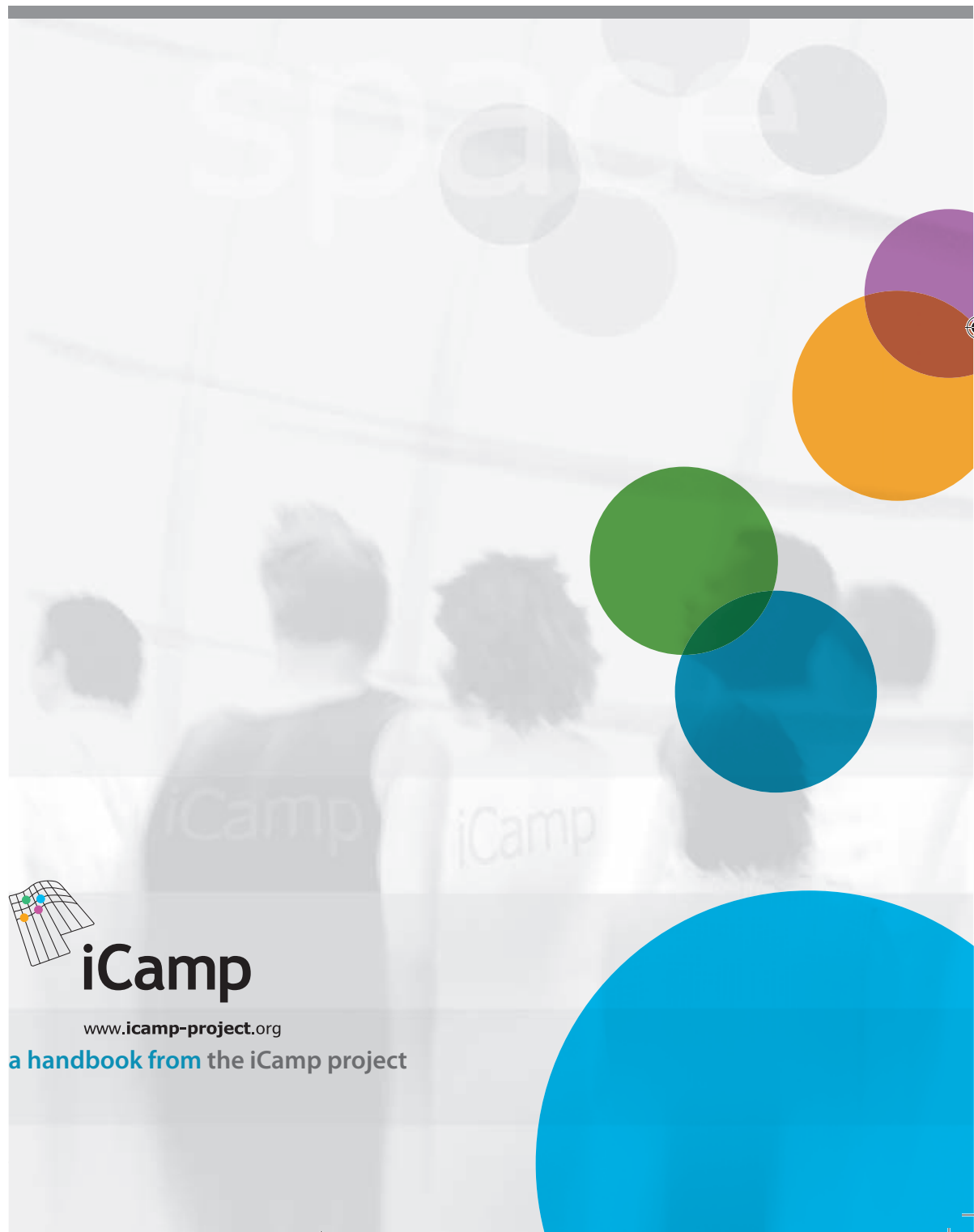


How to Use Social Software in Higher Education



iCamp

www.icamp-project.org

a handbook from the iCamp project

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FOREWORD

This handbook is a result of the iCamp project, a three-year EC-funded research project that set out to encourage innovative educational practices within European higher education.

iCamp's vision is to support competence development in self-organizing intentional learning projects, in collaborating and in social networking by making systematic use of interoperable, networked tools and services.

When we started the project about three years ago, the attitude towards Social Software was rather different from today, both at European Higher Education Institutions as well as amongst the community of TEL (Technology Enhanced Learning) researchers. People were suspicious of this technological shift and many regarded it as just another gimmick, which would fade away within a few years. Now it seems that these critical voices have been proven wrong. Social Software technologies are here to stay and have already started to penetrate into educational landscapes. iCamp has been one of the pioneers in promoting the use of Social Software within higher education.

Our project has been strongly motivated by the three trials that were performed in the "wild" world, where we were facing many challenges that had nothing to do with our core research questions, being largely concerned with organizational aspects. We experienced some highly restrictive institutional policies with regards the use of technologies, which in our opinion hinder any attempt to educate autonomous and self-organized citizens. The democratization of institutions remains an important move that we need to take in Europe and we believe that the iCamp approach may be one small step in this process.

iCamp promotes the effective integration of emerging Social Software technologies within the changing landscapes of European higher education. This handbook illustrates possible strategies for making good use of these technologies, guided by a constructivist pedagogical vision.

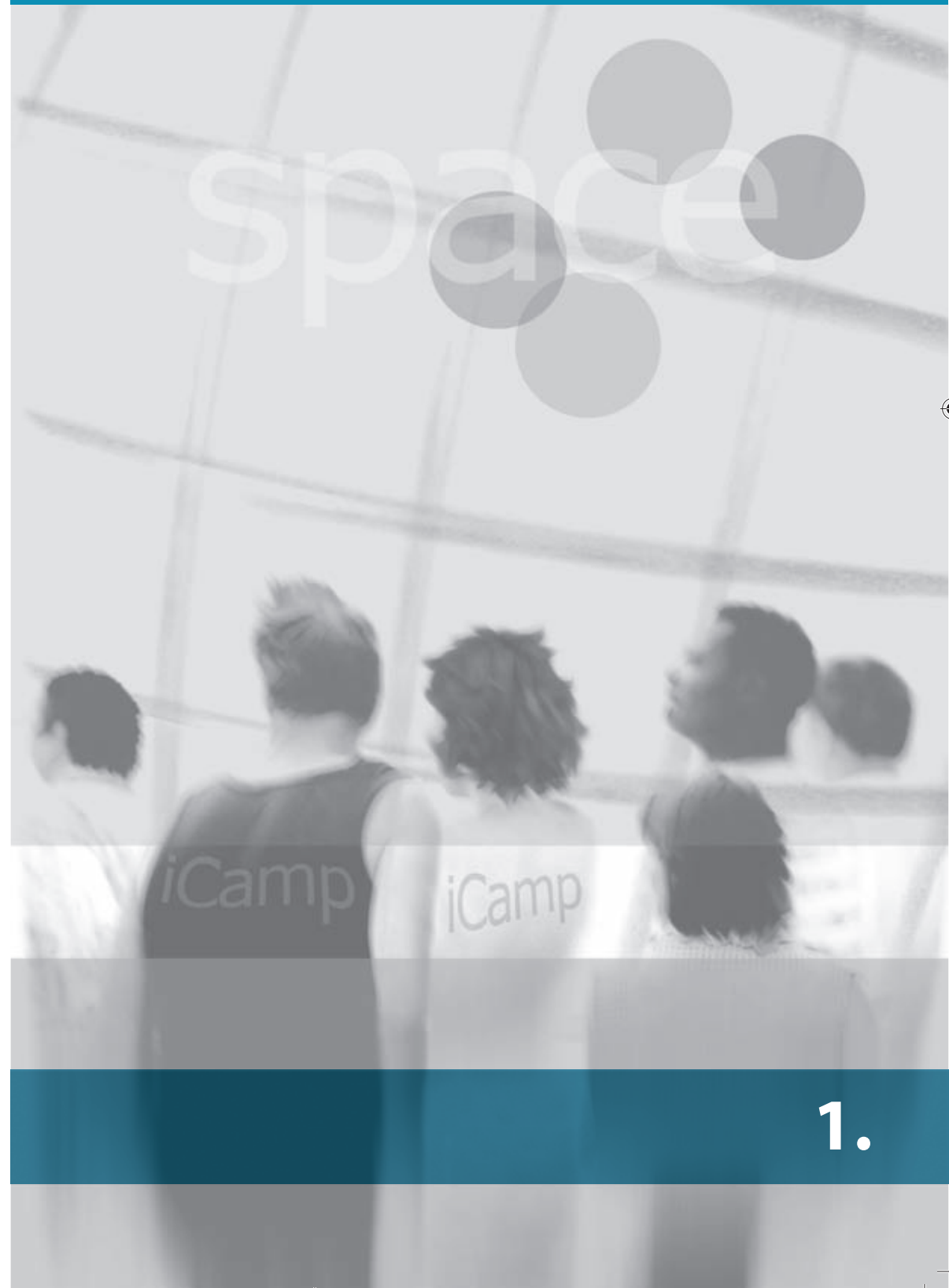
I would like to take this opportunity to thank everyone who has contributed to the success of iCamp: our team members in the consortium; the European Commission and, in particular, our project officer, who always believed in our project; our cooperation partners in the trials; our external reviewers and anyone else who has worked with us on this project.

We hope that you find this handbook useful for your practices and that it can encourage educationalists to experiment, engage and become excited about Social Software!

Barbara Kieslinger



INTRODUCTION



1.

1. INTRODUCTION

[Fridolin Wild, Karolina Grodecka]

Learning environments have probably been used to facilitate human change ever since 'homo habilis' started using more sophisticated stone tools at the beginning of the Pleistocene, some two million years ago. Most probably, they have existed for even longer than that. More recently, however, an increasing number of these learning environments have been transmogrified into digital forms. Today, not only formal education institutions, but most other work places too, are equipped with at least some kind of tool that brings people and content together and provides learning activities to help people construct and process information and knowledge. And, with a serious history of almost half a century, science and practice have been discussing how to bring personalization – through digital means – to these environments.

However, something has changed over the years. With facts becoming outdated and irrelevant within a matter of years, the setting-up of learning networks and environments has become far more important. Today, learning to learn may be considered to have greater impact on future experiences than the mere (re-) construction of domain-specific knowledge itself. Consequently, the learning environment (i.e. a network of people, artefacts, and tools (consciously or unconsciously) involved in learning activities) is no longer considered to be the precondition **for** but an outcome **of** learning. Learning how to initiate (or identify), maintain (or support), and utilize these learning environments is a key skill for successful individuals in the 21st century. Moreover, striving for performance we seek to achieve this almost effortlessly. Social Software can be a solution for just that. 'Social Software' facilitates the building of relationships between individuals and supports them in their conversational interaction, as a scientist would put it. In other words: social software supports social networking and individual publishing and encompasses tools such as blogs, wikis, social bookmarking systems, feeds, and internet telephony, all of which are widely used for working, socializing, and virtually any other aspect of modern life. We believe that these innovative technologies have the potential to change the way people learn.

Openness and free availability allow for collaboration and social networking across national borders and disciplines. This new situation creates both opportunities and new challenges for education.

The aims of this handbook

This handbook attempts to make the results of three years of work within the specific, targeted research of the iCamp project accessible. In the European Commission funded iCamp project we have investigated how Web 2.0 technologies can be implemented in higher education settings. More specifically, we have focused on a setting in formal higher education in which actors are distributed geographically, culturally, and across disciplines and have designed an approach through which learning processes in this setting can be supported with social software.

In preparing this handbook, we chose to arrange the tools according to the learning activities they support. Each chapter should be read in the context of these activities. Our aim is to provide you with an entry point into the application of social software technology to support learning. The handbook is both a guide and a resource for anyone considering making use of Web 2.0 technologies in teaching or learning.

Who should read it?

A growing number of educators are taking an interest in using social software as part of formal learning processes. All of them – academics, school teachers, trainers, tutors, and other educators involved in educational projects – will find useful information here about selected tools and particular pedagogical scenarios.

You, as a reader, are a member of this group. The fact that you decided to open this handbook means you are most probably an innovator and an early adopter of technologies, and definitely not a passive educator, and that you strive for constant improvement and ongoing development.

As you can see from the table of contents, we have selected tools according to six main activities: communication, publishing & sharing, collaboration, self-organization of the learning process, creating a social network, and searching the net. Each chapter is divided into two parts. First, you will discover the contextualized description of the tools in terms of their supported learning activities in a distributed learning environment. The second part consists of a pedagogical scenario including a hands-on tutorial. The scenario describes the **possible use** of the tool in a particular learning situation and the tutorial explains the **concrete utilization** of the tool in this particular learning situation.

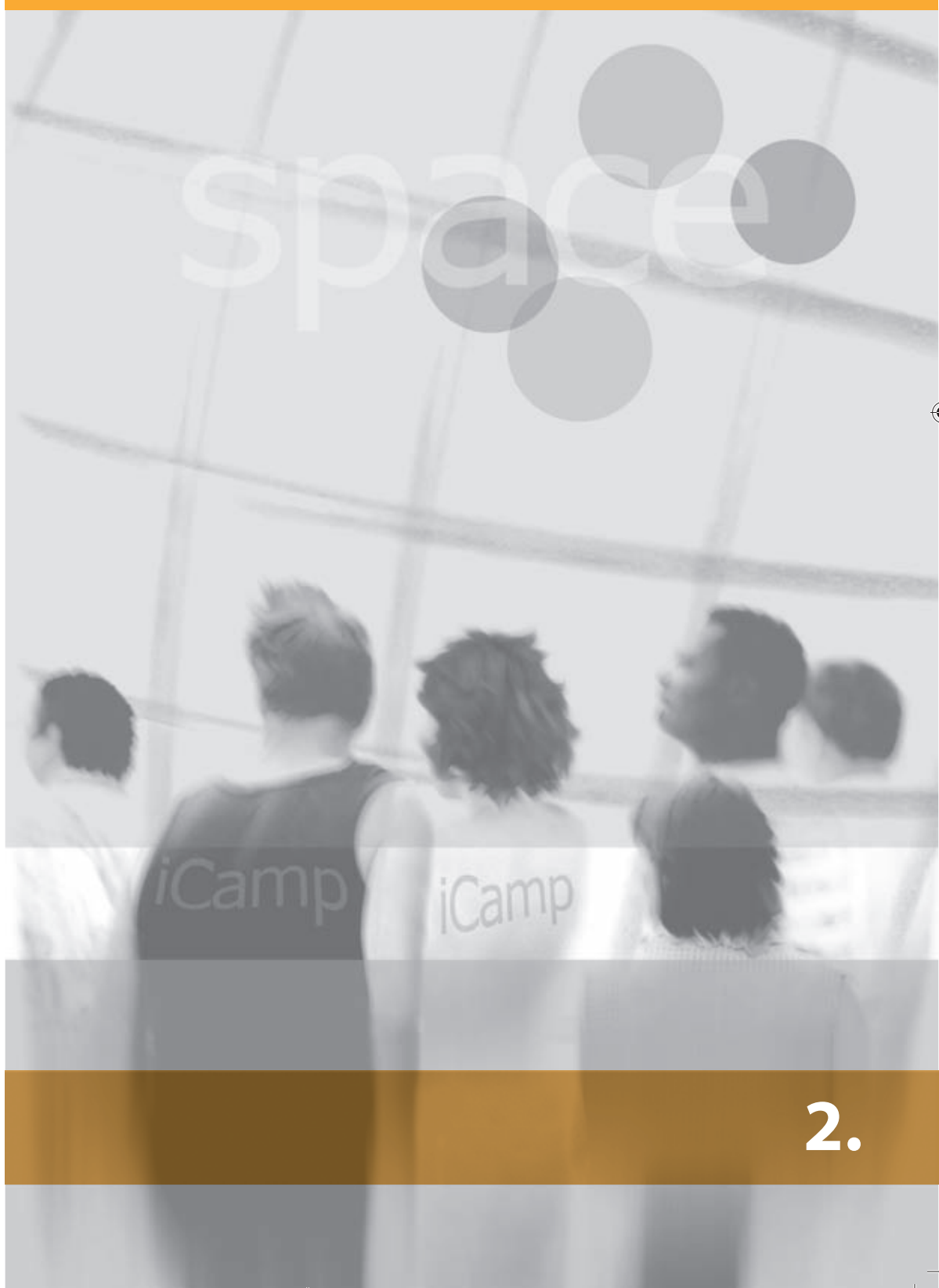
As you probably noticed, blogs and FeedBack show up in more than one place. These tools are complex and can be useful in various tasks, so we found it reasonable to separate out the explanations of how these tools can support the different activities.

Side note

In the context of using Web 2.0 tools, you may be interested to hear that this handbook is the result of the collaborative work of 15 people involved in the iCamp project. For collaboration purposes and management work we used Web 2.0 tools. We all agreed to share documents on Google Docs, which served as our common working, commenting, and revision space. For detailed discussions we used Skype and Flashmeeting. In a way, you could say that we practise what we preach!



WEB 2.0 AND EDUCATION



space

2. WEB 2.0 AND EDUCATION

[Karolina Grodecka, Kai Pata, Terje Våljataga]

The fact that you are reading this handbook probably means that you are experienced in e-Learning implementation at a university or similar institution. You will probably be aware of the tools and styles of working on LMS, and will be used to communicating whilst working and learning online. But at the same time, by surfing the net and probably by observing your students, you will clearly see that changes are coming. Freely available new technologies, common access to the Internet and to information, new types of social interactions mediated by technology; all of these things require a shift in the way that we learn and teach. e-Learning using new technologies is an innovative learning method. During recent years, 'innovation' has become a real buzz word. Many companies have revolutionized their products or business models. In education literature, you can find many case studies and best practices on how to modernize teaching and learning process. But before taking action, we should try to understand innovation in the context of technology-enhanced learning. What is new and what is now outdated? We can understand all this as technology, but also as new ways to communicate, work and learn. Within this handbook we think of innovation as technology, adapted for new learning purposes.

