Fostering Self–Regulated Learning through ICT

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Chapter 20
Reference Course Model:
Supporting Self-Regulated Learning by Cultivating a University-Wide Media Culture

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ABSTRACT

Since our mission is the collaborative cultivation of a university-wide media culture, in this chapter the authors propose to look at the relation between Self-regulated learning (SRL) and Technology-Enhanced Learning Environments (TELE) from the point of view of a learning organization. The goal is to clarify how to embed TELE-technologies in educational institutions in a collaborative way that sustains and continuously improves the quality of teaching and learning at a university. Our solution is focused around the concept of "university-wide media culture", a corporate culture for new media that we hope to develop by means of a collaborative instrument called the "Reference Course Model". The authors begin by screening and summarizing what they consider to be relevant aspects of components of the SRL theory (models, learning strategy, prompting) and continue by introducing the concepts of media culture, media literacy and their relation to TELE and SRL; based on this they then present their idea of what they call a "Reference Course Model", explaining its theoretical foundation and developing its conceptual features. Finally, they conclude by showing how they have implemented this model in their university and reflect on the experiences collected to-date.

INTRODUCTION

Learning and teaching at a distance makes high demands to the learners, the teacher and the organisation in charge. From our experience at the Swiss Distance University of Applied Sciences, we agree with Garrison (2000) that one major challenge that theory and practice of distance education have to deal with, today, is a collaborative approach to learning (as opposed to individual learning) before, during and after the teaching and learning process.

On the other hand, since our students learn mostly part-time (because of family obligations and a nearly full-time employment), maintain a close connection with their profession and adopt a very practice-oriented attitude, they need to be more autonomous, more flexible in planning, more motivated, more able to organize their learning resources, more involved in setting their learning goals and more active in their learning. In short, they need (and wish) a higher ability and more opportunities to control their own learning. Furthermore in a study (Bergamin, Ziska & Groner, 2009) we have found three relevant factors of flexibility for university students: flexibility of time, flexibility of teacher contact and flexibility of content.

It was because of this challenge of supporting self-regulated learning (SRL) on one side, and at the same time promoting a practice of collaboration among teachers and among students on the other side, that projects aiming at cultivating a university-wide media culture were launched at our university.

SELF-REGULATED LEARNING

In the German and English speaking area we find different terms for self-regulated learning such as self-steered, independent, self-determined, autonomous, self-organized, self-directed learning etc. (Götz, 2006; Schreiber, 1998). This multi-plicity hinders reaching a clear and consistent definition (Artelt, 2000). In our view one of the still most concise definitions originates from Knowles (1975, p.18): "...a process in which individuals take the initiative, with or without the help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes". One of the most remarkable points in this understanding of learning lies in the emphasis on the active role of the learners (Fischer & Mandl, 2002). But from the perspective of the teaching organisation, respectively of the teacher, we ought also to mention, that in practice a fully self-regulated as well as a fully externally regulated learning is impossible to realize. The student's learning actions are more appropriately conceived as moving over a continuum between the two poles self-regulation and external regulation (Schreiber, 1998; Artelt, 2000).

Therefore, what counts from an organisational perspective is the degree of expression of different characteristics, such as the orientation of the learning experience (learner orientation vs. teacher orientation), activity level of the learners (active learners vs. passive learners), time flexibility of the learners (flexible learning times vs. fixed learning times), freedom of decision concerning learning goals (learning goal autonomy vs. predetermined learning goals), design of the learning experience (decisional options vs. strict planning), assessment of the learning success (self-assessment vs. external assessment) during a learning process.

