

- Learning cultures just like organizational cultures are part of the overall organizational culture. Both cannot be separated. Different subcultures can be observed in organizations, like communication cultures, management cultures, and quality cultures. An analytic focus on an organization's learning culture can be established through the question in which way an organization is responding to challenges relates to learning and development and how it is fulfilling its learning purpose.
- Organizational culture is a multifactorial phenomenon and consists of several elements (depending on the approach chosen) which can be described and identified. For the previously presented approaches they are summarized in Table 3.1. Learning culture builds on these elements and represents configurations of these elements under the focus of organizational learning capacity.
- Considering the above-described approaches some common elements of culture can be identified and used in a learning culture model: All approaches are emphasizing *shared* values as a central element for organizational culture. Most of them consider shared basic and underlying assumptions and shared beliefs and symbols, rituals, and patterns as important. Learning culture is a socially mediated and negotiated phenomenon leading to shared results of meaning construction which is largely unconscious and only in some elements directly visible to the outside.
- Organizational culture—and in analogy thus learning culture—is always there and not a phenomenon which has to be established first. In all four presented approaches, the view of culture as something an organization is—rather than has—has been expressed. It is important to realize that the quality of educational processes is always using underlying assumption of what good teaching and learning is.
- Learning cultures have tangible and intangible, visible and invisible parts. A culture of learning can be further developed best when tangible, structural elements, like learning management mechanisms, tools, and instruments are developing *in parallel* with intangible elements like commitment, values, rituals, and symbols.
- Organizational culture is a social and collective phenomenon and individuals contribute and constitute culture through negotiation and interaction by establishing shared values, rituals, and alike.
- Culture is not a uniform but a diverse phenomenon—in organizations usually several cultures, among them also learning cultures, can be observed.

3.3 From Knowledge Acquisition to Competence Development

Recent literature on knowledge management and higher education (e.g., Alavi and Leidner 2001; Davenport and Prusak 1998; Drucker 1992; Malone 2004; Nonaka 1994) state that

1. Knowledge has become the most valuable means of production, that
2. Knowledge workers own their means of production, and that
3. Modern workforce loyalty comes not through the monthly paycheck, but through input and yield from knowledge in peer groups

We believe strongly that we are facing an even more rapid change and are already on our way from knowledge to competence orientation in higher education. By making connections possible, Web 2.0 technologies have the potential to enhance idea generation in firms which are based on the active interaction, collaboration, and the flow of information among modern knowledge workers in networks. But is this learning potential of Web 2.0 technologies perceived and practiced in higher education to develop the related competences of students? We see beyond an increasing awareness for the topic so far only marginal attempts to include Web 2.0—based learning activities in the educational practice and higher education curricula—despite the availability of a wide portfolio of Web 2.0 tools and their potential for communication and interaction. While some inhibiting factors like the insufficient level of IT competence and lack of incentive systems for faculty have been identified (Bates 2000; Euler and Seufert 2004; Hagner and Schneebeck 2001; Allen and Seaman 2007; Schneckenberg 2008), the reasons for such a poor performance remain somewhat unclear.

We describe in this section how Web 2.0 technologies can be used to transform educational processes shifting their focus from knowledge transfer to competence development. We suggest that such competences development approaches in higher education institutions can even enhance organizational learning processes in the companies students proceed after their graduation because being socialized in innovative Web 2.0 learning environments graduates can carry over their reflective learning and development skills and apply them to corporate environments (Mandl et al. 1992; Mandl and Krause 2001; Seufert 2007). A number of researchers like Albrecht (2005), Boyatzis (1982), and Mandl and Krause (2001) argue that the pedagogical design of programs in higher education and the learning routines of graduates which they have incorporated during their studies seem to impact their future capabilities as workforce to participate in the creation and nurturing of companies as learning organizations. For the field of business studies Boyatzis et al. (2008) re-emphasizes in his lifelong dedication that effective management competences can be developed in business education—if only learning in the sense of a holistic program to develop critical thinking skills, reflection, and social as well as emotional competences would finally become the main purpose of management education.