The term 'Web 2.0' was coined by O'Reilly (2005) as a common denominator for recent trends heading towards the 'Read-Write Web', allowing everyone to publish resources on the web using simple and open, personal and collaborative publishing tools, known as social software: blogs, wikis, social bookmarking systems, podcasts etc. The main features of these tools are dynamism, openness and free availability. According to MacManus and Porter (2005), the power of social software lies in content personalization and remixing with other data to create much more useful information and knowledge. The continuously growing dissemination of social and open software in e-Learning is expected to reshape those e-Learning landscapes that are currently based on closed, proprietary, institutionalized systems. Thanks to the evolution of the web, the use of social and open software for learning, is becoming an increasingly feasible alternative to these closed, proprietary, institutionalized systems. Embracing e-Learning in higher education requires a shift in the paradigm of pedagogy, as well as the use of mediating technologies. On one hand, there is a discussion going on about the dichotomy between closed institutionalized learning tools and open social software. On the other hand, we can talk about the pedagogical tension between the urge for individual independence and personalization, which leads educators to consider the new possibilities provided by the Two-Way Web as individualized learning tools. At the same time there is the need for the learning management systems connecting those individualized tools and supporting the learners to contribute to the learning communities (Paulsen, 2003). With this in mind, it is clear that innovation (as an idea) does not consist in just a technology but it is very likely that it is inside it. Currently, education delivered by higher institutions emphasizes individual learning, where individuals have freedom to a certain extent, but a limited affinity to the learning community and only limited opportunities to personalize their learning process. On the other hand, collaborative learning requires participation in a learning community, but restricts individual flexibility in terms of choosing a space, medium, content and access to the learning resources. Therefore, one of the challenges of using e-Learning in higher education is to focus on the opportunities to promote personalization and individuality within the community. Paulsen (2003) has suggested that learners maintain their individuality while working together with others in cooperative learning settings. In this type of learning the other learners can be considered as mutual resources without depending on each other.

Without a doubt, new technologies support or even facilitate constructivist learning. While working online, learners gain knowledge and build their skills based on activities and shared experiences with other learners. A person who learns in an online environment, publishes their own thoughts or professional advice in blogs, collaborates to create online dictionaries, encyclopedias or wikis, shares photos, or exchanges files in peer-to-peer networks, is a member of at least one online community. In this way, the learner develops some of the key competencies in the Social Internet: collaboration, negotiation, reflection, constructive criticism, selection and information analysis.

All of the activities mentioned above take place on the Internet, which has changed from a static space – where only experts published materials and information – into a dynamic, social environment developed by all users. The Two-Way Web not only provides sophisticated means for information retrieval but also enables people, even those with very little technological skills, to tap into the WWW and to become productive members of social networks, getting involved in publication, sharing and collaboration (Fiedler, Kieslinger 2006). An upcoming trend of new Web 2.0 technologies, provides a number of ways to cope with the challenges of higher education, from both technical and pedagogical points of view. Currently, the institutional landscape of universities is still dominated by the closed LMS, without any considerable interoperability. Students are used to having access to open and easily-available services and materials, whilst teachers and educators more often look for authoring solutions that support mobility, collaboration and individual independence. The continuously growing dissemination of open-source and open-access tools and services is reshaping the technological landscapes in formal educational environments (Fiedler, 2006). Personal landscapes of distributed tools and services become a feasible and attractive alternative, leading to increased flexibility and freedom for anyone to choose their favourite software tools and services. In this case, learners can be characterized as nomads, wandering between different applications. In such distributed landscapes, where tools and services are only loosely coupled, new challenges arise. Participants and facilitators need to find and select appropriate tools and services in order to construct a personal environment that can support their learning. One approach is to build landscapes encompassing elements from personal, as well as institutional, landscapes. While the institution provides the core tools and services, learners can choose extra ones from heterogeneous landscapes of tools and systems. New e-Learning landscapes provide the increased flexibility and freedom for learners to choose their favourite software tools and software services that fit their personal needs to complement their personal learning environments. In augmented landscapes, learners appear either as “emigrants or immigrants” who leave or join the institutional landscape for particular purposes (Fiedler, 2006).

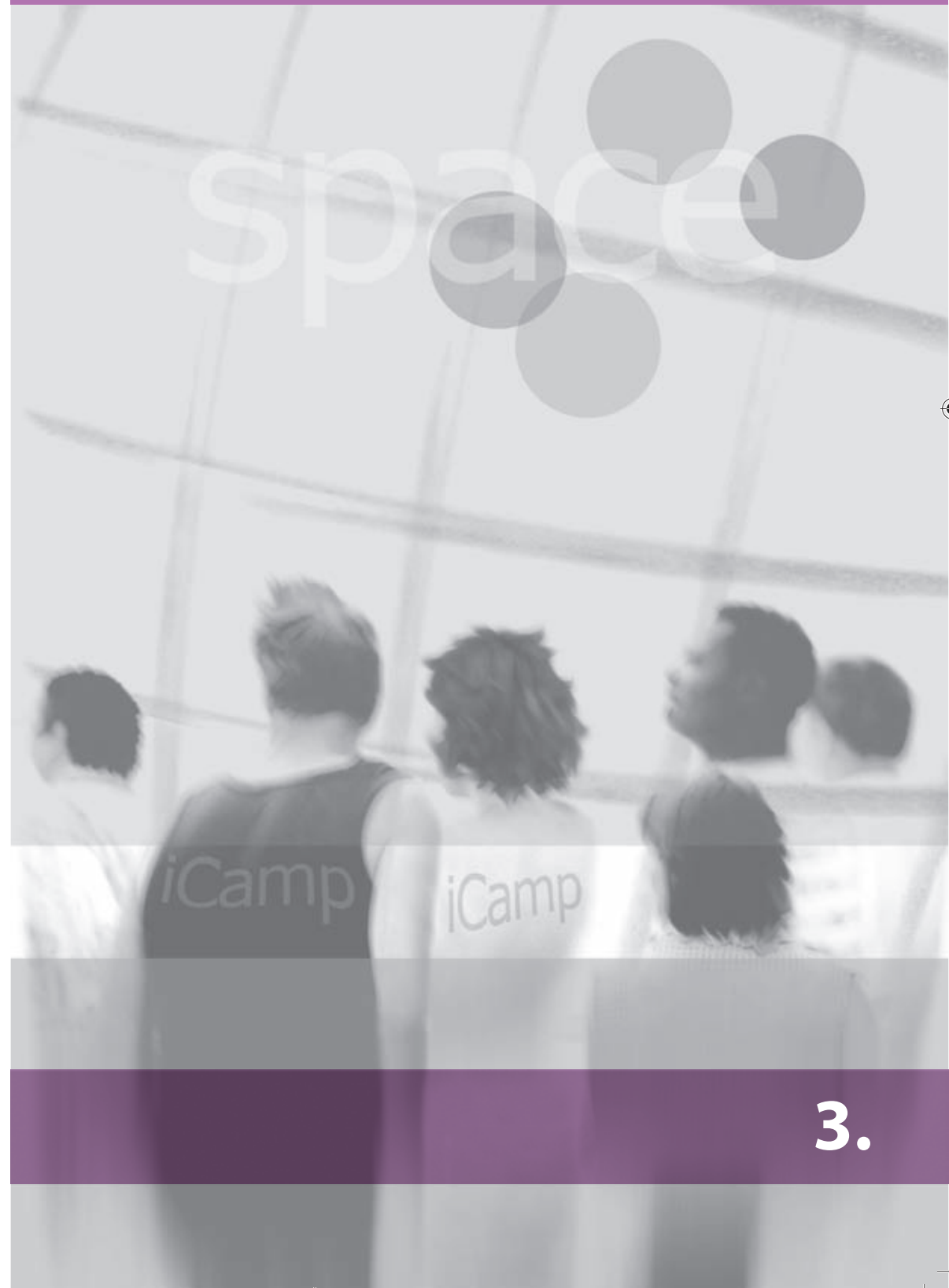
It is apparent that the shift towards personalized learning environments implies the restructuring of educational processes. These changes are not about adapting to different learning styles or allowing the user to change the font size and background colour; they are about placing the control of learning itself in the hands of the learner (Downes, 2005).

We hope that reading this handbook provides a chance to think about innovation and the specifics of innovative learning and teaching according to your own personal context. An ongoing reflection on your personal understanding of innovation and e-Learning will be helpful both while reading and later, in real word, when you start to actually implement some of this theoretical knowledge.

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COMMUNICATION



3. COMMUNICATION

[Tomáš Dulík]

3.1. Introduction

The need for communication tools in the learning process is often underestimated by educators, especially those who feel comfortable with the traditional, instructive way of teaching. However, even with their 'traditional' approach learners need to communicate with each other when working together; for example, when doing their homework. At the beginning of the 90s, digital communication tools for the average student were rather limited: apart from direct face-to-face meetings, the main way to communicate was using the plain old telephone. Sharing course materials was possible only by using a copier or a fax machine. However, these devices were quite rare in ordinary households.

Since then, we have experienced a huge revolution in communication technologies. As the Internet and mobile services have penetrated into even the most rural areas of Europe, people can now communicate on almost the same level as if they meet in person, but without the need to even leave their homes. Before, the greatest barriers to communication between people were distance and time. To borrow a book from a peer, a student had to call them up or meet him or her in person, arrange the visit, and then spend some time visiting. Now, this is no longer necessary – simply by sending an instant message requesting an electronic learning object, the peer can send it immediately.

The only barriers to communication that exist today are the skills needed to operate new technologies. This barrier is not even noticed by most younger people, who have grown up as digital 'natives', rarely pulling themselves away from their computers (even in the street they have mobile phones in their pockets), but it does appear to still be quite a serious obstacle for many teachers.

However, the new technologies are inevitably filtering down into the daily practice of even the most resistant of teachers, not least due to the increasing popularity of distance learning. Unfortunately, distance learners can only meet their educators face-to-face occasionally, as travelling is expensive and time consuming. Personal communication among learners and between learners and educators is thus very limited. The easiest and probably the cheapest way to archive this goal is the massive use of new communication technologies. This chapter is dedicated to communication tools which enable near real-time voice, video, and text messaging. Here, you can find descriptions of widely used tools such as instant messaging systems, Skype and Flashmeeting.

3.2. Instant messaging systems

In 2008, it is probably not necessary to explain what the purpose of instant messaging is. What might be interesting, however, is to look at the never-ending battle between the different instant messaging systems and to make a comparison of their current features.

The top 10 instant messaging systems according to statistics from IMuserBase (Wikipedia, 2008) are listed in Table 1. This table shows the most important decisive factor for an ordinary user when it comes to choosing an instant messaging (IM) system, as most people start out using the same system that the majority of their friends are already using.

System	Number of Accounts
QQ	783 million total 317.9 million active 40.3 million peak online (mostly in China)
MSN	294 million active
Yahoo	248 million active
Skype	309 million total 12 million peak online
AIM	>100 million total 53 million active
Jabber	impossible to count; Estimated 40-90 million
eBuddy	35 million total
IBM Lotus Sametime	17 million total
ICQ	15 million active
XFire	10 million total

Table 1. Usage Statistics of Instant Messaging Systems

For the deployment of an instant messaging system within an educational environment, the selection of the system needs to follow your own individual choice according to popularity and features (and certain other criteria). See Appendix C for more details on features, standards, and availability. Below, we describe the popular (closed-source) solution Skype.

Skype

Skype (see Appendix A for source information) was – or maybe still is – the world’s top software application for voice telephony, instant messaging, and online video conferencing, which works for all users, regardless of their network configuration. For users behind firewalls or users without a public IP address, who could not use any of the previously existing applications, Skype was a solution, because it worked even under conditions where all the other applications failed. Skype’s overall design limits its usage to ‘low-importance’ applications, complementing a regular telephone rather than replacing it. The main disadvantages of Skype are not seen by ordinary home users, but give corporate network administrators a lot of trouble.

Skype’s basic design idea is based on using peer-to-peer data transfers as much as possible. Even for overcoming restrictive firewalls or routers employing network address translation, Skype uses peers with working incoming connections (the supernodes). This gives Skype reasonable performance without the need to install proxy servers all around the world. Its good but sometimes unpredictable performance is not an issue for average home users, where it is most important that video and audio telephony simply work. However, for organizations which need reliable telephony or which have strict rules for the utilization of their IT resources, Skype may impose difficulties and the open standards SIP telephony may be the preferred alternative.

Flashmeeting

Flashmeeting (see Appendix A for source information) is a web application for audio and video conferencing which includes features such as online chat, voting, whiteboard, and file sharing. Compared to Skype or the SIP/H.323 tools (see Appendix C), Flashmeeting is mainly targeted at conferencing. In fact, it is probably one of the best web-based conferencing tools we have ever tested, thanks to the following unique features:

- It only needs a web browser with the Adobe Flash plug-in installed (which is already the case with more than 95% of all browsers) and thus also runs on all platforms (Windows, Linux, Mac)
- Communication with the server uses the HTTP protocol, allowing it to work in all possible network configurations – if your web browser works, Flashmeeting will work too
- It is rich in features while at the same time being user friendly: it supports recording, text chatting, whiteboard sharing, voting, file sharing, etc. and all these features are easy to use

Flashmeeting was developed by the Knowledge Media Institute of the Open University (UK) as one of the outcomes of the EU project PROLEARN. Flashmeeting is available for free to all meeting participants. Booking accounts for reserving a virtual meeting room, however, are restricted to members of the European Association for Technology-Enhanced Learning and a few other initiatives. There are, however, a limited number of accounts available to practitioners for testing. Please visit <http://www.flashmeeting.com/> to see which server best fits your needs and contact the Flashmeeting team or EA-TEL (<http://www.ea-tel.eu/>) for more information.

3.3. Scenarios

There are thousands of different communication tools available, but how can they be used as part of a learning process? The potential use cases for synchronous communication tools are listed in Farmer (2003). In the following paragraphs, we will discuss these together with the system requirements needed to implement them.

Mentoring between buddies

This is a classic use of instant messaging (IM) utilized by learners since the very dawn of instant-messaging technology. Using an IM system, individual learners can talk to each other for long periods of time. Unlike a telephone, IM is free of charge and is often less distracting (it does not require the full attention of the participants during the entire length of the dialogue). The only technical requirements here are a presence/availability control and a person-to-person chat function, and both of these functions are provided by all IM systems.

Virtual office hours

This is a classic use of IM, which helps:

- learners to talk to their educators at any time, even outside official working/office hours or scheduled classes
- educators to talk to their learners at any time
- faculty staff to talk to one another at any time

The only technical requirements here are a presence & availability control and a person-to-person chat function, and both of these functions are provided by all IM systems.

Group discussions

This scenario would be typical for:

- the day before an assessment, when all learners have something to clarify with the help of the 'wisdom of the crowd'
- the day before a trip or summer school, when it is necessary not only to share information about the schedule, but also to organize things like car sharing and food supplies

To enable this scenario, the communication system has to support multi-user conferences (also known as 'multi-user chat' or 'group chat'). This functionality is provided by almost all IM systems.

Remote guest speakers

A talk by an invited guest speaker can be very refreshing and inspiring for learners, but the problem is that interesting people who can present something novel are often too busy or too far away, sometimes making their physical presence an impossibility. Audio/video conferencing allows this activity to take place remotely. The features required for this scenario depend on the aim of such a lecture. If it is a straightforward speech, with not too much feedback expected, any tool with audio/video communication support would fit. If, however, the talk is to take the form of a discussion between the guest and other participants, then a conference-oriented tool like Flashmeeting or DimDim is more suitable, as these provide moderation features and additional support services.

Collaborative work groups

The required features for a communication system implied by this scenario are similar to those of the 'group discussion' scenario above. The difference is that here the group is divided into smaller groups that work collaboratively on a topic or a task. Even if the group is sitting together face-to-face, its members can use an IM system to share task-related artefacts (e.g. URLs) easily. The IM system can be utilized even more when the group continues its collaborative work individually, after returning from the meeting to their home bases.

Lectures

Many people consider the idea of giving lectures remotely as part of the future 'mainstream' e-Learning scenario. The reality is that this remains unlikely to happen in the foreseeable future for several reasons:

In many cases, physical contact between educator, learner and, for example, laboratory equipment provides a means of feedback that cannot be replaced using any current technology. A good example is a physics laboratory, where students carry out various experiments and their experience engages all the senses – feel (touch), vision, hearing, smell, warmth, and in some cases also taste. Unless technology advances to a point where remote presence allows for the same level of experience as physical presence, remote lectures will always be limited to courses which only need to engage the senses that we are currently able to transmit easily: vision and hearing. Foreign language or computer programming courses would be good examples.

- Even in those courses which can be run remotely, many learners prefer physical presence when given the choice. Compared to a remote course setting, physical presence in a school, university, or any other place of learning provides a more intense experience and allows for improved concentration.
- Another difficulty, which can hopefully be resolved in the coming years, is the high bandwidth demanded by a remote lecture.

Current technologies for transmitting lectures to remote learners lack many features needed to provide the 'full presence' experience. Commercial solutions such as Media-site by Sonic Foundry solve only one side of the problem: the technology installed at the physical site, allowing audio and video to be recorded and broadcast from multiple sources, such as cameras in the audience and the video output from presentation computers. However, the side of the remote learner is still only tackled by a few systems such as DimDim and Flashmeeting, which allow audio, video, and on-screen content from all of the participants in the meeting to be transmitted and shared. Unfortunately, another limitation comes from the current state of telecommunication technologies. Most students are connected by ADSL or WiFi, with a severely restricted upload bandwidth, therefore only allowing low-resolution and low frame-rate video to be transmitted. Hopefully, this will change in a few years when certain already available new technologies become more prevalent in normal households.

