FRENTIX

University of Zurich

OLAT 5 - Functional Survey

http://www.olat.org - 9.2007 vv2.2

Content

OLAT 5 - Functional Survey

OLAT means "Online Learning And Training" and is a web-based Learning Management System (LMS). This software has been developed at the University of Zurich since 1999; it is used as a strategic LMS on campus. Given that the Apache 2.0 open-source license is respected you can use this software at no charge and modify it according to your needs.

OLAT has been developed with regard to its use on campus in a heterogeneous environment. As a result of this wide range of requirements OLAT offers a high-grade modular architecture that is easily adaptable as well as upgradeable. OLAT furthermore supports common e-learning standards such as IMS Content Packaging (IMS-CP), IMS-QTI or SCORM.
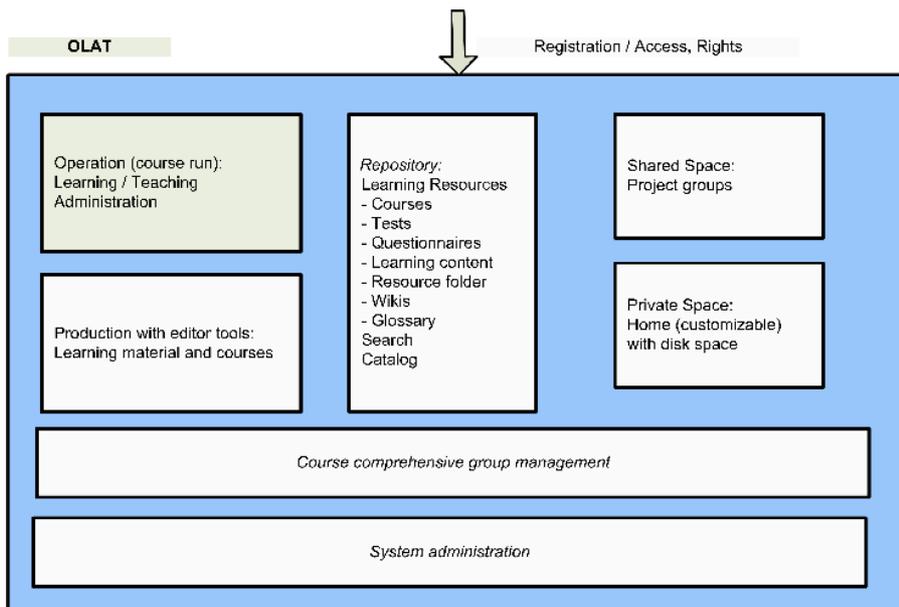
The LMS OLAT comprises a flexible course system in addition to various features regarding campus management--whether course independent or course comprehensive. These features include in particular a general management of learning resources such as cataloging or the provision of editing tools for tests, questionnaires and courses.

Further important aspects of OLAT are the following:

- Support of collaborative processes in groups
- Groupware tools such as discussion forum, chat, calendar, Wiki, e-mail forms and storage
- Didactic freedom within the course system by means of flexible applications regarding the following course elements: structure, single page, external page, Wiki, IMS-CP and SCORM learning content, test, self-test, questionnaire, assessment, task, file dialog, enrollment, contact form, forum, and folder
- Notification service via e-mail or RSS
- Personalized interface that is easy to use
- Multilingual user guidance (German, French, Italian, English, and a lot more)
- Connection to external information systems such as SWITCH AAI (Shibboleth)

This document introduces you to the most important features of OLAT 5.x. The list above is not exhaustive, however, it serves to provide an insight into the functionality of the LMS OLAT.

OLAT		Registration / Access, Rights

Operation (course run): Learning / Teaching Administration	Repository: Learning Resources - Courses - Tests - Questionnaires - Learning content - Resource folder - Wikis - Glossary Search Catalog	Shared Space: Project groups
Production with editor tools: Learning material and courses		Private Space: Home (customizable) with disk space