Models

Scientifically established models of SRL, mostly coming from a cognitive approach, try to describe the process of self-regulation, to explain the learning processes taking place and to relate the characteristics involved with the learning achievements. Between these concepts there are similarities but also differences (Boekaerts & Corno, 2005). One

of the most fundamental differences lies in the allocation of traits respectively of situation specific variables to self-regulated learning actions. The first mentioned group of models can be called component models (see Boekaerts, 1997, 1999; Pintrich, 1999; 2000). In this approaches learning actions or more precisely "learning strategies" are regarded as traits of learners which can be observed and registered independently of situations. They are mainly developed by individuals in the adolescence and consolidated later on (Winne & Perry, 2000). The second group can be subsumed under the term of process models. In these approaches learning strategies are supposed to be context specific, they are applied differently in different tasks and are acquired in social learning (Zimmerman, 1998; 2000; Winne & Hadwin, 1998). As already brought up, the component models describe which elements are needed for a successful learning process. However they do not take into account in which phase which component is essential. According to Boekaerts (1999), self-regulated learning can be characterised basically through the following components:

a. Cognitive components which embrace conceptual and procedural knowledge as well as knowledge about task specific strategies and their application conditions (conditional knowledge).
b. Motivational components which serve for the initiation and the maintenance of learning activities and also incorporate assessments of achievements and beliefs concerning the effectiveness of personal learning
c. Metacognitive components which consist in part of knowledge about own abilities and the individual learning process, in part of planning, monitoring and regulation of personal actions according to the aimed learning goals.

Process models can be regarded as complementary. They often describe an „ideal" process of self-

regulated learning. Self-regulative competence is in this context a circular process which is associated with motives and beliefs of self-efficacy. Feedback of previous learning experiences is used to prepare, to design and to monitor an upcoming learning process. For instance Zimmermann (1998) distinguishes here three phases.

In the "forethought" phase the individual prepares him- or herself for the proper action through goal setting and strategic planning. Self-related, motivational reflections about self-efficacy and outcome expectation as well as intrinsic interest and learning goal orientation moderate this process (Pintrich & De Groot, 1990, Zimmerman & Kintsantas, 1997). The "performance" phase is characterized especially by attention and action. The two volitional control processes of self-control and self-observation (Zimmermann, 2000) serve for the optimisation of perceptual and learning behaviour. The third phase of "self-reflection" consists of two main processes. The process of self-evaluation refers to the evaluation of the personal achievements and their causal attribution. Self-related reactions appraise the learning performances and the following actions on an affective level. Such process models exist in different variants. For instance Pintrich (2000) proposes four phases: planning, monitoring, control and evaluation.

As these two types of models show, the concept of self-regulated learning describes a very challenging learning strategy (Wirth & Leutner, 2008) in which students have to plan their learning process on their own, set their goals for themselves, activate their previous knowledge, search for learning resources and work on learning contents on their own according to their own pace. But another important function of the learning process is an active monitoring of the learning progress respectively of the learning outcomes. This means that the learners have to constantly adapt their learning activities to new requirements. They have to be able to cope with learning challenges, to motivate themselves and

to manage and maintain their attention (Fischer & Mandl, 2002; Simons, 1992).

Research in self-regulation during the last 30 years has shown that especially metacognition respectively metacognitive learning strategies can be considered as a central component of SRL (Artelt, 2000; Borkowski, Chan & Muthukrishna, 2000; Schraw, Crippen & Hartley, 2006).

Strategic Processes in Form of Learning Strategies

As far as learning strategies and their impact on learning performances are concerned, a consistent view is still missing (Krapp, 1992; Artelt, 2000). The following classifications have been widely adopted in the literature:

- Primary and secondary strategies (Danserau, 1985)
- General and specific strategies (Friedrich & Mandl, 1992, Klauer, 1988)
- Higher and subordinate strategies (Leutner & Leopold, 2003)
- Deep and surface strategies (Schmeck, 1988).

In research about the relation between learning strategies and learning success, the most used classification originates from the "approaches to learning" conceptions and divides the learning strategies in five groups (Weinstein & Mayer, 1986): rehearsal, organization, elaboration, metacognition and resource management. Based on this classification Wild and Schiefele (1994) formulated three types of learning strategies:

- cognitive strategies (elaboration, organisation and rehearsal)
- support strategy (time management, configuration of the learning environment, effort)
- metacognitive strategies (planning, monitoring / control, evaluation / adaptation).