It is the general belief that mere knowledge transfer as a result of learning does not satisfy the demands of a new information economy. Considering this Westera (2001: 1), Siemens (2004a, b) and Ehlers et al. (2005: 24) accentuate that the continuously changing surrounding conditions will cause learning to lose the traditional emphasis on knowledge transmission. In effect this will be a shift towards more competence and skill-based approaches of learning. This perception is emphasized by the fact that the time that normally passes between the acquisition

and application of knowledge is usually considered to be too long and not adequate for the demands of the complex, interconnected, and barely predictable surroundings of today's world (Cross 2007), and the fact that the continuously increasing growth of knowledge in today's society demands learners to put more emphasis on social processes, their linkages, and interdependencies in order to attain "actionable knowledge" (Siemens 2005).

One reason for the growing importance of competence orientation in higher education is the increasing complexity that we face in modern business. In the globalized world of the twenty-first century, companies are confronted with a fierce economic competition and volatile markets. The uncertainty of the environmental contexts leads to a high dependency of companies on the capability of their workforce to learn and acquire new skills and competences in order to adapt to the changing external situations and job requirements. As a result companies raise the entry bars for young business graduates—a war for talent has been initiated and future managers need to be equipped with new competences to adapt to constantly changing work and life conditions in knowledge-based economies. The value of knowledge as production factor has led to a wide recognition that people are the most important asset for growth and employment in society and in companies (Drucker 1992, 2005). The increased requirements for graduates' job profiles on contemporary labor markets is pushing higher education institutions to reconfigure their curricula structures from knowledge transmission to competence-oriented learning outcomes. The objective is to meet the need of organizations for independent and reflective knowledge workers. The application of learning technologies, in particular, when it makes meaningful use of the potential of Web 2.0 technologies, can play a valuable role in the progress of higher education institutions towards more holistic educational models that focus on reflective learning rather than mere knowledge accumulation.

In this section we will present and discuss methods, tools, and scenarios to show how e-learning 2.0 can support the development of competences of future graduates, how it can foster reflection and competence development of students rather than remain in a traditional knowledge transfer scenario. It must be clear that there is and will be no unique and standardized definition of competence (Erpenbeck and Sauter 2007: 65). North (2005: 34) describes competences as the persons' abilities to transform their knowledge into problem-solving activities. Krogh and Roos (1996: 425) state, "We view competence as an event, rather than an asset. This simply means that competencies do not exist in the way a car does; they exist only when the knowledge (and skill) meet the task." Reinhardt and North (2003: 1374) define that

"[. . .] a person's competence basically describes a relation between requirements placed on a person/group or self-created requirements and these persons' skills and potentials to be able to meet these requirements. Competencies are concretized at the moment knowledge is applied and become measureable in the achieved result of the actions." (North and Reinhardt 2003: 1374)

As stated in the definition, competences are context-specific, personal, not imitable, and based on tacit knowledge. In addition, they depend on the activities for which they are used, and on the environment. Though competences cannot be communicated and described like, e.g., information, because they contain expertise and know-how, they are learnable, as well as evaluable with certain methods (Hasler Roumois 2007: 120; North 2005: 276). Abilities, capabilities, knowledge, as well as experiences are elements of a personal competence and enable a person to handle familiar and novel tasks (Frieling et al. 2007: 20f).

Hasler Roumois (2007: 119) declares additionally that competence is the ability to act self-organized. Self-organization means the ability to organize the own knowledge base, to evaluate it, to use it effectively for problem solving, and to further develop it. Competence-advancing workplaces must offer enough incentives for the informal learning that means the continually application of the employees' knowledge for solving problems. Competences can then be better developed (Hasler Roumois 2007: 121). The difference between knowledge and competence must be clear bordered. North (2005) developed the stairs of knowledge, where he circumscribes different terms like symbols, data, information, knowledge, action, competence, and competitiveness (ibid: 32). Figure 3.4 represents an adaptation of the knowledge concept of North (2005) by Wildt (2006). It shows that competence development builds on practical application, motivation, and the ability to assess actions against existing standards (to find out if the action was suitable). The concept shows the interrelation between knowledge, skills, and action. In the first step information are connected and on the second step they are applied and result in abilities. This is transformed in activity through motivation and will. Competence, however, demands for evaluation if the performed activity is suitable in a given context. For this, an individual needs standards (to assess what is suitable in the specific context)—they then lead beyond the concept of competence to professionalism. Wildt includes here also the responsibility towards clients and society. Especially the last three steps activity, competence, and professionalism are seen by Erpenbeck as difficult to be realized through e-learning.