Course comprehensive group management

System administration

Schematic representation of the system's most important features

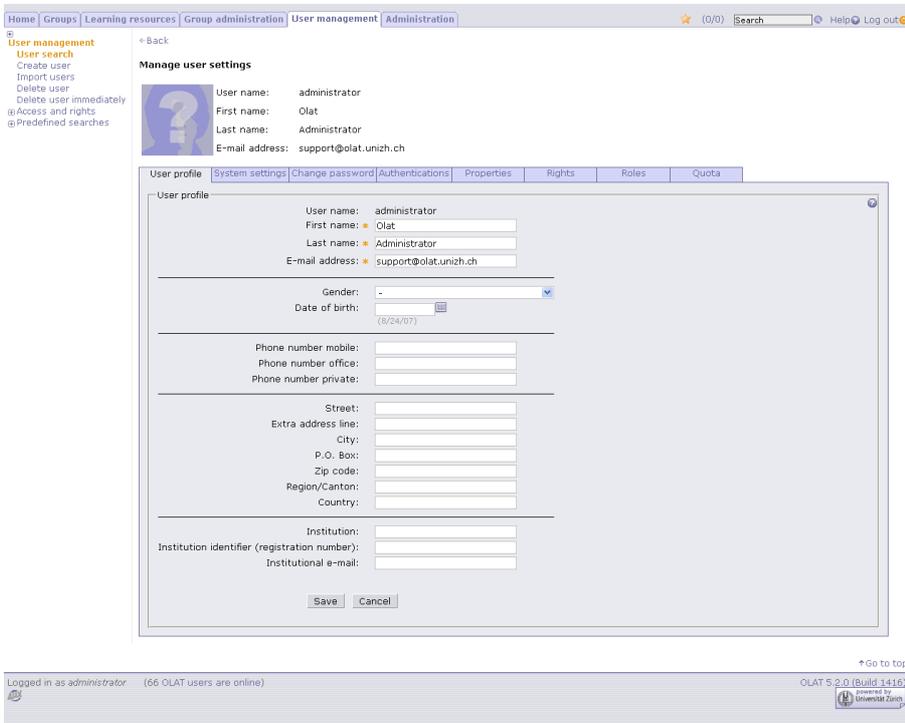# 1.   Campus Management and Administration

1.1.   User Management

Administration

Users can be registered individually by authorized persons or can be imported by means of Excel files. If you use a connection to external systems via Shibboleth protocol (an Internet2 standard regarding shared authentication and authorization) you will not have to enroll users manually. They will be registered automatically during their first login. Further integration possibilities such as LDAP are easily implemented.

Users dispose of different configuration options, a profile as well as the allocation to system roles. A search form helps you to look for users within the system before manipulating them.

Users who have not logged in for a predefined period of time can be deleted automatically.

User management: adminstration of users

OLAT System Roles

OLAT is a system based on rights and provided with several hierarchy levels. Users have those functions at their disposal they are authorized to in a given context. In OLAT we distinguish between the following system roles:

Guests: They are anonymous users with only limited rights. Guests can neither adapt their user interface nor take a test nor contribute a forum entry.

Users: OLAT users can adapt their user interface according to their personal needs as well as start a course as participant.

Authors: They can create, copy, archive or delete learning resources in addition to the rights ordinary users have.

Group Administrators: Members of this sysem role can manage learning or right groups course-comprehensively in addition to the rights ordinary users have.

User Administrators: They can generate or import new users and allocate roles.

Administrators: They are entitled to implement administrative activities regarding the entire OLAT system in addition to the rights of all other system roles.

Course-Comprehensive Group Management

Groups can be managed within a course or they can be managed course-comprehensively. It makes sense to manage groups within a course if users register by themselves or if a course owner assumes this duty. Course-comprehensive groups, however, come in handy if your participants are the same year after year in order to attend one course after the other. You can assign course-comprehensive groups to any amount of courses; groups within a course can only be used in that single one. Course-comprehensive groups can also serve to map administrational or organizing structures. These groups will then be employed either in all courses or in only one portal course.

The chapter "Collaboration" gives you further details regarding groups in OLAT.

1.2.   System Administration

System Information

Administrators have access to all technical information regarding the system; they have access to the list of users online along with their precise session data; they can also consult problem reports. System reports can easily be communicated within the entire system, e.g., in order to inform users of an upcoming server maintenance or to point to new features.

Quota Management

The OLAT folder concept used throughout the system holds limited storage capacity (quota). Administrators can modify this quota for each folder according to their needs.

Translation Tool

By means of the Online Translation Tool you can easily modify texts of the OLAT user interface. You can also add a new language to that tool.

Notifications

Every night OLAT sends you an e-mail regarding news. Administrators can also send such notifications individually.

Full-Text Search

The administration page of the full-text search gives information on the current state as well as on parameters such as index size, indexing interval or amount of queries. This index can be updated any time by hand, however, such an update generally takes place within a predefined interval.

