Building Eclectic Personal Learning Landscapes with Open Source Tools

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Abstract

There is an ongoing trend towards modularization of Learning Management Systems and other E-Learning-Applications. Modularization should add flexibility to the previously static environments that have been used for e-learning. This trend concerns both commercial LMS vendors (e.g. the concept of building blocks in Blackboard) as open source developers (e.g. Moodle). Based on the model of the personal learning landscape (see Tosh/ Werdmuller 2004) this paper describes another approach to reach personalized learning environments. Through an eclectic use and combination of different systems and services this paper demonstrates how to reach personalized learning environments with the combination of different open source applications. Software for static content (Mambo CMS) is combined with dynamical systems like b2evolution and Mediawiki. After "dancing the mambo", "doing the evolution" and "hopping on the wiki bus", all systems are connected trough the use of the "magic glue" RSS. Different use cases and a development outlook regarding intersystematic development needs are given.

1. Flexibility and personalization through modularization?

Our Western Society is making a shift to a knowledge society where not static knowledge is important for competency development and job success but access to and renewal of knowledge. Universities have not really targeted this changing way of knowledge renewal as there is still the product and the curriculum in the center of most academic assessment. Besides the certificates and finished papers, students in Universities are learning very much about learning. Through the „product-centered" approach of many course programs students learn to set the focus on the product and not their learning process. This is an unintended and faulse kind of meta-learning. The learning process is in this sense only the way to the product and has no real value in itself. This trend is also mirrored in the tools that have been recently used in academic E-Learning efforts. Many Learning Management Systems (LMS) have been implemented in Universities in Europe, whose main task is the delivery of learning content and the administration of learners. These systems have been criticised from different E-Learning practioners and scientists because of their limitedness in learning action, reflection and communication opportunities (Siemens 2004, Morrison 2004, Schneider 2005). They are mainly useful for passive consumption of presented content and they are not very flexible for different learning activities and learning that is connected to the life of the students. Schneiders coins them to support a „transmissive pedagogy" (Schneider 2005).

To overcome these limitations there was and is an ongoing effort to build e-learning systems out of a modular approach to reach "personalized learning environments". This trend seems to influence either commercial and proprietary system development (e.g. the concept of Building Blocks in Blackboard) or open source products as Moodle or Atutor. Modularization addresses two main problems that most E-Learning-Environments still lack of: There is very less flexibility in functionality and activity possibilities and there is very less scalability in the user interface. Both aspects address the problem of user demands and personalization. But the question remains, how useful these personalization efforts are, when personalization is only the choice of colors and shortcuts to favourite learning objects. Another issue is flexibility for the future. If you build e-learning environments from one vendor or on just one open source product you are either dependent on development plans of the vendor or an „autopoietic" open source community. Morrison keeps warning us against possible "locked-in-syndroms" everywhere if Universities have the intention to build a monoculture of tools that is based on just the one-and-only Learning Management System (Morrison 2005). The modularization concept does not really solve the problem of offering flexible and unique learning environments because it is quiet to narrow. An alternative to this kind of infrastructure

for learning and competency development is the concept of the personal learning landscape. The personal learning landscape is a special kind of e-portfolio which I like to introduce in the following chapter.

