ELEN project Evaluation Report

Report of Work package 5

E-LEN project: a network of e-learning centres
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Content

Introduction

This report includes several documents concerning the evaluation within the E-LEN project written and summarized by partner 10: Prof. Dr. Helmut M. Niegemann and Steffi Domagk, previously from the Technical University of Ilmenau, Germany, now working at the University of Erfurt, Germany.

The **first part of this report** is the evaluation plan worked out for the needs of the E-LEN project. It includes theoretical background information as well as guidelines for the evaluation of

- The e-learning design patterns developed within the E-LEN-project.

  Firstly, the understanding of design patterns applied in the context of e-learning was discussed and a shared concept of the content and purpose of these patterns was developed. Later on the partners started to develop e-learning design patterns according to this concept. These patterns were uploaded on the projects homepage and discussed by the partners. The evaluation of these patterns published on the website took place in summer 2004.

- The organisational patterns for the development of E-Learning-Centres.

  Analogous to the course of action outlined for the e-learning design patterns, organisational patterns for the development of E-Learning Centres were developed and discussed. Organisational design patterns are meant to deliver guidelines for the implementation and maintenance of e-learning centres.

- The projects website.

  The projects website formed a very important tool for the communication between the partners of the E-LEN project all over Europe. Conceptualisations had to be discussed, dates planned and confirmed and project meetings organised. In addition to that the website offered a very good opportunity to include external people in the discussion especially the one about the e-learning-design patterns. Therefore a good and usable design of this website was necessary to present the project to external people and to make the work and communication on the platform as easy as possible. The goal of the evaluation of the website was to work out concrete suggestions for the improvement of the website itself and its usability.

The **second part of this report** comprises the results of the evaluations undertaken. First, the evaluation report concerning the e-learning design patterns including the patterns evaluated themselves as well as the analysis and summary of the results. Secondly, the information about the evaluation of the organisational design patterns for the development of E-Learning Centres and the evaluation of the projects website. In the end of this section the evaluation of the outcomes of the E-LEN project is included in this report.

An Evaluation Plan for the E-LEN Project

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Overview

The evaluation plan for the E-LEN project comprises three components:

The evaluation of e-learning design patterns

The evaluation of organisational design patterns for the development and maintenance of e-learning centres

The evaluation of the projects' website

For every component we propose the methods to be applied and describe a course of action. For the evaluation of the e-learning design patterns and for the organisational design patterns for e-learning centres we propose ratings of experts respectively practitioners. For these two components we provide an elaborated set of questions to guide the ratings. For the evaluation of the website different methods are suitable. They are described in detail.

1. Evaluation of E-learning design patterns
Aims of the evaluation of e-learning design patterns

The idea of e-learning design patterns was derived from the idea of a language of design patterns in architecture, which was realized about 30 years ago by Christopher Alexander and his co-workers (Alexander et al. 1977). Software engineers adapted this idea for their field (Gamma et al., 1998) and from there it reached e-learning. Meanwhile several sets of e-learning design patterns have been published in the Web by different groups.

Unsatisfactory yet is the answer to questions concerning the quality of e-learning design patterns. For Alexander et al. that question was apparently not as relevant. The 253 architectural design patterns they presented own a very high plausibility – not a surprise regarding a domain with such a long and rich tradition like architecture.

As for design patterns in the domain of software engineering, the aspect of quality is being discussed, but arguments do not question the quality of a pattern per se. The point is rather whether a pattern is the best solution or whether there are alternative patterns which are more suitable for the problem in question.

In the domain of pedagogy things are by far not as clear: There are frequently used design patterns which actually do not function well: E.g. there are animations on the screen explained by written texts, there are written texts accompanied by the same text spoken, there are "stories" inserted in e-learning modules, following the assumption that interesting

stories would motivate learning and make it more effective (ref. Clark & Mayer, 2003). As replicated experiments showed, none of the "patterns" just mentioned is efficient. So it seems clear that currently used design patterns in the pedagogical domain are not always suitable solutions to instructional design problems.

Different from architecture a e-learning design pattern that „describes a problem which occurs over and over and 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 et al., 1977, x) has to be questioned. E-learning design patterns need a thorough proof of their quality; they have to be systematically evaluated in detail.

So the question is how to design the evaluation of e-learning design patterns.

Criteria

The quality of a e-learning design pattern has to be proved on (at least) two levels: As a whole and separately.

Level I: Evaluating a E-learning design pattern as a Whole

We doubt that every pattern which fulfils most of the simpler criteria necessarily meets the gist of the e-learning design patterns developed by Alexander et al. and transformed to education by Goodyear (2003). So, evaluation should include a global expert rating concerning that aspect. But there are also some other aspects of a whole pattern which may not be assessed by studying the description categories separately (see Rusman, van den Broek, & Ronteltap, 2003):

The acceptance of the pattern by designers/developers: Will a significant part of the target group actually use the patterns for every day work?

The degree e-learning design patterns make the work of designers and developers easier: Do practitioners report experiences indicating work is really easier?

The degree patterns make the development of learning environments more efficient (efficiency of development): Which indicators provide evidence?

The degree patterns make the implementation, organization and administration of a learning environments more efficient (efficiency of implementation/organization/ administration): What are the indicators? (Time, better quality?)

The degree learning is fostered after e-learning design patterns were appropriately realized and used in the development of e-learning environments (learning efficiency)?

Usability of the learning environment

Suitability regarding principles of the psychology of learning and instruction

Level II: Evaluating the Categories Separately

Even if a pattern seems to meet the very idea of e-learning design patterns any description of a category can show deficits, which could hinder the pattern to get widely communicated and accepted. Therefore we need also criteria for every single category used to describe a pattern:

Name of the e-learning design pattern

Does the name of the pattern cover the content?

Does the name of the pattern give rise to associations related to the respective problem and solution?

Discriminate from similar patterns

Easy to remember

Categories

The E–LEN project community decided to use the following 5 categories to classify e-learning design patterns: Access Patterns, Learning Patterns, Instruction Patterns, Information Patterns, and Administration Patterns.

Any pattern should be subsumed to one category. Yet it is not completely clear whether an unambiguous categorization is actually possible or if double categorizations should be accepted. Nevertheless, the question to be answered for every pattern:

Is the categorization adequate?

The categories "learning patterns" and "instruction patterns" seem to need further differentiation or to be collapsed to one category "learning and instruction patterns" with sub-categories orientated towards the structure of the process of instructional systems design:

Dimensions for Instructional Design Decisions (Schnotz et al., 2004a, b)

Patterns for structuring the subject matter (knowledge and task structure, objectives or goal categories)

Patterns supporting strategic design decisions

Dimensions related to the learning process

Organization of information ("canonical vs. "problem-based"; "canonical" means: following the usual structure in curricula, textbooks etc.)

Level of abstraction (de-contextualized vs. context-related)

Relation to application or situation (explication vs. application)

Extend of learners' participation

Locus of control of regulation (focus on external regulation vs. focus on self-regulation)

Direction of communication (one-way vs. two-way)

Modus of activity (receptive vs. productive)

Use of technology (decisions concerning the use of e.g. special input/output devices, media etc.)

Design of pedagogical methods or tactics (e.g. narration, cooperative learning, use of worked examples, having the learners to practise, etc.)

Interaction design (enabling learners to ask questions, kinds of giving feedback, opportunities to simulate machines or systems, etc.)

Combination of texts, pictures, animation, video etc.

Screen-design (colours, forms, navigation, layout etc.)

Design of testing and assessment (development of suitable, valid items; adaptive testing)

Abstract

Does the abstract contain the key elements of the e-learning design pattern?

Is the abstract concisely formulated?

Problem

Does everybody in the target group clearly understand the description of the problem?

Is the description of the problem appropriate?

Is the problem recurrent and relevant?

Is the problem concrete enough (not too abstract)?

Does the description contain hints to sub-problems?

Analysis

Does the analysis provide a clear explanation what makes the problem a problem and why it is actually relevant?

Does the analysis contain the main aspects of the problem?

Is the explanation sufficiently differentiated?

Analysis clearly formulated and understandable for the addressees?

Is the analysis appropriate …

… From the perspective of practitioners?

… From the perspective of the organization and administration?

… From the point of view of the psychology of learning and instruction?

Solution

Is the solution generic, is it used frequently?

Is the solution valid, i.e. is it actually suitable for the respective problem?

Is the solution re-usable, i.e. is it applicable in different contexts of the same problem?

Is the solution proposal clearly formulated?

Is the solution proposal appropriate concerning

Practice

Software-engineering

Organization/Administration

Evidence for effectiveness?

Experience of practitioners (evidence of that?)

Theories of learning and instruction (references?)

Research on learning and instruction (references?)

Known Uses

Correctness (are the cases referred to correct? are they credible?)

Completeness (are there more or better cases to refer to?)

Context

Clarity (Is the description of the conditions to use the patterns well formulated?)

Evidence (How are constraints or generalizations of the conditions for the use of the pattern founded?)

References

Correctness

Completeness (are the most important references cited?)

Related Patterns

Appropriateness of the patterns cited

Completeness (are the patterns cited the most important ones?)

Methods

In principle there are several methods suitable to be used for the evaluation of e-learning design patterns, but different methods would contribute different aspects of a e-learning design pattern. Therefore one specific method cannot be appropriate for a comprehensive evaluation. Instead we need a bunch of methods, selected and combined to assess a multitude of aspects regarding the effectiveness and efficiency of every e-learning design patterns.

As mentioned above, structured expert ratings are a proven method, especially in a time when the idea of e-learning design patterns is not yet widely spread and as long as there is no stable community which cultivates the idea.

On the other hand there are also "objective" standards to be fulfilled in filling the categories. Evaluation of e-learning design patterns should assess the acceptance of the pattern in the group of designers and developers as well as the psychological foundations or the evidence base for every pattern.

Experts' rating

User rating (designers/developers)

Assessment of the actions of designers/developers by self-reports (interview, structured questionnaire)

Assessment of the efficiency of the product, including

observation of the acceptance (interviews, questionnaire, group interview with focus groups)

costs of development (structured questionnaire)

costs of implementation (structured questionnaire)

costs of the organization and administration of the pattern (structured questionnaire)

benefits of the use of the pattern in question (interview, structured questionnaire, focus group)

Learners' ratings (questionnaire)

Assessment of learning outcomes (standardized tests)

Problems and prospect

The evaluation of e-learning design patterns is a new task, there is still no experience. Therefore the catalogue of criteria and methods is necessarily provisional. It will be developed further, some criteria may prove to be less suitable, and some criteria may need to be much more elaborated.

2. Evaluation of Organisational Design Patterns for the Development of E-Learning Centres

Developing and maintaining an e-learning centre is a complex process which can not be properly supported by rigid rules. Adaptable guidelines are needed to ensure an appropriate support for the plan of an e-learning centre and its transfer into practice. Patterns seem to be the suitable approach for that purpose too, as they are more flexible than static templates and still more concrete than abstract guidelines (Frizell & Hubscher, 2002; Steeples & Zenios, 2004). Patterns offer guidance without constraining creativity.

Extensive collaborative discussion is needed to draft and critique the applicability of patterns. Concerning e-learning centres patterns are used to solve organisational design problems. The draft of these organisational patterns could benefit from the analysis of established and successful e-learning centres as it was done by Steeples and Zenios (2004). They conducted a qualitative survey of several existing European e-learning centres. The results are the basis for the outline of the first drafts of organisational design pattern for e-learning centres. This analysis focused on the implementation of e-learning centres within higher education institutions and its key aspects as well as the services offered by these e-learning centres.