Erpenbeck and Sauter (2007: 67–70) distinguish competences additionally from capabilities, abilities, knowledge, and qualifications. Capabilities can be obtained with a periodical training, for example, learning how to play an instrument or reading and writing (Erpenbeck and Sauter 2007: 67–68). Abilities base on psychological conditions and general characteristics of a person and control the actions and operations. Qualifications are certain skills, abilities, and capabilities a person has to contain in order to solve the daily work. Competences always require a high level of qualification, but in contrast to those, competences contain the ability to act self-organized and are subjective.¹ Competences base in general on explicit knowledge, capabilities, and qualifications, but contain additionally rules, values, and norms

¹ For more details about the difference of qualifications and competence see Erpenbeck and Sauter (2007: 69), or Frieling et al. (2007: 21).

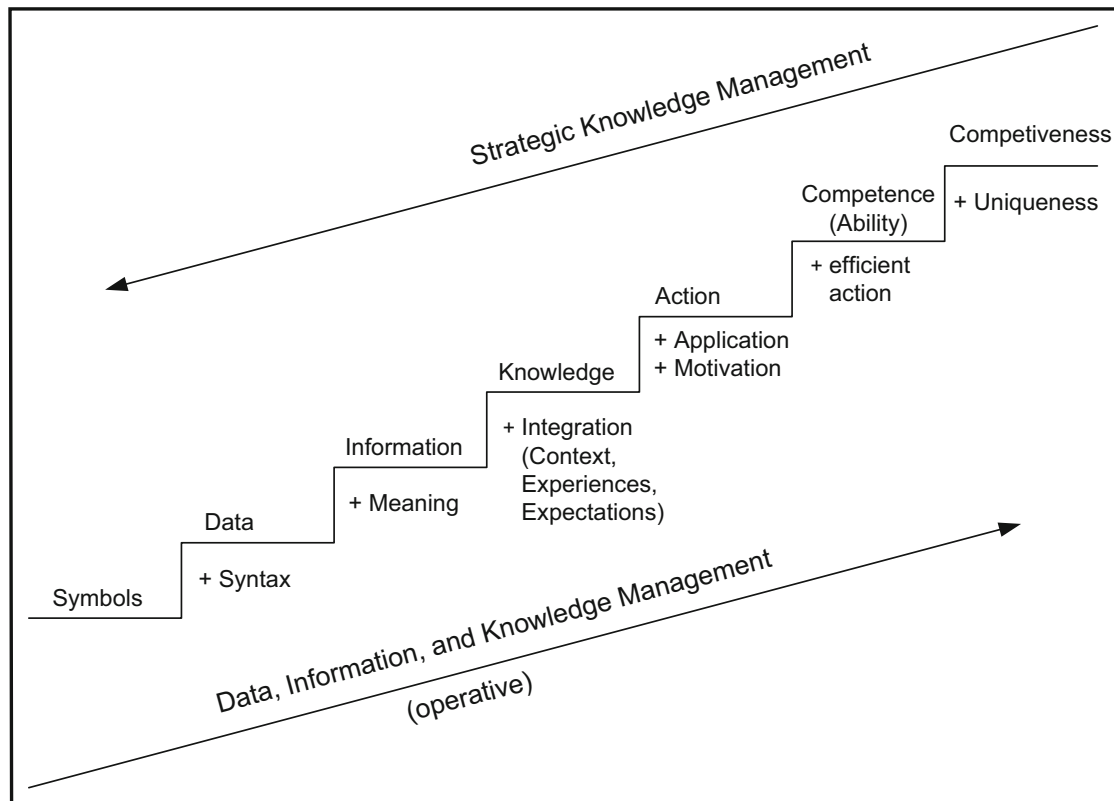


Fig. 3.4 The stairs of knowledge (based on North 2005: 32)

(Erpenbeck and Sauter 2007: 68). Therefore see Fig. 3.5 (Erpenbeck and Sauter 2007: 69).