Monitoring

The so-called monitoring serves to check critical values within the system such as number of users online, CPU load, memory within the Java VM, memory regarding the operating system, number of users and courses, number of queries processed simultaneously, or network availability. If predefined limits are exceeded, you will be notified via e-mail.
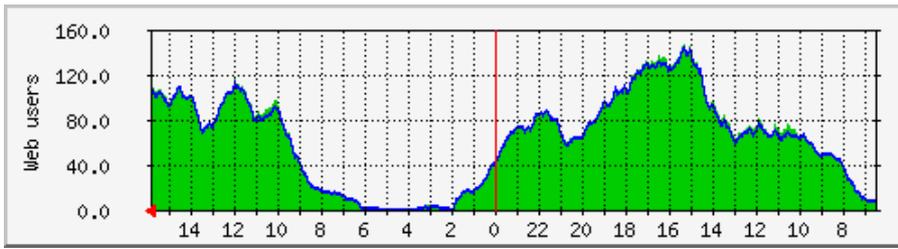
Display of how many users are currently logged in

Monitoring is not a feature of OLAT but an external tool to be installed on the server.
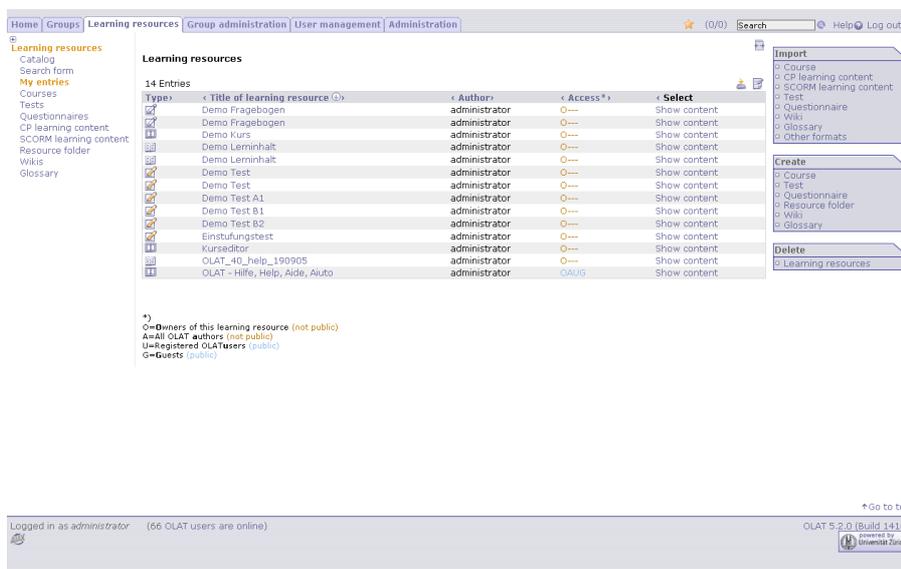
2.   Learning Resources

2.1.   Repository (Storage)

In the repository of learning resources authors create courses, tests or questionnaires; here they can upload standardized learning contents (e.g. IMS Content Packaging or SCORM). Other learning resources are resource folders for documents to be implemented into several courses, Wikis and glossaries.

Depending on the respective access right, either owners of that resource or system authors or all users can get access. Another option is unlimited access--even for guests.

All learning resources contain meta data (such as name, author, description, type) that can be searched for specifically.

Repository of learning resources: display of My Entries

Learning resources that have not been used for a predefined period of time can be deleted by administrators.

2.2.   Catalog

The catalog is structured hierarchically in compliance with a given organizational structure. Authors integrate those learning resources to which users have access into the catalog's structure at the adequate place.

A catalog that is well built and tended mirrors the courses offered on campus and can therefore substitute an ordinary university calendar or site map. It can also be used to represent a syllabus or curriculum.

2.3.   Import/Export

Learning resources can be exported and re-imported into another OLAT installation. This mechanism allows for the creation of general course templates that can be later on exchanged among course authors.

2.4.   Test Editor

The integrated test editor allows you to create even complex tests or self-tests simply and safely. Tests and self-tests are saved in the stardardized IMS-QTI format and can therefore be used elsewhere after exporting them. It is also possible to create tests by means of external tools or other learning platforms and use them afterwards in OLAT. Those other systems only have to support the IMS-QTI standard version 1.2.1.