Without going deeper into the similarities and differences of the concepts mentioned, we can assume that higher functions of learning like planning, controlling and adapting are ascribed to metacognition (Veenman, van Hout-Wolters & Afflerbach, 2006). While metacognitive strategies, on one side, empower the learners to monitor and improve their progress, cognitive strategies, on the other side, serve to attain learning progress, as for example to create knowledge.

In this context it is also important to mention that metacognitive knowledge, the monitoring of learning actions and of learning outcomes and the related self-regulation play an important role in relation to the learning performance. Various investigations at an empirical level also showed that metacognitive strategies are tightly related to learning performances. Correlation studies confirm the postulated positive correlations between cognitive, metacognitive, motivational variables and learning success, but they don't shed enough light on the direction and the mechanisms of their causal and functional interaction (Boekaerts, 1999; Pintrich, 1999, Leutner & Leopold, 2002). However, the fact can be emphasized that metacognitive competences are partially independent from intelligence, therefore they constitute an entity which can be fostered rather well (Veenman, 1993; Veenman & Beishuizen, 2004).

In this context the following question arises: is there also evidence on an empirical level that corresponding metacognitive learning strategies can be trained and/or be stimulated to come to a better learning performance? A first quick answer can already be given. On the one hand there are intervention studies in which both strategy training and corresponding learning success has been observed. On the other hand some studies showed also that interventions more on a methodological level than training e.g. the introduction of journals or prompts could also lead to a better learning performance.

Fostering Strategic Knowledge

Within the framework of programs for improving student's ability to learn from texts by means of strategic measures Palincsar and Brown (1984) found positive effects on both text comprehension as well as on the transfer of acquired strategies. Bielaczyc, Pirolli and Brown (1995) proved the efficacy of strategy training for problem solving as regards the use of self-explanation and self-regulation strategies and also as regards the learning success in computer programming. Leutner, Barthel and Schreiber (2001) found positive effects in a training which consisted in fostering motivation strategies and their regulation. They reported also positive effects on the utilisation of learnt strategies as well as on motivation and text comprehension. Further Perels, Gürtler and Schmitz (2005) observed positive effects of a combined self-regulation and problem solving training on self-reported self-regulation competences.

Based on the empirical research findings in the transfer of metacognitive strategies Veenman, van Hout-Wolters and Afflerbach (2006) summarize three main points as indicators of successful strategy trainings:

• Strategy instruction should be embedded in a content-based learning context
• The learners need to be informed about the usefulness of the learning strategies which were part of the training program in order to increase their willingness to engage in using the strategy
• The trained strategies should be practised extensively.

Hence we can state at least in principle that strategy trainings have proven to be effective instruction measures. At the same time it should also be noted that training programs which combine learning strategies of higher order, which are not linked directly to the learning content but more to planning and to organizing learning processes

(goal setting, self-observation, self-estimation) combined with learning factors that help to maintain learning processes (motivation information, information processing, saving and recall and transfer) are more effective than programs regarding the comprehension of the learnt content. Beside the knowledge about learning strategies, another important issue is the strategy use itself. This means that training should also include sequences which allow to learn both to distinguish in which situations special learning strategies are effective and to be able to transfer them spontaneously to other situations. For the learner herself the correct and autonomous application of strategies and the transfer to new contexts is essential. This shows that a neat and extended practice is essential to avoid overlap effects of newly learnt strategies.

Prompting

Under the concept of "prompting" we understand an instruction measure which encourages learners during the learning process to activate cognitive, metacognitive and motivational learning processes. In contrast to the above described approach of fostering strategic knowledge it is assumed here that learners already know learning strategies which support the learning process effectively but often do not use them spontaneously. Prompting provides in this sense are an opportunity to foster self-regulation strategies "indirectly".