2. E-portfolios and the Personal Learning Landscape

The portfolio concept is not a new concept. Indeed the French teacher Celestine Freinet introduced them in the late twenties of the last century in his classes. In the last years seems to be some kind of rebirth of this concept – mainly driven by technological development. According to the European Institute for E-Learning (EifEL) every citizen of the European Union should have his own e-portfolio in the year 2010. The electronic portfolio (e-portfolio) can be understood as a „a collection of authentic and diverse evidence, drawn from a larger archive representing what a person or organization has learned over time on which the person or organization has reflected, and designed for presentation to one or more audiences for a particular rhetorical purpose“ (Educause Learning Initiative 2003). Although research about electronic portfolios has a short history, there are already two development directions of the e-portfolio-concept: „The 'e-portfolio' used for final assessment/ job seeking where the emphasis is on the product(s) and then the 'e-portfolio' used for reflection, deep learning, knowledge growth and social interaction where the emphasis lies on the process“ (Tosh/Werdmuller 2004, 2). They call the second kind of e-portfolio a „personal learning landscape“. Helen Barret differentiates three directions and audiences for the use of an E-Portfolio: Portfolios for Accountability, Portfolios for Marketing and Portfolios for Learning. Portfolios for Accountability are product centered and have the main task to „document and assess the achievement of externally defined skills or competencies...students usually view this type of portfolio as something „done to them“ rather than something they WANT to maintain as a lifelong learning tool“ (Barret/Carney 2005). Portfolios for Marketing are tools for self-marketing of job-seekers. Their aim is to present the applicant in the best position achievable. Portfolios for Learning are – according to the authors – based upon a constructivist model. The emphasis of this kind of portfolios is on the individual learning process, the reflection and new plans for learning. Attwell identifies seven different functions of an e-portfolio for Learning (Attwell 2005):

1.) Recognizing Learning
Learning in a formal environments is usually recognized when pre-specified products are achieved. e-portfolios can be a means to recognize smaller learning achievements.

2.) Recording Learning
E-portfolios can be containers for recording formal assessment through scanned certificates for example. Additionally they can be used to record informal learning activities.

3.) Reflecting on Learning
Reflection is an important part of a learning process. The e-portfolio can be used for private, semi-public or public reflection of this process.

4.) Validating Learning
Validation in e-portfolios can be a self-validation or a validation from other persons. Validation means to „proof“ that learning has happened. This validation can have different forms and can appear in different media.

5.) Presenting Learning
The presentation of learning is important in e-portfolios. This presentation can be used for job application or for academic application. Due to the importance of lifelong learning this presentation can change over time.

6.) Planning Learning
The learning process can be planned with the help of the e-portfolio. The learner can view his personal learning history through his e-portfolio and can view his next steps in personal competency development.

7.) Assessing Learning
Assessing means external control and judgement over the learners achievements.

All these aspects of e-portfolios are important for the learning process and it seems to make sense to develop applications which support them. Tosh and Werdmuller developed an application that stresses reflection and social networking between learners: Elgg is a very flexible tool that supports personal weblogs, tagging and social networking in one application. Although the software is still in its beta-status it has a maturity that is impressing. But there are other options to design personal learning landscapes. Instead of building new applications from scratch, I think it makes sense to concentrate in the future on systematical combinations of existing Open Source tools for learning and competency development. The example of the XAMPP-Server that is used in many schools and Universities has shown that there is an emergent output from this approach. The XAMPP team did not build a new

application but they combined existing solutions (Apache, PhP, MySQL) which are all hard to install and configure for non-technical experienced teachers and users. So they build an easy installation package for different platforms in which these applications are combined. The following concept is based on such ideas of emergent usefulness through combination of existing tools. In the following part I like to introduce a personal learning landscape that is built with the help of three different open source applications.

3. Dance the Mambo, do the evolution and hop on the Wiki bus – and don´t forget the glue

The personal learning landscape is a special type of e-portfolio that stresses the importance of the learning process and serves as a framework to integrate different learning activities. In this part I am giving an example for the conception and implementation of an e-portfolio/personal learning landscape, which is a combination of different open source tools. These tools should support the above mentioned functions of an e-portfolio for learning. In general the personal learning landscape should support and combine the following main tasks: 1.) Presenting static content in a professional online environment where updates are easy to alter, 2.) Possibilities for reflection and peer-discussion for academic and private subjects and 3.) a place for living documents that grow during the academic career. To support these tasks, three open source Content Management Solutions have been selected and should be combined to a coherent personal learning landscape.

