Chapter 4

Moderated collaborative online learning - guided course development on the basis of an e-learning pattern template

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Introduction

This article guides you through the development of a successful moderated and collaborative e-learning course on the basis of an e-learning pattern template. The created patterns are a blueprint of the learning activity which could be implemented by using different web-based communication tools. The "e-learning pattern template" takes the special context of online-courses (compared to face-to-face teaching) into account, with a development focus on the participants' motivation.

4.1 Course development – project experiences

The usefulness of creating and using guided course development is demonstrated and developed further in different European funded projects, such as VITAE. In order to facilitate the design of e-learning activities by different authors a template has been used, for instance the "VITAE learning activity template" gives guidance for development. The online course modules in VITAE have been developed by different authors and implemented in two different course types. One implementation technology was the Learning Management System "Moodle" as the virtual classroom environment, the other concept was to combine (mashup) different Web 2.0 tools and use this combination as the course environment. To ensure a high level of didactical consistency the usage of a common ground, the template, was very effective. The template describes the module independently of the technology used later.

From experience in the area of the development of collaborative online courses two aspects could be identified as key success factors:

1. Motivated participants (much more important than in face-to-face learning situations) *"Motivation is the most overlooked aspect of instructional strategy, and perhaps the most critical element needed for employee-learners."* (Kruse, 2002)
2. Course development concentrating on didactics, rather than on technology

The two factors will be described in detail in the following two sections where two practical tools are introduced. The tools are a) the ARCS Motivation model, and b) an e-learning pattern template, which gives guidance and makes course development faster.

4.2 Motivation

4.2.1 Motivation and online-teaching

During face-to-face lessons participants are at least physically present and can be addressed directly with a visible response. In the case of online education the teacher often cannot be sure how much time the participants have invested. The most important concern of all teachers is to have active, contributing learners in the classroom; it is the main

success factor in their teaching. To get active participants, you need to motivate them. In connection with online teaching we targeted:

- Reducing the numbers of participants who drop out
- Reduction of the support expenses
- Raising the level of good quality communication

Motivation is defined in many ways, depending on the field of activity. In the area of learning the following definition fits: *"Motivation could be seen as a personal state or condition that activates behavior in a special direction"* (Kleinginna & Kleinginna, 1981).

Every learning activity is designed to give the learner a direction in terms of gathering new knowledge and applying this knowledge, especially by collaborating with other course participants. The motivation of the participants is seen as the main success factor and the main creative element which should be implemented during the whole development process, from formulating the learning objective to the completion of the course modules. The ARCS model described below could lead in this direction.

4.2.2 Development of motivating course content by using the ARCS model

In order to motivate online learners, the ARCS model[1] can give guidance during the development of online tasks and towards their accomplishment. The model was developed by Dr. John Keller, professor of instructional systems and educational psychology at the Florida State University.

> *"The ARCS model is a problem solving approach to designing the motivational aspects of learning environments to stimulate and sustain students' motivation to learn."* (Keller and Kopp, 1987).

On the following pages the ARCS model will be introduced in connection with procedures and examples from practical course development. The ARCS acronym stands for the four conditions of motivation:

Attention, **R**elevance, **C**onfidence and **S**atisfaction. During the course development the project team tried to take the four conditions and subconditions into account. In the table on the following pages (table 4.1) you can find the categories, each with the three subcategories followed by a description and some practical actions.

One of the core statements of the ARCS model is that motivational aspects cannot be added later. These aspects must be taken into account during the whole development process of the e-learning course. The model described could help to raise the quality and the learning outcome of the online activity by keeping the didactical aspects at the forefront. In order to ease and secure the development process, the following e-learning pattern approach could be used.

[1] Anrone, M. P., Motivational Design, 2004, Page 30ff

Table 4.1 The ARCS model

The ARCS Model

Attention, attract and hold interest

Sub-condition	Description	Practical actions, tried out in VITAE
A1: Perceptual arousal	strategies to capture the interest of the course participants	As a moderator you can post surprising or contradictory entries, maybe accompanied by pictures - but take care that you don't overdo it. Also try to avoid distractions like: inconsistencies in the user-interface in different course stages.
A2: Inquiry arousal	strategies to raise the curiosity of the participants and to stimulate questioning	Promote active discovery and research e.g. by using goal-based scenarios or role-plays.
A3: Variability	use short and different elements to hold the attention	Try to use short and clear instructional parts in alternation with interactive or collaborative tasks/group work (if it is didactically appropriate). For collaborative tasks you could use e.g. wikis, blogs or forums.