The encouragement of self-explanation constitutes the main part of prompting studies. In a seminal work Chi, De Leeuw, Chiu and LaVancher (1994) show that, when reading a text, prompting for self-explanation through tutors positively influences deeper text comprehension. In a newer study Schworm and Renkl (2006) showed that self-explanations which have been evoked through prompts are more effective compared with self-generated but externally presented explanations. Nowadays the effects of prompts are often also studied in connection with computer based learning environments. For instance positive impacts

of prompts had already been proved by Renkl, Atkinson and Maier (2000) in learning transfer tasks, by Aleven and Koedinger (2002) in learning solution examples in the context of problem solving, by Azevedo, Cromley and Seibert (2004) for learning complex science topics (human circulatory system) and by Gerjets, Scheiter and Schuh (2005) for learning with exemplars. Other studies point especially to the effects of metacognitive prompts. Lin and Lehman (1999) compared the impact of cognitive, metacognitive and emotion focused prompts during learning in the context of a computer based learning environment in biology. What came out was a superiority of metacognitive prompts as regards learning success as well as regarding transfer performances. Davis and Linn (2000) compared effects of metacognitive prompts to activity oriented prompts during learning in a computer based learning environment with natural science content. The superiority of metacognitive prompts was also confirmed. In this context not only effects on self-explanation were shown but also on planning. Moreover Bannert (2003) demonstrated in an experiment that during learning in a hypermedia learning environment the utilisation of metacognitive strategies is more frequent and also the application of learnt content is better when learners get metacognitive prompts by an information sheet which was allocated beside the computer compared to learner which didn't get this information.

As we can see from the studies presented here, metacognitive prompts are an efficient and an economic method to stimulate metacognitive processes during learning. A positive correlation appeared especially with self-explanation and with the planning of learning processes. Interesting is the fact that externally guided presentations appeared to be more effective than self-regulated ones. It is indeed to ask if this is a contradiction. We assume at the moment that the pre-knowledge regarding the content could play an important and facilitating role. We presume also that prompting can not only foster knowledge about learning strategies but also knowledge about the usefulness of strategies and through this also promote the transfer to new situations.

Basically, on the background of the findings presented above it can be asserted that the method of prompting is an efficient way for stimulating particularly metacognitive processes esp. in promoting their utilisation when this does not happen spontaneously. But in our view the most effective way to foster self-regulated learning is a combination of direct promotion (training) and indirect promotion (prompts). Therefore we have also to look at factors of the learning environment and the related organizational forms.

Environmental Factors

Based on Bandura's social cognitive perspective (1986) Zimmermann (1989; 2000) postulates that SRL is a triadic interaction of variables of the person (self), the behaviour (action) and the environment. In his concept he assumes a cyclic process between these variables. While the regulation of behaviour consists of self-monitoring processes and the alignment of strategic options for acting, the regulation of processes internally allocated in the person is in relation with cognitive and affective states. The regulation of the environment consists in its observation and accommodation by the individuals (Figure 1).

There are other authors who give also environmental factors an important role in SRL. Friedrich and Mandl (1997) point out, that learning takes always place in more or less structured learning environments. They point to persons, institutions, media as well as instructional arrangements like methods, exercises, learning sequences etc. as relevant environmental factors. In further approaches it is similarly postulated that the environment influences also situational factors of learning processes and motivation (Nenninger, 1999; Perels, Gürtler & Schmitz, 2005, Wosnitza, 2000). Based on our own investigations (Bergamin, Ziska & Groner, 2009) we

Figure 1. Interaction between personal and environmental factors (Adapted from Zimmerman, 1989)
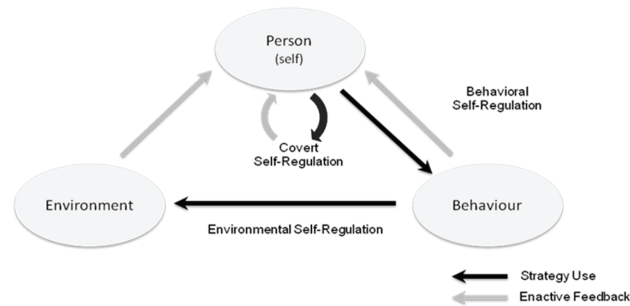
assume that additionally factors of flexibility (time, content, teacher contact) play a major role.