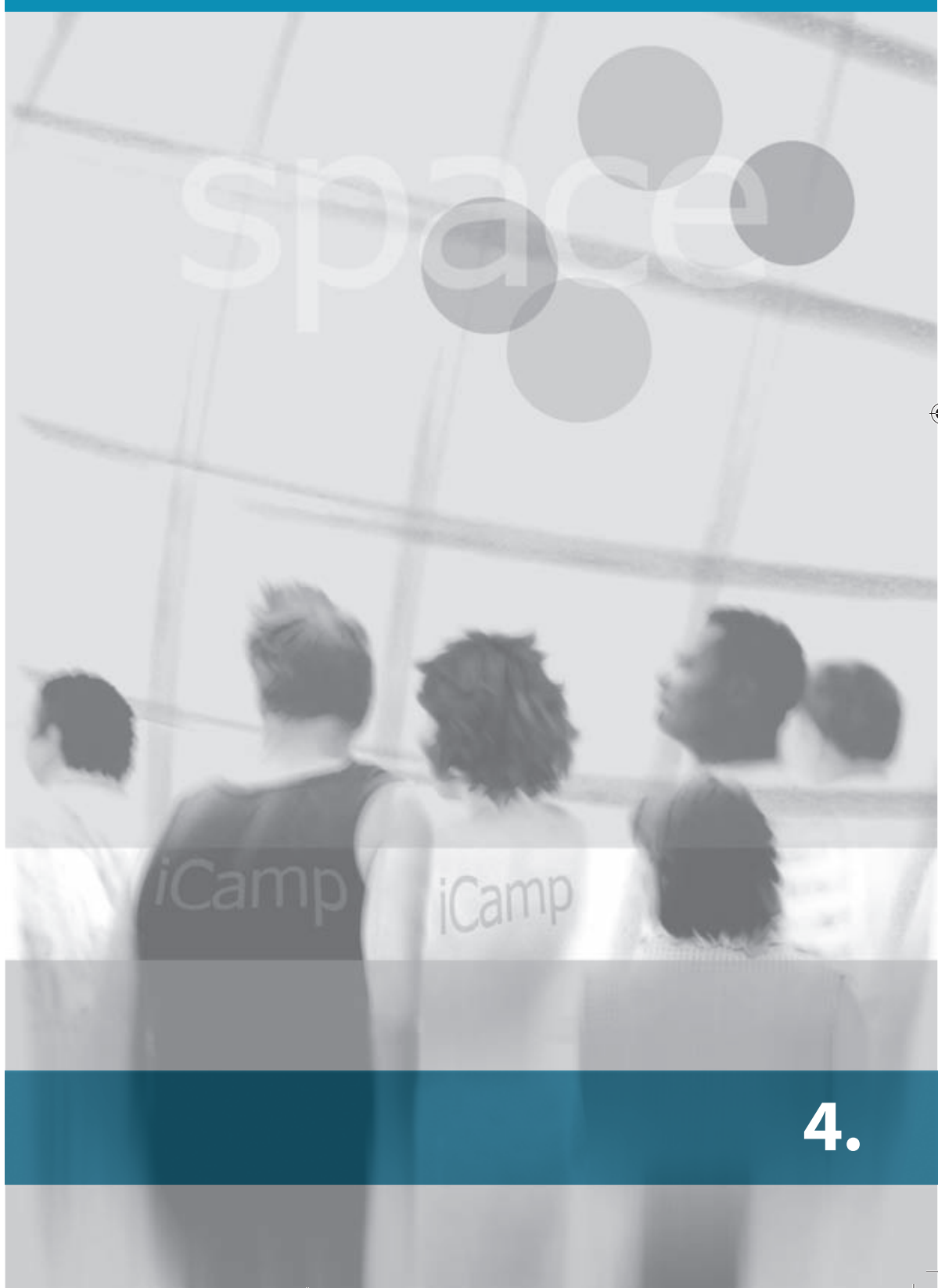
Recruiting and admissions

This scenario is similar to the 'Virtual office hours' one, with the only difference being that the main actors are not educators and learners but rather a study department and those potential applicants who are seeking information about the institution and its learning programmes. In this scenario, the institution uses an IM system as another official communication channel which serves as a complement to email and telephone.

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PUBLISHING AND SHARING



4. PUBLISHING AND SHARING

4.1. Introduction

Whilst only a few years ago the Internet was mainly used by individuals to retrieve content and to communicate asynchronously via email, nowadays, a more active participation in the online world is possible. Many people are able to write and publish their own content in different formats via weblogs, wikis, etc., to operate simultaneously with different media, to communicate synchronously and asynchronously, and to manage and create their own media and tools.

Weblogs, or simply blogs, have become the main publishing tools. Weblog authoring has not only been identified as being instrumental to the formation of informal learning networks that are highly decentralized and self-organizing; it has also been documented that the technologies, tools, and practices related to personal and collaborative web publishing create a fruitful context for developing open, unstructured, and supportive learning environments.

In just such an effective Learning Environment, web publishing tools and services are used alongside synchronous and asynchronous communication tools in order to take on and manage the educational challenges of self-direction, collaboration, and social-networking.

In many educational settings, the ideas and the objectives of a shared activity are discussed and negotiated either directly in face-to-face situations or mediated using synchronous or asynchronous communication tools. However, the act of representing objectives as physical artefacts frequently takes place using a separate set of tools and services, e.g. web-based text-processing services like Google Docs, open-publishing platforms like wikis, or shared digital whiteboards, which do not provide very good support for conversational actions.

In this chapter we will describe several tools for publishing and sharing a variety of quite different content and media.

4.2. Blogs

[Terje Våljataga]

A blog is a type of web site in which entries are made as in a journal or diary and are displayed in reverse chronological order. Basically, an individual maintains his or her own weblog and it functions as a sort of personal online diary. Regular entries such as comments, descriptions of events, or other types of materials combined with text, images, and links to other weblogs and web sites are the typical ingredients of weblogs. However, many users have moved away from the initial idea of the weblog as online diary and have instead started to use weblogs in order to write about a particular subject of interest, whether this be work related or related to a hobby. As such, weblogs have in many cases become more than just a means of communication; they have become a way to reflect upon a person's life or work.

Blogs have gained a lot of attention in educational circles, where they are seen as a medium in which a person expresses his or her opinion or talks, sometimes at length, about various subjects. Blogs can be used to support several pedagogical aims and scenarios, ranging from individual knowledge management and competence development to group-based learning activities. Therefore, blogs have become an important educational

tool in recent years, providing an opportunity for both facilitators and students to publish their ideas, essays, or homework, or simply as a space to reflect upon their particular learning process and reading material.

According to Richardson (2006), weblogs can promote various types of thinking (analogical, critical, analytical, etc.), creativity and the ability to associate concepts and ideas. Commenting, one of the main features of blogs, enhances the advancement of writing constructive comments and feedback, as well as strengthening social interaction. On the other hand it provides a great opportunity to learn from each other and at the same time create a social network or a connected community among students (facilitators): a blogosphere. Blogosphere is understood to be a collective term encompassing blogs and their interconnections within the same area of interest. Duffy and Bruns (2006) have listed some of the possible learning activities that can be supported by the use of blogs. These tools can be used:

- to develop a portfolio from a collection of student homework, assignments, essays, reflections and feedback upon the student's progress;
- as a learning diary or personal learning logbook, in which a student can reflect upon his or her learning;
- to describe events and courses, providing information about assignments, resources and literature;
- to introduce him or herself to student peers in a distance-learning setting;
- to make comments on literature readings;
- as a collaborative workspace for students working on the same project, assignment, or task.

In this way, a blog can be used as a tool for publishing and for sharing both between students as well as among a wider community. Weblogs provide an opportunity to make a learning process – and learning itself – more visible to others.

Practical use in an e-learning course

One of the main tools used in the iCamp field trials was that of the weblog as a personal or group tool for representing a person's learning process and presenting homework, either individually or in groups. In addition to content presentation, weblogs were used for regulatory and communication activities between group members.

In iCamp field trials, weblogs were used for:

- writing and publishing an introduction for each person using the introduction template as a guide;
- writing and publishing weekly reflection tasks using the reflection template as a guide;
- writing and publishing reflection tasks related to literature and personal experiences;
- writing and publishing posts about a person's progress within the group;
- writing and publishing posts of their personal contracts using the contract template;
- regulating group activities and tasks between group members and facilitators.

Allowing a person to publish his or her own work gives them the opportunity to share it with other students, since they can all read each other's blogs and make comments about them. Furthermore, weblogs also allows people to add different links to a blogroll, thereby creating a sharing option, since these links are public. More controlled sharing

of the content of blogs can be achieved via the FeedBack plug-in (see section 4.4 of this chapter) or by adding users to the weblog, which means granting them certain weblog management rights.

Scenario

Joe was given the following task in the course 'Introduction to human behaviour': "During the following weeks, set aside at least 15 minutes at the end of each week to update your weblog. Use this time for critical reflection on the week's activities. Think back over your week and consider these questions:

1. What was the most important thing you learned this week?
2. What was particularly interesting/boring this week?
3. Was there something you didn't quite understand and want to know more about?
4. What kind of questions/ideas/experiences have this week's activities raised for you?"

So, every week Joe has to post an entry in his weblog reflecting upon his learning experiences. Secondly, he was asked to read other participants' weblogs and add the ones he finds most interesting to his weblog's blogroll. In this way, students can learn from each other and also share their experiences.

Tutorial

Writing a post and publishing it is easy in WordPress (see Appendix A for source information).

Publishing a post

1. Go to the administration page.
2. Choose 'Write' followed by 'Write Post' from the menu at the top of the page.

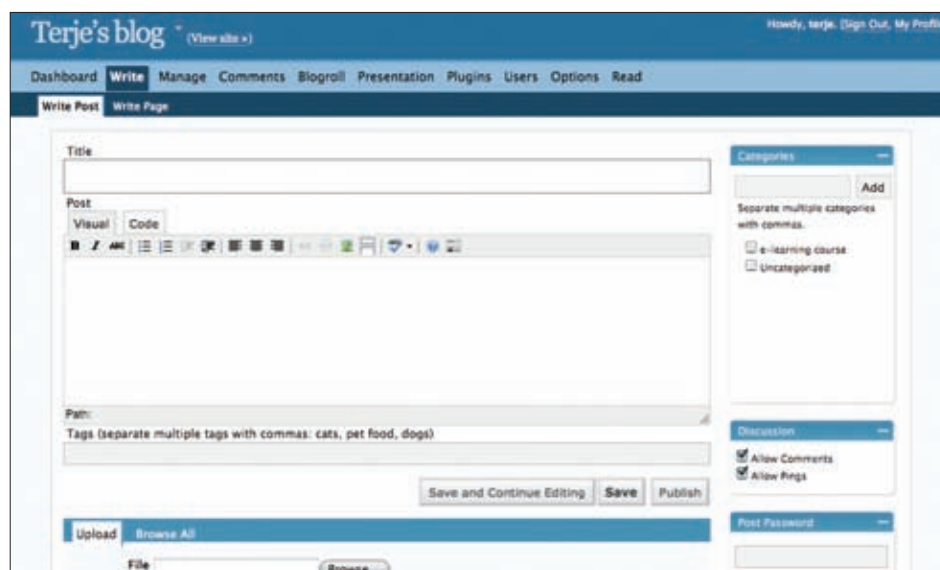


Figure 1. A new post window

3. Enter a title and the main text of your post.
4. Click on the 'Publish' button.

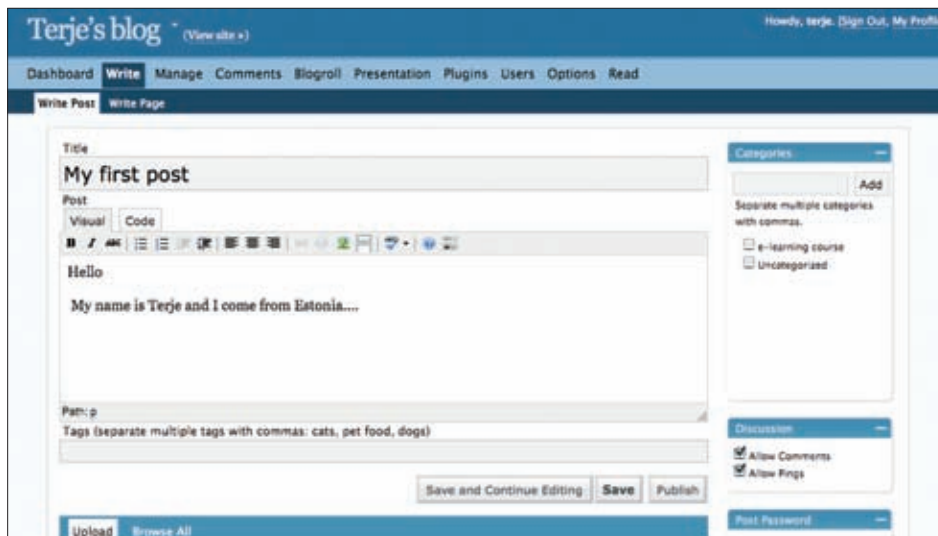


Figure 2. Writing a post

For when you need to stop working on your post and do something else in the meantime, WordPress allows you to save draft versions of your posts and continue editing them later on. To save an unfinished post, click on 'Save' and the next time you come back to edit the post you will find it on the same page.

Adding links to the blogroll

One of the ways to share resources is to use the WordPress blogroll. This feature of WordPress allows you to create, maintain, and update any number of blogrolls (set of links, mostly to blogs) through the administration interface. Links in the blogroll can be categorized and organized.

1. Go the administration page.
2. Open the 'Blogroll' menu and select 'Add link'.
3. Enter a name for and the URL of the web site.
4. Click on 'Add link'.

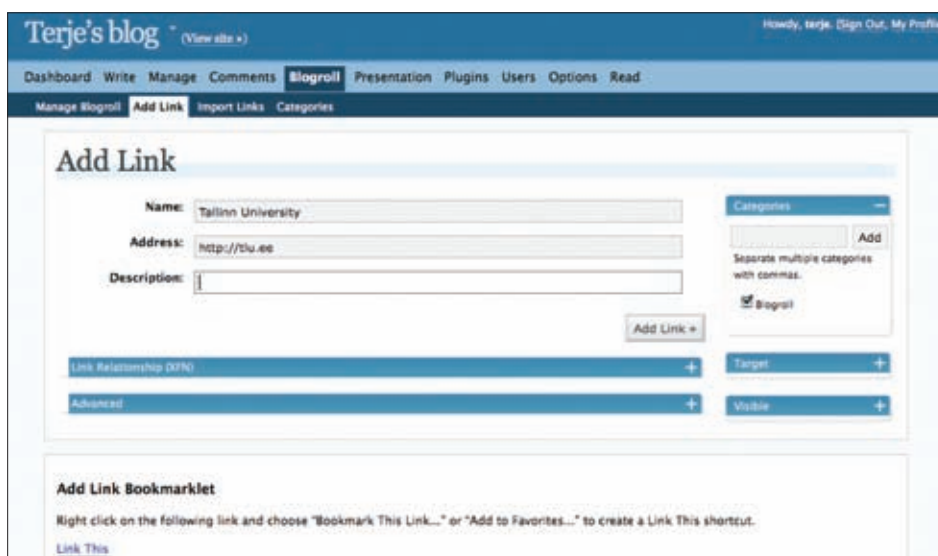


Figure 3. Adding a link to the blogroll

4.3. VideoWiki

[Gytis Cibulskis]

Publishing or presenting your thoughts online usually means writing some text and illustrating it with pictures. Still, the most natural form of communication for humans is face to face and for most people the majority of information is presented orally, where seeing the presenter and his or her non-verbal information is often even more important than their actual words. Video could serve as a replacement for face-to-face presentation, since it is able to convey visible behaviour and important non-verbal information. In the past, recording a video and getting it to the target audience was quite a big challenge. Depending on the number of intended users, TV broadcasts or video tapes were used. To tackle the high cost of TV broadcasting, some mixed distribution models emerged, wherein cheaper night-time broadcasting was used in combination with consumer video recorders scheduled to record the broadcasts between specific times. Using the Internet as a video distribution channel began about a decade ago. The first usage was limited by computers' capacity to process video and by the Internet's capacity to transfer large video files. During the last 10 years, the situation has changed dramatically. With the exponential growth of internet broadband and ever-improving computer specifications, new service providers such as YouTube, Metacafe, Dailymotion, etc. have emerged, allowing users to record video and easily publish it so that it can be viewed by millions of people all over the world.

Although there are plenty of video services out there on the Internet, some of the limitations imposed by the large service providers (e.g. required login or restricted video length) are not always acceptable within an educational domain. For this reason, the open-source VideoWiki (see Appendix A for source information) platform was developed within the framework of the iCamp project. The idea behind VideoWiki was to have a simple video publishing system that could serve as an equivalent to publishing text on the wiki. Publishing video on the VideoWiki is just a matter of few mouse clicks. There are only three required fields for the video: NameSpace (or Tag), Title and Author. The system is completely web-based and all you need in order to use it is a standard web browser with the Flash player installed and a webcam.

VideoWiki is based on the Red5 open-source Flash server, written in Java and Flash. It allows for video recording, searching and playback through the main system web page or via standard URL links. VideoWiki also provides RSS feeds for each NameSpace or Author and videos can be embedded on any web page using special code snippets.

Scenario

Students taking part in an e-Learning course work in groups and are allowed to form those groups by getting to know each other and discovering some common interests. The teacher suggests using VideoWiki to record some short self-introduction videos in which students are to mention their background, explain what their expectations are and elaborate on the specific topic for the group assignment. To ensure that the videos are easy to find, the teacher asks all the students to use a specific namespace and publishes a namespace-related RSS to the course Aggregator. Students are also asked to create personal blogs and to post a message to their blog with the self-presentation video from VideoWiki embedded in it. Further discussion can then continue on the students' blogs, where they use either text or video comments, which can be recorded and embedded just like the initial presentation videos.

Tutorial

In the tutorial below we describe the steps that the teacher and the students have to take in order to perform the actions described in this scenario.

In the first step, the teacher goes to the VideoWiki page and records his own presentation. In order to do this he needs to select 'Add Your Video Here' from the menu at the top of the screen. Then, he enters NameSpace/Tag, Title, Author and Description in the corresponding fields.



Figure 1. VideoWiki start page



Figure 2. Adding a new recording

After clicking on the 'Add Video' button, the Flash plug-in application will load and a dialog box appears asking for permission to use the camera and the microphone attached to the computer. After clicking on 'Allow' the video feed from the camera appears on the screen. The teacher presses the record button located in the corner of the video and starts to record his presentation.



Figure 3. Recording



Figure 4. Replay recording

Soon after finishing recording, the teacher is automatically redirected to the playback interface, where the main information about the video is presented along with a list of additional videos and some useful tools for manipulating the video more easily.



Figure 5. Downloading and embedding options

Besides the possibility to play back video on the web there is also a 'Download' link, allowing the user to download the video to their computer. The short code snippet shown in the yellow box can be used to embed the video within any HTML page (e.g. blog, text-based wiki or personal portfolio in a learning environment). There is also a link to the author's RSS feed that can be subscribed to using a feed reader, allowing the user to monitor the author's contributions without having to repeatedly visit VideoWiki.

The video-embedding feature allows teachers and students to promote their self-presentation videos on their blog or within a course's learning environment. The teacher or the students first have to copy the code from the yellow box on their personal VideoWiki page.

The second step is to paste the copied code using a blog editor's code editing window.