2.1 Methods

Organisational design patterns are meant to deliver guidelines for the implementation and maintenance of e-learning centres. Therefore the evaluation needs to address two aspects: the appropriateness of the guidelines from the point of view of experts and from the point of view of practitioners already working in existing e-learning centres. The opinions and beliefs of experienced practitioners is an important resource for securing the quality of the patterns and for the assurance of their relevance as well as their successful transfer into practice. As these guidelines refer to actions to be carried out in future, experts and practitioners' ratings are the only methods applicable for the evaluation of the organisational design patterns.

As soon as the patterns were put into practice other methods would be applicable for evaluating the outcomes of their realization. However in this report we only address the evaluation of the patterns themselves.

2.2 Evaluation of Organisational Design Patterns for E-Learning Centres

The main goal of evaluation is quality assurance. This general goal does also apply for design patterns. The questions to be asked comprise the quality, the effect and the benefit of the patterns according to specific needs (Clark & Mayer, 2003).

Organisational patterns for e-learning centres need to be evaluated on different levels. First of all the given definition of e-learning centres should be discussed as well as the services an e-learning centre should offer. Secondly, in analogy to the course of action when evaluating e-learning design patterns the organisational pattern for E-Learning Centres should be assessed on the whole. The third step would be to evaluate the categories of the pattern separately.

2.3 Discussion of the Definition of an E-Learning Centre and the Services offered

2.3.1 Definition

The definition of the term "e-learning centre" is crucial for the further discussion of organisational design patterns for e-learning centres. It is important that this definition covers all relevant aspects and that it creates a common understanding from which the discussion can be started.

Steeples and Zenios (2004) define an e-learning centre as follows:

»A unit established for serving the learning needs of students and staff within an institution, for the deployment of innovative curriculum pedagogy and state-of-the-art learning technology in real courses, and for the development of new learning technologies guided by theory and validated by observation of practice.«

Questions for the discussion:

Is that definition understandable?

Does the definition meet the expectations of experts in the field?

Is the definition complete or are there aspects that need to be addressed additionally?

Is the concept of e-learning centres also applicable to e-learning units in companies or any other kind of institutions?

Does the definition meet the way the staff of existing e-learning centres see themselves?

2.3.2 Purposes or Orientations of E-Learning Centres

Four orientations of e-learning centres have been identified within a qualitative survey conducted by Steeples and Zenios (2004). They base on interviews with practitioners working in existing e-learning centres and are therefore linked to practical experiences. From the analysis of their survey Steeples and Zenios (2004) identified the following four distinguishable orientations and purposes for e-learning centres:

Type A: having a support or service role in the use of e-learning for teaching and learning

Type B: having a support of innovation in e-learning role

Type C: having an e-learning course development role

Type D: having a research on e-learning role

These categories of purposes of e-learning centres should be discussed as well. The orientations and purposes of the e-learning centres will constitute the way staff members define their tasks and the way a centre is seen by other members of the institution. As they will be the basis for the draft of organisational patterns they should be extensively discussed.

Questions proposed for the discussion:

Are the suggested purposes appropriate?

Do the purposes meet the expectations of orientations of an e-learning centre?

Are the purposes complete or are there other orientations that are not mentioned yet?

Are the purposes independent from each other or is their any overlapping?

Are these purposes applicable for all application fields of e-learning centres?

Is the conceptualization of these purposes accepted by experts and practitioners?

2.4 Level I: Evaluating the Organisational Design Pattern as a Whole

The evaluation itself should start with an expert and practitioners rating of the whole pattern to address its applicability, effectiveness and benefit. This evaluation level does ensure that aspects of the whole pattern are taken into consideration which may not be assessed by studying the description categories separately (see Rusman, van den Broek, & Ronteltap, 2003).

The expert and practitioners rating should include the following questions:

Is the organisational pattern accepted by experts and practitioners? (acceptance)

Is the pattern understandable? (understandability)

Does the pattern address one single purpose of an e-learning centre or does it overlap with other orientations? (clarity)

Does the pattern make the process of the implementation of an e-learning centre more transparent? (benefit for the implementation)

Does the pattern make the future work of an e-learning centre more transparent? (benefit for maintenance)

Does the pattern make the implementation of an e-learning centre objectively easier? (effectiveness)

Does the pattern make the implementation of an e-learning centre more efficient? (efficiency of development)

Does the pattern make the organisation and future work of the e-learning centre more efficient? (efficiency of maintenance)

Is the pattern suitable for the context it is proposed for? (suitability)

2.5 Level II: Evaluating the Categories Separately

Even if a pattern is accepted on the general level and the description is applying to its purpose there can be deficits or inaccuracies in the wording and conceptualisation of the single categories. Therefore the categories have to be evaluated one by one. The combination of the evaluation on the general level and on the category level does ensure the completeness of the evaluation and its quality.

Name

The name of an organisational design pattern for e-learning centres should refer to one of the purposes of e-learning centres either identified through the survey conducted by Steeples and Zenios (2004) or drawn from the discussion about the possible purposes.

Questions for the expert and practitioners rating:

Does the name of the organisational pattern refer to one purpose of an e-learning centre?

Does the name of the pattern give rise to associations related to that purpose of an e-learning centre?

Does the name discriminate the pattern from other organisational design patterns?

Is the name self-explanatory?

Is the name understandable for experts and practitioners?

Context

The category "context" should include all aspects of the application field, the pattern refers to. That means which aspects are mentioned in the pattern and which aspects would be influenced by using this pattern to implement or run an e-learning centre. It is important to mention every aspect the pattern refers to, because the context category will give an idea what the guidelines in the pattern are about.

Questions for the expert and practitioners rating:

Are the terms used understandable for experts and practitioners?

Are the context aspects mentioned complete?

Are these context aspects important for the implementation or maintenance of an e-learning centre?

Problem

The description of the problem should be striking and emphasize the relevance of this problem.

Questions for the expert and practitioners rating:

Is the description of the problem clear and understandable

… From the point of view of experts?

… From the perspective of practitioners?

… From the perspective of the institution where the e-learning centre should be implemented?

Is the description of the problem appropriate?

Is the problem recurrent and relevant?

Is the description of the problem complete or are there missing aspects?

Is the problem concrete enough (not too abstract)?

Does the description contain hints to sub-problems?

Does the description of the problem emphasis its relevance?

Analysis

For organisational design patterns the analysis is of special interest, because it should create consciousness of the problem to be addressed within the pattern. The implementation and maintenance of an e-learning centre concerns at least two different parties: the institution where the centre is going to be located and the staff that is going to work in the e-learning centre. Both parties need to work together for a common conceptualisation and understanding of the centres purposes and orientations. The analysis within the pattern is an important resource to open the discussion about the problem to be solved and all the aspects that are linked to it. A transparent and shared concept of the e-learning centre is a fundamental precondition for the success of its future work.

Questions for the expert and practitioners rating:

Does the analysis give a clear explanation what makes the problem a problem and why it is relevant?

Does the description of the problem emphasis the need for the solution of this problem?

Does the analysis contain the main aspects of the problem?

Is the explanation sufficiently differentiated?

Is the analysis clearly formulated and understandable for the addressees?

Is the analysis appropriate …

… From the point of view of experts?

… From the perspective of practitioners?

… From the perspective of the institution where the e-learning centre should be implemented?

Solution

As the development of organisational design patterns is still in process, there is need for discussion about the elements of these patterns and their content. For some categories of the patterns a common view of the required content is still to be achieved. This has to be the first step, before attempting to evaluate them. In our opinion the category "solution" is one that still has to be discussed.

In the first draft of an organisational design pattern for e-learning centres Steeples and Zenios (2004) addressed a lot of different aspects within the category "solution". The question is, whether these subcategories should become components of every organisational pattern for e-learning centres or not.

The subcategories used by Steeples and Zenios (2004) are:

Vision

Risk assessment

Educational principles

Infrastructure

Infostructure

Support services

Budget and resources

Research and development framework

Benchmarking

Questions for the discussion:

Are these subcategories appropriate?

Are these subcategories self-explanatory or do they need to be defined in more detail?

Do these subcategories cover all issues that should be addresses in the category "solution"?

Do they apply for different purposes of e-learning centres?

Should these subcategories be a fundamental component of each organisational pattern for e-learning centres or should they be variably used?

Are these subcategories accepted by experts and practitioners?

As soon as a consensus is reached according to the components of the category "solution" the evaluation can take place.

Questions for the evaluation on the category level:

Is the solution valid, i.e. is it actually suitable for the respective problem?

Is the solution re-usable, i.e. is it applicable in different contexts of the same problem?

Is the solution complete or are there missing aspects?

Is the solution proposal clearly formulated?

Is the solution proposal appropriate

… From the point of view of experts?

… From the perspective of practitioners?

… From the perspective of the institution where the e-learning centre should be implemented?

In case the subcategories will be a fundamental component of organisational design patterns for e-learning centres additional question on the subcategory level will become necessary.

Questions for the expert and practitioners rating on the subcategory level:

Are all subcategories considered (to an appropriate extent)?

Do the descriptions in the subcategory comprise all important aspects?

Are the descriptions in the subcategories understandable?

Are the suggestions made applicable in different contexts?

Are the solutions provided in every subcategory valid and suitable for the problem?

Do the solutions in the subcategories match or are they self-contradictory?

Are all solutions provided in the subcategory accepted

… From the point of view of experts?

… From the perspective of practitioners?

… From the perspective of the institution where the e-learning centre should be implemented?

References

Correctness

Completeness (are the most important references cited?)

Related Patterns

Appropriateness of the patterns cited

Completeness (are the patterns cited the most important ones?)

2.6 Summary

In this section we addressed the evaluation of organisational design patterns for e-learning centres. As the development of these patterns is still in process we suggested to discuss some fundamental points before going one step further and evaluate the patterns themselves. The proposed points for the discussion are the definition of e-learning centres, the purposes and orientations of these centres and the subcategories for the category "solution". We suggest discussing these points with experts as well as with practitioners that already work in existing European e-leaning centres. The practitioners might be able to contribute valuable insights and new perspectives. A consensus in these points is essential for a common ground from which the evaluation can start.

3. The evaluation of the projects website

3.1. Dimension of the Evaluation

The evaluation of the projects website is a necessary step to promote the sustainable dissemination of the results of the project. Users must see benefits of the use of the website and the use of the website must not elicit negative feelings due to difficulties to gain access to the information wanted. Thus the evaluation of the website should concentrate on two aspects: Content and usability.

From the expert point of view five criteria for evaluating the content of web sites are to be distinguished: accuracy, authorship, objectivity, currency and coverage (Kapoun, 1998). Also important are the definitions of the aim and the purpose of the website. For the evaluation of the website of the project we suggest a framework with four dimensions to be examined.
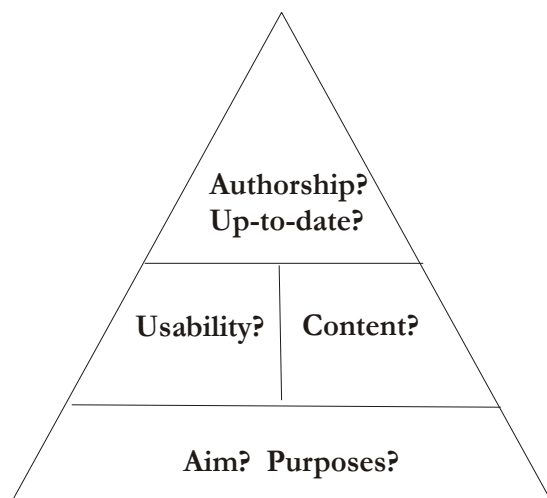
Statements regarding the aim and the purposes are important features. Users should quickly recognize the website's topic and whether it is relevant for him or her. The follow questions are essential for the experts rating and for the design of an instrument for the usability testing:

Is the aim of the website clearly defined and recognizable at the first glance?