3.1 Dance the Mambo

The first thing we need for a personal learning landscape is a place to present static content. You need static pages for the things in life that do not change that often like your CVor diplomas and references. There is a huge amount of Content-Management-Systems to support this part of the learning landscape (Baumgartner & Kalz 2004). In this case I have choosen a system called „Mamboserver“ because of its ease of use and rapid development speed and because of its great community[1]. Mamboserver is a CMS based on PhP/MySQL that is very easy to install and administer. Nonetheless it is very flexible and is can be taken as a good framework to integrate different other tools and services. Mambo has different content types: It can support static content pages and it supports the integration of RSS-Feeds as an own content type. Regarding our personal learning landscape it is very useful that it supports two different WYSIWYG-editors in all content pages, because changing content is easier through these editors than using HTML. As mentioned Mambo should be used to host the static content for the personal learning landscape. So every student can write the C.V. in Mambo, upload scanned references and offer a central contact page. If these static contents should be visible only to specific users, this can be done through the groups-and-access-system that can be easily modified. Mamboservers menus are very easy to customize and different free skins/templates are offered. According to the different functions regarding e-portfolios for learning, the Mamboserver can be used to fulfill different aspects: Its main function is recording of learning and the presenting of learning. Additionally, the Mamboserver serves as a “meta-container” to integrate other tools and services as I will show later.

3.2 Do the evolution

After having implemented the „frontdoor“ of the personal learning landscape we have to think about a place for different dynamic content. There has to be a a place for (peer-) communication, inquiry and reflection in our personal learning landscape. Thoughts are preliminary in the „backdoor“ of the personal learning landscape and peer-communication is important to get feedback. A weblog system seems to be suited very well to support these actions in the learning process. There has been an intensive discussion on Multi-User/Multi-Blog-Platforms in the last months (Farmer 2004, Levine 2005). Regarding Open-Source-Blogging-Platforms Wordpress and B2evolution are two Open Source systems that seem to have the maturity to be suited as a bloghosting basis for many users. Because of some problems with the latest release of Wordpress MU and different personal experiences b2evolution is choosen as the basis for hosted blogging in the personal learning landscape. B2evolution is a multi-user-multi-weblog application with an easy administration and blogging-interface. The software is availaible in 12 different languages and there is a great community working on support, documentation and development. There are different standard functionalities and additional hacks to save the weblogs from spam. The spam blacklist is a very intelligent solution: If there is comment-spam on a b2evolution-weblogs the author can delete this spam with one click and

1 Meanwhile the most Mamboserver developers have decided to do a fork that is called Joomla.

report this spammer to the central spam-blacklist on the b2evolution-server. So all b2evolution-blogs share their anti-comment-spam-blacklist. At the moment, the administrator has to update his local list regularly but automatical solutions are prepared for the next releases. There is additionally a possibility to minimize referer-spam which is another problem for weblogs. A captcha hack for comments is also available. To integrate weblogs sucessfully in an academic environment there are two important requirements: The first one is the autocreation of weblogs and the other is LDAP-support. B2evolution is at the time in the standard release not suited for the autocreation of weblogs but a small hack can add this functionality. Additionally the next release will have LDAP-Support (see the paper of Michael Klebl in this Proceedings) to authentificate students. These aspects have been discussed intensively in the Edublogger-Community (Farmer 2005, Norman 2005). For communication purposes, comments and trackbacks are implemented. There are around 30 skins available that can be modified by the students with a little knowledge of HTML/PHP. Blogging can be used in many different instructional ways – in the case of the personal learning landscape the blogging application is used for reflecting on learning and planning on learning. Blogging as personal public reflection is a good possibility for peer-communication with other students and teachers regardless of their physical presence.