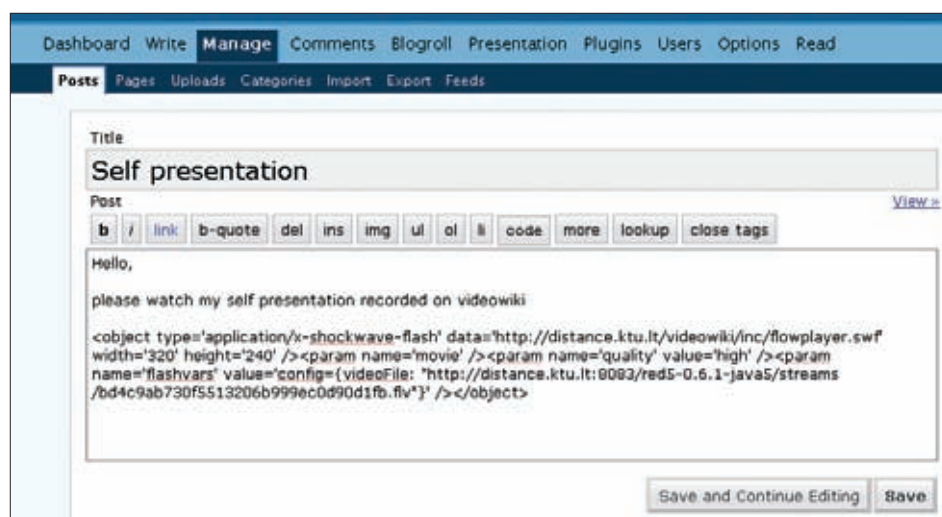


Figure 6. Embedding a recording in WordPress

The end result, with a video from VideoWiki embedded in a blogpost, is shown in the picture below.

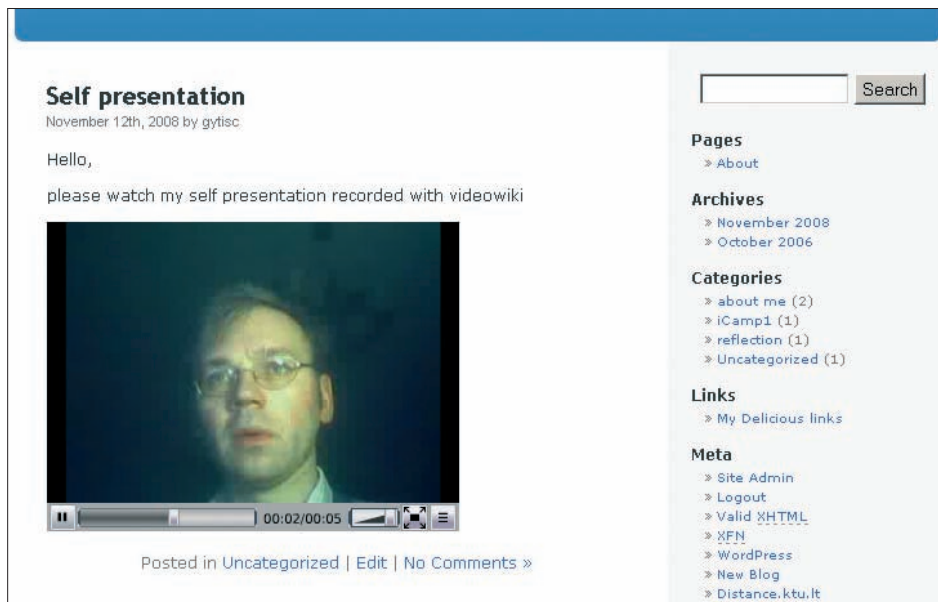


Figure 7. Embedded recording in a blog entry

Some blogging systems do not allow certain tags, so it may not be possible in all cases to embed external objects. However, sometimes this limitation can be bypassed by using special plug-ins. For example, WordPress has many plug-ins developed especially for Google video or YouTube videos. A special plug-in was made for VideoWiki and it can be found in the iCamp code base at <http://icamp.sourceforge.net/>

In order to monitor all of the students' self-presentations for this course, the teacher should use the subject-specific NameSpace 'video training' and ask all students to record their videos using this same NameSpace. This allows all of the videos to be filtered on VideoWiki and records to be obtained via RSS feeds (see the link in the lower left-hand corner).



Figure 8. Namespaces can be used to group recordings

In some web browsers (e.g. Firefox), after a user clicks on the RSS feed link, the browser may suggest subscribing to this feed using a predefined feed reader (e.g. Google Reader).

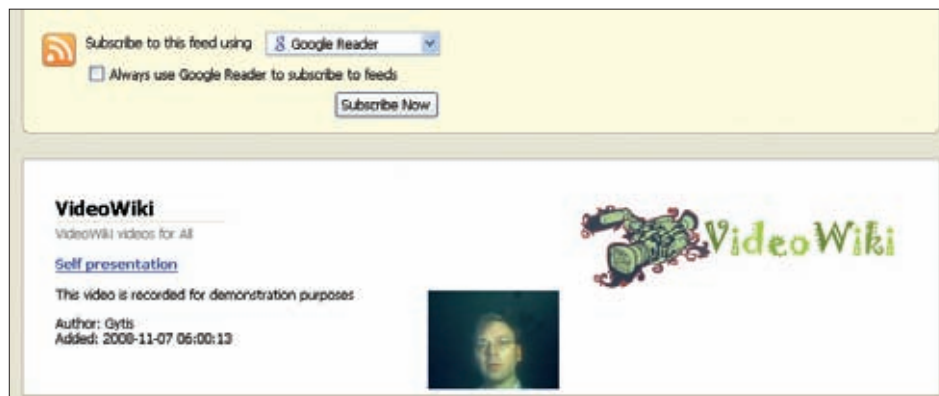


Figure 9. *Subscribing to a VideoWiki RSS feed*

However, it is also possible to copy and paste this link to the feed reader of your choice. Below we illustrate what the subscribed video looks like on a FeedBack-enabled Feed on Feeds feed reader (more information about Feed on Feeds can be found in section 4.5 of this chapter).

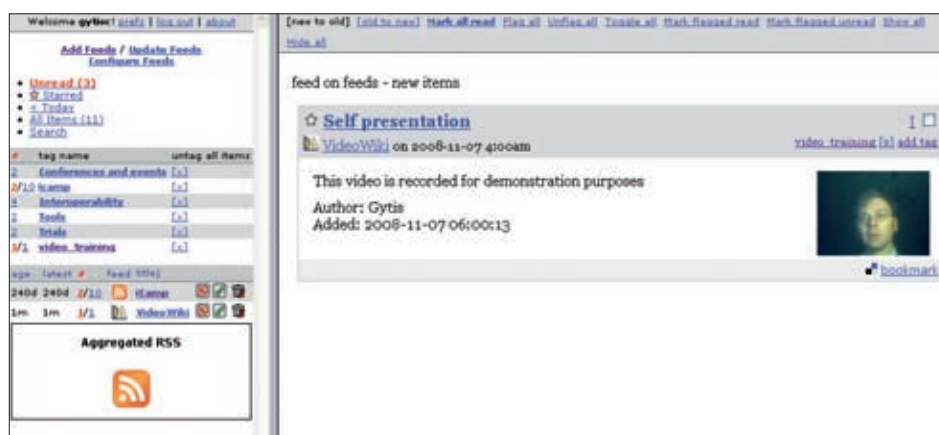


Figure 10. *VideoWiki RSS feed aggregated in Feed on Feeds*

To record their self-presentations, students will perform similar actions to those described above in the case of the teacher.

4.4. Blogs and FeedBack

[Anna Danielewska-Tulecka, Ahmet Soyulu]

The most obvious use for blogs is for publishing and sharing content with others. With FeedBack-enabled tools they can also be used to **track and integrate the content of other authors within one blog**.

FeedBack (see Appendix A for source information) is a standard developed within the framework of the iCamp project. Put simply, it is used to enable blog users to subscribe to each others' blogs. The FeedBack plug-in for WordPress and the module for Moodle enable you to use just such a mechanism for blogs. Each blog owner can subscribe to blogs

and can be subscribed to by others. If you **subscribe** to other people's blogs, your blog will be **notified** whenever a user posts something new and you will receive the updated content, thereby allowing you to access aggregated content provided by other blogs from within your own blog. A blog that you are subscribed to is called **channel**, and the content it provides is called a **feed**. Whenever someone wants to subscribe to your blog, they send you a **subscription request**, whilst whenever someone wants you to subscribe to their blog, they send you a **subscription offer (advertising their blog to you)**.

The modules available for the Moodle and WordPress systems, along with their installation, are briefly described in Appendix B. Below, we outline some possible usage scenarios for FeedBack-enabled blogs, followed by a detailed description in the form of a tutorial.

Simple feed management scenario

A student affiliated to ISIK University opens and operates a learning diary in the form of a blog provided by a multi-author weblog module integrated into CourseOnline. When created, or at any operative time, the student enters into a joint course which is collaboratively offered by ISIK and AGH Krakow. He is required to keep his learning diary visible both to fellow students and to the facilitator in Krakow, all of whom are active in AGH's Moodle instance. One of his peers, also participating in the joint course and studying at ISIK University, is in a similar situation. Unlike him, however, she is running her own blogging tool and operates her learning diary through an instance of WordPress that she set up herself. In both cases, they make their blogging tool advertise the feed to their fellow users of the Moodle system in Krakow, so that they can decide whether or not to subscribe to the blogs from ISIK in order to get regular updates. Later on, one of the 'nomad' students at ISIK decides to participate in an exchange programme, so he needs to temporarily move his blog from CourseOnline to AGH's Moodle instance. To do so, he creates a feed offer from CourseOnline to be shown to his account in Moodle – or directly enters the feed address into Moodle – in order to fetch all of his entries and make them available to him in the other system.

Tutorial

Every student participating in a course keeps a blog that must be visible to all the other students. This means that every person must advertise their blog to the others. To enable other people to subscribe to your blog, just use the '**Offer subscription**' form in your FeedBack-enabled blogging tool. You can see who has already subscribed to your feed in the 'My Readers' section. You can cancel subscriptions or rename your readers using names which are friendlier than the feed address.

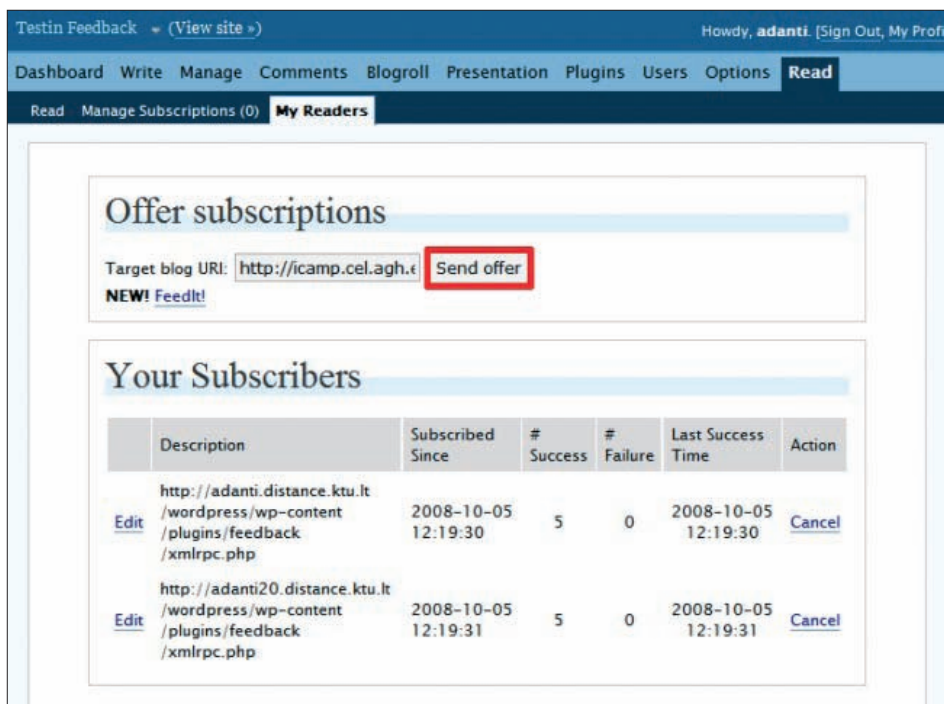


Figure 1. 'Offer subscriptions' form and subscribers list in WP plug-in

To read the feed contents from the other blog just offer the subscription as above and then accept the offer on your other blog. All feed items will be then transferred to that blog, for example, the Moodle blog on the other platform, as shown below.

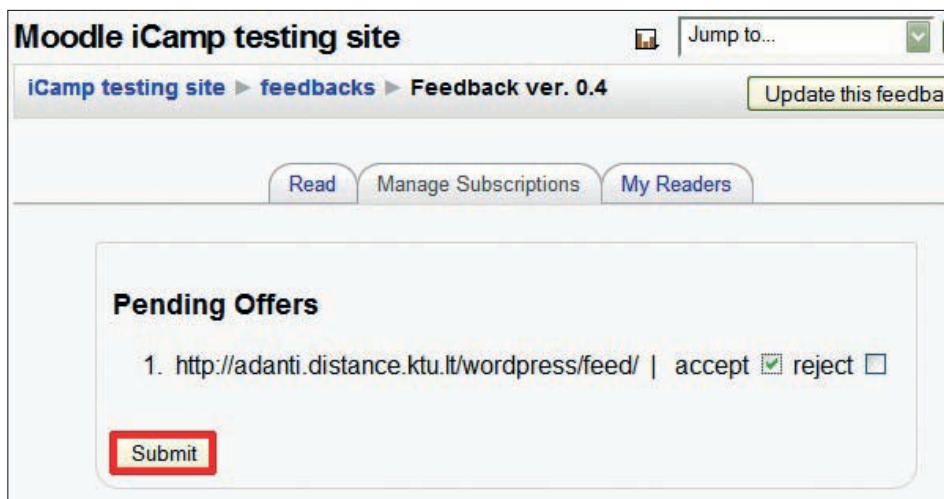


Figure 2. Accepting offer in Moodle (with FeedBack Module)

You can see your subscriptions and cancel any of them from the 'My Subscriptions' section, shown in the above screen.

All feeds and posts can be read from the 'Read' tab in the FeedBack Moodle module.

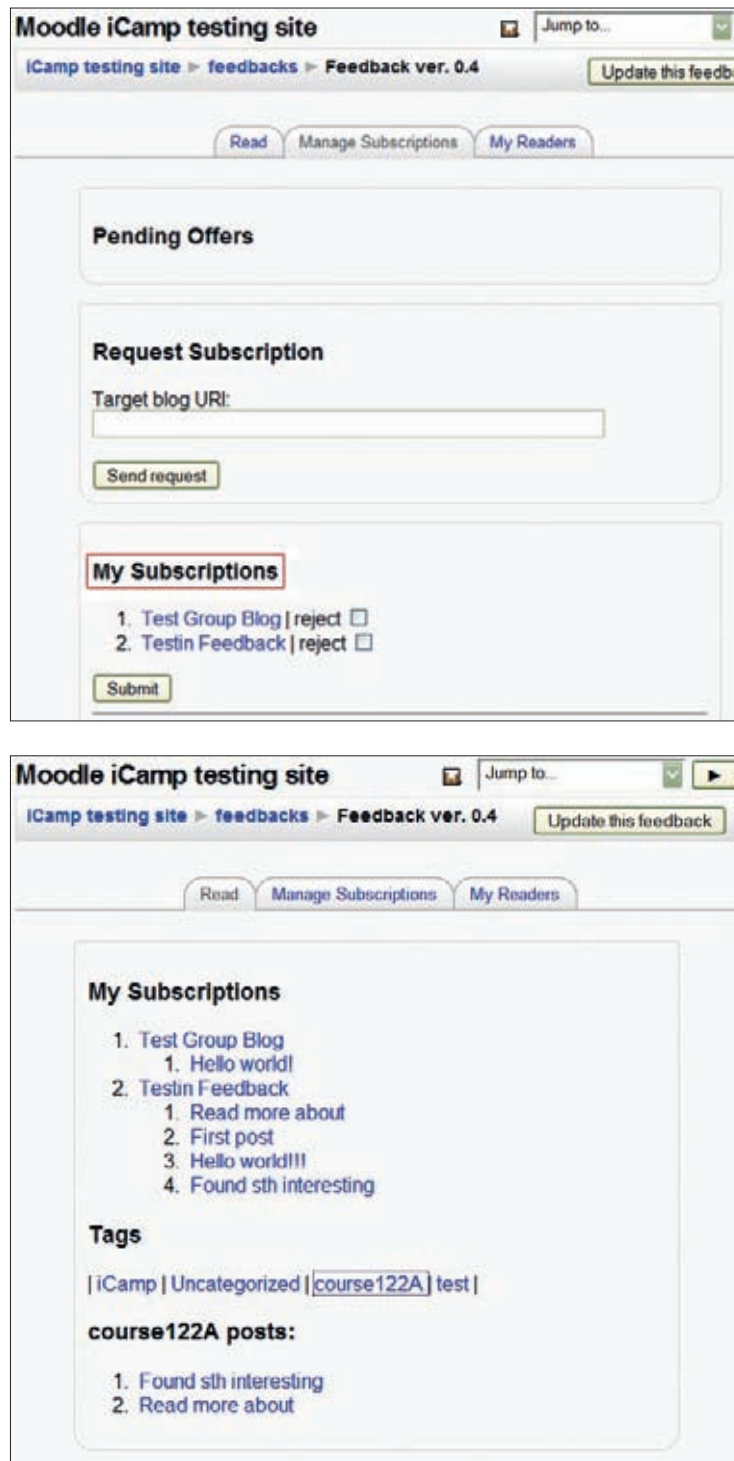


Figure 3. 'Read' tab (FeedBack Moodle module) with all subscribed feeds and a list of each item

The same operations the other way round – from the WordPress and Moodle side – can be seen in the next scenario.

Rip, mix, and feed scenario

A facilitator directs all of his students to the blog belonging to Greenpeace, which they should subscribe to in order to get regular updates about Greenpeace's activities, since

this is important for his course on 'non-profit organizations'. In addition, the facilitator creates automatic advertisements of some tutors' feeds. In some cases he does not know the addresses of the students' learning diaries, so he asks his students to send him a subscription offer. He receives a number of subscription offers and adds them to his feed aggregator. Every post associated with the course should be properly tagged so that the facilitator only needs to read relevant posts. Whenever a student is creating, updating, or deleting a post, their blog automatically informs the facilitator's aggregator to process the changes. In some cases, when reading his students' blog entries, he wants to carry things back to a group discussion, so he offers his own facilitator feed, to which he forwards some of those blog entries tagged with the course ID.

Tutorial

When the facilitator wants to point his students to a particular blog, he can email them the link to the blog subscription or advertise it, either through the WordPress FeedBack plug-in or via the Moodle module.

