IMPLEMENTATION OF WIZARD TECHNOLOGY INTO THE LEARNING MANAGEMENT SYSTEM OPAL

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Abstract: Although the acceptance of e-Learning systems continuously rises, until now a clear inhibition threshold is recognised by inexperienced and little media-competent users. For the Learning Management System OPAL the problem was analysed under the aspect of user-friendliness. For user-friendly support a Wizard framework was developed and implemented. This enables the integration of electronic assistants into OPAL. Besides, the analysed workflow presents the basis for the Wizard technology in OPAL. To guarantee productive and efficient work for an author by preparing courses in OPAL, the Wizard course preparation is introduced. Afterwards the Wizard for the realisation of electronic semester resources in OPAL is presented.

1 INTRODUCTION

For the wide integration of net-supported teaching and learning scenarios a simple handling of e-Learning applications shows a key place to uses. The up to now high integration effort deters mainly the unskilled user from e-Learning systems. To extend e-Learning systems on a huge number of suppliers and users an automated and comfortable user guidance is necessary. Besides, the offerings are the teachers; they provide e-Learning modules and build these in a system. Users are the learners who use these e-Learning modules. Often the teachers have the problem to integrate their learning content efficiently and certainly into suitable platforms. Various steps are to be processed systematically. The kind of the format of the individual teaching and learning scenario determines the different steps which can become for the teacher the challenge.

On the one hand, to enlarge e-Learning to a huge number of teachers an automated and comfortable user guidance is necessary. Also it is an essential requirement to integrate e-Learning in the conventional university and academic operations. As the first the preparation of courses at OPAL is realised with the help of electronic assistants. Therefore the Wizard technology is implemented with a developed framework. Further the integration of electronic semester resources in the Learning Management System (LMS) OPAL is realised by assistants on the Wizard technology. A semester resource is a list of selected literature, references, papers and so on required for a specific subject during a semester, something like a reserve book list.

The Learning Management System OPAL based on the e-Learning platform OLAT. This is an open source project of the University of Zurich. The Java-based platform was published in 2004 under the Apache Licence 2.0 first. OPAL is used in 11 Saxon universities. The OPAL platform (https://bildungs portal.sachsen.de/opal/dmz/) is provided by the educational main portal Saxony (BPS GmbH). Also it is examined and developed. The web-based application is already used from more than 20,000 university members of the Free State of Saxony.

Figure 1: Logo eLearning platform OPAL.

2 STATE OF THE ART

2.1 OPAL-workflow

The general structure of e-Learning courses is shown with the help of the implemented flow in OPAL. The course organisation occurs in meta information,

structural information and concrete contents. Information like course title, course type, author, validity of the course is to be deposited at meta information. Afterwards the structural information is to be fixed. The linking is carried out by topics and sections. Usually this happens in tree structure as a Tabel of Contents. Besides, the concrete content serve as sheets of this content tree. Finally it is a matter of generating the concrete contents to the suitable structural element. As content pages of the e-Learning topics are to be understood. Therefore every page exists of elementary objects like text, pictures or test modules and so on. It is commonly to specify the arrangement of the objects with templates.

A Wizard (also named electronic assistant) consists like the workflow of several steps of the workflow. If all actions of one step are worked on, the forwarding occurs to the next step. If the last step is finished, the task is finished and a result is visible, e.g. building a new project or class. A Wizard simplifies certain functions for the user. For example, the Appwizard in Visual C ++ is used to build a new project or a new classes.

2.2 Semester Resources

The university libraries provide with the semester resources specific literature to the lectures of the professors. Contents of semester resources reach from well-chosen books, magazine articles and extracts about important internet links, statistics up to own materials of the lecturers.

Therefore students find the literature to the lectures clustered at a central location. An electronic semester resource provides the teaching materials and working materials on-line. Generally configuration and type of use of the classical semester resource and the electronic form is the same.