3.3 Hop on the Wiki Bus

So after we have added a weblog for reflection and peer-communication to the personal learning landscape, we like to offer a place for the unfinished texts and the preliminary writings that happen very often in academic education. Because of its development speed and its usability Wikipedias Mediawiki is chosen as the solution for this, but there are many other wiki-clones that could be useful. Mediawiki is developed and tested by the huge Wikipedia community. It is a Wiki system based on Php and MySQL that is very flexible in configuration and adaptation. Mediawiki has a basic WYSIWYG-editor for fast editing of texts. The Wiki can be configured open for editing, open for members editing or completely closed. These different access options can be important if students want to have some privacy in their personal wiki.The Wiki can be used for recognising learning, planning learning and assessing learning. Besides the use of a Wiki for preliminary versions of learning products (papers etc.) the Wiki can be used for knowledge management. So the student can use the Wiki to structure a new „knowledge field“ with the help of a Wiki. In this mode small learning efforts can be recognized in a Wiki and different structuration efforts can be easily managed through living documents. Teachers and tutors can have access to these living documents and they can add comments to the students personal knowledge structuration.

3.4 Fix it with RSS-Glue and add some Fun and Games

Now that we have build a personal learning landscape out of three different open source applications we can connect them through the „magic glue“ RSS. RSS (translated as „Rich Site Syndication“ or sometimes „Really Simple Syndication“) is a standard protocol for content syndication (Richardson 2004). Mamboserver has an integrated RSS-interpreter so that we can add the RSS-feeds from our dynamic applications in Mamboserver. There are many different possibilities to add RSS-Feeds and third-party services to our personal learning landscape. We can integrate the latest posting on the students weblog on the frontpage of Mambo. Additionally we can add the latest changes on his personal wiki implementation and show his last edits. We can add a newsreader page in the menu on which we can show interesting feeds for the student. To offer a little more grade of personalization students can integrate different third-party services to their learning landscapes. Take social bookmark managers like Furl, Del.icio.us or maybe Citeulike for example. If the student is using one of these services for inquiry his latest additions can be easily integrated in Mambo through RSS/Javascript. So they can maybe find other interesting sources for inquiry through their personal profiles. But there are several more examples with which the students can personalize and modify their learning landscape. Take a service like RSS-Weather or the RSS-Calendar. Adding local weather to the personal learning landscape can connect the students „virtual“ presence with their „physical“ presence. There are many more examples that can be integrated in the personal learning landscapes. To reach a real **personal** learning landscape these additional “goodies” are very important because they can be very motivating for students and they can help them to modify and change the style of their landscapes.

4. Inter systematic development needs and problems

There are some problems connected with the proposed concept that has to be addressed. The first thing is the

administration effort. It is much more work to administer and update three applications for every student than to manage just one. Besides the efforts for installation are either high if you have to install three systems for every student. So automatical installation scripts have to be developed that integrate all tools into one installation process. The same problem is with the databases. To integrate the above mentioned tool in a personal learning landscape you have to administrate three different databases for every student. But there are already integration efforts for Mambo/Mediawiki and Mambo/b2evolution so further development could build on these efforts. Another issue is a help system that supports students in configuring and modifying their personal learning landscapes.

5. Take open source for education on a new level: Rip, Mix and Burn

As I have shown in this paper there is a potential in combining different Open-Source tools to build valuable applications for learning, inquiry and assessment. Two different ways of e-portfolios have been identified and the idea of the personal learning landscape seems to be suited for a focus shift from the product to the process of learning in Universities. With a small amount of work, the proposed concept should be realized in the future in a way the XAMPP-project has done it. They brought a really important added-value for non-technical experienced educators by combining everything you need to run for an own webserver (Apache, MySQL, PHP) and integrate it in an own easy-to-install-application. My conclusion for the Open Source Movement in Education is that we have to concentrate on the next development level of Open Source Software: This is the „Rip, Mix and Burn“ opportunity that is the most important difference between Open Source and proprietary software. The real important issue is not about pricing and cost of ownership but it is simply about freedom and flexibility.

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