A decisive characteristic of competence is the ability to act self-organized. Self-organization is required in every situation which is problematic, and where decisions need to be made. Especially in a risk-oriented society and in changing environments, the ability to act self-organized is important (Erpenbeck and Sauter 2007: 65–66). In order to structure the competence-term, competence is often classified in professional, methodological, social, and personal competence (Frieling et al. 2007: 22):

- “Professional competences are abilities, capabilities, and skills, which are necessary for the accomplishment of work-specific requirements
- Methodological competences are work- and department-comprehensive abilities, e.g., problem solving competence or learning competence
- Social competences are, e.g., communicative or cooperative skills in situations of interaction
- Personal competences contains the attitude, values, motives, self-perception and self-organization” (Frieling et al. 2007: 22, translated from German)

Erpenbeck and Sauter (2007: 66) classify competences in personal, activity-based, functional–methodological, and social-communicative competences. This classification is similar to the above classification. The authors make clear, that in a risk-society, no qualifications or expertise can handle the upcoming problems anymore. Competences are therefore required, to handle new, unknown, and complex situations. Personal competence contains a lot of self-confidence, courage, and

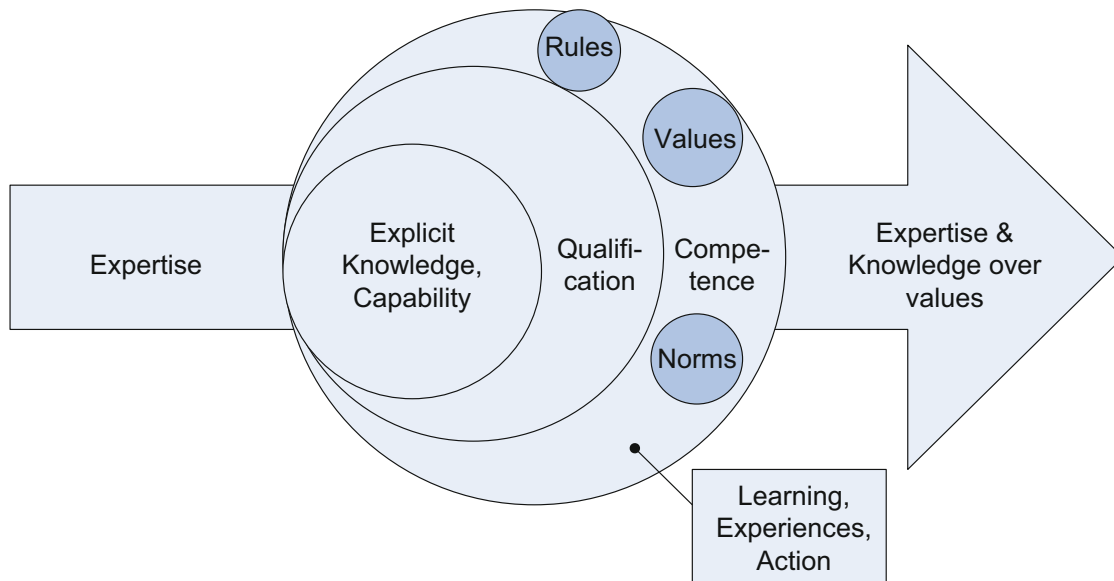


Fig. 3.5 From knowledge to competence (based on Erpenbeck and Sauter 2007: 69)

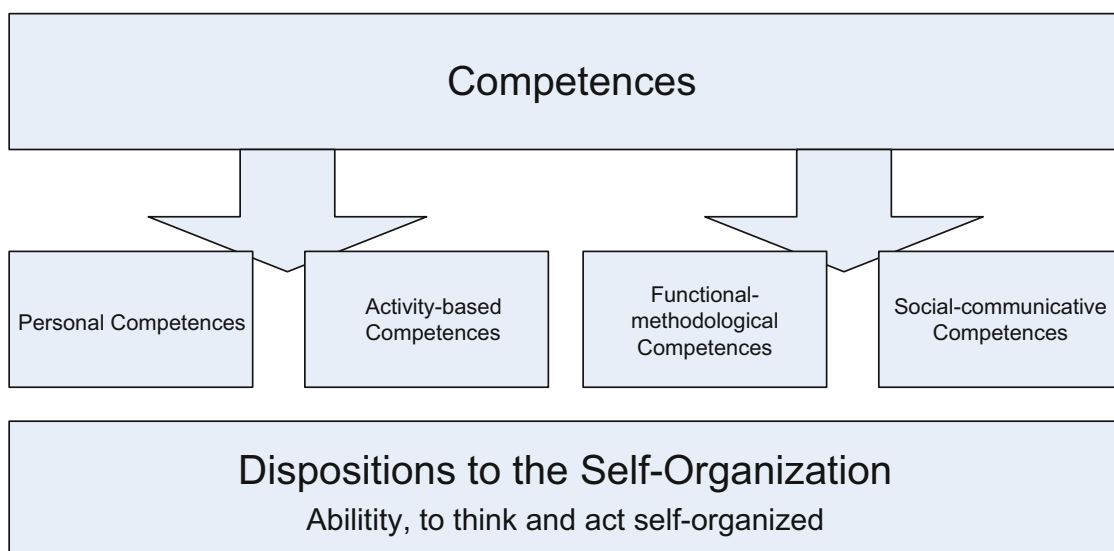


Fig. 3.6 Classification of competence (based on Erpenbeck and Sauter 2007: 67)