The internal editor allows the creation of questions such as single choice, multiple choice, gap text, and K-Prim along with feedback and hints. There are several possibilities to configure repeatability, time limit and score. Questions as well as predefined answers can consist of text and media files such as images or movies.
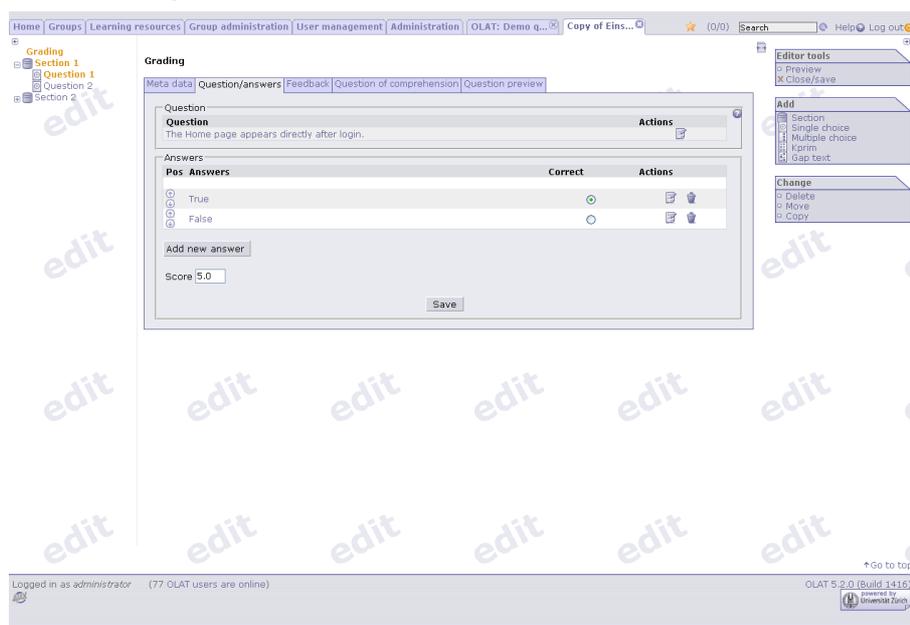
Editing single-choice questions within the test editor

Tests are generated via the repository in learning resources and can therefore be used in one or more courses as tests or self-tests. Their detailed results are saved as text files and can be accessed by means of SPSS or Excel for further interpretation.

2.5.   Questionnaire Editor

The questionnaire editor is based on the test editor's technology. It allows you to create questions such as single choice, multiple choice, gap text, and essay.

Questionnaires are developed in learning resouces as well. They can then be used in several courses. Their results will be saved as text files and can be accessed by means of SPSS or Excel for further interpretation.

3. Course System

3.1. Course Editor

Concept

The course editor is based on modularity. A course author builds his/her hierarchical course structure on so-called course elements as well as on visibility and access restrictions; that structure should mirror the preferred didactic concept. By means of the given elements you can easily prepare basic courses including some HTML pages, a few PDF files and a discussion forum. Or you can create more complex courses by adding learning content that depends on the score of a previously taken test. Further examples are role-playing, problem-based learning or group puzzles.

If you edit a course it will be modified by means of a working copy of the course already saved. All modifications will be published selectively before granting access. Your course can therefore be adapted and expanded during its term.

Learning Content

Whereas the course editor helps you to define the course's structure and therefore the learning progress you will not usually prepare the proper learning content in OLAT. There is a WYSIWYG editor to generate HTML pages (TinyMCE), however, this editor is only meant for ordinary pages such as home pages. Entire scripts should be composed by means of an external editor. A number of editors are suitable for that task, e.g., DreamWeaver or GoLive. Another possibility is the employment of an external Content Management System (CMS) or of XML formats (eLML, Docbook etc.). Traditional learning content consists of texts and drawings without interactive elements such as Flash or JavaScript; it can be put at the participant's disposal via PDF files.

Course Elements

A course author can choose between the following course elements:

Content and Structuring

- **Structure**: structuring element (section, chapter, step, exercise) as well as scoring
- **Single Page**: ordinary HTML page, e.g., used for an introduction or a syllabus, etc.
- **Folder**: file storage
- **CP** and **SCORM** Learning Content: HTML formatted learning content (script); based on IMS-CP or SCORM
- **External Learning Content**: Learning content from another server (e.g. PHP Database)

Assessment/Score

- **Assessment**: Manual assessment performed by coach (true/false, score, text)
- **Test**: Test or self-test based on the IMS-QTI format
- **Questionnaire**: Questionnaire based on the IMS-QTI format
- **Task**: Personal task combined with a drop box to hand in a participant's work along with sample solution and assessment

Collaboration

- **Enrollment**: self-dependent enrollment by participant along with optional wait list
- **Forum**: Discussion forum along with roles to be configured (read, write, moderate)

- **File Dialog**: Possibility to upload files and to offer a corresponding forum
- **Folder**: Exchange of files along with roles to be configured (read, write)
- **Contact Form**: E-Mail form meant for getting into contact with predefined persons
- **Wiki**: Collaborative tool to simplify the creation and linking of content; can be used as CMS/ knowledge management.