However, the management of on-line materials offers varied possibilities: a list of the relevant books with linking of the results in the library catalogue, magazine articles or book chapters ready for printing in the pdf-format, internet links with commenting as well as specific files of the lecturers.

3 IMPLEMENTATION

There are two ways to integrate Wizards into the existing platform OPAL. It can be integrated directly into the platform or the Wizard can be implemented as independent component outside the LMS OPAL

platform. For implementation as an independent component an interface must be defined for the communication of Wizards and OPAL. Thus no standard interfaces are defined for Learning Management Systems. The defined e-Learning protocol SCORM serves exclusively the description of learning contents and so it is not of relevance.

As an alternative solution Wizards are to be implemented directly in the Learning Management System OPAL. So the Wizards are optimally adapted to the existing infrastructure. The user remains in the known OPAL environment.

3.1 Wizard Technology

With the Wizard framework a defined frame is developed for the implementation of Wizards in OPAL. Therefore further Wizard components can be added simply and efficiently to the system. This is the basis for a user-friendly realisation of course preparation and for the realisation of electronic semester resources in OPAL. The Wizard framework is integrated as an extension into the OPAL system. Extensions follow the character of the plugin concept of OLAT.

The wizard components are implemented generically. Because OLAT as well as OPAL follow the Model-View-Controller architecture pattern, this is also implemented in the Wizard framework. As in the state of the arte already described workflows provide the basis for Wizards. The Wizard controller reads all registered workflows and present them on an overview side in the author's area of OPAL. For every workflow the Wizard controller generates a workflow manager. This workflow manager controls and processes the actions of the workflow.

3.2 Wizard for Course Preparation

Five steps are developed and implemented for the easy preparation of a course in particular for author beginners. With this Wizard only the course preparation is realised. Therefore no renewed flow occurs for the course. Aim is to deliver a ready-to-use course with some creation options for the user as result. The Wizard encloses the categories course preparation and authorisation management. By course preparation with the Wizard a defined clear choice of possible modules is given for the course. Herewith the clarity should be guaranteed for the user. Therefore it should be made sure that the teacher is not overwhelmed. Because of non-existing experience at the beginning of the work with e-Learning courses, it is not obvious which

modules are important or make sense. Therefore the preselecting of modules is an efficient simplification for the new user.

The second category shows the authorisation management. The user can fix easily by checkboxes for whom the course is visible and which modules may be used.

In the first step the author is asked to give a title to his course and to provide a description. If this step is completed the forwarding to the next occurs. The author can choose the modules that should be part of the course, using checkboxes. Besides, only a selection of all possible modules available in OPAL is indicated. Therefore the author prepares easily a course with necessary basic modules without deep study of all available modules in the OPAL platform. The selection is limited to the modules information page, registration, download area, forum and contact form.

The content to these modules is completed after the end of the course preparation with the established operations in OPAL. If registration was marked in the checkboxes, in a next step detailed options can be set. In the chronologically described sequence the following points are to be worked on. A number of learning groups is to be defined for this course. The number of participants is based on these groups. Finally it is asked via a checkbox whether prospective learners for the group are indicated on waiting lists, moving up or unregister are possible. By the treatment of the activities the author reaches the next step, the access configuration.

If no registration was selected at step two the author is routed directly to the access configuration. With access configuration also the visibility of the course is fixed. With checkboxes access and visibility the author can choose between „access also for guests", „only for university members" and „access only for enrolled participants".

With "access only for enrolled participants" exists also the possibility on carrying out a specific access configuration for the course modules. As last step a final page is shown where tips are presented how is to be continued further and where further and continuing information is to be found.

3.3 Wizard for Set Up a Semester Resources

The Wizard is directed to users who want to provide an electronic semester resources in OPAL. It is specially designed for lectures and library employees. Basic function of this Wizard is preparing and arranging the course electronic

semester resources in OPAL. In OPAL the department and chair structure of the universities already exists. Therefore the course electronic semester resources must be provided and be integrated in the existing hierarchy.