Relevance, concerning the target and/or the learning process

Sub-condition	Description	Practical actions, tried out in VITAE
R1: Goal orientation	strategies that meet learners needs or give the learners the possibility to meet their own goals	The learning goals should be clear for the participants.
R2: Motive matching	strategies that address the participants' personal interests or learning styles	Try to create different tasks that fit different personal knowledge levels, e.g. tasks where the usage of privileged technologies is optional like the presentation of a text-based task or as an audio-file. Keep in mind that collaborative tasks have a positive effect on motivation.
R3: Familiarity	strategies that build on the participants personal experiences	Use colourful elements (scenarios, tasks) which are connected with real-life or with the experiences of the participants.

Confidence, the positive expectation of a successful completion of the course

Sub-condition	Description	Practical actions, tried out in VITAE
C1: Learning requirements	For the participants it should be clear which kind of pre-knowledge is needed, which are the demands of the course and which goals should be reached. In addition to this the rating criteria should be formalized and understandable.	In every step of the course for the participant it should be clear what is expected and what comes next. For the online course the participants could get a (graphical) course plan containing a time schedule.
C2: Success opportunities	strategies that support the competencies of the participants, in connection with R1	It is important to give all participants the possibility to succeed, whatever their competency level, otherwise they will lose motivation.
C3: Personal responsibility	Feedback that shows the participants that their own abilities and efforts are the basis for success	The time-schedule of the work on the tasks shouldn't be too tight; participants should be able to regulate their own learning speed. In the learning environment it is very helpful if the learners can "jump" between the different elements, they shouldn't be restricted to a linear flow. Regular feedback should always include the reason for success or failure.

Satisfaction, the results of the efforts differs from the expectations = de-motivation

Sub-condition	Description	Practical actions, tried out in VITAE
S1: Intrinsic reinforcement	strategies that encourage participants' intrinsic motivation to learn	The envisaged goals or tasks to work on should be connected with the everyday life of the course participants.
S2: Extrinsic rewards	strategies that provide appropriate rewards for success	e.g. in the form of positive feedback
S3: Equity	strategies that let the participants know that they are being treated fairly[2]	The rating criteria of the moderator/teacher should be clear from the beginning.

[2] Niegemann, H.M., Kompendium E-Learning, 2004, page 206ff

4.3 Course development by using e-learning patterns

An e-learning pattern describes a special problem or learning scenario. It shows, for example the targeted learning outcome, the way to reach it and identifies challenges with possible solution strategies. The pattern can be seen as a kind of "trail through the jungle" (Kohls, 2008). The term "e-learning pattern" is derived from the term "design pattern" which was developed in the 1970s in the area of architecture.

> *"Each pattern describes a problem which occurs over and over again in our environment and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over without ever doing it the same way twice."* (Alexander, 1977).

Software developers picked up this idea to ease access to high quality software engineering by less experienced programmers (Beck and Cunn, 1987). A few years later the idea of re-usable, approved solutions – design patterns – reached education. Proven e-learning patterns are a very useful tool for developing successful online activities in the areas of distance learning, blended learning or in general online-education. Advantages of e-learning patterns in the area of distance-learning:

- Re-usable, approved learning modules
- Independence from future implementations of technology
- Concentration on the learning outcomes and the didactical concept rather than on technology

In this article an e-learning pattern is defined as an activity plan which describes the online-learning activity on a meta-level, independent of the later implementation technology such as Moodle, ILIAS or Blackboard as a LMS[3] or a mashup of useful Web 2.0 tools.

[3] LMS = Learning Management System

4.3.1 The learning outcome – first step towards an e-learning pattern

Start with clear goals! You need to have a very clear goal about what your online learning module actually targets. In an ideal world the learning goal will fit the needs of the participants, which is not always the case, especially in schools. Nevertheless it should be possible to examine tasks or scenarios which play a role in the participants' everyday life. To formulate the learning goal think of the different areas of knowledge you could communicate:

What do you want the participants to take away from the online course?

- Concerning the content of the course (knowledge)
- Concerning the skills they gain (e.g. usage of tools like wikis or forums)
- Concerning the "higher-order thinking" they should develop (e.g. critical thinking, communication and presentation techniques)
- Who are the participants (target group of the course)?
- At which level are the participants?
- Could they meet the teacher/moderator expectations?