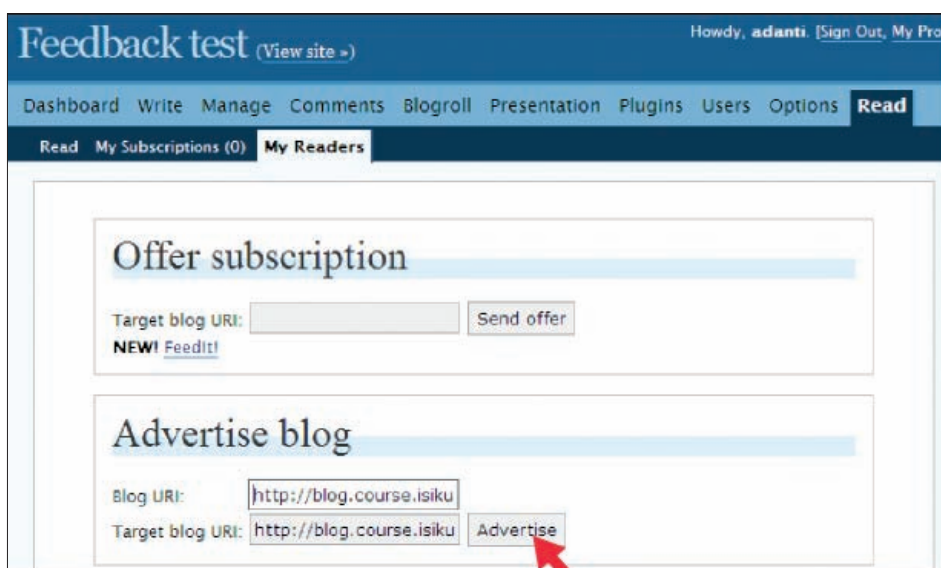


Figure 4. 'Advertise blog' in the WP FeedBack plug-in



Figure 5. 'Advertise blog' in the FeedBack Moodle module

To read only those posts associated with a particular tag you can select one from the 'Tag Cloud', under the 'Read' tab. Using tags, blog posts can be clearly recognized as belonging

to a particular course and there is no need to search through all of the blog entries posted on different topics. Keep in mind that each tag can be displayed in different text sizes; the bigger the text size, the more posts tagged.

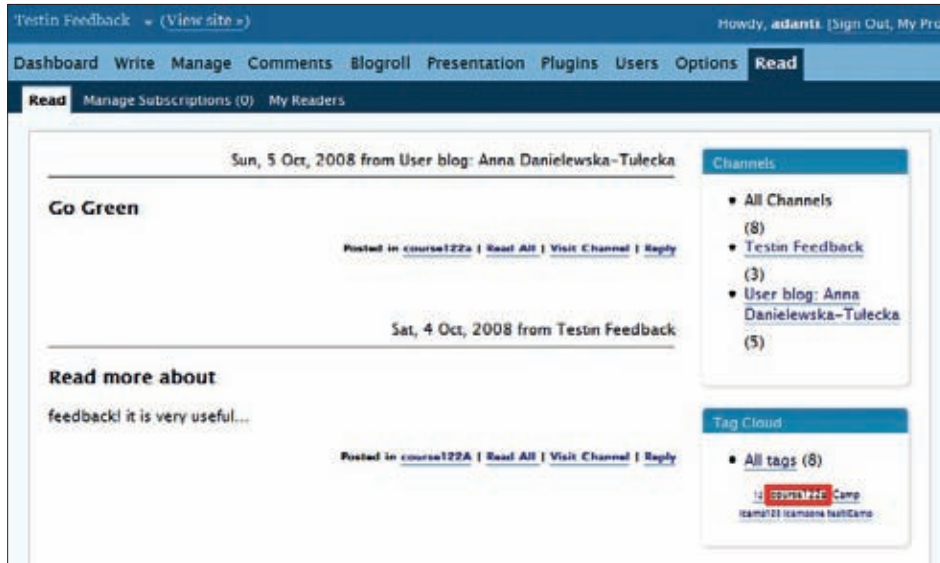


Figure 6. Filtering posts for course122a by choosing its tag from Tag Cloud

You can also choose to read the posts from one particular blog by choosing it in the 'Channels' box. Some of the reading options for your mashed feed area are adjustable. You can change the number of posts displayed per page, and the number of lines displayed per post, for example. To set these options, just use the 'Reading Options' section, located in the box in the lower right-hand corner of the page.

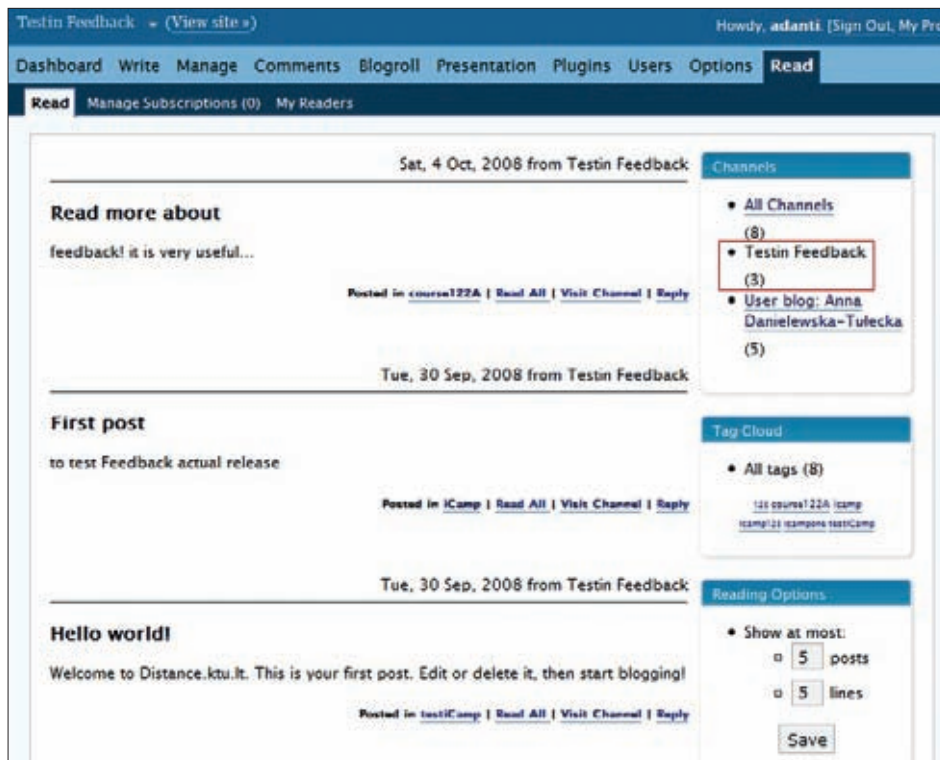


Figure 7. Channels view in Feedback WP plug-in

4.5. Feed on Feeds

[Tomáš Dulík]

Desktop aggregators for web content are great. They sit there all day, pinging away at sites, and as soon as they notice something new, they pop up a little window on your desktop, and let you read the latest news. But what about when you leave work and go home? Or when you are away on a trip? You get totally out of sync, and it becomes difficult to know what you have and have not read. It can be infuriating. A server-side aggregator solves this problem. It keeps track of what items you have read, and happily keeps checking up on your feeds no matter where you are.

There are plenty of web-based feed readers, for instance Google Reader, Bloglines, etc. In this handbook we have decided to describe the Feed on Feeds reader as it is a piece of software based on an open-source project (Feed on Feeds homepage, 2006) licensed under the GNU General Public License (2007).

Feed on Feeds (see Appendix A for source information) is an application that enables you to aggregate syndicated web content such as news headlines, blogs, and podcasts in a single location. The purpose of the aggregator is to facilitate orientation within a growing flow of information, therefore reducing the time and effort required to visit different web sites in search of updates. An aggregator can check for new content in user-defined subscribed feeds.

Web feed readers also provide interesting features such as:

- tracing the read/unread status of articles and allowing you to manually change their status.
- marking an article as a 'Favourite' or tagging it with arbitrary tags to make it easier to find in the future.
- sharing an article with other users of the web application, or bookmarking it using the Del.icio.us service.

Scenario

Feed on Feeds provides a simple solution for aggregating information from many different sources in one place, saving facilitators time and freeing them from the arduous task of continually checking different resources in order to gather relevant information. It has the potential to ease tracking the changes that learners show in their blog posts or home pages. Among equal peers, an aggregation service allows an institution to mutually exchange information. Group aggregators can be set up in order to group common information feeds, e.g. within a particular domain, into a joint feed.

For technical information about Feed on Feeds, see Appendix B.

ACKNOWLEDGEMENTS

We would like to take this opportunity to thank our project developers:
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VideoWiki

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Fridolin Wild (Vienna University of Economics and Business Administration, Austria)

FeedBack plug-in for WordPress

Ahmet Soylu (ISIK University, Turkey)
Steinn Sigurdarson, Fridolin Wild (Vienna University of Economics and Business Administration, Austria)

Moodle FeedBack module

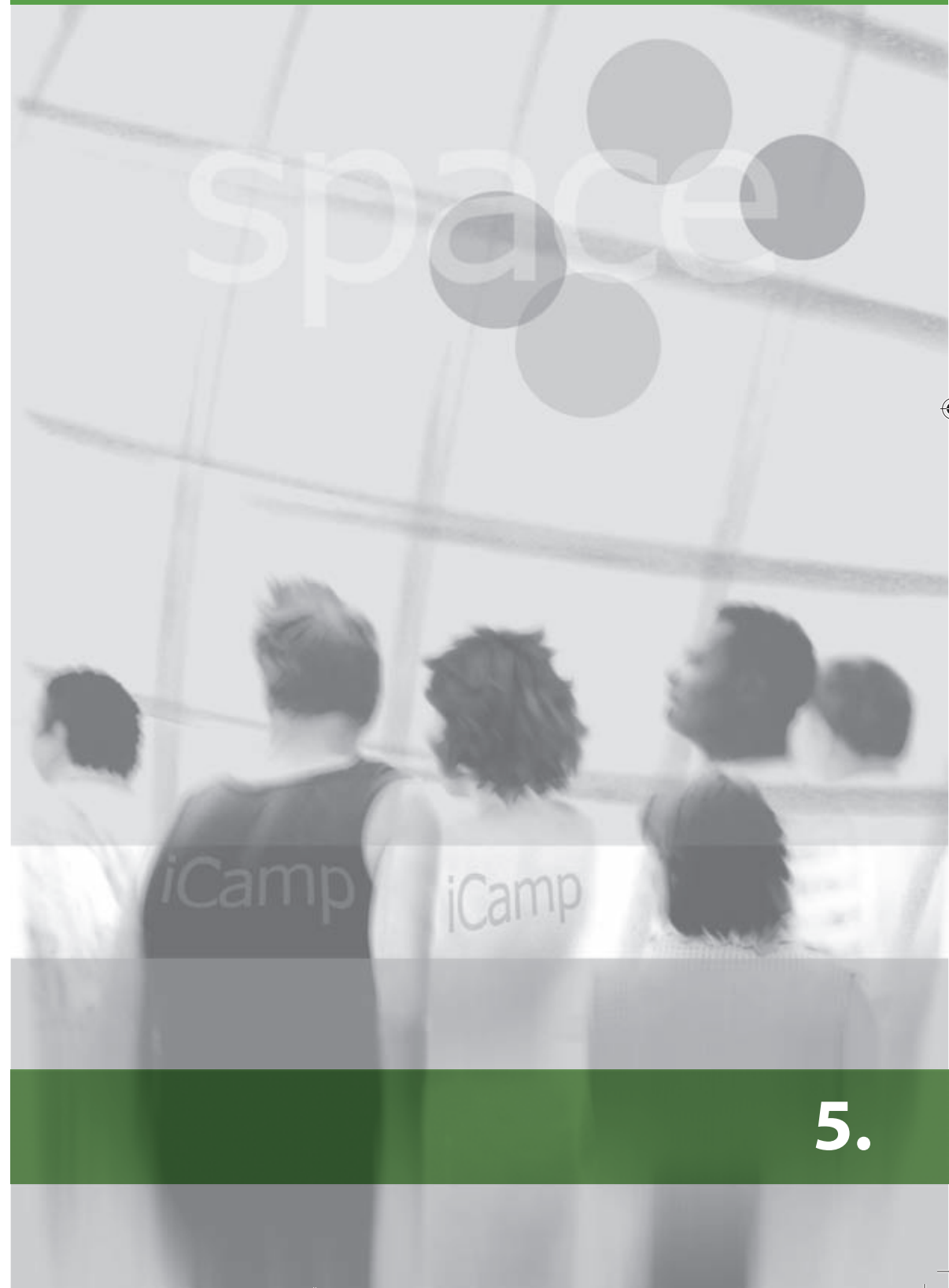
Anna Danielewska-Tulecka (AGH - University of Science and Technology, Poland)

Feed on Feeds FeedBack plug-in

Evaldas Karazinas (Kaunas University of Technology, Lithuania)



COLLABORATION



5. COLLABORATION

5.1. Introduction

Collaborative learning presumes the formation of teams who share common objectives, rather than the networking of self-directed actors with different personal objectives. However, in group work, the learners may define someone as their leader or try to work with a shifted focus of initiative as in networking situations. In any case, in such a situation learning comes from the process of interacting, collaborating and reflecting upon how to carry out the task (Mason, Rennie, 2006). Group activities also require certain skills to be developed, such as: teamwork, discussing ideas with others, listening to the ideas of others, negotiating divergence, interpreting emotions, managing conflict, making decisions, and being sensitive to cultural differences. Learning from each other could be facilitated by various technological solutions. Synchronous and asynchronous means of communication are vital for an active collaboration process. Apart from email, telephone, instant messaging and video-conferencing, common information-sharing platforms have become the core of students' joint work (Kieslinger, Fiedler, 2006). Considering the diversity of tools that can be used in collaborative learning, and based on our experience from the iCamp project, we have chosen five key applications that can provide effective support for such activities.

One important element of virtual collaboration is the blog. However, when deploying groups blogs, there still remain many obstacles that are yet to be fully resolved. To facilitate "productive blog conversations", necessary for knowledge management and learning, we developed the previously described FeedBack standard. The process of collaborating via blogs can be split into two independent sub-steps: the management of feeds and communication channels, including authorization (the articulation work) and the exchange of items or item collections (the materialization, the content transmission itself). A specification for managing feed subscriptions (FeedBack) within a distributed setting and which complements existing standards is the missing link.

5.2. Blogs and FeedBack

[Anna Danielewska-Tulecka, Ahmet Soylu]

In the context of teaching and learning, blogs can do much more than just deliver instructions or course news items to students. Particularly in the field of higher education, a blog can be an interesting collaboration tool for learners. You can join a scientific community and find people to collaborate with, and give feedback to teachers and other students. Blogging technology, in combination with innovations such as the FeedBack (see Appendix A for source information) specification, is definitely a powerful tool for learning with others.

A detailed explanation of what FeedBack is can be found in chapter 4 'Publishing and sharing', in section 4.4.

The available FeedBack modules for the Moodle and WordPress systems, along with their installation, are briefly described in the Tutorials section (see Appendix B). The FeedBack standard was developed within the iCamp project and is only compatible with these two systems used in the trials.

Practical use in an e-learning course (trial case with Feed on Feeds aggregator)

Using FeedBack in an e-Learning course requires students to send a request for the feed of the course weblog and to offer his or her own weblog address to the course weblog.

This enables all course participants to create a mashed feed of the group's weblog posts, which can be monitored and read from the Dashboard area of each individual weblog.

Each time a group member writes a post, he or she must use the tag indicating their group's identity, for example: group1, group2 etc.

Personal weblogs are used to:

- write a self-introduction using the introduction template
- write weekly reflection tasks using the reflection template (tag groupXreflection)
- write reflection tasks related to literature and personal experiences (tag groupXreading)
- write posts about their progress within the group (tag groupX)
- write personal contract posts using the contract template (tag groupXcontract)

Tags help to sort information within a mashed feed area, where each group can see what their peers are doing. In other words, the mashed area is a common space on a group blog, where all members of the group have access to all of the posts published by other students and by the facilitator. Whenever a student or the facilitator want to write a reply to a post, the mashed area 'Reply' button enables them to write the reply post within their own weblog and to monitor it from the mashed feed area.

Blogs offer the possibility to get mashed feeds for each group from the dashboard area and subscribe to them externally using Feed on Feeds or another feed reader. This allows users to keep track of the tagged feed. We suggest that the facilitator subscribe to the group's mashed feeds using a reader. Each group's feeds must be marked in the Feed on Feeds aggregator with the EMIMgroupX tag.

Below we show some possible usage scenarios for FeedBack-enabled blogs, along with a detailed description in the form of a tutorial.

Group blog scenario

When collaborating in small project groups, students (and eventually also facilitators) need a common communication channel which they can use to make progress reports, bring up questions, help one another, etc. An innovative and very flexible approach for achieving this is to create a distributed group blog. In the group blog, every student from the group is able to write posts and these posts are subsequently shared with other participants. Every participant in a group blog has equal access rights, i.e. everybody is allowed to create, edit, or delete (deactivate) posts. To set up a group blog, one user creates the blog using one of the systems being used. He or she specifies which people are taking part in this group blog and which system they are using. The system advertises the group blog or the user sends advertisements to the other participants' learning tools. Whenever one of the group members creates a new post (or updates or deletes an existing one), the other participants will immediately see these changes from within their own environment.

Tutorial: WordPress MU (WordPress for multiple users)

The facilitator creates a course blog and adds the students as authors within the 'Users' tab of the WordPress MU (Multi-User) interface.

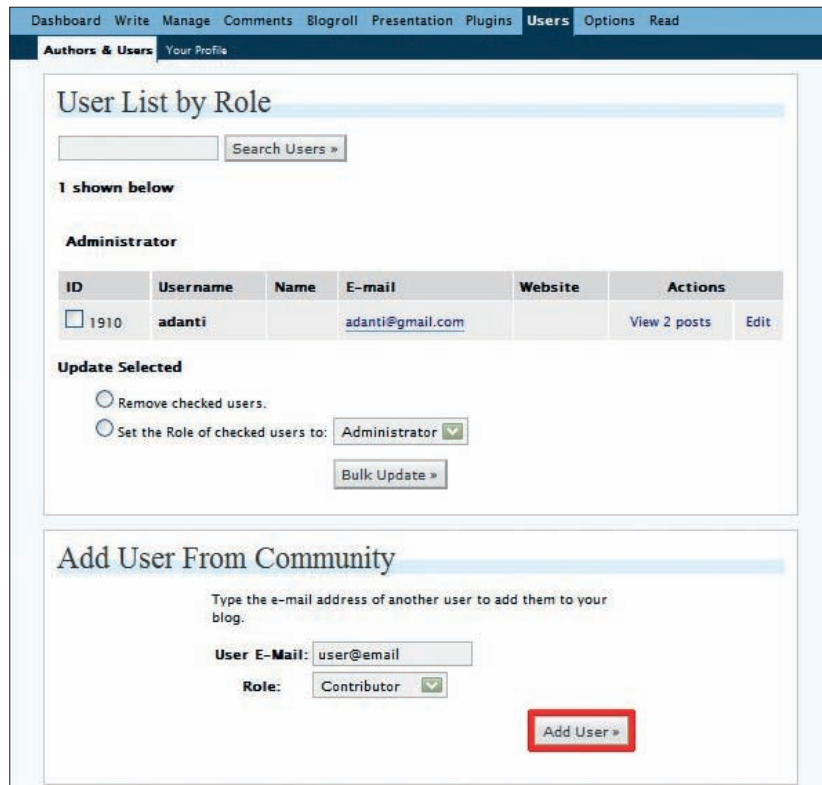


Figure 1. Adding a user in WP MU

Once this has been done successfully, you will see the notification and each new user on the list.