creativity. The functional–methodological competence bases on experiences, motives, and hopes, which are necessary to solve a task. The social-communicative competence contains persuasiveness, willingness to agree, and negotiate and openness—it is important for teamwork. The strength to enforce its conception is known as the activity-based competence (Erpenbeck and Sauter 2007: 66). This classification of competence can be seen in Fig. 3.6 (Erpenbeck and Sauter 2007: 67).

We can make a distinction between formal instruction and competence development by outlining the difference between “qualification” and “competence.” *Qualifications* are one integrative element of *competence*, but they do not necessarily include a moment of performance—the responsible and adequate action within a

given context, while integrating complex knowledge, skills, and attitudes (van der Blij et al. 2002). Qualifications represent descriptive educational learning objectives, which are taught in formal pedagogical settings like study courses. Acquired qualifications are directly measured through knowledge tests and certified by educational institutions. Competences on the other end include the dispositional ability to *efficiently act in complex situations*; they cannot be taught, instead they require pedagogical approaches which are based on active learning and experience-making. The results are *dispositions for adequate and professional behavior*. They cannot be directly measured but need to be interpreted through an analysis of the performance of individual in an authentic context.

3.3.1 *How to Develop Competence?*

The development of competence is thus relying on a high level of individual activity. However, they play an important role in educational scenarios as the ultimate objective of professional development. McClelland (1973, 1982) emphasize this view and define competence as a prerequisite to master specific challenges in a concrete field of activity. They assume that individuals can improve given and gain new competences through learning and experience and give a first hint how competences can be developed—through learning.

The learning, which takes place, and the experience, which is made in authentic situations, is seen as the basis for a process of individual or collective competence acquisition. Weinert (1999) supports this view and states that learning is a necessary condition for the acquisition of prerequisites that enable a successful mastery of complex tasks—which is one description for competence (Weinert 1999: 7, *ibid.* 2001: 63). Thus, competence is considered a learnable human trait. One important aspect for the role of learning in competence development is the unstable character of the learning process. Learning is sparked and initiated through a state of irritation, which is caused by action that takes place in an unstable, nonroutinized, and complex context. In this unfamiliar and complex context, the effect of individual or collective action is not predictable, as any experience on the effect of action is lacking. Challenges under such uncertain conditions lead to a *labialization* of the existing value system—the learners have to learn through *concrete experience* about the effects of their actions in a new and complex context. When the action has been completed, the gained experience and knowledge is incorporated into the existing value system and thereby modifies existing attitudes of the learner (Erpenbeck 2005). Thus, to develop competences requires authentic challenges in uncertain contexts.

Friedrich and Mandl (1992) link competence development in the field of cognitive psychology to the model of *active learning*, which describes learning as an active reception and processing of information. The reception and assembling of information is characterized as active, self-directed, and constructive process—a learner acquires knowledge, skills, and abilities through active reflection on a

specific learning object. In this view, individual competence development follows a certain pattern: It starts with the acquisition of accessible and available knowledge, which is required for competent action. In the process of learning, this new knowledge needs to be interpreted, classified, and integrated into existing body of knowledge and into the value system of the learner. Learners' progressively develop strategies for *adequate* action in specific contexts which consist of knowledge, values, skills, and experiences—the dispositional competence components of the learner. When a motivation to act adds to the other dispositional competence components, the performance strategy of the individual learner will realize in action. In this way, the learner's performance strategy results in action competence, which Erpenbeck et al. (1999) define as self-organized, dispositional ability to act, while integrating knowledge, values, experiences, and skills (Erpenbeck et al. 1999: 163).

Finally, competence development is facilitated in complex contexts. To cope with complexity, individual actors have to acquire and to integrate new knowledge, to apply this knowledge within a specific action, and to assess and to value the results of the action. This way, learners acquire competences in confrontation with their immediate environment.