- Could they use the given online-environment (or do they need further training)?
- Are the necessary resources available to all (e.g. internet access)?

The e-learning pattern template which will be discussed in the next section is a more advanced version of the "VITAE learning activity template", which was used as a common base for the VITAE course development.

4.3.2 The e-learning pattern template

The e-learning pattern template (fig 4.1) describes the module independent of the future implementation technology. The template can be seen as a guideline, based on expert knowledge in the area of online course development. With the help of the template e-learning patterns can be created. This pattern could be accompanied by attachments, like a quiz as a text document, graphics, tables etc.

The template (table 4.2) is based on the successful LIPS project (Language and Intercultural Preparation for Students) and shows how an e-learning pattern template could also be implemented for vocational students. The online course was offered to university students about to start foreign internships but could be equally applied to vocational students about to begin a shorter period of work experience closer to home.

The rows containing the icon  could be used word-for-word within the online module (as information for the participants). The examples given describe an activity which should prepare course participants for their first working day in a company.

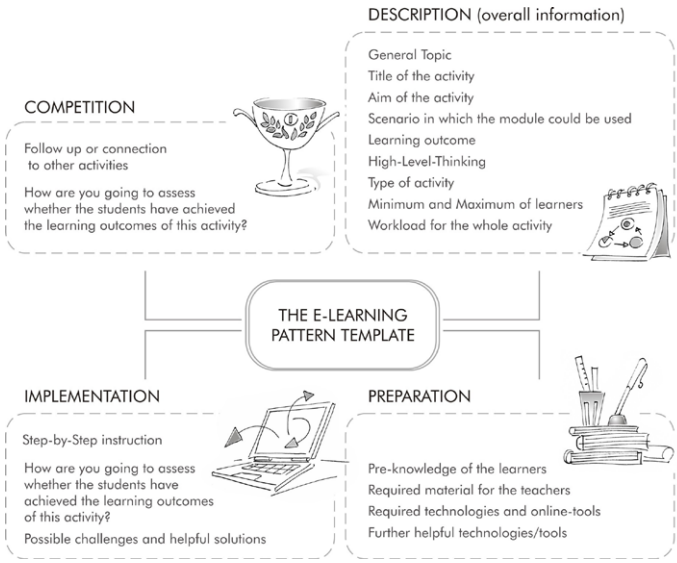

Fig 4.1 Composition of the template

Table 4.2 The e-learning pattern template

Description (overall information)	
General Topic (meaningful and easy to classify)	e.g. preparation for the workplace
 **Title of the activity** (attractive title for the participants)	e.g. How to survive the first day in the workplace
 **Aim of the activity** (readable by the participants)	e.g. The aim of this module is to raise your awareness of the possible challenges on your first day in a new working environment. On your first day on the job you need to go out of your way to make a very good first impression. In addition, you need to be prepared for the dense flow of information and you need to develop coping strategies in advance.
 **Scenario in which the module could be used** (The scenario describes the usefulness and practicability of the knowledge gained in a "colourful story" in order to motivate the course participants.)	The students could listen to the sample scenarios or read it as a text: **The employee's version is:** Oh the taxi got me there on time but dropped me at the wrong entrance. So, I literally had to run a good 300m and up a flight of steps. I was only 6 minutes late, but it wasn't my fault, it was the taxi's. The boss was not too impressed I could tell when her secretary introduced me. She did not seem interested in excuses and expected me to have another copy of my portfolio with me. I had sent the company one 6 months ago. That was no longer considered interesting. I was introduced to a whole load of people including a couple of other interns, they should be a help when I get started, in fact they invited me to lunch but, of course, I told them I couldn't keep you waiting. Boy, was I glad to have that excuse, it was a big enough ordeal meeting so many new faces, and of course I couldn't begin to tell you who is who or what their names are. In fact, I took the male secretary who is the older and nicer of the two to be the boss at first ... **The employer's version:** Yet another highly unprofessional employee. Remember the last one who arrived 20 minutes late for the afternoon appointment. She had driven to the office before lunch, checked out where she had to go, she had even introduced herself to my secretary but went off for lunch and could not find her way back on time. This time the individual arrived panting and puffing accusing the taxi driver for leaving him at the wrong entrance! Can you believe it? Why should I have to explain that if I can be here on time so can they! This one did not consider it worth his while to bring along an up-to-date portfolio, the one I received 6 months ago and prepared 6 months prior to that was supposed to suffice. We invited him to lunch, but oh no, his girlfriend had come to help him settle in and you know he was more anxious not to keep his girlfriend waiting even than to devote a few extra minutes to an aperitif. We had assumed he would be staying for lunch and a couple of the other interns had offered to invite him. I found the whole experience most dissatisfying.