Is the purpose clearly defined and quickly to read?

Is the target group clearly addressed?

The basis of a "good" website is a usable design. To assess the usability of the website we refer to proven standards and methods comprising expert ratings and the systematic

observation and questioning of typical users. For the expert rating and for the design of the assessment instruments we refer (cf. Nielsen & Molich 1993):

Are the dialogues simple and natural?

Do the wording and the style of the website meet the users' language?

Does the web site's design minimize the users' memory load?

Is the website design barrier-free (accessible for all)?

Is the website design consistent?

Is it possible to ask questions or to send feedback on the content of the website or the design of the website to the webmaster?

Are errors messages precise and constructive?

Does a help and documentation function exist?

As for content the following questions should guide the expert rating and the design of the user questioning instruments:

Is the content appropriate for the target group (difficulty, depth, width) ?

Is the content correct, accurate, complete, and well-structured?

Is the content appropriate for the target group regarding their motivation and expectations?

If there are graphics: do they add to the content or distract users from getting the essentials?

Additional features are the authorship and information on last changes:

Is there evidence who is responsible for the content of the site or specific pages?

Is it possible to find out who wrote the material and what are the author's qualifications for writing on this topic?

Are there dates on the site or pages to indicate:

When the content was first placed into the web?

When the content was changed or revised?

3.2 Methods

Generally expert oriented and user oriented methods are distinguished. Expert oriented methods are essentially based on open criteria oriented analyse process, e.g. the "heuristic evaluation" frequently used in usability studies (Nielsen 1993). For convincing outcomes even a small panel of experts (3-5 persons) is often sufficient. User oriented methods include

questionnaires, systematic observation (sometimes based on video recordings) or interviews. Depending on the chosen method a sample of 6 to 25 test users is necessary for suitable outcomes. Therefore expert oriented methods are especially suitable for a fist quality check of the website comprising an analysis of the content and usability weaknesses. When the users point of view (acceptance, expectations, usability) is the essential focus of the evaluation a study with a representative sample of users is recommended. For the evaluation of the E-LEN website we recommend both, an expert rating and a study using a sample of users.

Evaluation Report

On the evaluation of the e-learning design patterns of the E-LEN Patterns

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Evaluation-Report Introduction

For the evaluation of the e-learning patterns by the E-LEN-members, an evaluation plan was designed by Niegemann, H. M., Domagk, S. und Hessel, S., University of Erfurt. In this evaluation plan it was intended to evaluate the e-learning design patterns by discussing them on the projects homepage. All E-LEN members were asked to send in their contributions to all patterns that were uploaded to the projects homepage at this time. Every week two or three patterns were put up for discussion.

The evaluation plan also included guidelines for the evaluation of the e-learning design patterns, suggesting evaluating them on two levels. Firstly, on level one the evaluation of the pattern on the whole. Secondly, on level two the evaluation of the single categories of the pattern.

All contributions to the discussion about the patterns were collected and analysed. This report is a summary of the results gained. Unfortunately not all members took part in the discussion of all patterns and those who did used only rarely the guidelines provided in the evaluation plan. Therefore the results can only be based on the opinions given.

During the evaluation process new patterns were uploaded on the projects homepage. They could not be taken into consideration in this evaluation process anymore. But the evaluation of these patterns could occur in the same way as was proposed in the evaluation plan. Altogether there are 42 patterns provided on the homepage by now.

In the following we portray first the pattern that was evaluated and afterwards the summary of the discussion about this pattern.

Patterns for SIG 1: Learning resources and LMS
Information about the pattern "Asynchronous collaborative learning"

Maturity level

⭐⭐⭐

Category

Learning patterns

Problem

How to allow and facilitate learners and instructors to asynchronously collaborate and interact, in order to engage learners in processes such as problem-solving and critical thinking, and to be able both to mentor and to assess these interactions?

Analysis

When students work together they learn from one another and extend their interaction and learning outside of class. Busy schedules and commuting students often make group work difficult to coordinate. When properly applied, technology can eliminate these barriers to collaboration. The main goals for asynchronous collaboration are:

to provide a comfortable setting for contribution by all group members

to enable convenient collaboration without restrictions of time or place

to archive all the interactions that took place

Solution

Develop asynchronous computer mediated communications (ACMC) tools that can effectively and efficiently support the asynchronous collaborative learning process, due to the fact that they offer flexibility in the use of time as well as space. The most common type of ACMC tools are:

asynchronous text-based communication, such as e-mail, mailing lists, web-based discussion fora.

asynchronous audio or video or audio/video communication. These tools have a pool of audio or video or audio/video clips, that participants can share, annotate, and asynchronously discuss various subjects about them.

Known uses

Most LMS provide both customized e-mail client-servers and discussion fora and also tools for creating group mailing lists.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, ?Towards a Pattern Language for Learning Management Systems?, ???? Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

P. Avgeriou, A. Papasalouros, S. Retalis, ?Patterns For Designing Learning Management Systems?, proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th?29th June 2003, Irsee, Germany.

Related patterns

Student group management

Synchronous collaborative learning

Student Assignments Management

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-03-19

Evaluation of the pattern "Asynchronous collaborative learning"

Summing up, it may be said that most of the E-LEN members think the solution-part is not complete or the solution did not cover the problem. Problem-solving and critical thinking are too specific, these elements could constitute sub-patterns which complete the general pattern "Asynchronous collaborative learning".

Some additional proposals for the solution are:

Planning tools

Project tools

Presenting tools (to learn to know each other before collaborating)

Possible to see how are logged on

Document versioning tool

URL-library

Efficient collaboration (asynchronous and synchronous, online or face to face) is dependent on many other factors, for instance task formulation, group formation, roles of the group members. Another opinion to the point of collaboration is: the pattern refers to asynchronous learning which also supports learners' communication and interaction (through e-mail, mailing lists, chat) but not collaboration.

During collaboration, the group members have to interact, make their ideas explicit, prompt for justifications and negotiations, elaborate and reflect upon their knowledge in order to converge to a shared understanding. In this context the learners need support and guidance in order to cultivate basic skills in communication and to collaborate effectively. Thus, educational environments that support collaborative learning aim to facilitate group interaction, support the accomplishment of collaborative learning activities and promote the cultivation of cognitive and communication skills.

In the pattern proposed although the problem is partially defined the solution needs to be reconsidered and extended towards the direction of collaborative learning. To this end, the research area of Computer-Supported Collaborative Learning Environments (CSCL) has a lot to contribute.

Information about the pattern "Management of on-line questionnaires"

Maturity level

⭐⭐⭐

Category

Learning patterns

Problem

How can web-based questionnaires be created, delivered and graded?

Analysis

One of the main learning activities of the instructional process is students? assessment. Assessment is one of the main mechanisms for checking and monitoring students? level of knowledge. It is very beneficial for the instructor to assign particular questions to learning units where the student should check the knowledge she/he is supposed to have obtained. Assessment can be automated in order to save instructors? time and effort in delivering and grading tests. Automation also offers to learners the ability to perform assessment without any time and place constraints. However, the on-line administration (creation, delivery and grading) of tests for the assessment of students is a complicated task.

Solution

Provide tools for the on-line assessment of learners through questionnaires.

The system should enable the instructors to:

create on-line both closed-end questions with predefined answers, that are able to be automatically graded and open-end questions, that need to be graded by an instructor

create/edit on-line closed-end questions of various types: multiple choice, fill-in the blanks, etc. and easily mention the corresponding right and wrong answers. The hint messages and/or feedback messages that will be shown to the student in case of wrong and/or right answer should be stated.

administer the delivery of the online test. More specifically, the instructor should be able to state how many times an online test can be answered by the student, the duration of the assessment (time limits), to announce the schedule of on-line tests as well as their grading so that students get informed on time

be able to allocate a grade to each question of a test separately and/or to the whole test updating the students' records

search for possible questions, that could be integrated into a newly made test, in a pool of already made online tests. In some cases it is valuable to import a ready made questionnaire that has been created in another LMS. Conformance to an international standard is necessary in this case.

The system can optionally support adaptive question sequencing, customizing the succession according to which the questions are given to the learner. The answer to a particular question (right or wrong) might change the sequence of the next questions and the related study material according to specific sequencing rules. It is recommended that the produced questionnaire conforms to an international e-Learning Standard. The most widely adopted standard for this case is the IMS Question and Test Interoperability (http://www.imsproject.org/). Such a conformance will greatly enhance the portability of the learner profile as well as the interoperability of software systems that utilize the learner profiles.

Known uses

All LMS that were reviewed have some mechanism for on-line questionnaires.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, "Towards a Pattern Language for Learning Management Systems", IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003..

P. Avgeriou, A. Papasalouros, S. Retalis, "Patterns For Designing Learning Management Systems", proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th–29th June 2003, Irsee, Germany.

Related patterns

Student tracking

Student Assignments Management

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-02-24

Summary of the ratings

Regarding that pattern, it would be better to focus on the learner not only how the instructor easily and effectively assess and control the students. Also it would be useful to discuss guidelines for educational questionnaires. Adaptive question sequencing and Adaptive testing in general is a broad area and should be described through a separate design pattern.

One expert thinks, the proposed design pattern could serve as a basis for discussing the way questionnaires could serve instructional and learning goals. Moreover how these goals could affect the development and the authoring process of such questionnaires. The scope of the questionnaire and feedback are not covered. There are some different pedagogical goals on-line questionnaires may serve: support *learners* to observe their personal learning progress, support *tutors* to assess learners' achievement or to individually support learners through appropriate feedback.

Assessment questionnaires are important to support self-assessment. In such cases, feedback is a critical issue. Feedback to learners' answers should include different types of information such as answer correctness, precision, timeliness, learning guidance, motivational messages, lesson sequence advisement, critical comparisons, learning focus. The different types of feedback (strategic advice and guidance, suggestive feedback, reinforcing feedback) should serve different instructional goals, support the learning process, provoke reflection on and articulation of what was learned.

One possible solution for the problem: "How can web-based questionnaires be created, delivered and graded?", is to provide web-questionnaires as an instrument. Assessment is a bit viewed as feedback and as a mechanism of certification, it should be distinguished between the different functions of feedback, e.g. support of the learning process: providing feedback to students, to diagnost there entrance level and match instruction, to be able to construct groups (homogenous/heterogenous groups).

For the solution section can be added:

- relate to an item bank with many items (to prevent the same test to circulate in the student community)

- to provide an authorisation and authentication mechanism

Information about the pattern "Student group management"

Maturity level

⭐⭐⭐

Category

Learning patterns

Problem

How should groups of students be created and managed, and how can projects be assigned to these groups?

Analysis

One of the most complicated tasks of both traditional and on-line courses is the management of groups of students. Students must be grouped in working teams, their progress should be tracked during the project time, and ways of communication between the members of the group and the supervising instructor must be established. In addition there must be some repository for the artifacts of the projects assigned to these groups and a mechanism for grading the students.