3.3.2 *Designing Learning for Competence Development*

What are characteristics of competence-based learning environments? One key assumption which has been stated above is that learning has to be active and participative. Mandl and Krause (2001) propose a concept of constructivist learning as pedagogical framework for the design of a stimulating and interactive learning environment. This concept considers learning as a self-directed process, which builds on the learner's active construction of knowledge. When learners acquire new competences, their existing body of knowledge, their experiences, and their attitudes influence their learning process. Learning of an individual learner depends on their self-directed and active knowledge construction (Mandl and Krause 2001: 4ff; Zawacki-Richter 2004: 262)—a call to rethink learning environments. They have to be active and engaging and learner-centered, concepts which are long discussed but often not practiced. To put them into practice three key assumptions should be met (Baumgartner and Welte 2002):

1. Regular Articulation and Reflection (Mandl et al. 1997): Reflection is seen as a key component for competence-based learning. Students are seen as reflective practitioners (Schön 1983) with the aim to develop the competence to reflect on their behavior. The reflection takes place during the action (reflection-in-action) as well as after the action has been finished (reflection-on-action) and includes the action itself as well as the contextual conditions for the action. Students gain theoretical insights in form of reflected experience in this process, which contains contextual knowledge, but includes in addition generalized knowledge which is relevant beyond their specific action context. The process of reflection

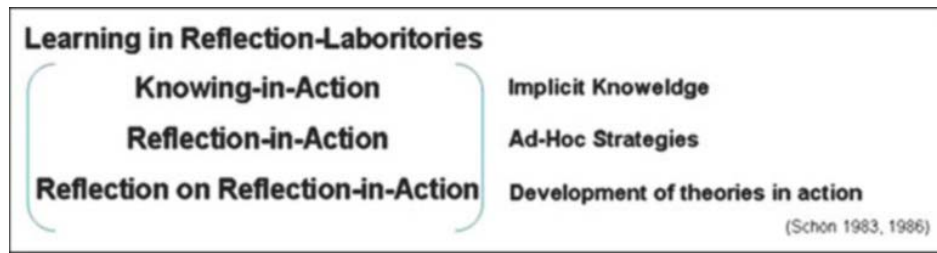


Fig. 3.7 Learning environments as reflection laboratories

follows the underlying rationale of making the implicit actions, assumptions, and knowledge explicit to formulate so-called ad hoc strategies in situations where problems are perceived (Baumgartner 1993: 250ff; Mandl et al. 1997). Once learners have reflected on the results of their decisions and actions, they incorporate and interiorize the learned experience into their internal system of values and into their network of relationships (see Fig. 3.7) (Erpenbeck 2005; Graumann 1982).

The experiential learning theory of Kolb and Kolb (2005) is also emphasizing reflection as an important component (see Fig. 3.3). Kolb 1984; Kolb and Kolb 2005) describe experiential learning as active experimentation which leads to a transfer of learning from a current to a new cycle. They are using a holistic approach for the design of learning environments. Their model emphasizes that learning needs to combine phases of action and reflection; and learning is heavily based on interaction (see Fig. 3.8).

2. Use of Learning Diaries/E-Portfolios²: Articulation and reflection in learning environments can be fostered through the use of an e-portfolio for reflective writing through writing assignments that require students to engage in critical and reflective thinking. Section three shows how to integrate reflective writing using weblogs in educational scenarios. Reflective writing can include the use of readings, observation, and experience related to the learning situation in question. It can be highly structured as in a take-home exam or unstructured as in stream-of-consciousness writing. Reflective writing may also be inwardly or outwardly focused depending on the degree to which reflection is directed towards self-awareness or development of domain content (Varner and Peck 2003).
3. Learning with complex problems in uncertain contexts: Schön (1983, 1986) has developed the concept of the reflective practitioner which is very much at the heart of helping students to use reflection as a tool in order to progress on their way towards becoming professionals and acquire competences. It is the self-responsible identification and definition of the problem, which creates an attitude-based relation of learners to learning tasks. This means for the

²E-Portfolios are web-based information management systems which use electronic media and services. Learners can use E-portfolios as digital archive for personal annotations, comments, collecting relevant material or documenting their learning artifacts.