If we assume, as already described in a previous section, that instructional interventions with media have high potential to facilitate SRL, then the question arises how the findings presented above could be integrated in the cultivation of entire organisational processes.

MEDIA LITERACY AND MEDIA CULTURE IN AN ORGANSATIONAL PERSPECTIVE

After the initial enthusiasm for teaching and learning with new media in the nineties and a subsequent phase of disillusionment (Schnotz, Seufert & Bannert, 2001), the application of ICT in education has now become more precise and purposeful. Educational institutions understand now that ICT solutions - for example Technology-Enhanced Learning Environments (TELEs) - should not be used in all situations merely in order to justify their purchase or because others are working with them, instead they have to be applied only where they facilitate the student's learning process. This however, presupposes a proficient use of TELEs by both lecturers and learners or, more generally, an appropriate level of media literacy.

In our view - in line with Sutter and Charlton (2002) – we distinguish and concentrate on five fundamental dimensions of media literacy: under-

standing media, controlling media, using media, designing and evaluating media. Trying to clarify what skills are behind this multidimensional description, basically four types can be distinguished (Kübler, 1999):

- **Cognitive skills:** Knowledge about structures, organizational forms and functioning, as well as about processing and content of media
- **Analytical and evaluative skills:** Abilities to assess and evaluate media – especially their content - based on a variety of criteria
- **Social reflexive skills:** Abilities that each person, families and even groups should develop with the media or in terms of their content. They can be trained and learned by experiencing, observing and becoming aware of individual uses, habits, needs, temptations and compensations (see also emotional intelligence).

The question is now, how these skills can be developed in the context of the organization of a university and by means of organizational development. This involves educational issues and arguments within the framework of sustainable development (Euler, 2004).

There are various proposals for the development of media literacy for university lecturers (e.g., Schulmeister, 2005). We present three of them, which represent different perspectives: a) the

individual perspective (individual competence), b) the teaching perspective (teaching methods) and c) the sustainability perspective (sustainable change).

The Individual Perspective

In Albrecht (2003) the main focus is put on the qualification of teachers. It is assumed that during the development of teachers' media literacy (in various publications the term e-competence is used instead of media literacy - this is because of the restriction in the use of media to the new ICTs), four constitutive aspects of the entire action field of eLearning are involved.

For every aspect, skills to make educationally appropriate decisions are needed. For the aspect of technology, the issues at stake are the evaluation and use of basic ICT technologies and of eLearning technologies, e.g. learning platforms, groupware, authoring tools, etc. For the aspect of course organisation, it is a matter of decisions concerning the implementation of teaching methods like for example the enrichment of face to face lectures with media, on-site teaching alternated with virtual forms of teaching, or delivering a "pure virtual teaching". But it is also a matter of defining fundamental didactical strategies, like for example putting the focus either on guided, on self-controlled, or on collaborative learning. Just at his point it is very important to set a link to the principles of SRL for example by recognizing that it is important to build up the knowledge of teachers about SRL and also to cultivate a positive attitude towards the effectiveness of relevant learning and teaching actions. And last but not least, it is also important to assess both appropriate learning materials and a learning environment in which relevant exercises are supported.

This approach, which stresses the promotion of skills by offering qualification opportunities for the individuals involved in eLearning and SRL, has the advantage of simple practicability. However, for a sustainable skills development

program, additional measures are also needed as we will show in the next sections.

The Teaching Perspective

Bremer (2006) formulates to this end a virtualization strategy. She assumes that with the introduction of eLearning, strategic decisions have to be taken. Accordingly and in view of the growing virtualization of teaching methods especially at universities, three typical concepts which differ in details can be formulated. They reach from the enrichment of classroom teaching up to completely internet-based, virtual classes (Figure 2).