Solution

Provide a tool for the creation of groups of students. The groups can be created either manually, by the instructors, or automatically by the system. The tool should also provide the ability to assign projects to groups, and, optionally, allocate space for the project deliverables, as well as provide a mechanism for the easy upload of these deliverables from group members. The communication between the members of the group should be established through asynchronous (e-mail, discussion forums) or synchronous (chat, video conference) mechanisms. The system should permit the supervisor of each project to participate in the communication sessions between the members of the groups, to track their progress by reviewing the artifacts of the project and to grade each student at the end of the project. More specifically the instructor should be able to: More specifically the instructor should be able to:

announce the subjects of the assignments as well as to specify related learning resources (either online or offline) and ask the learners to form groups and choose subject (in case of more than one)

see conflicts in the students' choices (e.g. more than one group has chosen the same subject)

accept or reject the students' selection of subject. In the latter case, he or she should be able to allocate other subjects to them. Moreover, the instructor could be able to manually change the synthesis of the group

communicate with the members of the group. The contact information of the group members should be extracted from the LMS database

mention whether the students' deliverables will be publicly available or not

grade the students' deliverables

The learner should be able to:

access the proposed subjects of the assignments and get informed about allocations up to that point

choose a proposed subject of the assignments and state the rest of the group members

upload the deliverables for the assignments and optionally view the deliverables of the other groups.

Communicate synchronously or asynchronously with other members of their group and collaborate with them.

Known uses

Blackboard, CoSE, FirstClass, Convene, LearningSpace and WebCT provide tools for the creation and the management of workgroups of students. Gentle WBT has a tool for the definition of working groups, which is available to all types of users.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, "Towards a Pattern Language for Learning Management Systems", IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003..

P. Avgeriou, A. Papasalouros, S. Retalis, "Patterns For Designing Learning Management Systems", proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th–29th June 2003, Irsee, Germany.

Related patterns

Study toolkit

Student Assignments Management

Asynchronous collaborative learning

Synchronous collaborative learning

Student tracking

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-02-24

Summary of the ratings

The following statements were made.

The abstract to this pattern is missing. The description of the problem is concrete, understandable and contains a relevant problem. The solution does not contain guidelines for the implementation of corresponding tools. "To collaborate" is a wide term: one suggestion is to remove it or to specify it better.

The name is not very evocative of real-world situations. It's not vivid or memorable. It seems to imply a rather controlling approach to the organisation of students.

The statement of the problem includes 3 sub-problems:

How should groups of students be created?

How should groups of students be managed?

How can projects be assigned to groups?

A suggestion is to split the pattern into smaller patterns with powerful statements.

There are many questions for the analysis: Does the difficulty lie in keeping track of multiple sources of information, for example?

Is the difficulty in understanding the dynamics of a group of different individuals?

Is the difficulty in having reliable comms? There are very many possible patterns.

These experts aren't sure, how they should use this pattern. They pose the following question: "How do we (designers of e-learning tools) design tools for group activities?" The answer, "We design tools that have a particular set of functionalities." is a statement of requirements, but not a pattern.

In this pattern a very complex issue is addressed: the management of student groups. On the whole it is elaborated and concise. But again current research findings about the advantages and disadvantages of different solutions are not discussed.

Information about the pattern "Study toolkit"

Maturity level

⭐⭐⭐

Category

Learning patterns

Problem

How can the learners be assisted in studying the learning resources instead of being limited to reading simple HTML pages?

Analysis

There are many facets to this problem. A first one is that most learners find it difficult to study on-line material because they are used to particular methods of studying paper-based courseware and can't get accustomed to reading from the screen passively. When reading paper-based material, learners usually underline or highlight words or phrases, place bookmarks on particular pages, make annotations on the side etc. These functions obviously can't be performed on a plain web page and they need to be incorporated as an explicit service of the LMS. Moreover, instructors often wish to mark or make annotations on students? assignments or deliverables or even web pages of the learning material in order to pinpoint some critical issues and disseminate either publicly or privately to the learners. Another facet of this problem is that learners can't remain connected to the server for many hours for financial reasons (e.g. connection through a dial-up modem) or because they have problems with their connection (limited bandwidth, server down, network congestion). In this case the learners need to download the learning material, store it locally on their computer and use it whenever they want to. Of course this is not a simple download problem, since the learning material may be comprised of numerous pages, linked implicitly through the LMS navigational mechanisms, may have an LMS-made table of contents etc. Finally another facet of this problem is that learners do not want to do on-line studying at all and would rather print the material and read it from paper. Once again this is not a simple download problem, as described earlier.

Solution

Provide a study toolkit for the learners to use, which will facilitate them in studying the courseware according to their own preferences. This tool should offer them a set of tools that allow the user:

to underline, strikethrough and highlight sentences using various color pens for creating annotations on the text

to put bookmarks on point of interest and/or make comments within the hypertext using either free text or specific notations, i.e. a specific symbol should mean question mark, criticism, etc.

to add annotations in any format (text, image, hyperlink, audio, video)

to characterize an annotation as private or public

to search for annotations by making queries with respect to the date, the author, or the annotation type.

The annotation tools should also allow the user to ?compile? the learning material in such a format that can be downloaded and stored locally, and which will allow them to add annotations or comments that could be easily 'uploaded' to the LMS.

Known uses

WebCT, VirtualU, Blackboard, CoSE, Intralearn, TopClass, LearnLinc, FirstClass and LearningSpace provide the ability to set bookmarks, while CoSE, Intralearn, FirstClass and LearningSpace provide annotation tools but with less functionality than the one described above. WebCT and BlackBoard provide the tools for ?compiling? the learning content in a downloadable and printable format.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

1. P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, "Towards a Pattern Language for Learning Management Systems", IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003..

P. Avgeriou, A. Papasalouros, S. Retalis, "Patterns For Designing Learning Management Systems", proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th–29th June 2003, Irsee, Germany.

Related patterns

E-book delivery

Student Assignments Management

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2003-01-29

Summary of the ratings

Most of the E-LEN members think that this pattern contains two aspects (to enable students to underline, highlight and strikethrough sentences, to enable them to download the learning material), but the name of the pattern does not refer to both problems. The solution focuses on the first aspect. A proposal is to separate these two aspects into two patterns. The category context is clearly described, but research linkages are missing.

Another expert says the name doesn't cover the content, he suggest: 'promote interactive reading', 'promote active studying of material'. The problem is clear to him, also the solution-suggestions.

Another suggestion of an expert is to offer the learner the possibility of bookmarking the contents that he/she finds relevant and to create "guided tours" across them.

Information about the pattern "Synchronous collaborative learning"

Maturity level

🌟🌟

Category

Learning patterns

Problem

How to allow and facilitate learners and instructors to interact synchronously, collaborate and co-operate with peers?

Analysis

Synchronous collaborative learning is a computer-mediated effort that simulates face-to-face interaction. Since body language and facial expressions cannot be conveyed through asynchronous communication, real-time communication allows contributions participation, sharing information and social dialogue at a distributed environment. The main advantages of synchronous multimedia communication are:

"Next best thing to being present at a lecture hall"

Very visual medium: students and teachers can begin to relate to one another.

Good for distance education novices for developing a "learning community"

Solution

Develop synchronous multimedia communication tools, which make it possible for learners and instructors at different sites to partake in the same conference at the same time through text, or the "magic" of two-way audio and two-way compressed video. Examples of these tools include:

text-based Internet chats

instant messaging

audio & video conferencing

virtual whiteboard applications

shared applications

Known uses

Most LMS provide some sort of chat or conferencing service

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, ?Towards a Pattern Language for Learning Management Systems?, IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

P. Avgeriou, A. Papasalouros, S. Retalis, ?Patterns For Designing Learning Management Systems?, proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th?29th June 2003, Irsee, Germany.

Related patterns

Asynchronous collaborative learning

Student group management

Student Assignments Management

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-03-19

Summary of the ratings

One statement is, that the pattern is very concise and short on the whole. Others say it is too generic. Again the abstract for this pattern is missing. The description of the problem is concrete, understandable and contains a relevant problem, this is one opinion.

The analysis section contains the main aspects of the problem. It is clearly formulated und understandable. In the solution types of synchronous communication tools are mentioned, but there is no information about the conditions of their use. But there should be research

based guidelines when to use which kind of tool. That is why they do not think that this solution is appropriate to the problem. To the part of Known Uses some experts mention: Synchronous communication tools are not only used in learning management systems (LMS), but also in very different contexts in the internet. The context is clearly described. But maybe it should have been mentioned in the description of the content that this pattern refers to communication in LMS only.

Further remarks to the statement of problem are: The wording is not completely clear. Is the key idea: how can we enable people to collaborate and co-operate synchronously when they are at a distance from each other? The analysis is a little bit confusing.

They also criticize the solution part, because it would be easy to write many of these patterns, e.g. Problem: How do we design a car? Solution: Develop a tool that enables us to design a car. Problem: How do we build a house? Solution: Develop a tool that enables us to build a house. Each one followed by a list of assumed requirements. It's better to provide tools that support some of the key things that are provided in face-to-face environments. The interesting thing to us is then what those things are. What fosters a sense of collaboration, of being on the same team? What enables people to feel included? What social and technological structures enable progress to be made and recorded?

Others think there's no real problem in this statement. "Why is it important for learners and the learning and organisation process to communicate synchronous? What's the advantage?"

The "Why" in the analysis section is missing. Also it is not clear why the posed solutions are proper solutions.

Information about the pattern "Course Creation and Customization"

Maturity level

⭐⭐⭐

Category

Instructional patterns

Problem

How can the instructors be assisted in building on-line courses in LMS so that some of the tasks they need to perform can be automated?

Analysis

LMS need to make the job of instructors easier by providing them with easy-to-use tools for creating, and customizing their courses so that they won?t have to be experts in using the LMS, neither will they have to spend too much time and effort in performing those tasks. This way, courses will not be created from scratch, but instead instructors will reuse some design templates and easily perform generic activities and let the LMS take care of the details. For example if an instructor already has a course named ?Software Engineering: Part I? and wants to create another one for the course ?Software Engineering: Part II? that has roughly the same structure and format, she/he should not create it form scratch. Instead she/he should be able to build the new course by using the old one as a template. Also instructors should not have to perform low-level activities to customize their course but the LMS should provide the appropriate tools. For example if the instructor wants to change the background image of the courses home page she/he should not change the corresponding HTML tag, but instead set it visually through an LMS tool. Finally courses have to be initialized in the beginning of every semester in an automatic way by resetting student accounts, deleting the old announcements, reconfiguring the calendar, cleaning the old file folders etc.

Solution

Provide the instructors with appropriate tools for creating a course and customizing it according to their preferences. The creation of courses should be based on design templates with pre-set interfaces, content structure and features or based on existing courses. Instructors should also be equipped with tools to reset the courses on every semester and easily manage the appearance, structure and features of their courses, doing as few things manually as possible. User interfaces that allow the instructors to perform the aforementioned tasks should emphasize usability issues, especially in order to relieve the instructors of cognitive overload from learning to use the LMS.

Known uses

WebCT, VirtualU, Blackboard, Intralearn, TopClass, LearnLinc, FirstClass, Convene and LearningSpace provide templates for course creation as well as tools for customizing the various courses characteristics.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, ?Towards a Pattern Language for Learning Management Systems?, ???? Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

P. Avgeriou, A. Papasalouros, S. Retalis, ?Patterns For Designing Learning Management Systems?, proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th?29th June 2003, Irsee, Germany.

Related patterns

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-03-19

Summary of the ratings

Again this is a pattern without an abstract. The name of the pattern refers to the content of the pattern, but it should maybe emphasize that it is about tools that should make the work of the instructors easier. The description of the problem is concrete and understandable. The analysis is very detailed (concrete description of the problem) and is clearly formulated and understandable. The solution section is very short, there are no examples which tools should be used in which context.

Some members think that the end users of this pattern should be instructors, not learners.

A suggestion for rewriting the problem is: How can we reduce workload of instructors in groups with high number of students and a wish to customize as far as possible?