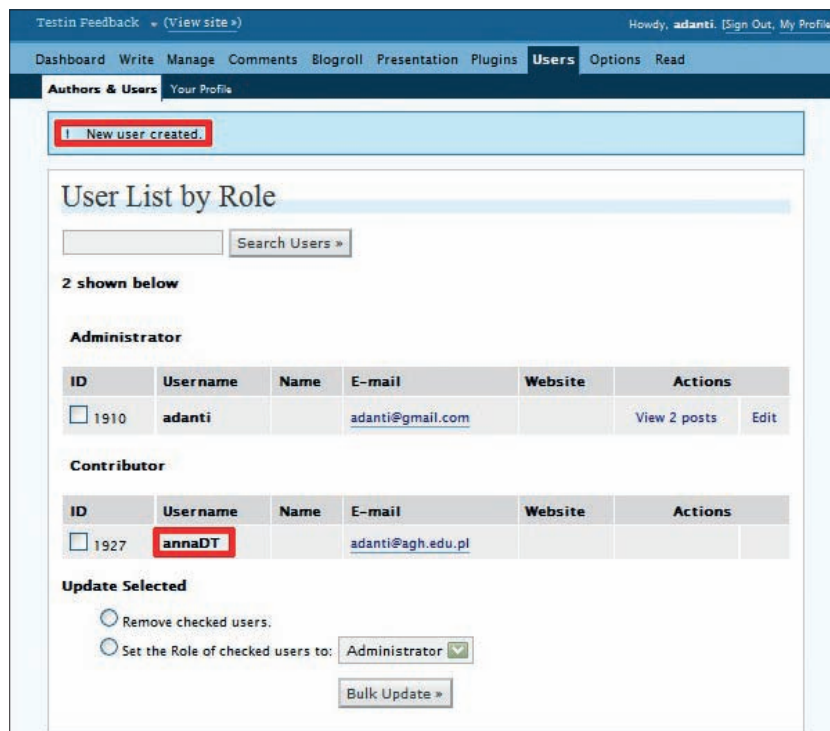


Figure 2. Users and authors list in WP MU

Once you have added all of the course participants as authors of the blog, your multi-user blog is ready to use. Now you should advertise the blog feed to all the participants.

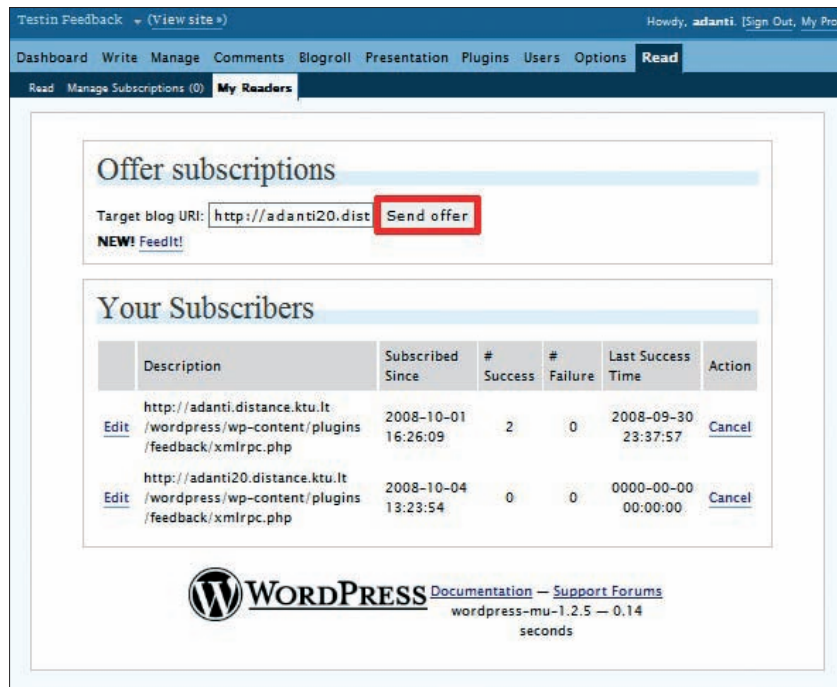


Figure 3. Advertise blog feed

Tutorial: Moodle

In Moodle you can simulate a group blog with tags. Just use a specific tag for all the entries you want to assign to the 'virtual' group blog and then, filtering by this tag, you will be able to view only those entries with the same topic or relating to the same course.

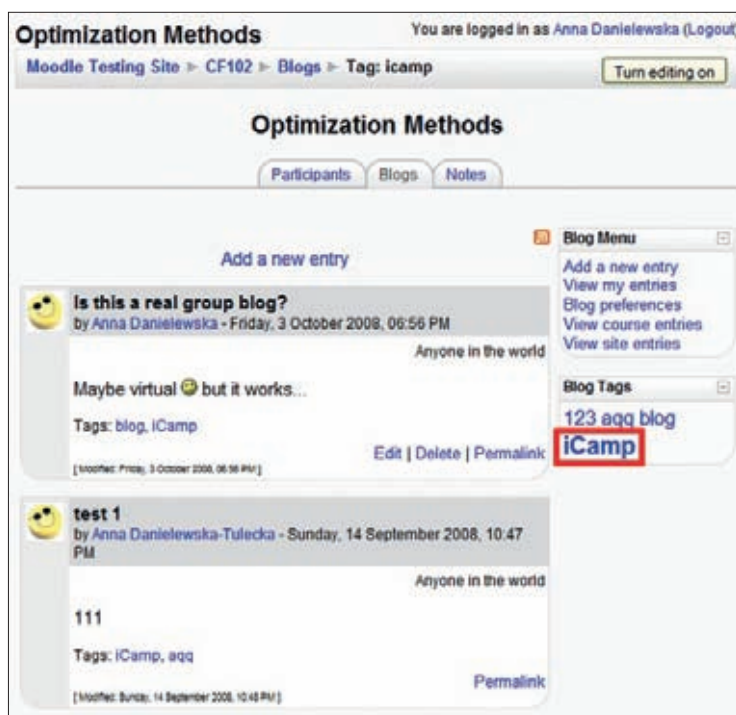


Figure 4. Filtering blog posts by tags

Obviously, this kind of 'group blog' cannot be advertised through FeedBack's advertise form; instead, you can simply use email.

5.3. XoWiki

[Felix Mödritscher]

Collaborative creation and maintenance of knowledge artefacts is one of the emerging phenomena of online internet communities, as prominent examples such as Wikipedia.org, MediaWiki.org, LyricWiki.org, Microformats.org, Wikitravel.org, and so forth, have clearly demonstrated. Moreover, a collection of web pages (a so-called wiki) can be very useful for teaching and learning purposes, for instance if learners need to collaborate to work on certain topics or if facilitators wish to develop and share their learning content with others. Consequently, a contemporary approach to technology-enhanced learning requires tools which can enable learners to work on artefacts collaboratively, either by allowing them to publish small posts which can be reused and combined with others (see the blog-based solution presented in the previous section) or by providing real wiki functionality.

XoWiki (see Appendix A for source information) is one such wiki implementation, realized as a component of OpenACS (Open Architecture Community System), a framework for building scalable, community-oriented web applications. XoWiki includes a rich text editor for easily creating and editing wiki pages and provides features for structuring, commenting, tagging and visualizing wiki-based content. Figure 1 shows the form for creating and editing wiki pages.

The screenshot shows the 'ICamp Dev' interface for editing a XoWiki page. The form includes the following fields and content:

- Name (required):** (Note: Shortname to identify an entry within a folder, typically lowercase characters)
- Section:**
- Page Title (required):**
- Creator:**
- Content:** A rich text editor with a toolbar showing various formatting options. The content area contains:

Possible educational scenarios for a Wiki:

 - Facilitators:**
 - Creating and managing own learning content
 - Creating and managing learning content together with other facilitators
 - Creating and managing learning content in collaboration with learners
 - Asses learning progress and give feedback
 - Grade learning outcome
 - Learners:**
 - Elaborate a topic together with peers
- Description:**
- Language:**
- OK** button

Figure 1. Form with embedded WYSIWYG editor for creating and editing wiki pages

Users have to enter a unique name and a title for each page and can enter the content using a WYSIWYG editor which supports different fonts, formatting (bold, italic, etc.), and enumeration types (numbered, bullets, etc.). Furthermore, a learner can include and edit links, pictures and tables easily and the editor has all the typical functionality of a word processing program (redo, undo, cut, copy, paste, etc.). The editor also allows users to switch to an HTML view, allowing more experienced users to manipulate the HTML code directly. The 'Section' field can be used to structure the wiki pages according to, for instance, courses or instructions. Using page templates also allows the look and feel of all the pages to be pre-defined, so that each course can have its own particular style.

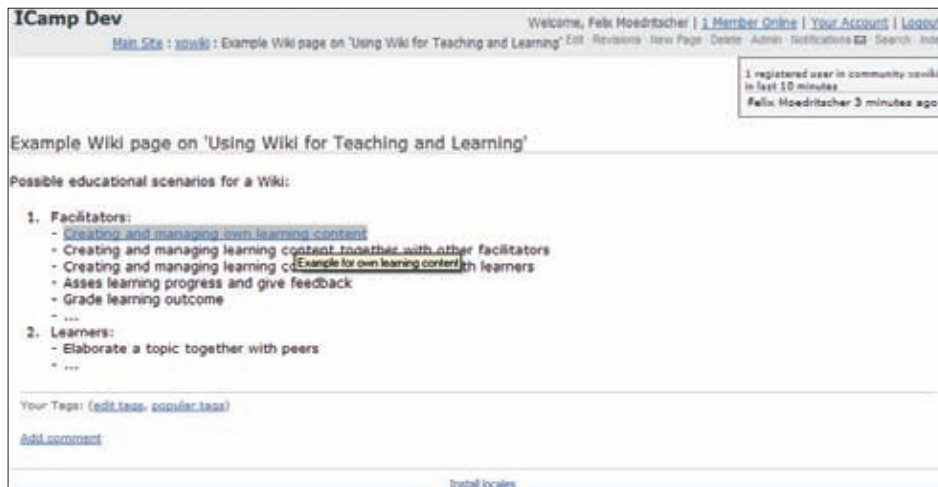


Figure 2. Example wiki page including a link, displayed within the OpenACS framework

XoWiki supports different media types, ranging from plain text pages, to PDFs, to pages with embedded images. As shown in Figure 2, a wiki page is visualized within the default OpenACS framework, with a header and menu at the top and tools for tagging and commenting at the bottom. The example page in Figure 2 is a default XoWiki page and includes a link to another wiki page.

Scenario

Consider a group collaborating on a shared artefact, for example a team elaborating a text on a particular topic. In our example, Sarah leads an international and distributed research team in the field of technology-enhanced learning and wants to create a joint document about how a wiki can support learning. Described in detail below are the tasks that can be accomplished for this activity using XoWiki (and other tools).

Facilitator view

1. First of all, Sarah creates an overview page using the rich-text editor and puts forward a first draft of the structure.

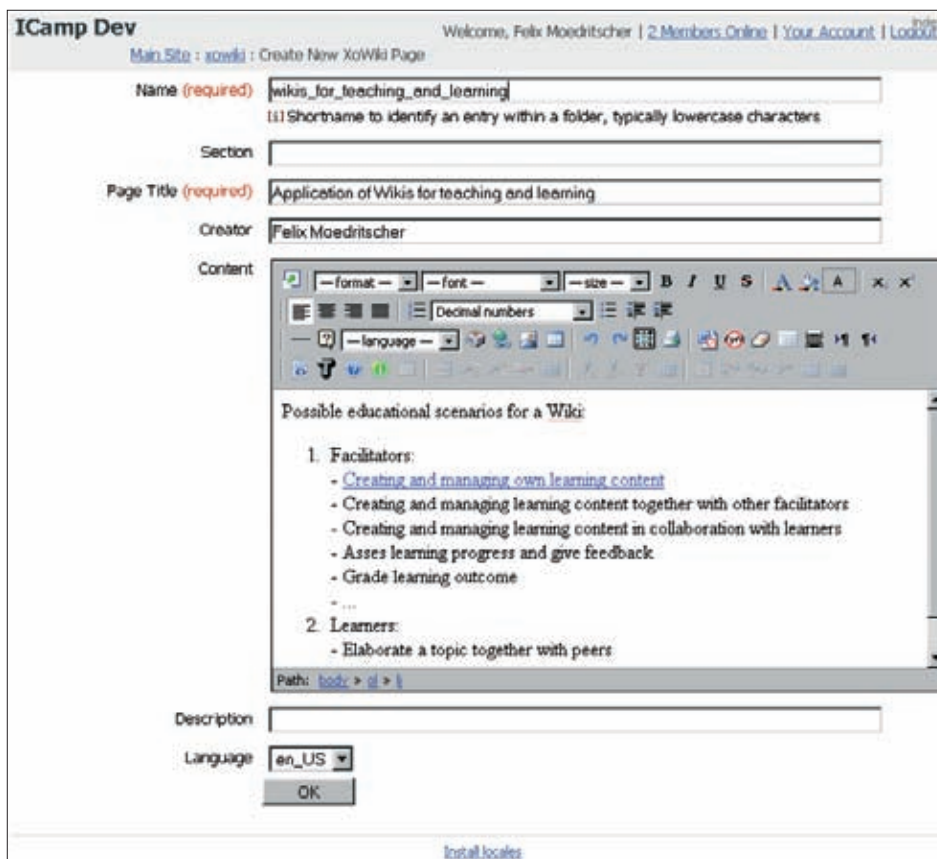


Figure 3. Creating a wiki page using the rich-text editor

2. By using the 'edit' link (a), she can edit the document again, e.g. to revise or expand the content of the wiki.

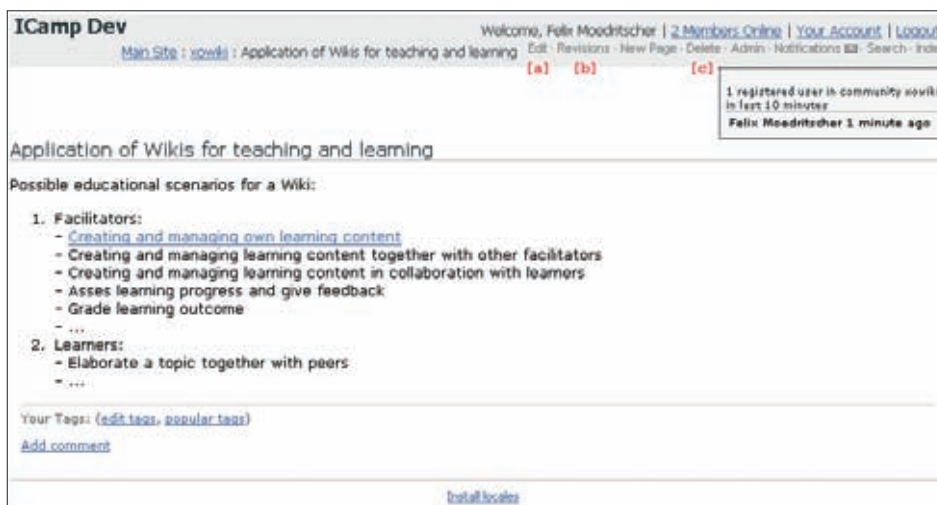


Figure 4. Editing, revising, and deleting an existing wiki page

In addition, Sarah can also get an overview of all the revisions (the 'revisions' link (b)) and even revert back to earlier versions of the wiki page.

ICamp Dev Welcome, Felix Moedritscher | [1 Member Online](#) | [Your Account](#) | [Logout](#)

[Main Site](#) | [jowiki](#) : [encourage of wikis for teaching and learning](#) | [Revisions](#)

	Author	Size	Last Modified	Version Notes	Live Revision
3:	diff Felix Moedritscher	647 bytes	09/22/08 09:45 AM		<input checked="" type="radio"/>
2:	diff Felix Moedritscher	624 bytes	09/22/08 09:06 AM		<input type="radio"/>
1:	diff Felix Moedritscher	621 bytes	09/22/08 09:05 AM		<input type="radio"/>

[Install locales](#)

Figure 5. Removing single versions of a wiki page

Lastly, the 'delete' link (c) allows the user to remove the wiki page altogether. Single versions of a wiki page can be deleted using the 'revisions' menu (see above).

3. To give the other members an idea of what a sub-page (in an educational wiki scenario) should look like, Sarah creates a new link within the overview page by editing it, marking the appropriate text passage (a) and clicking on the 'add link' icon (b).