When it comes to the issue of the real implementation of strategic concepts, questions arise not only concerning what university lecturers have to be capable of, but also how the desired goals can be achieved. The background of this question can be found in the context of Weinert's definition of competence, according to which competence is not restricted to some skills on a cognitive level, but entails also an acting orientation connected with motivational, volitional and social dispositions and abilities. Accordingly we propose here (see Figure 2) that, in addition to the qualification in the course design phase, a good support system should be introduced in the realisation phase consisting of media-didactic advice and training, technical advice and support of the course production process in relation with implementing methods for fostering SRL. In the implementation phase we furthermore suggest to assess and improve its use in teaching by means of institutionalised evaluation processes.

Finally, we propose that user requirements of the prospective learner must be taken into consideration in every step of the development by progressively optimizing the usability (Groner, Raess & Sury, 2008).

The quality of the entire development process of eLearning and SRL is not just a matter of increasing the proficiency of the teachers, but one of fostering the competence of the organization

Figure 2. Concepts of virtualization of university teaching (Adapted from Bremer, 2004)
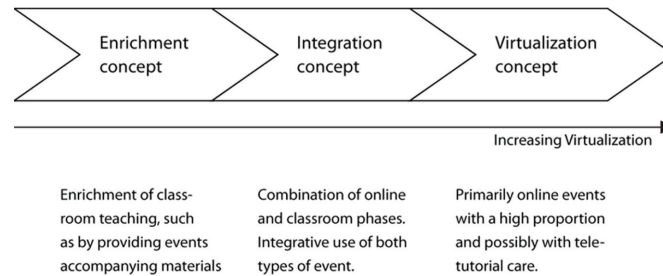
as a whole. This can be achieved by means of appropriate supportive offerings (e.g. for ensuring the quality of processes, contents, learning forms, etc.) made at the organisational level, in addition to strategic decisions.

The Sustainability Perspective

If we assume that the qualifications and parallel supportive offerings outlined in the previous sections have been introduced, then we have reached the point where the issue of sustainability comes into play, i.e. the aim of consolidating respectively changing the mentioned processes into permanent activities. This however is not a matter of stability of the activity, but rather one of durability of structures, which leads to a sustained change in teaching. The goal is to use outcomes and insights not only in the participating units but also in other units both during and after a course project.

Euler (2004) proposes the establishment of a culture for the development of e-skills at universities. In our view this means integrating new media and SRL in the daily teaching and learning process and the consequent adjustment of habits and attitudes of teachers and learners. This dimension also includes the sustainable conservation and further development of the achieved outcomes. In this sense, one can also speak of a learning organization.

Media Culture Involving SRL as a Basic Topic

Our experience shows that, for the development and sustainable implementation of media literacy, all three perspectives should be taken into account in reference to the concept of the virtualisation of teaching and learning (Bremer, 2006): taken together these elements and their relations constitute what we mean by the term "media culture". At the same time it is also important to link these perspectives with the development of methodological approaches. That's why we propose, while developing media literacy to strongly link the related activities with the methodological approach of SRL. Therefore we basically consider three kinds of actions:

1. training actions for developing knowledge and competence in media literacy and SRL
2. providing support services
3. organisational learning via research in the use of media to support SRL and the consequent transfer of findings to support the daily teaching and learning.

REFERENCE COURSE MODEL

Taking into account the above mentioned concepts, perspectives and actions, we now present a model called the "Reference Course Model" (RCM) and

Figure 3. The didactic tetrahedron and its relationship factors
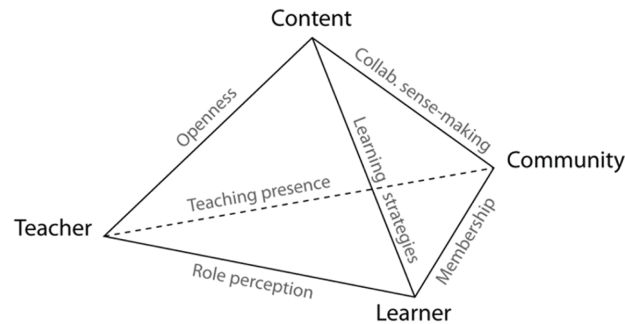
some first experiences, showing how at the Swiss Distance University of Applied Sciences media literacy and media culture are being developed and linked to SRL.