Visibility and Access Restrictions

By configuring restrictions regarding visibility and access you are able to control the learning progress. Such restrictions can be selective or you can combine them with certain dates, group membership, roles, scoring or specific user attributes.
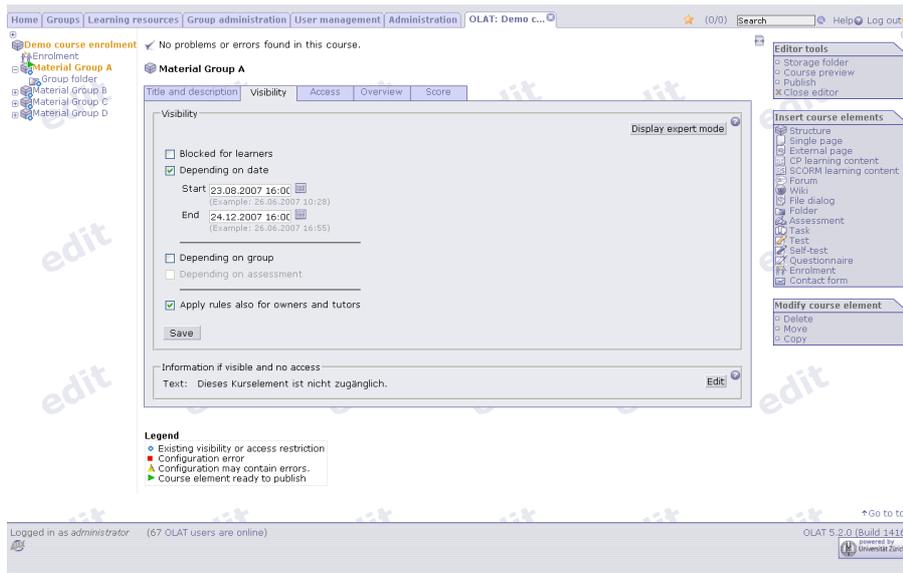
Configuration of a visibility restriction combined with a certain date

Course Preview

In this preview the user's view is simulated in order to be able to test the set restrictions in detail. The course preview comprises the simulation of time, group membership, roles, as well as user attributes.

3.2. Course Administration

Authors have several tools at their disposal in order to manage an ongoing course and its participants. They can use these tools without any restrictions. Coaches of learning groups have access to those persons' data they are responsible for.

Group Management

The group management serves to administer learning groups within a course or course-comprehensively. You are able to copy groups; all settings regarding collaborative tools will be adopted. You can also get in touch with course participants and their coaches via e-mail.

The so-called learning areas serve to integrate groups of the same purpose, e.g., all those groups whose participants have to enroll for or all those groups whose participants have to carry out a collective task.

If you use groups in conjunction with the course element "Enrollment" you will be able to configure the maximum number of participants as well as an optional wait list. As soon as there is space left the first person on that list will automatically be the next group member.

Within a course you can use learning groups for various reasons:

Administration: arrangement in groups or classes for administrative purposes such as participant's support, generation of attendance lists and assessment of participants by means of assessment tools.

Collaboration: arrangement in project groups with the same agenda. The main focus of collaborative processes is the learning target's promotion.

In the chapter "Collaboration" you will find further information regarding collaboration in groups.

Managing participants and coaches of one group

Rights Management

In order to grant certain people access to course tools you have the option to create right groups. The appropriate course tools can be assigned to such right groups; members of that group are then able to use these tools (cp. item "Right Groups").

Data Archiving

Various course data can be stored in a personal folder by means of the so-called data archiving tool. These are in particular:

Test Results: Detailed data of tests in a course. These data can be analyzed further with Excel or SPSS.

Results of Self-Tests: Unlike tests these self-test data are anonymized. You can process them by means of Excel or SPSS.

Results of Questionnaires: Detailed data of questionnaires in a course. You can process these data using Excel or SPSS. Since they are anonymized it will not be possible to identify the person who completed the questionnaire.

Course results: Survey of scores per person in a course. All course elements needed to assess data (test, assessment, task) will be listed here. The gained results can be analyzed further with SPSS.

Log Files: You can dispose of an anonymized user log as well as of a detailed log recording all administrative activities within a course.

Drop Box: Here all tasks of the corresponding course element that have been handed in can be uploaded as ZIP file.

Assessment Tool

You can see and edit the score of your participants by means of the assessment tool. According to the course elements' function there are additional assessment options at your disposal. When using the course element "Task" the coach will get access to the work handed in; when conducting a test the coach will get access to a detailed analysis of that test.

A log file serves to archive modifications regarding scores in order to get a high degree of transparency for coaches as well as participants; its history can be accessed any time. You can also download assessments of an entire course by means of the data archiving tool.