Someone says that the analysis is too generic. There is a suggestion for the solution, to specify more deeply the solution using the concept of hypermedia "application framework", i.e. reusable application skeleton that the instructor building a course can fill with instances of contents and of navigation structures that correspond to the specific course. An application framework doesn't provide only "design templates with pre-set interfaces etc." but also patterns of navigation structures and of instructional "services" (e.g. self-evaluation facility, marking of interesting material etc.). In addition, an application framework provides mechanisms to customize, at schema level, content and navigation structures according to the specific needs of a course. Clearly, the true problem of application frameworks for e-learning is to define the proper content and navigation structures (at schema level) and services that are more appropriate for teaching and learning both in general, and for specific disciplines.

Information about the pattern "E-book delivery"

Maturity level

⭐⭐⭐

Category

Instructional patterns

Problem

How can the instructors be facilitated with an easy and consistent way of creating and structuring electronic course books using hypermedia content?

Analysis

No matter what learning theory and instructional design strategy is adopted by the Instructors or Institutions, the dissemination of learning content in the form of a set of web pages delivered over the web is common in every web-based system facilitating learning processes. The learning content must be structured, have consistent style and layout and provide a uniform and self explanatory user interface metaphor allowing its users (Students) to easily navigate into the hypertext.

Solution

Provide tools that facilitate the instructors to create on-line books in an easy to use fashion. The system must enable the Instructor to:

structure the learning content into aggregated logical sets of web pages (i.e. chapters) in a hierarchical manner. These web pages can be uploaded to the system or created from scratch. A run-time system will automatically present the structure content to learners providing appropriate controls for navigation (i.e. next/previous page, next chapter, etc).

Integrate the actual learning content with other tools related to studying. This is done by associating particular learning resources, i.e. web pages or chapters, to specific tools that manage glossary terms, multiple choice questions, links to other resources, search engines, etc.

save the created study material in a standardized, interchangeable format, such as the IMS Content Packaging format, so as to be able to reuse the structured content in the same, or different LMS.

Known uses

WebCT, Blackboard, VirtualU, COSE, Intralearn, TopClass, LearnLinc, FirstClass, and LearningSpace provide instructors with tools for the creation and management of an electronic book.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be the instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, "Towards a Pattern Language for Learning Management Systems", ???? Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

P. Avgeriou, A. Papasalouros, S. Retalis, "Patterns For Designing Learning Management Systems", proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th–29th June 2003, Irsee, Germany.

Related patterns

Study toolkit

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-02-24

Summary of the ratings

Summing up, it may be said that the pattern is understandable and relevant, but the name "e-book delivery" is a little bit confusing, because the pattern refers to the delivery of textual learning material. E-books are one form of textual learning material. So the name doesn't really include the essential idea behind this text, because the main point is to structure the

learning material and to support instructors by doing this in an easy and user-friendly way (e.g. save time by re-using existing structures).

Again the abstract for this pattern is missing, the description of the problem is very short, but sufficient and understandable. The experts miss concrete examples. The analysis is elaborated and complete. It refers to a relevant problem. In the solution part suggestions were made about the appropriate delivery of online-texts. Again we miss some concrete examples and the linkages to relevant research findings or results from usability tests, which could give guidelines how to design these tools.

The context is clearly described.

Information about the pattern "Student Assignments Management"

Maturity level

🌟🌟

Category

Instructional patterns

Problem

How to create on-line assignments for students?

Analysis

Assigning exercises and projects to students is a common practice for instructors. In the context of a web-based LMS certain matters have to be resolved: How to communicate issues concerning the assignments to students, how to grade students, etc.

Solution

Provide a tool for instructors to manage assignments. An instructor should be able to:

define an assignment by describing the title of the assignment, a description, links to on-line resources, start and due date etc.

notify the learners about a new assignment

receive the learner's papers

grade the papers and make the grades or the corrected papers available to the learners.

A learner should be able to

be notified for the assignment and prepare their documents for submission.

upload the corresponding documents can or send them to the instructor via e-mail.

Be notified that their papers have been graded and either view their grade or view the whole paper returned with the instructor's remarks

Known uses

Virtual-U, WebCT, COSE, Intralearn, Saba, Blackboard, FirstClass, Convene and LearningSpace provide tools for assignments management.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, ?Towards a Pattern Language for Learning Management Systems?, IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

P. Avgeriou, A. Papasalouros, S. Retalis, ?Patterns For Designing Learning Management Systems?, proceedings of the European Pattern Languages of Programming (EuroPLOP) 25th?29th June 2003, Irsee, Germany.

Related patterns

Asynchronous collaborative learning

Synchronous collaborative learning

Student tracking

More information on relations

This pattern is also related to the Student Group Management Pattern in the sense that they both facilitate a problem-based instructional approach. The main difference between the two is that while in the former, assignments are disseminated to the whole class and require personal work of each individual student, in the latter, groups are created in order to encourage the collaboration of students along with the supervision of an instructor.

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-03-19

Summary of the ratings

The name refers perfectly to the content of the pattern. Another suggestion for this pattern is: "Student assignments management in electronic learning environments" because the pattern suggests that it applicable to traditional as well as new learning environments, but only the latter is worked out. This focus should be expressed in the name.

The description of the problem is concrete, understandable and contains a relevant problem. The analysis of the problem is rather short but it contains the relevant information.

The solution does only list the options that should be implemented, but it does not give any information about the details.

A further opinion means that the description of the pattern is very short. It does not give any advices how to solve the different problems that are mentioned.

One expert misses an element in the line of argumentation: Why does assigning exercises and projects in web-based LMS pose problems to instructors?

The skills which are mentioned are not only relevant to on-line-assignments.

It would be better to elaborate one of the learning environments by describing how the tools are implemented.

First in the context software engineering teams are mentioned as group, which is involved in the context of this pattern. This does not follow from the description of the pattern.

Information about the pattern "Student tracking"

Maturity level

⭐⭐⭐

Category

Instructional patterns

Problem

How can the instructors track the students? progress while they interact with the LMS ?s various features? On the other hand, how can the students be informed of what activities they have already performed in a course?

Analysis

In the traditional classroom, instructors watch the students? progress, monitor their various activities, evaluate them and coach them so that they learn as effectively as possible. In the virtual world of LMS, instructors do not interact physically with the students and thus cannot observe them and supervise their learning. For example the instructors do not know whether the students have studied the appropriate learning resources, practiced the on-line exercises, collaborated with their colleagues in their projects, or read the announcements for a course. On the other hand, in large and multifaceted courses, the students do not know which parts of the LMS they have already seen, what remaining tasks do they have to perform etc.

Solution

Keep records of the students? activities in terms of which parts of the course they have visited and how long they have spent in them, what tools they have used, and maintain files of the interactions that took place in chat rooms, discussion fora etc.

observe these records and assess the various activities that students perform, for example by presenting him with statistics about the students? actions.

check the extend by which a particular learner has accessed the learning material in a specific course

check whether a student has submitted an his assignments on time or not

check the degree of participation of a student in collaboration activities i.e. discussion for a, synchronous communication sessions, etc.

The system must enable the learner to:

observe a log of their personal history so that they know where they have already gone and what remains to be seen.

Known uses

WebCT, Blackboard, Intralearn, Saba, FirstClass, Convene and LearningSpace provide tools for tracking the progress of students. On the other hand WebCT, VirtualU, Blackboard, Intralearn, Saba, FirstClass and LearningSpace provide tools for informing students of their own study progress.

Context

This pattern is applicable to software engineering teams that develop Learning Management Systems. When implemented, its end-users shall be learners and instructors.

References

P. Avgeriou, A. Papasalouros, S. Retalis, Manolis Skordalakis, ?Towards a Pattern Language for Learning Management Systems?, IEEE Educational Technology & Society, Volume 6, Issue 2, pp. 11-24, 2003.

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Related patterns

E-book delivery

Management of on-line questionnaires

Student group management

Student Assignments Management

More information on relations

Author(s)

P. Avgeriou, S. Retalis, A. Papasalouros

Type

Domain specific

Submitted date

2004-03-19

Summary of the ratings

Student tracking is a very broad issue. It includes tracking the progress of the students and the information of the students about their progress.

Again the abstract is missing.

The problem of the described pattern deals with both monitoring the students' progress and informing the student. The name of the pattern seems to focus only on the first problem, a suggestion is splitting the pattern.

The solution section was criticized by some E-LEN members, because the time that students have spent on specific pages do not indicate that the student was involved in learning. The solution gives guidelines which aspects should be considered, but does not give practical advices based on research findings.

A critical remark is: Only instructors and students are mentioned as groups involved in the problem of this pattern. No reference is made to software engineering teams until the context.

The name should include an idea of the problem as well as the solution, e.g.:

"Monitoring for supervision of learning process".

For the Known Uses section it would be better to elaborate one or two learning environments.

Another critical point for the analysis is that the rationale for informing students about their progress is not mentioned. There are some questions: Why is it for students necessary to know which tasks they already have performed? Are there instructional reasons, e.g. to make them self-regulative learners or is it a matter of planning (to continue they need to know what they have done and what they still have to do)?

Patterns for SIG 2: Lifelong learning
Information about the pattern "Support choices by providing feedback on collaborative behaviour"

Maturity level

🌟

Category

Not available yet

Problem

Lifelong learners experience problems of information overload, missing information relevant for their choice and increasing "selection time" (time necessary to make a choice) while trying to select effective learning activities out of a large set of possibilities.

Analysis

In models of Lifelong learning, learning is not restricted to formal, organised governmental educational settings over a relatively short period of time, but has become each individuals own lifetime responsibility. Lifelong learning implies low threshold, accessible learning activities which can be selected by the user when and where necessary. In order to decide and select useful learning activities, a user needs information to base his or her decisions on. He/she needs to know which learning activities are suitable to reach self-defined aims, how effective the learning activities are in accomplishing these aims and in what order these activities can best be performed if several collections of activities and routes through activities are available.

Some information is inherent to a learning activity (e.g. the knowledge domain from which it stems) and can be expressed in metadata. Other information can only be attained by evaluating how others performed on learning activities offered (e.g. time necessary to complete learning activity, scores on final tests).

Such an approach is also used by Amazon, where feedback is provided on collective behaviour to help individual users with selecting which product he/she might like (e.g. 'customers who bought this book also bought', 'customers interested in this title may also be interested in'). Providing easy interpretable information of collective behaviour and results of activities in a network of learning activities can support individual users in making their choices while guiding their own learning process.

Presenting information about personal behaviour and displaying it to others can cause problems on privacy matters.

Solution

The provision of feedback information on collective behaviour through a network of learning activities can support an individual lifelong learner in making choices.

Agregate collective user behaviour and provide feedback of this collective behaviour to the individual user in the form of easy-perceivable dynamic (=adaptive depending on user behaviour) social navigational aids. This aggregation can be based on passive as well as active information provision by the user.

As Wexelblat (1999) mentions, with passive provision of interaction history information is recorded and made available without conscious effort of the user, 'usually as a byproduct of everyday use of objects' (e.g. buyers advice aggregated from user boughts in Amazon). With active provision conscious activity of the user is required (e.g. movie rating in MovieLens to come to Movie recommendations).

Make individual users aware of the recording of personal behaviour through a network of learning activities and let them agree to display this information in aggregational form to others. By aggregating collective user behaviour personal behaviour becomes more anonymous, dependent on the amount of interactions and users.

Known uses

Several applications of this design principle are known, for example MovieLens, Launch and Amazon, but few educational environments use mechanisms of social navigation to support learners aims and choices.

One project called Footprints at MIT Media Laboratory records the activity of users through nodes of websites and records the activity and the paths (sequence of nodes = websites) users take through the websites.

