved. Accordingly, intervening becomes a pivotal step during the simulation process. Because of its habitual effect, however, it needs an elaborate preparation phase (as described above) in order to prevent the automatizing of wrong interventions.

*Stopping and reflection*

In life practice, the previous actions frequently take place swiftly and in a rapid sequence. They intertwine and do not enable lengthy spans of reflection or contemplation. The big advantage of an "as-if" action is that the simulation can be put on hold systematically in order to reflect or deliberate some parts of it. In contrast to real-life situations, the simulation has no current and permanent strain for action, so it can be stopped if necessary. This deceleration provides the opportunity to reveal certain practical structures and to train or to challenge them repeatedly, to correct and develop them etc. Thus, competences can be built in a purposeful way (cf. Mischo et al. 2008, 362).

*Example*

The following example is intended to illustrate the aforementioned five steps of Professional Simulation.

*Perception*

While Mrs. Smith, the teacher, explains certain content in her lesson, two students, Felicia and Jakob, are babbling and do not pay attention. Reflexively Mrs. Smith feels irritated and feels aggression and anger. She also starts to react physically by sweating, and her muscles become tense. She tries to break free from this automatized pattern and to suppress her reflexes by drawing her attention to the students and by collecting data on the students' language and gestures. However, she does not understand what they are telling each other as she can merely see their conversation and hear some muttering. She regards the facial expression of these students as a neutral one.

*Categorization*

Mrs. Smith relates her perceptions to professional categories with whom she interprets the phenomena she perceived. In order to have some alternatives, she chooses the two categories "disturbance through a private conversation" and "uncertainties about the lesson's content": the students may be disturbing the lesson by having a private chat or, and this would be the less pejorative alternative, they have comprehension questions or they disagree with aspects of the discussion and are talking about this. Depending on which alternative is the case, Mrs. Smith has to act in a suitable and professional way and with varying reactions to the respective alternative.

*Empirical assessment*

Mrs. Smith feels insecure about which of these two categories is applicable, as the observed features fit into both categories. Because of that, she now relates both categories to her former perception by searching for further empirical data and by creating an "as-if relation". She asks: "Did you understand everything?" The category "uncertainty" becomes plausible when the pupils have further questions. If the pupils answer with something like "no, no, all clear", they were probably having a private conversation. The teacher can, if necessary, ask further questions to enhance her initial perception. This process of empirical assessment is then rebounded to the aspect of categorization.

*Decision*

Mrs. Smith reaches a plausible decision concerning the correct alternative by relating features and phenomena to categories. From this point onwards, she can draft suitable strategies concerning her next moves. She concludes from the answer "no, no, all clear" that the students must have been having a private conversation, which was clearly disturbing her lesson. Because of the decision for this category she drafts a strategy to master the situation.

*Intervention*

For the teaching profession four possible structures of intervention can be elaborated to reduce the complexity of possible action: conveying – detecting – personalizing – institutionalizing (cf. Heil 2013, 105). These four structures are derived from the model of the professional habitus and describe the possibilities teachers have in order to react systematically in certain situations. Conveying focuses on the expert repertoire and emphasizes the content of the lesson, detecting means staying within the case and exploring the underlying structure of the case, personalizing relates to the person in the case (predominantly the teacher), and institutionalizing emphasizes the role of the teacher within the "system school". By emphasizing and combining individual structures, the decision for certain strategies can be facilitated. The teacher implements the structure "institutionalizing" by issuing a warning in order to react to disturbances or to create a constructive learning atmosphere. Mrs. Smith puts the warning into effect by uttering the following in a stern way: "Stop talking immediately and pay attention." She does this to confine and confirm the disturbance (Nolting 2002), whereupon the pupils end their twaddling and pay attention again. Thus she has mastered the professional situation. The next professional situation follows immediately which demands another professional reaction and so on.

This example demonstrates that professional action can take place in a steady process and that it requires swift reactions. Simulations offer the chance to train these steps in slow motion with the result that in real situations, professionals can adopt these steps habitually.

### 4.5.2 Conditions

Several conditions must be fulfilled so that the process model of Professional Simulation can be applied in a sensible way. These conditions are openness of the participants, competence development, a reality-based setting and clarity of the communicative structure. They will be examined more closely in the following.

*Openness of the participants*

The openness of the participants is an absolute prerequisite for a successful simulation. Without the willingness to work on one's competences purposefully and to develop one's own habitus, the simulation will be unfeasible. The open-mindedness can however never be forced or indoctrinated, as it has to be motivated intrinsically.

*Competence development*

In the next step it has to be determined which specific competences the simulation is intended to develop or to foster. This involves a clear definition of the intended competence, e. g. "teachers react to disturbances by pupils in a suitable way". The simulation aims at developing competences. This is what it is about and this has to be articulated beforehand. Competence orientation as a verifiable standard provides the aim of the simulation. Thus other variables which could hamper the development of the competence can be excluded.