Course Configuration

You can modify settings regarding the entire course by means of course configurations:

- **Log Level**: Level of detail concerning log messages
- **Course Chat**: Available/ not available (optional; only if Instant Messaging is installed)
- **Layout**: Selection of a specific CSS file meant for the course's display
- **Glossary**: Selection of a glossary to be used in several courses
- **Resource Folder**: Selection of a resource folder to be used in several courses
- **Evidence of Achievement**: Available/ not available
- **Course Calendar**: Available/ not available

3.3. Learning

Course Navigation

Course participants can find their learning resources in the learning resource's repository via Search or via the Catalog. After starting the course a new tab will appear in the top navigation; this tab allows you to switch between that course and other areas.

The course menu serves to navigate within a course. This menu mirrors the course's structure considering any visibility or access restrictions. According to the course element's type behind a menu item you dispose of different functionalities.

Display of course navigation and forum

Notes

Each participant can dispose of a personal memo per course. It will be opened in a separate window in order to be able to navigate within a course while writing a memo at the same time.

Bookmarks

You have faster access to a course when using a bookmark. You can start that course from your personal bookmark list (section Home).

Evidence of Achievements

This evidence of achievements summarizes the participant's personal progress. It is possible to determine via the course navigation if a participant should dispose of such an evidence or not.

Chat

By using the course chat participants can communicate synchronously by means of text messages (optional; only if the Instant Messaging system is installed).

Glossary

There are two possibilities to use that glossary. On the one hand you can access the entire glossary arranged in alphabetical order (e.g. to search for a specific term or to print the entire glossary). On the other hand you can use a special glossary mode to search for all existing entries within your learning content; these entries will then be highlighted. If a user moves the cursor to such an entry its explanation will appear immediately. This special mode can be activated as well as deactivated with only one click.

Glossary (integrated mode): the cursor points to the term 'frentix' to show its explanation

Course Calendar

You can dispose of a course calendar where you can see additional calendars of learning groups that are part of that course. Entries of course calendars can be linked directly to course elements.

Learning Groups

If someone enrolls in a learning group a link to that appropriate group will appear. This allows the participant to start that group and cooperate with other group members.

4. Collaboration

A very important aspect of e-learning is the application of collaborative elements in order to join forces from any location, exchange opinions or deal with tasks. In OLAT there are two different ways of collaboration:

Working in Courses : You can integrate asynchronous collaborative elements into the course's structure, e.g., a forum or folder. In this case collaboration is part of a didactic course concept and therefore apparent to participants in the course navigation. Additionally you have the possibility to offer a chat during the course. Communication is then synchronous.

Working in Groups : There are three different groups in OLAT; they will be discussed in the following chapters. All these groups have in common that they offer synchronous as well as asynchronous collaborative tools. Collaboration is either based on the participant's initiative or on the coach's supervision.

4.1. Group Types

Learning Groups

Learning groups are part of courses and supervised. There are two different roles to play: that of the coach and that of the participant. You can use learning groups within a course or course-comprehensively. Coaches of a learning group automatically dispose of administrative tools for that group in order to administer single members of their group or to configure that group's attributes.

Right Groups

Right groups are also part of courses. The course author manages such groups. Without appointing course administrators you can selectively grant someone access to course tools. Right groups can be used within a course or course-comprehensively.

Project Groups

All system users can create project groups (exception: guests). Project group authors manage their groups; they have no relation to a specific course. Project groups are either suitable for persons studying on their own or for collaborative tasks during a project not supervised by a coach.

Project groups and Instant Messaging will be synchronized if this system is installed (optional). Members of a project group will therefore immediately see if other members are logged in.

4.2. Collaborative Tools

All groups dispose of collaborative tools. These tools ca be activated or deactivated individually for each group.

Information

All users will get a simple message as soon as they begin working within their group.

Group Calendar

The group calendar helps you to manage all appointments within a group. Members of a group will see the group calendar on their home page.

Members

You will get a list of participants and/or coaches (according to the current configuration).

E-Mail

You can get in touch directly with coaches and/or participants by means of an e-mail contact form.

Folder

Folders allow you to exchange any data you want. There is a ZIP function to upload zipped files and unzip them on the server. You can also merge several files from a server to form an archive before downloading them as a single ZIP file.

You can be notified about folder modifications via mail or RSS (cp. "Notifications").