This information is displayed to an individual user in different navigational aids. An overview of these aids are displayed in figure 1.
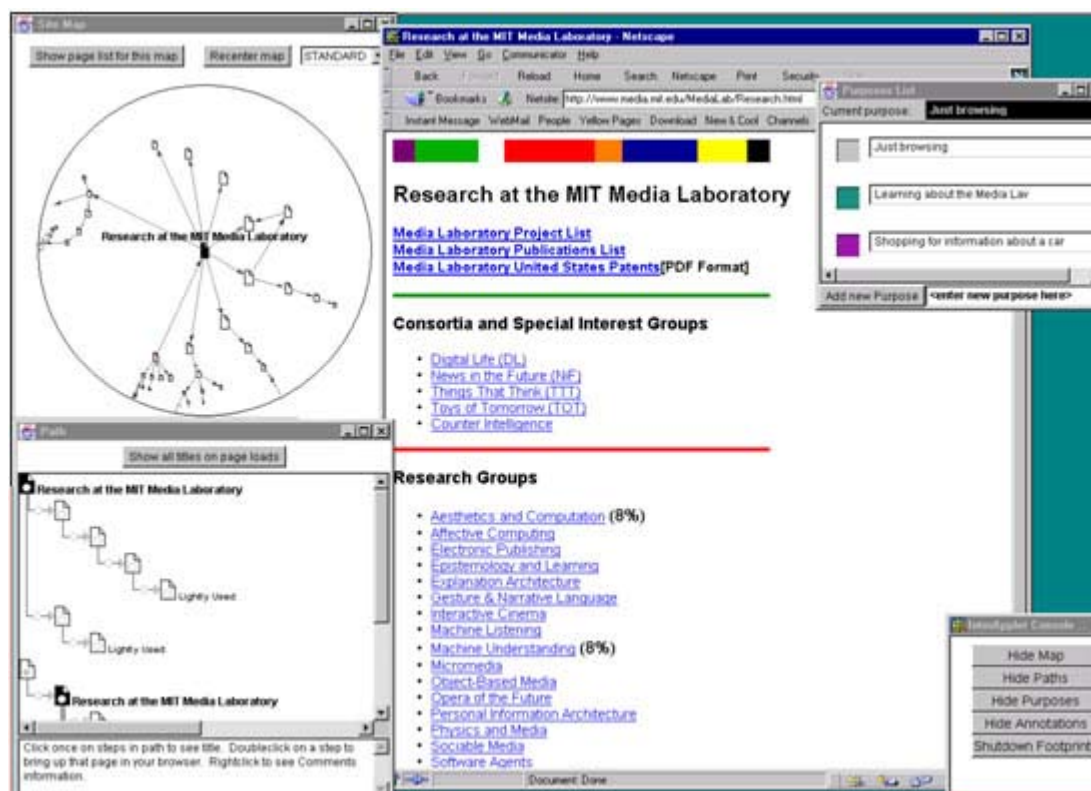
In the left upper-corner a map with aggregated paths throught the website is displayed,

In the left lower-corner a tree-structure with the aggregated sequences (trails) through the websites, derived from the paths taken by individual users (sequences), starting from one specific website (black colour-coded) is displayed.

These displays depend on the purpose a user has specified and are related to the activity of users with the same purposes. Next to this, annotations in the form of percentages are given on the website. These annotations specify the percentage of people visiting this page who followed each of the links off the page. It is essentially the same information as in the trails, only less specific. This information can help users select web-sites which are relevant to their aims and based on an passive, aggregated 'user-advice' of others.

Another system which records and displays this information in a visual manner is VISVIP by the National Institute of Standards Technology, but this information at this moment only serves website developers and usability engineers to improve their navigational design, rather than giving feedback to the user.

Context

Applicable to lifelong learning environments which can be constructed dynamically around the aims and actual behaviour of lifelong learners in networks. Social navigational information may also distract users from their actual intention (their invididual task) when not presented in an user-supportive way. In addition, not all privacy matters and considerations are clear.

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Related patterns

More information on relations

Author(s)

Ellen Rusman

Acknowledgement: Colin Tattersall

Type

Generic

Submitted date

2004-07-14

Summary of the ratings

The word collaborative in the name of this pattern seems not correct. In the sections Analysis and Solution the word collective is used, and would be more appropriated.

The pattern is not applicable to all types of learners.

It is not clear whether the pattern is only applicable to web-based learning environments or also too learning environments in general.

The list of references is inconveniently organized.

Another opinion:

This pattern is very extensive and detailed. It does provide much information especially about the known uses of this pattern. It is also based on some empirical findings. The name refers to the content of the pattern. It is quiet long, but gives an accurate idea of the content of the pattern. Again the abstract for this pattern is missing.

The problem is described in a concrete and understandable way. But it does not make clear that it refers to multimedia learning environments. The analysis is clear and understandable. In the solution part some empirical findings are mentioned. So the patterns is somehow

linked to research findings. But it would need some further confirmation out of this field, for example conditions under which the passive or the active information provision should be implemented. Known uses are very detailed. It gives therefore a good understanding of the possibilities how to implement this kind of feedback. Also the context is clearly described.

Patterns for SIG 3: Collaborative learning
Information about the pattern "Forming groups for collaborative learning"

Maturity level

🌟

Category

not available yet

Problem

How can a well functioning group for collaborative learning in an educational context be formed?

Analysis

When you want to introduce collaborative learning within your classroom, you have to be aware of several choices to make when forming groups in order to make interaction as fruitful as possible. If you want to form groups for collaborative learning you?ll have to: ?decide who forms the group; the participants themselves or the teacher; ?decide what sort of group you want to form (informal, formal or base, heterogeneous or homogenous); ?decide on group size. These aspects have effect on positive interdependence and the creation of commitment and therefore the successfulness of the group. You can also make choices concerning the procedure to follow to form the groups.

Solution

Who forms the group: If you allow the students to form the groups themselves, they often cluster with friends. If somebody not belonging to the already existing cluster joins, (s)he may feel left out. Moreover friends seem to agree a lot which prevents them of meeting with new perspectives and diversity of ideas. Conclusion: it?s best for the teacher or instructor to form the groups for collaborative learning instead of student-selected groups. Sort of group: Informal groups exist only shortly, for example during a meeting when one is asked to discuss something within the context of for example a lecture with ones neighbor(s), who can be someone else every other day. Formal groups exist during a certain period and have a better defined goal to reach (for instance an assignment of project to accomplish) which needs more structure. Base groups resemble formal groups but last even longer then a project; members are chosen for their specific experience and the strength enhances as longer as the group exists. Homogenous groups are most likely to exist within a classroom, in which the students resemble the amount of prior knowledge, goal(s) to reach, age and

(life) experience. Also previously acquired social skills to communicate and collaborate within the group are aspects to take into account. Differences in these make the group more heterogeneous. It seems logical that heterogeneous groups lead to more interaction and therefore to more profound knowledge building and better considered solutions. Group size: The group has to be small enough to give everybody the opportunity to participate and prevent participants to hide. It should also be small enough to prevent the group of losing time to come cohesive and structure and schedule. On the other hand the group has to be large enough to provide sufficient diversity of opinions and backgrounds as well as resources to get the job done. Group size is connected to the character or sort of the group. The more informal and short-lasting the group, the smaller it should be. Depending on the goal and the existence of the group, the ideal size is 4 to 6 students. More informal groups should even be smaller. A different rationale to limit the number of groups (affecting the group size) can be the number of tutors or coaches to monitor and coach the group (or time the tutor can spend coaching each group). A way to form groups is simply to select the first students on an alphabetical ordered list. Doing so, you will probably combine male and female students, friends and non-friends. An other way is to make them draw numbers from a box (as many numbers as you want groups to emerge) and join the numbers one, numbers two, etc. Within an educational context most times information is available on the (probably similar) background of students or participants in a course. This enables the instructor to guarantee the heterogeneity. A third way to form groups is related to (differing) topics or themes each group is supposed to work on. Students then select a group based on the topic. Of course one should be aware of the above mentioned risks if the students themselves select the group (and thus the group members).

Known uses

Context

The solution described in this pattern seems best applicable to an educational context in which students know each other and meet on a regular basis. The groups to be formed are supposed to exist for at least for a week (enough to accomplish an assignment).

References

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Related patterns

More information on relations

Coaching small groups (not available yet) Creating and enhancing trust between group members (under construction) Factors influencing the successfulness of a group for collaborative learning Forming groups for on-line or distance collaborative learning

Author(s)

Gaby Lutgens (Learning Lab Universiteit Maastricht)

Type

Domain specific

Submitted date

2004-06-16

Summary of the ratings

The name of this pattern is clear. Some experts think the problem consists of two subproblems: "how to choose the type of group" and "how to select the members of such a group". The both issues should be better connected. Known uses are missing, there must be some examples in which the solution is brought into practice. For one expert the basis of the context is not clear, his conclusion from the solution was that this pattern is also applicable to contexts in which students don't know each other (e.g. by selecting numbers out of a box).

The given information should be positioned a bit to the foreground, because now

they're mentioned "through the lines". Proposals are: Why is it important that a more informal group has less members? What's the underlying rationale?

The term "well-functioning" in the problem section should be defined more specific.

Also in the solution section are many underlying information which are not explicit.

*Information about the pattern "*Making online learners trust each other*"*

Maturity level

⭐

Category

Not available yet

Problem

How can you bring together learners in groups for collaborative learners or (online) communities) and make them trust each other?

Analysis

Nowadays people recognize more and more the need to keep informed about the constantly changing every day practice or insights after formal education. One way to do this is by subscribing for courses, which can be (partly) organized on a distance education format, or join communities of practices (COP or learning communities) emerging around a common theme or topic of interest. Main difference will be the timeframe; the course will be announced and take place according to a schedule, a COP can last as long as interaction seems fruitful. A mode to make the practitioners exchange experiences and thus learn with and from each other is forming groups for online collaborative learning. Without discussing aspects as who forms the group or group size, in this pattern attention is paid to how to invite participants and how to make them feel committed to the group. According to the guidelines offered about forming groups for collaborative learning (which advise to have the/a instructor or moderator form the groups) the members sometimes do not know each other. This may certainly be the fact if an (online) community is formed around a topic, and people can join the community based on their shared interest in the subject matter. The problem can arise that these members are not able or willing to actively involve in sharing ideas or participating in a project if they are not sure about the others participating.

Solution

To start a group, make the group cohesive and make the members trust each other?s active participation, one could follow the next steps: 1.announcing a topic and letting people subscribe (in the case the group is not formed by an instructor and/or related to a specific case); 2.well describe the topic of the (online) community for instance by using a informative introduction page; 3.well define the goal(s) and what is expected of everyone joining the group; 4.offer a tool by means to communicate and (if necessary) provide instructions;

5.spend some time in getting acquainted, for instance by starting with a name game or offering the possibility to introduce one selves on a homepage. Special attention can be given to the second and third aspect; defining the goal and making clear what is expected of the participant as a group member. It is important that the timeframe is known, if the members are free to join at any moment they like or that you can only join before the kick-off of a certain ?project?. Within an educational context the topic will be related to the course. A COP will gather around a theme merging form everyday practice. Several tools can be offered for these online groups. It is important that every member has equal access, that everyone can contribute and read each others contributions and that the tool makes it easy to share information and relate the present information. If possible it would be useful to save (part of the) content and reuse content.

Known uses

Context

One will decide to bring learners together in online groups in the case participants do not know each other but want to share experiences or if the participants do not have the possibility to meet face-to-face to interact.