The Wizard encloses four steps. At the beginning the course title and a short description are to be written. Hereby the lecturer can give a detailed specification of his semester resources (content, outline, application). If this step is completed the Wizard proceeds with the next step. A page of information is indicated. The page contains the information for the author that is provided as result of the Wizard a course with the modules "Download" and "Link List". The module Download serves the file upload and with the module Link Lists provides internet links and links to library catalogue including comments. Therefore a course with the necessary basic modules is provided for the realisation of an electronic semester resources without confronting the user with the extensive course modules in OPAL. In the following step links can be put on the Link List. It is to give a free text, the link name, and the URL.

In the final step of the Wizard the classification occurs in the OPAL course catalogue.

4 RESULTS

After the implementation of the Wizard framework and the Wizard for course preparation, an online survey was carried out by the authors of courses in the LMS OPAL. The aim of this survey was to receive a rating from beginner authors of the support in form of a Wizard. Opinions were questioned in the areas usability, structure, manageability, functionality and completeness of the Wizard. The evaluation of this survey has clearly shown the need of such a user's support.

A short time after the introduction of the Wizard for course preparation to OPAL, 41% of all new provided courses have been already prepared with the assistant for the course preparation. Therefore almost half of the authors in OPAL use the introduction the Wizard for preparing a new course since them. The online survey was anonymous and results are outlined below:

- The answers with regard to usability, structure and manageability of the Wizard illustrate that this is developed in a user-friendly way and simply to use. 52% are pleased with the usability of the electronic assistant and 24% reviewed the Wizard as easy and intuitive.

- For 70% of the authors the course preparation assistant provides all the needed functionality.
- 40% confirm the efficiency of the Wizard by the preparation of courses and 53% find that with the support by an electronic assistant the time for preparation of courses in OPAL was optimised.
- A upgrading of the Wizard technology, for example the support of other functions in OPAL with Wizards is wanted by 57%.

Furthermore, the advantage of the Wizard electronic semester resources will be described next. Aim of the implementation a Wizard for electronic semester resources to OPAL was the central grouping of net-supported services of the study life like library services. Also the integration in the learning platform enables to inform about updates and changes in the semester resources by RSS-Feeds.

The avoidance of the double storage of data and information offers an essential advantage. The benefit of effectiveness for the lecturers or library employees is to handle and control only one system. The access to OPAL via Shibboleth authentication guarantees the password-protected access to the electronic semester resources with the login of the university computer centre. Therefore this avoids additional access data for the user and ensures the additional benefit of the system by user-friendliness.

With the centralisation and grouping of these services in an e-Learning platform an efficiency benefit is reached by the user like lectures and library employees.

A high degree of user's support shown at the example of the Wizard technology is necessary to meet basic acceptance problems and inhibition thresholds in use of e-Learning platforms like OPAL. The Wizards serve to reduce uncertainties by the use of electronic semester resources in OAPL.

5 CONCLUSIONS

In form of the developed framework for implementing electronic assistants in the LMS OPAL the implementation of the Wizard technology was introduced. Besides, the Wizards for preparing a standard course and for integration the electronic semester resources in the e-Learning platform OPAL were described in detail. The developed assistants are integrated directly into OPAL and are available for all Saxon universities who use OPAL as an e-Learning platform.

With integration of electronic semester resources in OPAL an intensive involvement of library services occurs in the e-Learning platform. The acceptance of the e-Learning platform can be raised by the introduced Wizard technology. There is a reduction of inhibition thresholds to e-Learning and according to that the e-Learning system, too. Because of teachers and learners were satisfied with the results, the developed assistants will be rolled-out not only within the Chemnitz University of technology but also across Saxony.

A high degree of user's support, like at the shown example of the Wizard technology in OPAL, meets the basic acceptance problem and inhibition thresholds in use of e-Learning platforms. The Wizards serve to reduce uncertainties by the use of e-Learning offers at the platform OPAL and electronic semester resources in OAPL. Therefore a productive and up-to-date work is guaranteed.

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