*Reality-based setting*

The setting of the simulation, the didactical learning arrangement for gaining the competence, has to be, according to the definition of a simulation, as similar as possible to the professional practice. A recreated classroom – better still would be a real one – is more suitable for a simulation than a seminar or conference room. The whole setting should be as similar and comparable to the imitated reality as possible. Therefore it can be sensible to draw on one's imagination. By using one's fantasy, every participant can project his or her thoughts directly into the imitated situation. The similarity to the imitated reality does not only depend on external, but also on internal, in this case imaginative, aspects.

*Clarity of the communicative structure and relationship*

A typical mistake in simulations is the blending of the communicative structures and relationships. This can be the case if participants or facilitators themselves play disturbing students or pupils. Frequently this does not contribute to a clear understanding of the roles that are taken by the simulation participants. Questions arise: What am I allowed to do? What expectations do I have to fulfil? What am I allowed to say? Facilitators in teacher training are facilitators and participants are young teachers, colleagues, interns or fellow students and not pupils. Accordingly, the communicative structure has to be clear, particularly during the simulation. External persons are therefore helpful. They can either play themselves or play pupils authentically. In any case, the relationship level has to be constantly sustained and may not be blended. It has to be clear which role has to be played in which way.

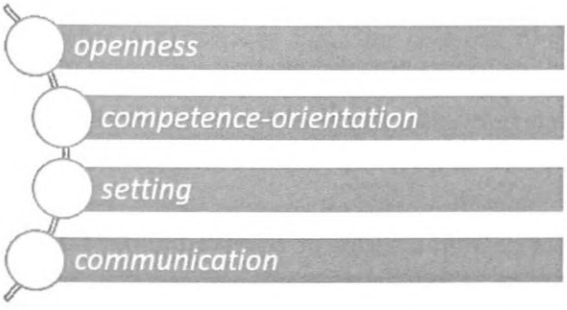


Fig. 15: Conditions of Professional Simulation

If these conditions are fulfilled, the simulation can be put into effect much more easily. If one of these conditions, however, is not fully guaranteed, the whole process may be affected or even doomed.

### 4.5.3 Habitual connection

The aim of any Professional Simulation is the connection of new challenges with already acquired competences and the purposeful development of the professional habitus. Starting point and goal of the simulation is the habitus of the participants and the competences rooted in the habitus. The connection of habitual competences and simulated reality can be

conflated under the term "reflection" with the aspects of mirror, mirroring and reflection (cf. Riegger 2006) and can be complemented with the feedback.

*Reflexivity*

The ability of reflection or reflecting in general is a "key competence" (Heil/Ziebertz 2005c, 78) in the context of reflexive teacher education (Dirks/Hansmann 1999; Heil 2013, 161ff.). Etymologically, reflection derives from the morphemes *re* (back) and *to flex* (to bend), thus to turn back a present motion to a former one (cf. Riegger 2006, 40). Reflection therefore means to turn the current perspective into the past. Habitually spoken, reflection means connecting the current expert repertoire with a former, bygone case and interpreting this case by doing so. Reflexivity is the corresponding competence in order to implement this procedure deliberately. By this act of interrelating, theory and practice are connected cognitively in order to interpret practice in a reflected way, not out of reflex. Professionals are hence reflected practitioners (cf. Schön 2000), because they interpret cases using their available expert repertoire.

*Feedback*

The habitual connection can also be observed under the feedback aspect. Feedback is a form of response and can be given or received. As Hattie found (cf. Hattie 2014), feedback has ever been an integral part of teaching professions. Feedback can be given in manifold forms, yet it is important that the simulation gets a concrete form of verbal expression (impression needs expression). This enhances the objective quality for the participants. Feedback in general also contributes to the improvement of the quality assurance of teaching.

Feedback is crucial for the simulation. In a simulated context of action, the participants receive feedback indirectly by experiencing the actions of others as a consequence of their own actions and behaviour. Besides this form of indirect feedback, there is, of course, direct feedback, which participants receive from other participants after a simulation. This direct response has a sustainable effect on the building of the habitus. Besides comments on external behaviour, feedback should always include obser-

vations about the intrapersonal emotional experiences within the roles played by participants.

*Evaluation*

In order to support and strengthen the transfer of the simulation into the reality outside and to stabilize the habitus building, it has to be made clear which exact aspects will have to be put into practice or which aspects had already been put into practice.

A hindsight concerning the actions and their practical deviations from the simulation should be held retrospectively in a subsequent analytic simulation session. Perhaps the necessity of analysing, elaborating or refining certain aspects becomes evident. Only once this process has been finished successfully can the participants continue with new simulations.

### 4.5.4 References to other approaches

In addition to references concerning learning theory, aspects of game theory and playing will be examined more closely.

*Learning to play*

Playing can be analysed in various ways: game-pedagogically (cf. e.g. Heimlich 2015), using the perspective of the theory of education (cf. Kliss 2009), psychologically (cf. Oerter 2011) or using the perspective of religion-pedagogy (cf. Riegger 2002, esp. 143-275). Different contexts can be applied here. The following excerpts will connect training, gaming, spontaneous playing in the form of improvisation, role plays, simulation games and scenic playing/acting with simulations in general, in order to detect similarities and discrepancies.