It is also possible to install folders by means of WebDAV on your desktop serving as network drive. This allows you to work with files as if those were stored on your local hard disk (drag&drop, double-click etc). HTML documents can be edited immediately by means of the integrated HTML editor.
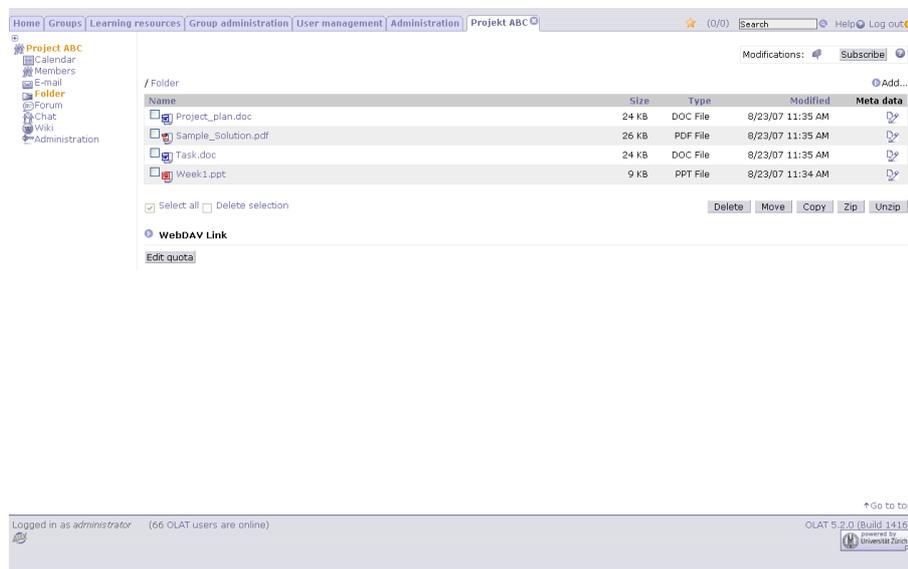
Documents within a group folder

Forum

The forum is the place to raise as many topics as you wish. The overview informs you on subjects with new entries not read yet. You can read those entries one by one or all at once. In addition to the name of the author you will see his or her picture if available. By means of a link you can get more detailed information on that author or you can send a private message.

The forum supports the Wiki syntax in order to make formatting easier. You can attach any number of documents to an entry.

There is the possibility to be notified in case of modifications regarding a forum via mail or RSS (cp. "Notifications").

Wiki

The term "Wiki" is Hawaiian and means "fast." On the Internet, Wiki stands for a Content Management system that is easy to use. Anyone can create, edit or link pages in order to collaborate and gain more knowledge. The most famous Wiki is Wikipedia, an encyclopedia created collaboratively. By means of the group Wiki any group can develop its own knowledge network.

Chat

If the Instant Messaging module is activated a synchronous collaborative tool (chat) will be at your disposal. This chat is based on the Instant Messaging standard Jabber.

5.   Personal Area

5.1.   Home

After the login every user in OLAT is welcomed by an interface that can be personalized, the so-called "Home". Here you can modify your settings and directly access relevant learning resources via your bookmarks.

Profile, Settings and Password

This profile allows you to adapt your personal data at any time. Additionally there is the possibility to modify your system settings such as language or font size.
Any user can change his or her OLAT password (if available). If the Instant Messaging module is installed you will be able to modify settings regarding privacy protection.

Portal

Your personal OLAT home page is designed as a portal in order to deliver relevant information in compressed form. Since this portal is profoundly modularized you can compile the available elements as desired. You may choose between lists of personal bookmarks, groups, evidence of achievements, notes and notifications, a comic strip alternating daily, the tip of the day, etc.
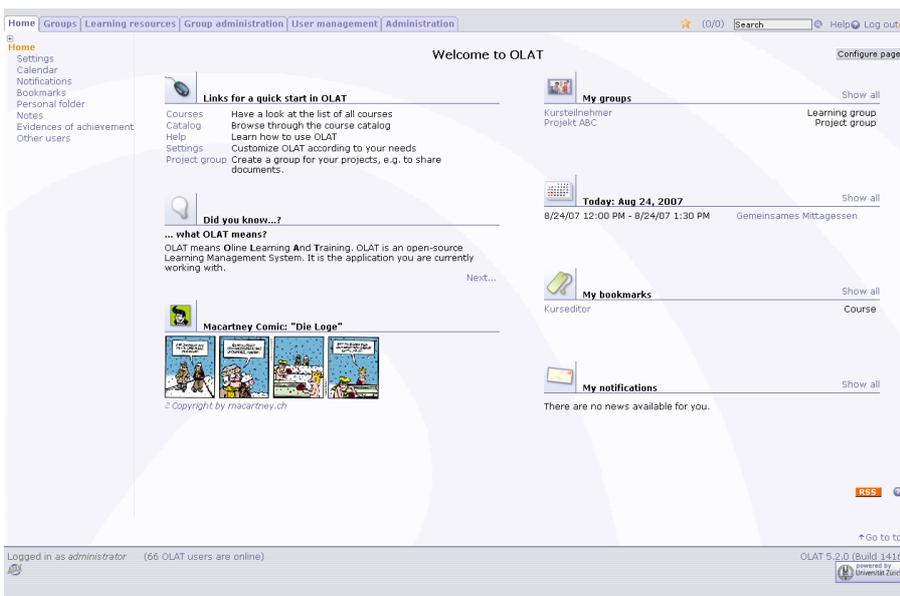
Personal home page

Notifications

Each folder and each forum offers a notification service. If you subscribe to such a service you will get the news on your Home. You can aslo read your information externally by means of a personalized RSS feed. In addition you will get an e-mail every night if there are any modifications.