References

Stella Terrill Mann (). Cooperative & Collaborative Learning. Richard M. Felder (). Cooperative learning in technical courses: procedures, pitfalls, and Payoffs. North Carolina State University & Rebecca Brent, East Carolina University

Related patterns

Forming groups for collaborative learning

More information on relations

Active and passive contribution Defining the goal of collaboration Division of tasks and roles Factors influencing the successfulness of Communities of practice Lurking Providing structure (role and task(s) of teacher/moderator) Tools to support interaction within online groups

Author(s)

Gaby Lutgens (Learning Lab Universiteit Maastricht)

Type

Domain specific

Submitted date

2004-06-16

Summary of the ratings

One expert does not really see the relation between the title and the guidelines given in the solution, because it's more a description of guidelines for how you can start up online groups in general, not specifically related to the fostering of trust. A suggestion for a better name for this pattern is: 'Foster trust among online learners'.

The problem consists of two parts: 'how to bring people together'? and 'how to foster trust among a group of people'?, but the first question is focused.

The tips and guidelines which are given in the solution section are usable, but it's not a pattern.

Other members find that the topic of this pattern is described well, but there isn't any information on empirical results. The abstract of this pattern is missing. Further remarks are: The description of the problem is very short, but sufficient and understandable. The analysis refers to a relevant problem. It is understandable and sufficient. In the solution section many aspects are mentioned that are important in this context. They give some guidance what is to be taken into consideration but there are no empirical linkages. The context is clear and understandable. This part has to be filtered for relevant factors (e.g. equality (in access, in contribution), mutually accepted policy etc.), but also elaborated.

It must be clear, if the pattern is applicable to both "groups within courses" and "learning communities".

Information about the pattern "Moderation of an asynchronous on-line group"

Maturity level

🌟

Category

Not available yet

Problem

Experience teaches that a moderator can have a positive affect on the activities and learning results of on-line groups. What should a moderator do in order to facilitate effective learning in asynchronous on-line groups.

Analysis

A moderator is always acting as a sort of chair and facilitator to a meeting. In different circumstances (dependent of the characteristics and the aim of the group) the focus of the moderator can be more on the learning subject or more on the procedures and behavior of the group. Three key-roles can be distinguished: Organizational. Examples of organizational moderating activities: setting the agenda, objectives, timetable, procedural rules, netiquette, encouraging the participants to introduce themselves, etc. The moderator should be wary of standardized approaches. Every discussion group comprises participants with different backgrounds, learning styles, etc. So, no standardized approach can be presumed to be appropriate for all groups. The moderator should use a diversity of approaches and have a pool of questions and discussion to stimulate the discussion. The moderator should also welcome the unanticipated. Discussion could be unpredictable and moderators should be prepared and willing to leave from the pre-defined track of discussion to follow up discussion threads that might arise unexpectedly. ?social Examples of social moderating activities: sending welcoming messages, thank you notices, prompt feedback, set a positive tone. The moderator should praise and model the discussant behavior bad discussant behavior should not be ignored. Reinforcing and modeling good discussant behaviors, such as by saying, "Thank You" to students who respond effectively online, can be helpful to encourage courtesy and interaction. In case competitive and emotional battlegrounds or highly personal messages will be shared, the moderator should request change (privately) using a written "netiquette" statement to refer to. The moderator should allow participants to exchange private and informal messages. In this way, trusting and social bonds can be cultivated. Of course, there should be a separate virtual place (e.g. virtual café) for such kind of interaction. intellectual. Examples of intellectual moderating activities: asking questions, probing

responses, refocusing discussion. The moderator should read a digest report of the discussion activities of the day in order to check if participants fall far behind. The moderator should also prompt frequently by using private messages to motivate participants to take part in the discussion, to initiate debates, and to make suggestions. The problem is when to use what activities.

Solution

In general all of the activities mentioned above should be performed; how and how often depends on the case. It is not necessary that only the moderator is responsible for all of these activities. It is often possible to delegate part of the activities to group members. This should be agreed on because it has to be clear to every member of the group who is responsible for what. The need for moderating activities depends on: 1.desired learning effects 2.motivation and experience of the learners 3.organization of the group 4.content and form of the tasks. 5.flow of discussion (see above comments about the misbehavior, the diversion from the pre-planned topics, or even the case of having lurkers) Ad 1: If the learning goals an tasks are clearly defined, the moderator has to see to it that the right subjects are treated, and that all subjects are treated. If the learning goals are more open, a more spontaneous development of subjects is possible; the moderator can then summarize the goals as consented on by the group. Ad 2: If the members are very motivated to learn and clearly understand their gain in participating in the group, the role of the moderator can be limited to refocus and summarize the discussion from time to time. If the learners are less motivated, the role of the moderator has to be more complex. He should also try to motivate each individual participant to contribute and collaborate. This is a very important task of a moderator. Ad 3: If the group is structured and organized according to rules and procedures, the role of the moderator is to ensure these procedures are followed. If such rules do not exist, it is part of the moderator?s job to propose them to the group and have them agreed on. Ad 4: A well structured task is easier for the moderator. The structure of the task ensuring that all subjects are covered, the moderator can concentrate on motivating students. The moderator is free to define his/her preferred form of moderation and pedagogical style.

Known uses

Context

References

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Related patterns

More information on relations

-Defining the goal of collaboration -Agreeing on how to collaborate -Agreements on why and how to contribute -Division of roles and tasks -Assessing group processes and products - Active and passive contribution -Lurking -Factors influencing the successfulness of a group for collaborative learning

Author(s)

Antoinette Vesseur (Learning Lab Universiteit Maastricht)

Type

Domain specific

Submitted date

2004-06-16

Summary of the ratings

Some E-LEN members suggest a new name for this pattern: "Moderating on-line group discussions", because the term asynchronous is too specific. Others think the name is clear.

The analysis section includes too much information about context and solution.

Regarding to the solution some experts have problems with the structure.

Further opinions to the sections analysis and solution are:

From the analysis it is not clear why this is problem. Only in the last sentence of the analysis there is a reference to this issue. There it says that the problem is when to use what activities. Some elaboration is missed on this. From the analysis it is clear that there are three key-roles but is not made clear why the question 'when to use what activity' can be a problem.

Moreover, the description of the three key-roles with the examples gives the impression that these were solutions for the mentioned problem and not the solution that was mentioned in the Solution section.

The analysis is very detailed and gives information about different tasks of e-moderation. It describes a relevant problem understandable and sufficient.

The solution gives very good hints, when to use which strategy. So this is a very good way to describe the solution. There are a lot of references named, but are not linked to the text of the pattern. That is why we are not sure whether the guidelines named are empirical based or not. If they are it would be good to indicate explicitly the references, where the information is from. So practitioners could also read these references if they want further information.

The aspects Known Uses and Context are missing.

Information about the pattern "Provide personal identity information"

Maturity level

🌟

Category

Not available yet

Problem

People are not or very sporadic collaborating due to a lack of trust and lack of a mental image of other people they ought to be collaborating with.

Analysis

One of the conditions of succesfull collaboration is the feeling of trust, mutual accountability and common ground between the members of a group. To build this relationship of trust and understanding between people they need to get a feeling and a mental image of the kind of person they are collaborating with. One way to get such an estimate of the person you are dealing with is to provide personal identity information in the collaborative environment. This is a representation of the user, so he/she has a personal identity within the group and one way for members to experience his/her social presence (a sense of a participant being present in an environment) during interaction with this person. In this way everone knows who is responsible for a gvien message or comment. The provided information can be static (fixed) or dynamic ('build' through collaboration processess) and can be created in various ways (e.g.created by the user, created by others, generated).

Solution

Provide static as well as dynamic information on personal identity. This information can be created in different ways. Static information of a person is relatively fixed. Between different collaborational initiatives (groups in time) it can change, due to new experiences a person had. Static information can be presented in different ways, e.g. as a personal profile, with a name, a picture (photo/cartoon), the projects the person participated in, the product a person produced, a description on specific expert knowledge this person possesses, references (job experience and writings), the organisation in which the person is working, hobbies, contact information, membership of relevant communities etc. Dynamic information of a person is 'build' during the collaboration process and has different presentational formats (e.g. pictures, numbers, text) and functions. This information aims to give an overview of the role of the person within the group and thus helps other to get a mental image of the

accountability of the other. Examples of the type of information are e.g. the number of times a person gave feedback, rated relevance of this feedback by other participants of the collaborative environment, frequency of active participation, frequency of non-active participation (e.g. reading), representation of relational information of this person compared to others (core-periphery). An example of this kind of personal identity information is given in eBay, a kind of internet market. Although it can be discussed if this is a community and certainly these people are not collaborating or co-operating, this principle of representing data about a seller to create a feeling of trust by buyers might be transferable to collaborative environments. The represented personal identity information contains static (e.g. name, registration date of membership) as well as dynamic information (feedback of buyers).

Known uses

In support of collaboration: Microsoft's Team and Enterprise collaboration platform contains user profiles which include properties imported from Active Directory, links to documents a user has written, links to team sites a user belongs to, and links a user has shared. Users can customize the site with information about themselves and their skills, their background, and even other personal interests. http://www.microsoft.com/technet/itsolutions/msit/infowork/entcltsb.mspx In support of feedback on people: The Feedback Forum of Ebay is the place to learn about trading partners, view their reputations, and express opinions by leaving feedback on transactions. Such member-to-member comments help millions of buyers and sellers in the community to build trust and share their trading experiences with others. http://pages.ebay.com/services/forum/feedback.html

Context

Applicable to synchronous and a-synchronous distributed interaction in a collaborative environment. Mainly aimed at designers and developers of electronic groupware environments. Especially necessary when people don't know eachother in advance and there are no opportunities to organise one or more face-to-face meetings to get a mental image of people.

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Related patterns

Making online learners trust eachother

More information on relations

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Type

Generic

Submitted date

2004-06-17

Summary of the ratings

The idea for this pattern seems reasonable and the pattern is clearly stated (unambiguous). It is conceptually and explicitly. A suggestion for a new name is: "Initiate collaboration through self-presentation and reputation".

The problem implies that people always should collaborate. They don't do this, "Is that really a general problem?". The stated reason "lack of trust and mental image" don't seems to be a good start.

The analysis section points out the important issues and is well written.

A general question concerning the pattern structure itself comes to mind: The structure of the pattern template places context information at the end of the pattern. However, when reading you typically start at the top. Can the position of the context information be reconsidered?

Conclusion

The evaluation of the e-learning design patterns shows that the patterns still need to be worked on. There are some weak spots in each of them. But over all they are accepted by the E-LEN members as valid patterns. The most important point for revisions is the linkage to research results. The solution parts of the patterns should be based on empirical research findings. In some areas there is a lack of research, so that the patterns cannot be based on the results.

The other points criticized concern details that can be revised easily. Altogether this collection of patterns is a very good beginning of the work in this field.

The evaluation of the patterns could be made more effective, if all members use the guidelines proposed in the evaluation plan to write their contributions. Using an equal schema would guarantee that no important parts are left out and too, it gives the opportunity to give positive feedback as well as critics. So some parts of the pattern might be widely accepted where other parts need to be revised.

In our opinion the patterns proposed in the E-LEN project give good examples how to design an e-learning pattern and give an idea of the width of this work to be done. Patterns can be formulated for a wide range of topics. The way of evaluating the patterns produced could function as a guideline for future pattern developments.