The term "reference" means in our understanding a reference system for the implementation of online courses in a blended learning scenario by means of so-called reference courses. A "reference course" is a generic TELE course, technically implemented as a course template on the learning platform (a Moodle course); this template is given to individual lecturers as a starting point for implementing their own individual courses. What we call a "Reference Course Model" then, is the approach or system that specifies principles, structures and procedures needed for producing such a template or "reference course".

The conceptual basis of teaching at the Swiss Distance University of Applied Sciences is constituted by the "Didactic tetrahedron" (Bergamin & Brunner-Amacker, 2007). In that approach (Figure 3), we assume that, in addition to the interaction of the three elements "Teacher", "Learner" and "Content" - as in the classical teaching triangle displayed and revised for the digital future by Haugan & Hopmann (2004) - an additional, fourth element plays a constitutive role in teaching and learning: the element of "Community".

Against this background we were able to define a first important component of the Reference Course Model: four principles used as a founda-

tion for designing the structures and procedures needed for producing a reference course. These principles are:

a. prequalification of lecturers by means of workshops

b. gradual implementation of e-learning in the classroom, by using a variety of different tools and a mix of approaches

c. teaching experience and application of the model are considered as parallel, collaborative processes; they are supported by an online exchange in a community of teachers dealing with the topic of course development and revision

d. a suitable "media culture as corporate culture" must necessarily be cultivated also by sharing experience, knowledge and best practice.

The main features of a reference course that is produced within the context of our Reference Course Model are:

a. *Didactic standards for teaching:* Beside content transfer, the standards include also principles of self-regulated learning. In particular the main issue to consider is the strategic knowledge of the students. This is achieved by doing appropriate exercises twice to three times each semester in the first

Figure 4. Process for the sustainable use of online teaching materials and activities
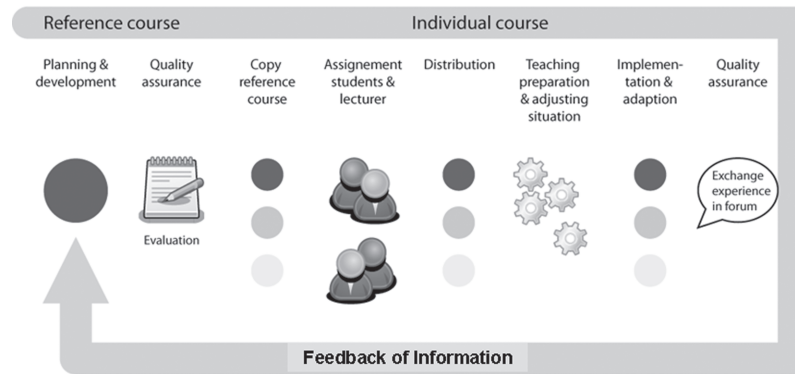
two academic years. This is supplemented through a facultative offer for fostering learning strategies.

b. *Guidelines and methodological standards for materials (texts, exercises, examples, etc.):* All the respective texts and exercises contain prompts either as a self-request for reflection or as cues to promote metacognitive competence.

c. *Recommendations for interaction and communication in the courses:* By disseminating through the course platform in the "course view" for teachers hints and tricks as well as opportunities for support.

Through this design, the qualification of lecturers and developers of the reference course as well as the organizational processes of planning, realization, implementation and evaluation (quality assurance) of the courses are integrated in a feedback loop (see Figure 4).