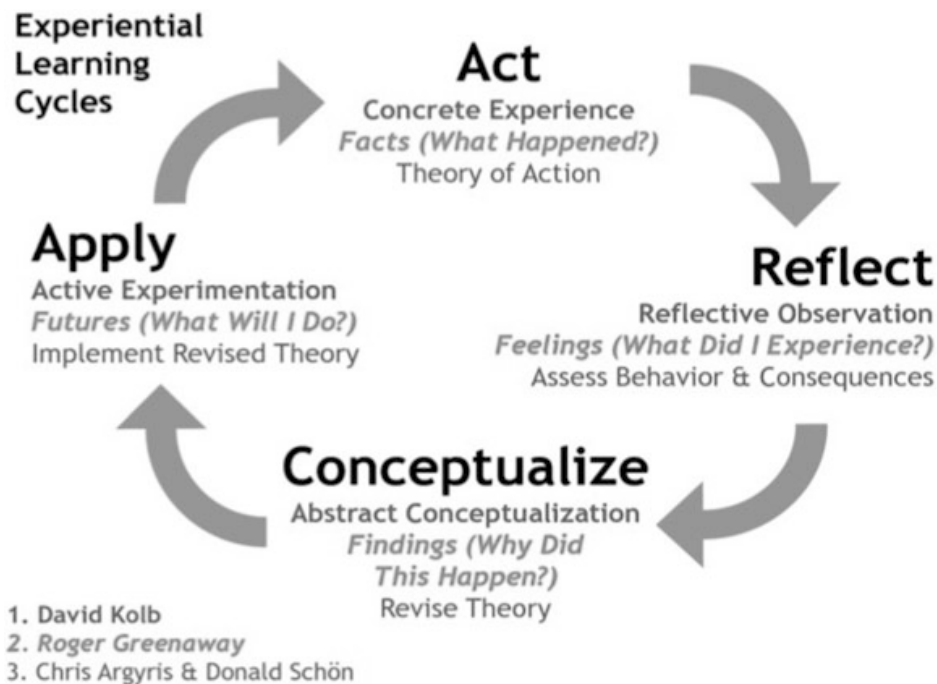
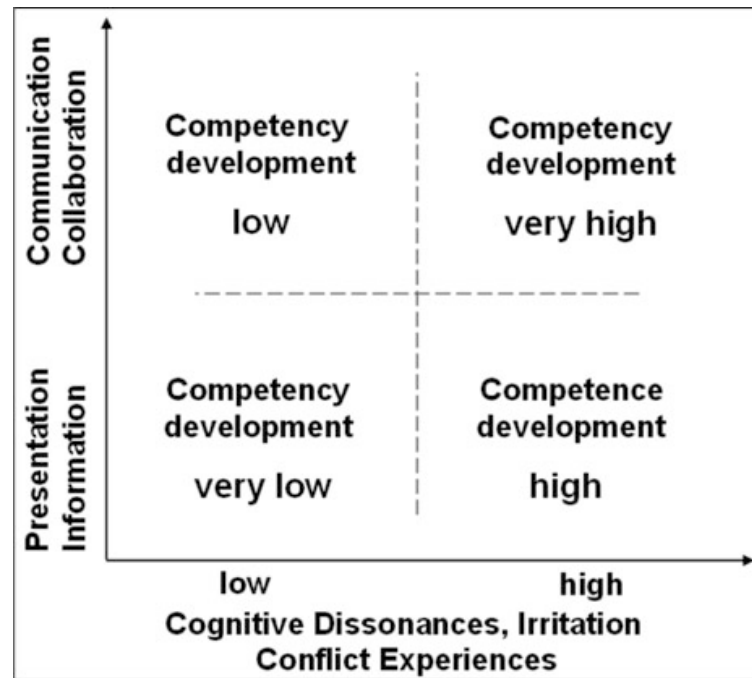


Fig. 3.8 Reflection cycle

pedagogical design of a course unit that a complex learning problem is developed by the students themselves. Main pedagogical objective is that students are encouraged to make autonomous decisions in an uncertain and complex context and that they learn how to take and to share responsibility for the decisions which they have taken—in an ideal scenario the learning environment reflects to a high degree the complexity and uncertainty of decision-making in real work contexts (Salzgeber 1996: 282ff).