Calendar

The personal calendar helps to keep track of your personal entries. Other users will not be able to get access to those private entries as long as you do not mark them explicitly as "public." Along with your private calendar you can see your group or course calendar in an overlaying view.

Bookmarks

You can create personal bookmarks for learning resources. On your Home there will be a bookmark list in order to get easy access to a course, etc. Bookmarks can be deleted or added at any time. If you want to use those bookmarks externally they are at your disposal as RSS news feed.

Folder

The personal folder serves to upload files to your private area. This can come in handy if you want to access files not only at home but somewhere else as well. You can also access your personal folder as network drive via WebDAV.
The public folder on the other hand serves to store files that should be accessed by other OLAT users, e.g., someone's home page or project results.

Notes

If there are course notes you will see the corresponding list of personal notes in your Home. These notes can be modified or deleted any time you wish.

Evidence of Achievements

You will see any evidences of achievements in your Home if this option is activated in the respective course. Thus you can easily get an overview of your achievements in different courses.

5.2. Visiting Card and User Search

The Profile helps OLAT users to define those personal data that should be accessible for other users in the system. Additionally you have the possibility to present yourself by using a picture or some text. These data form your digital visiting card.
Each user in the system has access to all other visiting cards in order to get more detailed information. It is also possible to access the public folder from that visiting card or to directly get in contact with its owner by means of an e-mail form.

5.3. Chat/Awareness

After activating the Instant Messaging module in OLAT (optional) you can dispose of the so-called awareness function. This means that you will see any time who else is online and working on OLAT. This supports the learning process as well as communication because you will not get the feeling to be the only one "sitting in front of a PC to learn something." Each user has the possibility to get in touch with others and chat.
You can always modify your personal status (available, I'd like to chat, away, do not disturb, not available). As soon as the user takes a test during a course the chat function will be deactivated.
All members of a project group will appear in a separate menu. Thus you can see immediately if persons you want to communicate with are online before contacting them.

5.4. Full-Text Search

The full-text search does not only help you to look for learning content in the repository of learning resources. It also helps you to search for content in a forum, in folders, Wikis, CP learning contents and single pages. This is true for courses as well as groups. The OLAT full-text search is also able to

index common file formats such as Word, PDF or Excel. The gained results are restricted according to the respective access rights.

If a query is not successful the system will automatically try to search for similar terms. This feature is known as "Did you mean..." on google.com.

6. Technology

6.1. Architecture

The LMS OLAT applies modern technology and up-to-date resources. It is programmed 100% in Java and can therefore be used along with different operating systems such as Windows, MacOSX, Linux, BSD, Unix or Solaris without further adaption. You can also use various Database Management systems such as MySQL, Postgres or Oracle for the persistence of data.

OLAT uses the Java 2 Enterprise Edition (J2EE) and is based on servlet architecture. The specifically developed Model View Controller (MVC) framework guarantees modern and fast development that is almost flawless; it differentiates strictly between representative logic, operational logic, business logic and data management. In order to attain a high degree of maintainability as well as expandability the developers particularly focus on clean isolation and on good reusability regarding the different software components.

6.2. AJAX Mode

AJAX and Web 2.0 are applications that substitute the traditional concept of web applications based on pages for the concept of downloading single elements of a page selectively. This allows for more interactivity and intuitivity where web applications are concerned. Working with applications gets faster due to reduced network traffic.

OLAT offers a dynamic, system-comprehensive AJAX mode that can also be activated on the user level. All functions in OLAT are also available in the traditional mode in case your browser should fail to support this functionality.

6.3. Accessability

OLAT has realized the general W3C policy in reference to its accessability and is still improving it. Elements of the main layout can now be activated directly via shortcuts (main navigation, menu, content, tools).

6.4. Expandability

The so-called extension points allow you to expand this LMS according to your personal needs without having to modify the basic system. This makes it easier to update OLAT and therefore saves money. Here are two upgrading examples: an additional item in the main navigation or a new course element.

6.5. Adaptability

OLAT is easy to adapt according to circumstances. Its layout and all images are operated via CSS. The appearance of an OLAT installation can therefore be modified by means of one single file.

All text elements used in OLAT can be altered by using the integrated translation tool in order to be adaptable to any specific range of application.