Learning outcome (What will students be able to do as a result of the learning activity?)	e.g. If the participants is introduced to a new working environment the awareness of possible challenges is raised.
High level thinking (which critical or creative thinking skills, decision-making, scientific inquiry or problem solving required of the students by this task?)	List or describe activities that support the selected Bloom's levels[4]. The levels are "Knowledge", "Comprehension", "Application", "Analysis", "Synthesis, Evaluation".
Type of activity (Individual or group work , moderated or un-moderated)	Individual: listen to or read the sample scenario, do a quiz, post suggestions for the first day to the forum
Minimum/maximum learners (For most activities it is advisable to stay within a certain range of participants)	Here would be the minimum and maximum range of participants
Workload of the whole activity (How much time needs to be spent on this task? A rough guide will help you decide if the effort is in proportion to the anticipated learning outcome(s).	e.g. the duration of this module is two weeks, with a workload of 2 hours per week. In order to avoid excessive demands within large online activities it could be helpful to split up the workload into categories like: "reading-time", "personal working time", "collaboration-time" etc.
Preparation of the activity	
Pre-knowledge of the learners (Try to request the pre-knowledge of the learners in the area of computer-skills, media-literacy)	e.g. "What kind of computer skills do the participants have?" Basic computer skills are necessary to use the learning platform. It must be ensured that the participants are able to (also technically) watch a video, to listen to an mp3-audio file, read texts from their PC.
Required material for the teacher	e.g. a sample scenario as an audio (mp3) file, prepared questions and answers for an online-quiz
Required technologies & online tools (what is needed for the execution of this task? Can this product be made without using the above technology? If yes, consider removing ICT use for this learning activity.)	e.g. instead of using a forum to collect the "suggestion" requested in the task a collaborative mindmapping service (e.g. http://www.mindomo.com) could be used to create a common map.
Further helpful technologies/tools	

[4] http://www.coun.uvic.ca/learning/exams/blooms-taxonomy.html, 6.5.2009

Implementation	
Step-by step instruction (kind of activity timing for the teacher or moderator)	**1.** The participants get a message from the moderator that the module is accessible in the course environment. The moderator is responsible for the accessibility of the module at the right time. **2.** The participants should watch the video intro clip for this module **3.** In a coloured box all tasks of the week are shown at once, no tasks will be changed later! **4.** Concrete tasks for the participants: • Listen to the sample scenario or read the text • Answer the questions from the quiz in the "First Day Quiz" forum • Just how well prepared can you be for the first day on the job? Draw up a list of suggestions (at least six) for the first face-to-face meeting with your employer. Of course, the example scenario and the postings from task one should provide helpful ideas to get you started. However, we would ask you to be creative and offer new suggestions, related to the pressures of the first day, e.g., coping strategies for dealing with the dense flow of information, ("who's who", new names and new faces, etc.). Please post your suggestions in the suggestions for the first day forum.
How are you going to assess whether the students have achieved the learning outcomes of this activity?	e.g. Does the proposed assessment allow you to measure the success of the learning activity across different student groups?
Possible challenges and helpful solutions	e.g. Problem: Participants might only report what they think is appropriate for the first day in the job of their home country Solution: encourage exchange of different behaviour/customs in different countries

If you use this template you don't have to fill every section, it always depends on your learning outcomes. The template can also be seen as a kind of checklist which could raise the level of quality within your online module.

Conclusions

Benefits of the supplementation of face-to-face sessions with online activities

The participants of the online activities gain a lot of experience in the area of web-based communication around a specific topic/project. Alongside subject-specific expertise, skills in web-based communication skill are increasingly needed in working life.

Practical and theoretical benefits of the e-learning pattern approach

The pattern approach is an efficient way of sharing good design practices, and can ease the development of usable, pedagogically effective e-

learning materials which can benefit both teachers/trainers and learners. By using the e-learning pattern template a meta-description of a learning module can be created, which can then be developed further through practical try-outs during and in connection with face-to-face teaching. Through repeated occurrences of the same problem and solution (in different contexts), an e-learning pattern can be developed which can be shared with colleagues as part of a more systematic knowledge-sharing strategy.

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