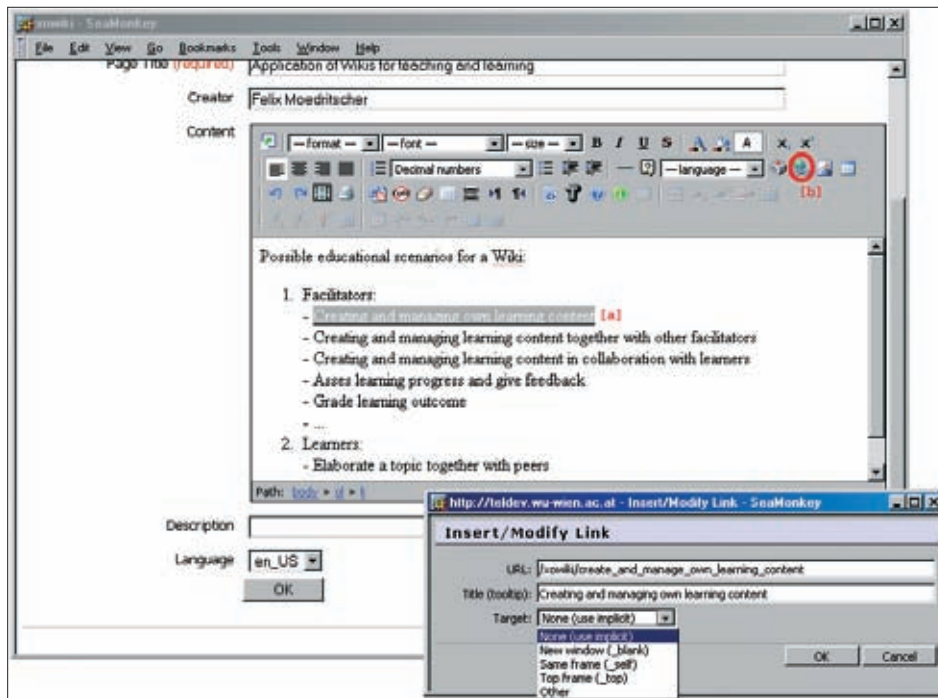


Figure 6. Creating link anchors within a wiki page

When this new link (to a non-existent page) is clicked, the XoWiki tool asks Sarah to create a new page to fit here.

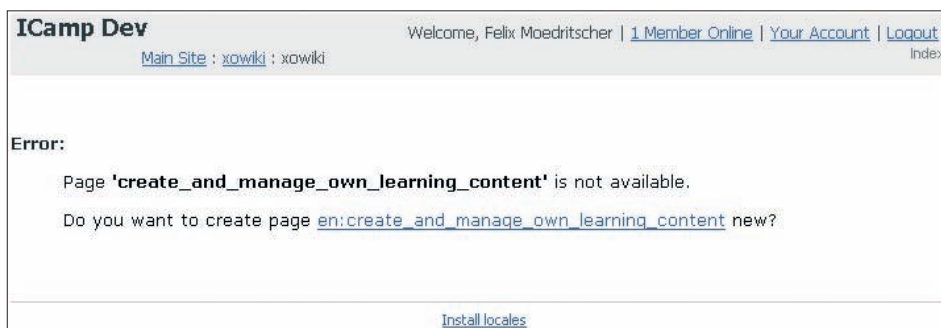


Figure 7. Creating a new wiki page by following a link to a page which does not yet exist

Next, Sarah uses the rich-text editor to create this new page. She enters a first draft of an educational scenario which she wishes to use as the template for all the other participants. She decides to include an image in this wiki page.

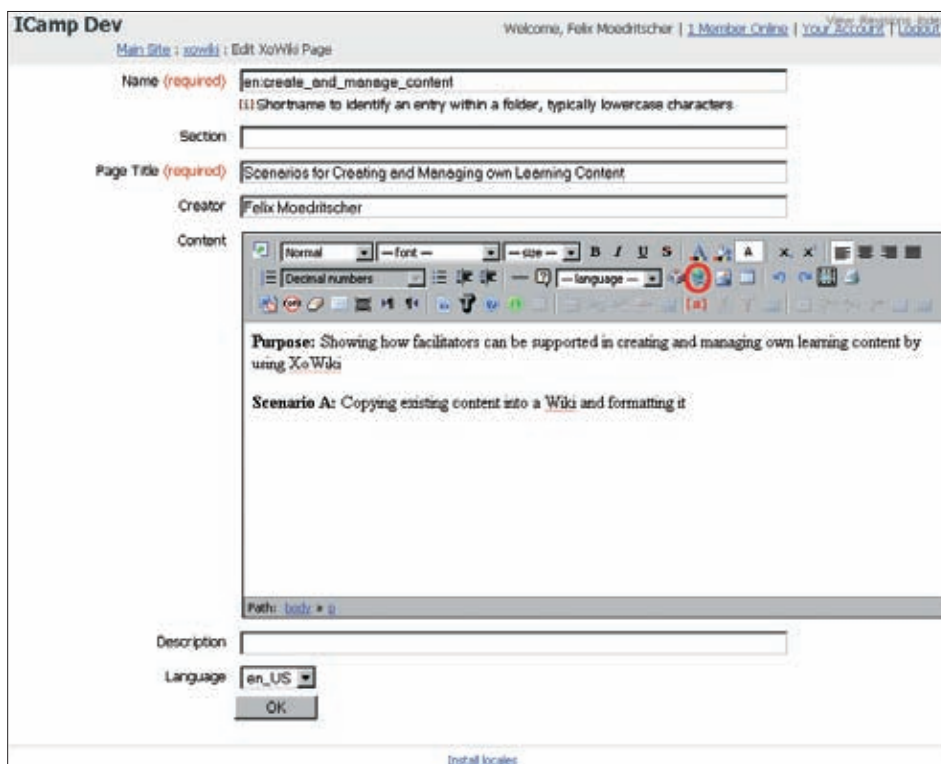


Figure 8. Inserting an image into a wiki page

The WYSIWYG editor allows images to be imported for just this purpose (see (a) in the figure above). Sarah can specify a local or remote address to an image. After entering a URL, XoWiki provides a handy preview of the image.

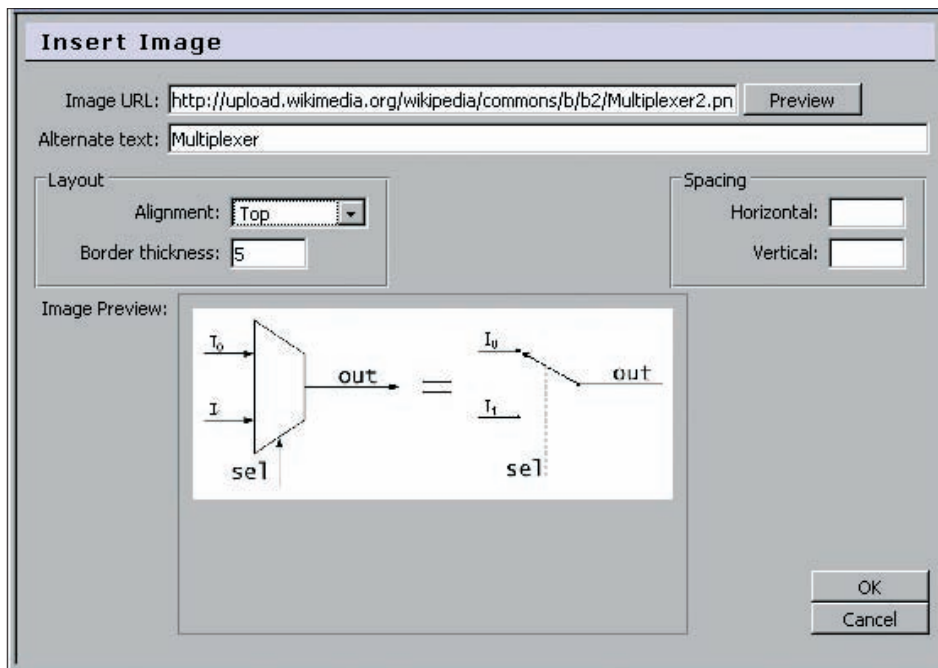


Figure 9. Selecting and previewing the image

XoWiki also supports wiki pages with embedded images. Images are displayed within the content and can be manipulated using basic operations such as resizing, aligning, etc.

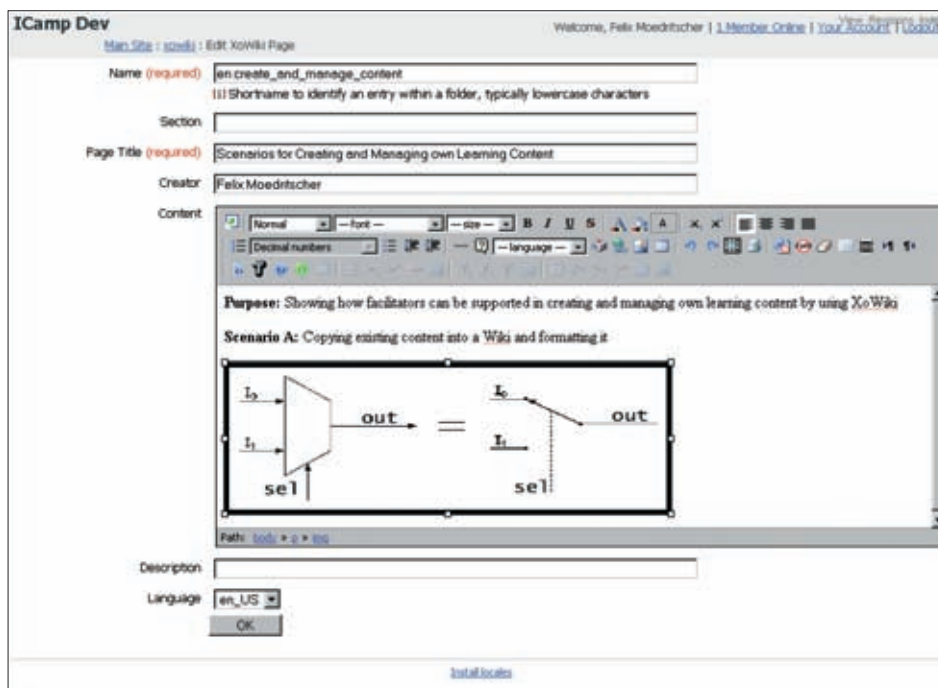


Figure 10. Editing a wiki page containing an embedded image

4. As Sarah wants everybody to be informed about any changes to the wiki page, she creates a notification for the XoWiki instance by clicking on the email icon in the menu bar. The notification allows for three different modes: instant, hourly, and daily. Since she only wants one summary per day, she selects the 'daily' option for the notifications.



Figure 11. Setting up change notification within the wiki pages, for all members

5. After this preparation work, Sarah adds the members to this XoWiki instance by granting extended permissions for the pages (Create and Write).

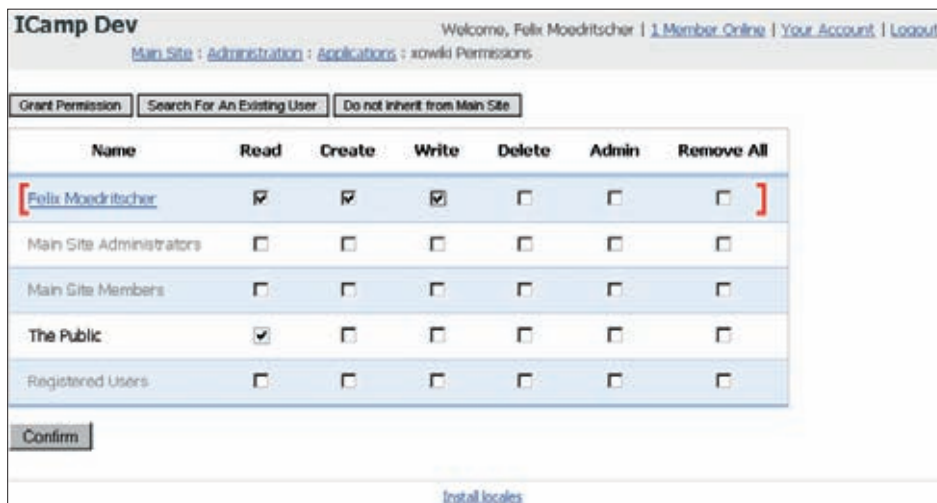


Figure 12. Adding the team members to the XoWiki instance

Furthermore, each team member is reminded to contribute to this collaborative activity by email. Each person should complete at least one of the pre-defined scenarios with one wiki page and add new educational scenarios. Finally, the members should tag the existing pages according to their topics and make any necessary comments about the work of the others.

6. Throughout the research activity, Sarah assesses the progress of the wiki creation process and gives feedback, if necessary. The XoWiki notification service informs her each day of any changes that have been made to the wiki pages, so that she can react appropriately.

Learner view

Fridolin, one member of the research team, can now access the XoWiki instance and see what has been created so far. Besides modifying existing wiki pages and creating new ones (as shown before), Fridolin can tag each page with his favourite keywords, using the 'edit tags' link (a).

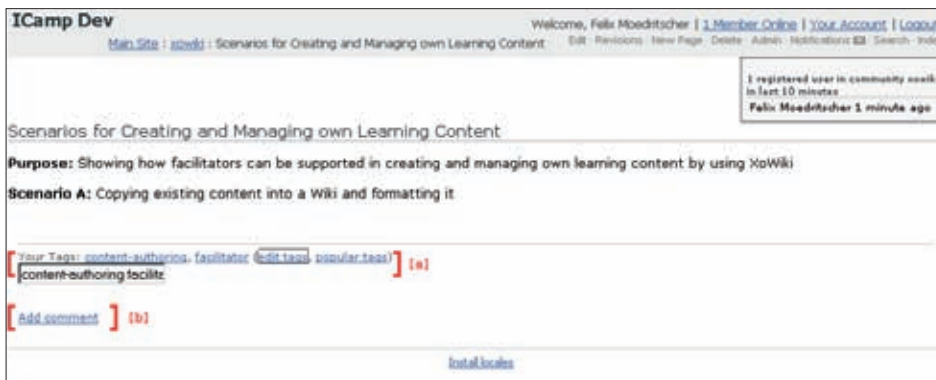


Figure 13. Entering a space-separated tag list for a wiki page

These tags are displayed to other users and can be used to categorize the wiki pages. Furthermore, Fridolin can add comments (and even attach files) to each page. Browsing through the existing wiki pages, Fridolin finds a page that he disagrees with, and decides to write a comment by clicking the 'Add comment' link (b).



Figure 14. Leaving a comment about a wiki page

After the content of the comment is confirmed, it is made available to the whole team. The following figure shows how tags and comments about a wiki page are displayed.

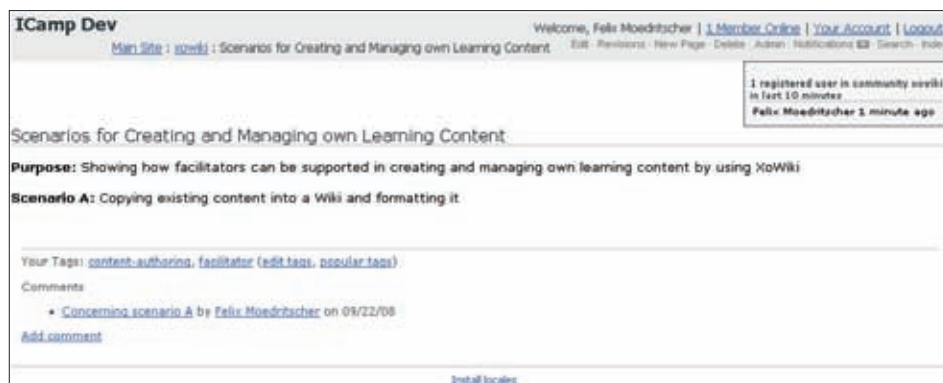


Figure 15. Displaying the tags and comments for a wiki page

XoWiki provides a good overall overview of the development process of a wiki page. By clicking on a tag, each user can see all the relevant meta-information about a page, including the author, the date of and the user responsible for the latest modification, any comments, its own and popular tags, and so forth.

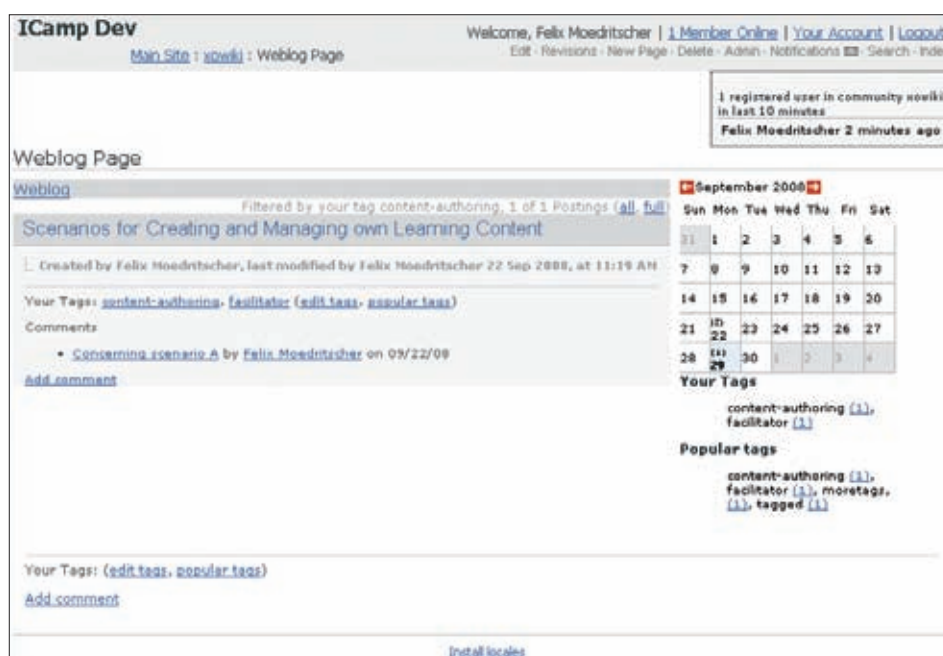


Figure 16. Getting an overview of a wiki page by viewing the appropriate meta-information

Outcome of XoWiki-based collaboration

Typically, collaborative activities with XoWiki result in a collection of web pages that have been created, managed, structured, and annotated by a group of users and made available to a community. In our simple scenario about Sarah and her research group, the result of the collaborative process – a wiki about how wikis can be used in teaching and learning – might form part of a handbook or online tutorial for technology-enhanced learning. Each wiki page can be accessed directly, e.g. via a URL leading to the overview page, or with other retrieval facilities, via searches or browsing.

Moreover, a wiki can be made public, for instance by opening it up to a search engine, or kept private, using the access control features of the XoWiki system itself. XoWiki even allows for roles with different permission within the wiki, with permissions ranging from no access or read-only access rights through to full administrative access. Using this access control system, specific roles can be defined within the collaborative process. In our scenario, there could be an external reviewer who has only been granted read access and permission to make comments on pages. Another actor could be responsible for improving the grammar, and so would only require write permission.

5.4. Google Calendar

[Joanna Wild née Kisielewska]

While effective time management is a very important element of self-organizing and self-regulatory processes in any learning context, it becomes even more of an issue when you have to work in groups, especially if those groups are geographically distributed and collaboration can only take place within a virtual learning environment.