In particular, our model is constituted by a set of 10 measures:

1. Training of the reference course developers by the Institute for Research in Open, Distance, and eLearning (IFeL) as well as by experts

2. Qualification of lecturers through the continuous education program of the Swiss University of Applied Sciences

3. Drafting and revision of the reference courses by experts in the domain

4. Monitoring the planning of the reference course by staff from the Quality Assurance Division

5. Support of the reference course developer by an external technical and educational service

6. Evaluation of the reference course by the IFeL Research Institute

7. Release of individual courses (including student assignment) by a central service

8. Providing information about the individual courses by the faculties

9. Discussion, analysis and systematization of experiences in the course implementation by the faculty

10. Feedback of the experiences and knowledge acquired in the development of the individual course implementation for planning and development of the next reference courses.

Through the continuous reuse, revision and adaptation of reference courses, a "university-wide media culture" is emerging. Within this "media culture", emphasis is placed on the efficiency by self-regulated learning principles in the development of online teaching material, on the openness in the didactical and methodical usage as well as on stability of both the technical and organizational processes.

CONCLUSION

The reference courses that are produced by the process defined in our Reference Course Model can be considered as a kind of "boundary object" in the sense that Leigh Star conceived when she coined this term (Star & Griesemer, 1989): they support communication and serve to coordinate the perspectives of all stakeholders involved in the process of designing, realising and implementing their own individual technology enhanced online courses within a blended learning scenario.

As a consequence of this approach we introduced at the same time also a strategic opportunity on a methodological level: SRL. Therefore our courses are conceptualised and assessed not merely as units of teaching but also as opportunities for collaborative processes that can foster the development of a university-wide media culture and by that satisfy the SRL needs of our students: being more autonomous by supporting the setting of learning goals, promoting the planning of learning phases, helping organizing learning resources and maintaining motivation.

Delfino and Persico (2007) have shown that online collaborative learning can be designed in such a way that it encourages both the individual learners and the virtual community to gradually take control of their own learning. This kind of design – we claim here – can emerge and be more easily cultivated thanks to the collaborative framework and nurturing provided by our Reference Course Model.

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KEY TERMS AND DEFINITIONS

Didactic Tetrahedron: A constructivist model of teaching and learning based on the assumption that learning is in its essence a fundamentally social phenomenon. For this reason in addition to the three conventional elements "subject", "learner" and "teacher", the didactic tetrahedron model considers "community" as the forth main constitutive element of teaching and learning scenarios.

IFeL: The acronym stays for "Institut für Fernstudien- und eLearningforschung" (Institute for Research in Open-, Distance- and eLearning), a research institute with a double affiliation: the Swiss Distance University of Applied Sciences (FFHS) and the Distance Learning University Foundation Switzerland (Stiftung Universitäre Fernstudien Schweiz, FS-CH). It works at the interface between educational, medial and information technology issues to implement distance education concepts and blended learning scenarios (www.ifel.ch).

Prompting: An instruction measure which encourages learners during the learning process to activate cognitive, metacognitive and motivational learning processes.

Reference: Terms used in the compound terms "reference course" and "reference course model" (see next) where it indicates a reference system for the implementation of online courses in a blended learning scenario by means of course templates.

Reference Course (RC): A generic TELE course, technically implemented as a course template on the learning platform (a Moodle course); this template is given to individual lecturers as a

starting point for implementing their own individual courses.

Reference Course Model (RCM): The approach or system that specifies principles, structures and procedures needed for producing a "reference course".

Self-Regulated Learning (SRL): A process in which individuals take the initiative, with or without the help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975).

Swiss Distance University of Applied Sciences (FFHS): Switzerland's public 'open' university, based in Brig (Valais). The academic divisions of FFHS are a Business School, the faculty of Computer Science and the Engineering faculty (original German name: Fernfachhochschule Schweiz, FFHS, www.ffhs.ch).

University-Wide Media Culture: A corporate culture in the academic context of a university, in which new media are an essential part of the mission, vision and strategy and are implemented in its organisational structures and behaviour by integrating three perspectives for the development of media literacy: individual (competence), teaching (methods) and sustainability (change).