In addition to these three basic elements, Erpenbeck (2005) points out that learning environments have to include a component of value- and experience orientation in order to foster competence development. Values are challenged when decisions have to be made in uncertain contexts when dealing with authentic problems. Once learners have reflected on the results of their decisions, they incorporate and interiorize the learned experience into their internal system of values and into their network of relationships (Erpenbeck 2005; Lewin in Graumann 1982). Erpenbeck (2005) puts forth that technology-enhanced learning has great difficulties in creating experience related and value-oriented learning opportunities, a problem which can only be solved in relation to the problem of interiorization (Fig. 3.9). Interiorization—or incorporation/internalization—of new values is the result of acting in uncertain, challenging, nonroutine, and complex contexts. As a result of being urged to act in such learning contexts, learners start to question their own values and pre-assumptions. Values which are serving as structuring elements for every activity are then labialized in such contexts. Having successfully coped with such a situation, the interiorization of new values takes place. In case of successful rule-, value-, and norm interiorization, technology-enhanced

Fig. 3.9 Competence development through technology-enhanced learning (based on Erpenbeck 2005)



learning can become a full-scale alternative to competence-based face-to-face learning environments in which not only subject matter knowledge can be distributed but also action competence acquired and experiences made and expertise learnt. Technology-enhanced learning can then make the difference. Interiorisation thus means the acquisition of rules, values, and norms under the influence of individual emotions and motivations.

The interiorization process represents the greatest challenge for every technology-enhanced learning environment if it wants to be competence oriented. It requires social interaction, conflicts and irritation, problem solving, and a high degree of authenticity in every learning situation.

Learners have to interact in problem-oriented scenarios in groups and confront their own values, solutions, and situations with those of other individuals and groups. Collaboration, labialization, and irritation are therefore the basis for competence-oriented technology-enhanced learning (Erpenbeck 2005). As it is suggested in the headline of this article, e-irritation is a necessary component in order to foster the process of labialization and stimulate the development of competences. The consequences are clear: in order to stimulate potentials for competence development and initiate labialization and interiorization processes, technology-enhanced learning environments have to follow a clear problem-oriented, authentic, and collaborative didactical design. The development of action competence can—in this sense—be supported through learning environments which are designed according to the principles of situated learning and cognition (Mandl/Krause 2001). The next chapter is suggesting the model of Computer

Supported Collaborative Learning (CSCL). It is argued that it can make the difference because it carries a strong potential for action competence development.

Erpenbeck (2005) emphasizes that technology-enhanced learning can be used for acquiring knowledge and information quite effectively. When it comes to creating learning opportunities which aim to develop competencies and allow learners to make own experiences or participate in social interactions, however, technology-enhanced learning often fails to perform. Erpenbeck differentiates between competence and qualification. *Qualification* as a concept concerns skills to perform, predefined, externally required actions and reactions by using certain means and procedures which can be directly learned. *Competency* on the other hand is a concept which relates dispositions and skills which are in principal unlimited and enable individuals to act self-organized in a principally undetermined future. Competences therefore are dispositions of self-organization (Erpenbeck et al. 1999; Erpenbeck and Heyse 2001).

Erpenbeck (2005) emphasizes that technology-enhanced learning can be used efficiently for teaching but has difficulties to provide a learning environment in which learners solve authentic problems in social interaction with other learners—and thus acquire value and knowledge; this is especially true for experiences. This constitutes a principal contradiction: On the one hand technology-enhanced learning and information technology is more and more introduced to educational scenarios on all levels. This can be seen as an irreversible process. On the other hand the transition from traditional vocational and ongoing training to vocational competence development is also not reversible. The problem is that existing educational technologies do not meet the needs of modern vocational competence development.

3.4 The Rise of Lifelong Learning

The development of key competencies is an imperative for today's abilities to act in a more and more complex world—this is the central challenge of lifelong learning. As shown in the previous technology-enhanced learning has proven to be quite effective in delivering information. When it comes to competency development, however, today's technology-enhanced learning solutions often lack authentic learning scenarios which enable learners to solve problems in social interaction with each other—a requirement necessary for competency development. The concept of lifelong learning has made a great carrier in the last 30 years. It can be analyzed from different perspectives of theory and practice: from the point of view of educational science, as leitmotiv in educational policy, as an instructional design concept, and under the perspective of subjective learning and acquisition processes.

Lifelong learning is more and more coming to reality for more and more people and has become an important driver for individual and collective development in modern societies. It has also separated continuously from the level of adult education as its primary institution and is diffusing into educational sectors, institutions,

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