*Training*

Training in the field of sport science predominantly fosters particular skills and cognitive abilities in a systematic and repetitive way. This is comparable to the field of teaching, in which particular teaching skills are trained, for example verbal and nonverbal feedback of teachers concerning something a student had said (e.g. in microteaching (cf. Jendorff 2001, esp.

102-108)). One learning phase consists of six learners, question and feedback techniques and a certain amount of time (ten minutes). A research report concerning 37 microteaching studies reports significantly positive results. They refer to elements of teaching background knowledge, practical exercises in an experimental setting and direct feedback (cf. Klinzing 2002, 196).

In comparison to training, simulation-based learning contains at least three major differences: simulation-based learning is used as a component of complex learning settings by simulating realistic and modelled situations in variable modes, offering the opportunity to test various possibilities for action. Also phases for reflection gain more importance than in usual training approaches (cf. Havers/Toepell 2002). Not least, simulations attempt to reduce the "artificiality" of training. Simulation can in this way not only offer a chance to build competences, but also to root and implant them habitually and to purposefully professionalize the habitus of teachers. The establishing of the professional habitus thus becomes a paramount duty in teacher training and teacher education.

*Improvisation*

Improvisation as a predecessor of modern impro-theatre has developed from the commedia dell'arte and is a form of theatre in which the actors have to fully improvise without any preparation time. The roles of the figures and the scenes are frequently determined, yet dialogues originate spontaneously from the actors' imaginations (cf. Amann 2012). The term "impro-theatre" derives from the practice of the psychodrama (after Jacob Levy Moreno, cf. Moreno 1923). The spontaneous expression of emotions and thoughts which emerge in certain settings becomes crucial (cf. Amann 2012). The participants have to act introspectively and develop insights for themselves from the role-immanent structures (cf. ibid.). The knowledge and insight gain play the most important roles. Instead of directly addressing controversial aspects in reality, the directors transfer the action to a realistic and playful sideshow, in which the participants can interact in the creative and situational realm of the role. Afterwards the problems, issues and situations of the improvisation are reflected, discussed and analysed by the experts and the learners in order to gain

more insight into the situation and its possible outcomes (cf. v. Ameln et al. 2007). Comparable to this are the two reality levels that are relevant in any simulation: besides the internal reality of the simulation, there is the external level. If, however, actions take place on the basis of a model that widely connects both levels, we assume that not only are both levels intertwined, but also that all participants can gain crucial insights by experiencing actions similar to reality in a complexity-reducing setting. The additional opportunity to reflect the important issues is also clearly helpful. The ideas and modes of improvisation are closely related to the ones of the role play.

*Role plays*

Children spontaneously play father-mother-kid. Besides this "natural" form of the role play which takes place intuitively, role plays have historically emerged from religious (religious plays) and theatre culture and were mainly played by adults. Participants, players, slip into the role of fictive or real persons (cf. Feige 2006, 322). Role plays understood in this way become an important element of simulations. A role play simulates roles within a certain context (cf. Riegger 2002, 63-78). In contrast to pedagogic role plays and classic role plays in theatres, simulations always offer more open role options which have to be filled with individual content by the participants.

*Simulation games*

Complex role plays which go on for a longer span of time and contain distinctly different interests and high pressure for decision-making are called simulation games (cf. Mayer 1995, 366). The classic variation of these games was training for war. Nowadays it is more commonly used as business training and leading/building a company in particular market settings. The direct acting in complex settings and situations enables players to experience interrelated and dependent aspects (cf. Capaul et al. 2010; Kriz 2011; 2012). Numerous players nowadays interact online or via computer and experience the ramifications and repercussions of their actions without running the risk of having to deal with real consequences, e. g. the bankruptcy of a company or the destruction of the environment

due to reckless profit-mongering (cf. Knigge et al. 2013). Such settings can emphasize and train economic and ecological coherences.

Something similar happens in simulations: joint actions and collaboration let the participants experience possible outcomes and consequences of their own activities. Yet human action, particularly in educational processes or training contexts, is not predictable and cannot be programmed. Therefore simulation emphasizes the "human factor". One assumes that human beings are capable of identifying and simulating potentials by reflecting and by feeling empathy, which are essential factors for educational processes.

*Scenic play*

A scenic play promotes a form of acting where players or actors have to act according to detailed role and scene directions in determined settings (cf. Scheller 1998, 71). The circumstances of acquiring and the incorporated attitudes and habitus forms have to be included by expressing and reflecting unconscious and preconscious patterns of perception, thinking and behaviour (cf. ibid., 25). Scenic learning takes place in working with texts, drama and theatre plays in German lessons (cf. Müller/Schafhausen 2008) as well as in teacher training and educational university studies (cf. Großebrahm et al. 2015). In Professional Simulations, content aspects of text pedagogics and theatre pedagogics are clearly missing. However, certain individual methodical and didactical elements are used which are also well-known in the context of scenic plays.