Evaluation of the Organisational Patterns for the Development of E-Learning Centres

The Evaluation plan included in this report outlines the proposed course of action for the evaluation of the Organisational Patterns for the Development of E-Learning Centres. The evaluation could not be made within the duration of the project as the conceptualisation of these organisational patterns was not finished early enough to start an evaluation period before the end of the project. But the definition of these organisational patterns was discussed by a small group of partners of the Project. In regard to that the definition and conceptualisation can be viewed as shared by the partners of the project. Still an evaluation working out concrete advantages and disadvantages of the existing conceptualisation would be desirable. We expect especially interesting points from the evaluation by practitioners, who could give some feedback out of their daily work. Although the conceptualisation is based on questionings of practitioners the repeated questioning on the basis of the worked out concept may bring new aspects into the discussion.

We think that the time consuming questioning of the practitioners very much improved the concept of the organisational patterns. Practitioners could bring in their points of view gained out of their daily work. These valuable practical linkages justify that more time was taken to finish the conceptualisation. Choosing this course of action a high ecological validity can be expected, which is fundamental for the applicability of the organisational patterns in practice.

Evaluation of the Projects Website

According to the task distribution in the application of the project the project partner "NITOL", the association of four universities and colleges in Norway, is responsible for the design, development and evaluation of the E-LEN portal. In this report we delivered preliminary work concerning the evaluation of the website. We suggested different methods that are worthy of consideration and mentioned different criteria. The evaluation itself is the responsibility of the project partner "NITOL". Please look at their report for details.

Evaluation of the E-LEN-Project
Major achievements of the project

One of the major achievements of the project is the research literature based definition of e-learning design patterns. The concept of design patterns developed by Alexander for the field of architecture was transferred in the area of e-learning in school, university and further education. The partners agreed about the main components a valid e-learning design pattern should consist of. These components are:

- Name

- Categories

- Abstract

- Problem

- Analysis

- Solution

- Practice

- Known Uses

- Context

- References

- Related Patterns

The content of these components was defined. For the component "categories" a subdivision was developed in order to organize the patterns according to their application field in a common manner. The E–LEN project community decided to use the following 5 categories to classify e-learning design patterns: Access Patterns, Learning Patterns, Instruction Patterns, Information Patterns, and Administration Patterns. In addition to that the evaluation plan offers understandable and easy to apply guidelines for the assessment of proposals for e-learning design patterns.

In the next step this definition of e-learning design pattern was the main part of some dissemination and was discussed on several conferences and workshops, both for E-LEN partners only and for the public.

The second main achievement of the project is closely linked to the two mentioned above: On the basis of the shared definition of e-learning design patterns proposals for patterns were made and discussed by the partners. The E-LEN partners as well as the public had the opportunity to discuss the patterns on the projects homepage and to rate the proposals by

the "Star System". The "Star System" means that the maturity level of the proposals could be indicated by awarding stars to the proposal.

One star indicates that the proposal is pre-mature, still on research level.

Two stars indicate that the proposal is quite mature, but needs some refinement.

Three stars mean that the proposal is mature and the E-LEN partners accept it as a valid pattern.

During the evaluation process of the patterns each pattern uploaded on the homepage to that date was separately discussed by the E-LEN partners. The results of this discussion are summarized in the concerning evaluation report which is also included in this document.

On the whole 42 e-learning design patterns were developed by the E-LEN network in the duration of the project. We consider this a very good basis for future pattern development and research.

Another major achievement of the E-LEN project is the development of a valid concept for organisational patterns for the development of E-Learning Centres. The main advantage of this conceptualisation is that it is based on questionings of practitioners of this field. This course of action guarantees a good applicability of this concept in practise. This conceptualisation includes the definition of E-Learning Centres as well as the determination of its purposes and goals. Along these guidelines E-Learning Centres could be established in many different fields of application, such as universities, schools, software groups, publishers etc.

The projects website was a frequently used communication platform for E-LEN partners as well as interested externals. It was used to manage the project as well as to make information available for the public.

Besides the evident achievements of the project another outcome should be paid attention too:

The work within the E-LEN network created lots of new contacts to people working in the same research field in different European countries. Several small groups of researchers from different countries worked together on one topic and learned about the points of view of the other partners. Joint publications were written and conference presentations made. The meetings offered opportunities for discussion and new contacts. The E-LEN network will throughout the duration of the project be a communication network that links researchers from different European countries. The continuation of the work on e-learning design patterns that began during the E-LEN project will last even after the official end of the project. New joint projects of E-LEN partners will be started to continue the work in this field. For example the publication of a book on e-learning design patterns is planned by Peter Goodyear and

Simeon Retalis who will be the publisher of this book. The chapters will be written by E-Len members about the part of the patterns development process that they are expert in.

To stimulate and organise the topic specific discussions between the E-LEN members special interest groups (SIGs) have been build. Invited researchers and e-learning specialists were invited to join the SIGs. Many fruitful discussions took place in the separated rooms for each SIG. The discussions were moderated by E-LEN partners. The assignment of the different topics to SIGs also gave the opportunity to organize the e-learning design patterns developed in the same way. They were assigned to one special interest group.

Main difficulties encountered

Due to the cut of the planned budget of the project, several partners were not able to employ people even part-time for the project. To employ people on the base of contracts for work and services was complicated by the delay of the payments to the partners, e.g. the money for the period of October 2003 to September 2004 was available not earlier than in June 2004.

Nevertheless all partners fulfilled their tasks.

Comments about the quality of the project deliverables

The deliverables of the projects are all of a very high quality and they are highly innovative. This is substantiated by utterances from the auditory of many presentations of the deliverables, especially the recommendations for the organization of e-learning centres.

The structure for the representation of e-learning patterns elaborated as a result of the project is comprehensible and there is a high potential of them to become a standard.

The majority of the e-learning design patterns are suggestions. Their validity has to be proven in instructional psychology research. That could not be done as part of the project and it was not an aim of the project.

Quality of the development process for the project

Due to the difficulties concerning the money the process for the project seemed not always to progress at a steady pace. Still at the end of the project there are more than 40 design patterns and sound recommendations for the organization of e-learning Centres in Europe.

Suggestions about the viability and sustainability of the project

The recommendations for the organization of e-learning Centres in Europe are sought after by a considerable number of institutions from different countries even before the final version of the recommendations had been released.

As for the e-learning design patterns a book edited by Peter Goodyear and Simos Retalis (in preparation) will surely disseminate the idea of design patterns. There were also several presentations on international conferences dealing with e-learning design patterns.

To reach a satisfactory acceptance of e-learning design patterns there should more patterns be available. Any recurrent design decision in the field of e-learning should be associated with one ore more patterns. It was impossible to produce so many valid patterns during the two years of the project. Yet the patterns developed are prototypes or samples for a continuing process of collecting, examining and investigating e-learning design patterns.

To reach a high sustainability of the project it seems desirable to initiate a least one project aiming at the development of a kind of electronic performance system for e-learning practitioners. Such a system should advise practitioners in their dealing with e-learning design decisions. At least one project in Germany planned to be started in April 2005 aims to develop such a system using e-learning design patterns as the major output.

To which degree the aims of the project have been reached?

The **aims of the E-LEN project** were the following:

E-LEN intended to provide a robust and supportive environment for:

- creating efficient and effective mechanisms and means for gathering and disseminating know-how, best practice knowledge in the e-learning field

→ This aim was reached by the definition and development of e-learning design patterns, as they integrate best practice knowledge and are an efficient and effective way to disseminate know-how.

- providing guidelines for setting up new e-learning centers

→ With the development of organisational design patterns for E-Learning Centres this goal was also reached.

In order to achieve the aims of E-LEN, the following **intermediate objectives** were formulated:

To establish the necessary infrastructure and organisational structure for E-LEN, both in terms of human resources and technology, so as to build a sustainable network of e-learning centers and experts in the e-learning field. The cornerstones of this structure and infrastructure are:

- the human actors (i.e. leaders in e-learning) involved in this project

- the E-LEN portal where mechanisms for easy online access to E-LEN resources, news and for communication, will be integrated.

- a memorandum about the scope of this network and the participating/membership rules

→ The infrastructure and organisational structure for the E-LEN project was successfully established. The main achievements according to this intermediate objective are the projects website, that builds the platform for the communication between the members and the project meeting, that gave the E-LEN partners the opportunity to come in and to stay into contact with each other.

To provide a guide of best practices in installing and running of an e-learning center in order to help other institutions in creating from scratch new e-learning centers in a systematic way.

→ This aim was reached by the preparation of guidelines for the development of E-Learning Centres.

To provide a series of 'lessons learned' from the application of e-learning and to create a set of organizational, pedagogical and technological implementation 'design patterns'.

→ Within the duration of the E-LEN project 42 design patterns were developed by the E-LEN partners; organisational ones regarding the Establishment of E-Learning Centres as well as pedagogical and technical ones.

To activate initiatives for improving E-LEN's knowledge and understanding of the needs of industrial/commercial organisations that have already been involved, or plan to get involved in the education market. This is to ensure appropriate customisation of the expertise & resources that will be made available via E-LEN, so that they fit well with the actual needs of the organisations.

→ The survey done for the development of organisational patterns for E-Learning centres provided useful information out of the practical field that improved the knowledge within the E-LEN project. On the other hand this survey could be used to communicate the work of the E-LEN network to practitioners.

To attract interest of organisations in the commercial world in financing further E-LEN initiatives and activities, as part of a strategy for continuing the E-LEN network after the end of the Minerva funding

→ Presentations on national and international conferences aroused interest in the work of the project. Practitioners and external experts working in this field took notice of E-LEN's work and some of them got involved into discussions on the projects homepage.

To develop a shared research agenda about open issues about e-learning. Based on this agenda, collaborative R&D project proposals will be submitted

→ The research on and development of e-learning design patterns will be continued by the E-LEN partners. Collaborative Projects such as the planned book on e-learning design patterns will be carried out. The established network of the E-LEN partners will continue to discuss research questions that aroused during the E-LEN project.

To "open" participation in the E-LEN consortium to a wider range of European partners, after having created and documented the a membership registration process

→ The projects website provided the information about the project to the public and opened the discussion for interested external persons. The contributions of E-LEN partners on national and international conferences also provided the opportunity for external persons to become engaged in the topics of this project.

The following **solid outcomes** of the E-LEN project were planned to enhance the distribution of knowledge and expertise on e-learning and the setting-up of e-learning centers.

The E-LEN portal which will incorporate facilities such as:

- Information about the E-LEN mission, consortium, activities & events

- A pool of resources concerning reports, educational tools, evaluation reports, a series of 'lessons learned' from the application of e-learning, etc.

- A joint course catalogue from the partner institutions mainly focused on the effective educational uses of new technolofies.

- Communication and collaboration workspaces (discussion fora, mailing lists, on-line chat, round tables, etc.)

- On-line help desk with moderators about technical and non technical issues on e-learning.

→ The aims for the E-LEN website could entirely be put into practice.

- A guide of best practice for an e-learning center. It will include:

- A survey of existing e-learning centers, their philosophy and organisation.

- Guidelines for installing and running an e-learning center covering administrational, managerial, technical issues

→ The organisational patterns for the development of E-Learning Centres were also provided during the project. The planned survey was also carried out successfully and the results served as a based for the conceptualisation of the organisational patterns for E-Learning Centres.

Dissemination activities about the E-LEN achievements:

- Advertising actions for attracting the attention of potential E-LEN beneficiaries (E-LEN brochure, an on-line newsletter, etc)

→ E-LEN brochures were made and distributed. Further dissemination activities were information on the projects website, contributions to national and international conferences as well as articles published by the E-LEN members.

- A book about e-learning and E-learning centres which will incorporate an evaluation report on the quality and effectiveness of the E-LEN and its activities

→ As mentioned before a book on e-learning design patterns is planned and will be published in the next months.

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