Imagine you are working in an international, geographically distributed team on a common project. Apart from this project, your team-mates are studying different courses at their universities, which means that all of you have different deadlines to be met and different meetings to attend. Also, some of your colleagues work in different time zones. Together, you have to come up with and agree upon a realistic study plan that will have to be followed for the duration of the project life span in order to get all of your tasks accomplished in time. Wouldn't it be useful to have a **group calendar** that is designed in a user-friendly way, which can be embedded into your blog or web site, and that automatically adapts to the various different time zones in order to prevent misunderstandings?

Below we describe how Google Calendar (see Appendix A for source information) can be used for educational purposes. We focus on those features of the calendar that can effectively support collaboration and workflows within geographically distributed learning groups.

Practical use in an e-learning course

Google Calendar allows you to keep track of all the important events and deadlines related to your studies and your personal life. In a learning situation, it can also be used as a **group calendar** for students working on the same project, assignment or task. The members of the group share viewing and/or editing rights to their calendars. If students are geographically distributed over different time zones, calendar entries are displayed in accordance with the time zone of the currently logged in student (this option can be defined in the calendar settings). Each of the group members can decide if and when he or she should be notified about an event. Group members can also embed a graphical version of the calendar into their group blog or web site. All of this functionality, together with some additional features that are described in the tutorial below, permits efficient time management within distributed learning groups.

Scenario

Joanna, who is affiliated with AGH - University of Science and Technology in Krakow, has been chosen to lead an international and geographically distributed group of sociology

students working together on a small project. Within the project, several milestones must be achieved and the group has already agreed upon the first deadlines to be met and the meetings to be held in the upcoming weeks. Thanks to Doodle (see section 5.5 of this chapter), this task proved to be quite easy. Now it is important for the group to have all their deadlines and milestones stored somewhere in the virtual space where they can be easily accessed and managed by each member of the group. For this purpose, Joanna decides to set up a group calendar within Google Calendar, which she already uses to track important events related to her sociology studies and private life. She assigns all her group members with editing rights to the group calendar she has created and with 'view' rights to her personal calendar with deadlines for other courses.

One of the group members, Max, affiliated to the University of Leicester, also uses Google Calendar for his studies and he simply adds the group calendar created by Joanna to his existing Google Calendar. He also decides to give Joanna the rights to 'view' his other calendar, which he uses for other courses. In this way it will be easier for both of them to set up meetings that do not clash with obligations related to the other courses they are taking.

Unlike Joanna and Max, Fridolin, from the Vienna University of Economics and Business Administration, does not use Google Calendar but rather Microsoft Outlook Calendar. He synchronizes the two calendars with one another using the Google Calendar Sync function.

Finally, the group members decide to link the graphical version of the calendar to the blog they are running. In this way, the calendar is also made visible to the course facilitator and the other students involved in the project.

Tutorial

In this tutorial we describe the steps that Joanna has to take in order to perform some of the actions described in the scenario above.

1. First of all, Joanna logs in to Google Calendar using her Google account details. Once logged in, she accesses the page for creating a new calendar by clicking on the link next to the 'My calendars' menu (a). She decides on the calendar name, and specifies the calendar time zone. In the last section of the page she decides who she is going to share this calendar with and what kind of rights this person will be granted. She types in Max's email address (b) and gives him the rights to make changes and manage sharing (c). She repeats this action for all the members of her group and saves the changes. The new calendar now appears in the 'My calendars' menu, and all group members can access and edit it.

Figure 1. Creating a new calendar

2. In the second step, Joanna creates a new event within the group calendar. There are a number of ways in which she can do this: by clicking on a selected day in the calendar, by using the 'Create Event' or 'Quick Add' links in the left-hand column of the calendar (a) or by clicking on the down-arrow button next to the calendar (b) and selecting 'Create event on this calendar'. Joanna enters detailed information about the event into a special form (c). She decides that she wants to be reminded about the event via an email ten minutes in advance (d). As the group members decided to invite the project facilitator to the event, Joanna sends the invitation by simply entering the facilitator's email address in the right-hand column of the page (e). The facilitator's response will also appear in this box. Finally, she saves the changes.



Figure 2. Adding an event

3. Joanna also added Max's calendar to her list of calendars. To do this she only had to carry out the three following steps: click on 'Add' in the 'Other calendars' menu, select the option 'Add a friend's calendar', and enter Max's email address. As Max has already assigned Joanna with 'view' rights to his calendar, the calendar automatically appears in the 'Other calendars' menu (a). If Joanna decides to take a look at Max's events, other than those related to the project they are involved in together, she only needs to highlight his calendar by clicking on it and his events will appear in her agenda (b). To make sure that the events from the different calendars are easy to tell apart, those from each calendar appear in a different colour.

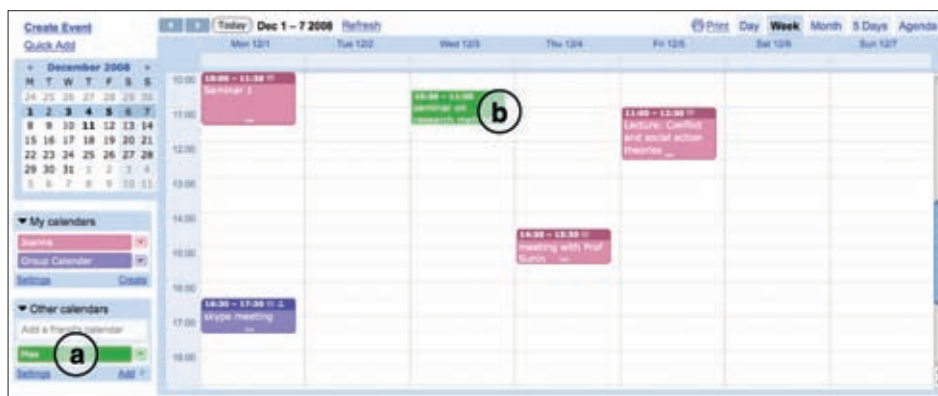


Figure 3. Adding a friend's calendar

4. Joanna can now link the graphical version of the calendar to any web site. The group has decided to make the calendar public on their blog so that the course facilitator and other students can access it. Joanna clicks on the down-arrow button next to the group calendar (a) and selects 'Calendar settings'. Next, she clicks on the HTML icon (b) shown in the 'Calendar Address' section. She then uses the URL to include the calendar in the blogroll.



Figure 4. Include calendar in blogroll

Whilst carrying out all of the actions described above, Joanna sometimes clicks on the 'Help' link located in the upper right-hand corner of her Google Calendar to find out more about the calendar features she wants to use.

5.5. Google Docs

[Joanna Wild née Kisielewska]

If you are fifty years old now and you think back to your studies, you will certainly remember having to work with one or two colleagues on a common document using a piece of paper and a pen, or maybe a typewriter. If you are thirty, you probably know nothing about what a pain it can be to have to write collaboratively using only pen and paper. When you were studying, you were already using a computer with a word processor to prepare your assignments and email to share the documents with other members of your group. This is still the way that most people work. One person prepares the first version of the document and sends it as an email attachment to the rest of the members of the group. Next, each person who receives the document turns on the 'track changes' option in their word processor and starts to edit the text. Once it's ready, he or she sends the document back to its owner. And this is the precise moment in which the problems can start. The owner of the document receives several versions of the same text. He or she has to go through all of them, read comments, accept or reject changes and consolidate everything into a single file again. This is a very time-consuming process, and is one which often has to be repeated several times before the final version of a document is arrived at and can be published.

Contemporary approaches to teaching and learning which emphasize the importance of collaborative knowledge construction require tools that facilitate the collective produc-

tion of knowledge artefacts, in real time and from different locations. In this chapter we describe how **Google Docs** (see Appendix A for source information) can help you and the other people in your group deal with the difficulties of handling multiple versions of the same file being sent back and forth between the group members until the final version of the document is produced.

Practical use in an e-learning course

In a learning situation, Google Docs can be used by a group of students working together on a project which involves creating one or more of the most common knowledge artefacts: word documents, spreadsheets or presentations. In the Google Docs online environment a group of students can share the editing rights to several documents, which they either uploaded from the hard drives of their computers or create from scratch. All the group members can work on the same document from different locations. A history of revisions helps not only to track the changes that have been made, but also provides information about their authors and allows any of the earlier versions of the document to be reverted back to. Once a document is ready it can be saved to a student's local computer in a variety of different file types, published as a web page, or posted to a blog.

Scenario

Karolina, Sebastian and Barbara study pedagogy at the Bata University in Zlin, in the Czech Republic. For one of the courses they have decided to work together on a scientific paper, which they are going to present at an upcoming conference in Prague. As Karolina has joined the ERASMUS programme this year, she is currently at the University of Leicester in the UK, taking some of her courses there. Karolina, Sebastian, and Barbara decide to use the Google Docs tool in order to both write and prepare their presentation for the conference collaboratively. Within the Google Docs environment, Karolina creates a new document and grants Sebastian and Barbara with permission to edit it. Karolina does not have access to the Internet from home. Fortunately, Google Docs allows her to make changes to the document when she is offline. In order to be able to do this she only has to install a small add-on named Google Gears. When she gets to the university and connects her laptop to the Internet, the changes will be automatically applied to the online version of the document and will become visible to Sebastian and Barbara. Once the paper is ready and reviewed by the course facilitator, Karolina, Barbara, and Sebastian start to prepare the presentation for the conference. They choose one of the Google Docs presentation templates and start editing. Lastly, they set up several online meetings to view and discuss the presentation together. They do this either using the chat feature provided by Google Docs or a VoIP application. They invite the course facilitator to the last of these meetings. While Sebastian does the presentation, the others listen, and make comments.

Tutorial

In the tutorial below we describe the steps that Karolina, Sebastian and Barbara have to take in order to carry out the actions described in the above scenario.

1. In the first step, Karolina logs in to Google Docs using her Google account details. Once logged in, she selects the type of the file she wants to create by clicking on 'New' (a) in the menu bar. Next, she renames her new document (b). Now she has to grant Sebas-

tian and Barbara edit rights to the document. To do this she selects the document she wants to share (c) and clicks on the 'Share' link in the menu bar (d).

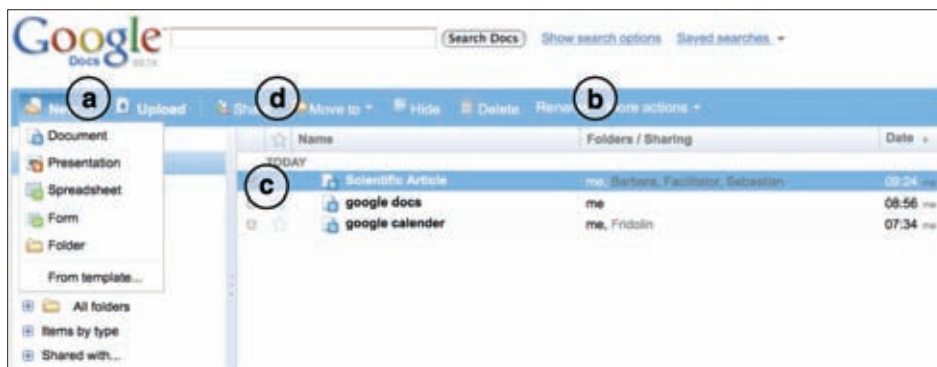


Figure 1. Creating a new document

2. Karolina sets Sebastian, Barbara and the course facilitator as collaborators by entering their email addresses into the field in the 'Invite people' section (a). She also wants her new collaborators to be informed via email that a new document has been created (b). All the new collaborators receive a secure link to the newly created file.

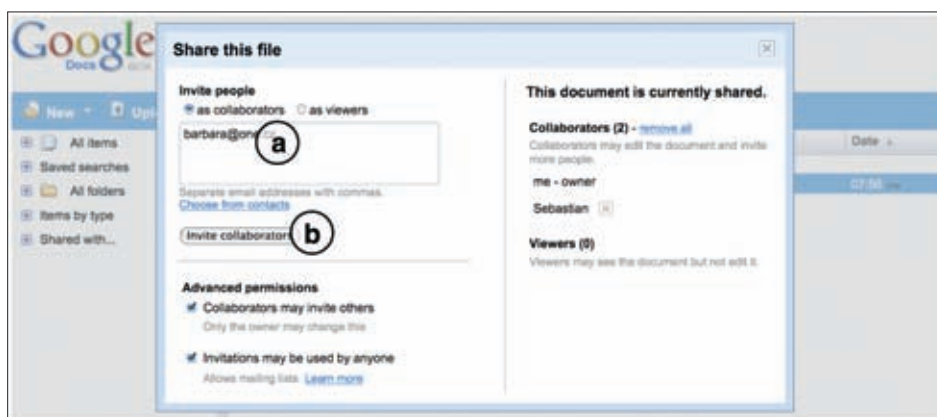


Figure 2. Selecting collaborators

3. Now each of the collaborators – Karolina, Sebastian, and Barbara – can work on the article. Occasionally, their facilitator will also access the document to check on their progress and to give advice to the young researchers.

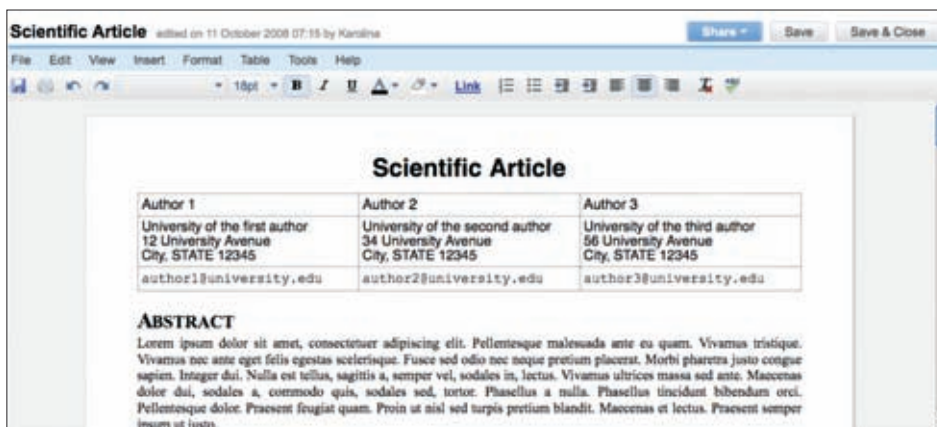


Figure 3. Editing a document

- As Karolina cannot access the Internet from home, she wants to work on the document using the offline mode. To do so, all she needs to do is install a small add-on called Google Gears. She clicks on the 'Offline' link in the upper right-hand corner of the Google Docs window and installs the program.

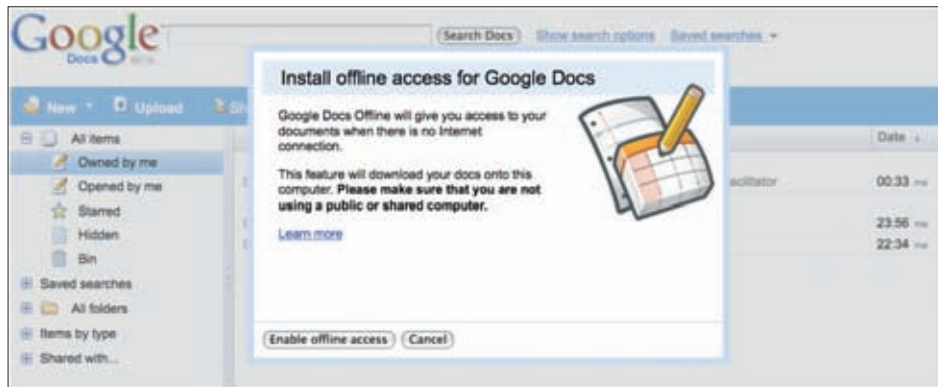


Figure 4. *Installing offline access*

- Once their paper is ready, Sebastian saves it to the hard drive of his computer as a PDF file. To do so, he opens the 'More actions' menu at the top of the window and selects 'Save as PDF'.

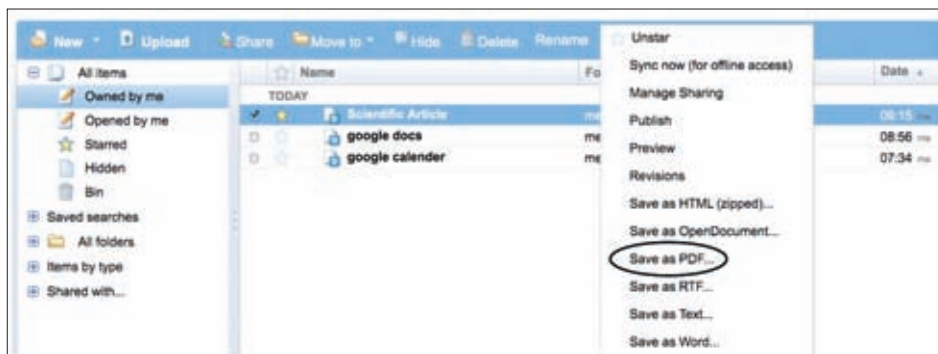


Figure 5. *Export as PDF*

- The next step is to prepare a presentation for the conference. The group decides to use one of the templates made available in the Google Templates Gallery, in the Students & Teachers category. Barbara opens the 'New' menu and clicks on the 'From template' link. She is automatically redirected to the Gallery where she can select an appropriate template. She renames the document and grants the rest of the group and the

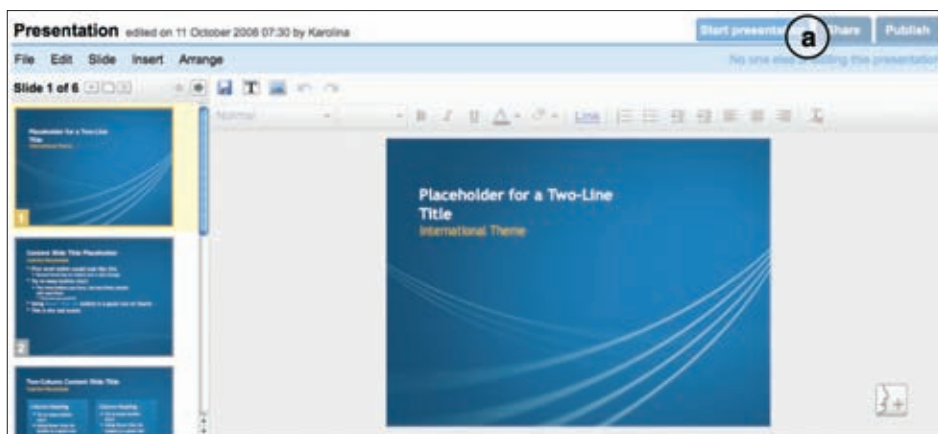


Figure 6. *Preparing a presentation*

facilitator with edit rights to the document. Preparing a presentation in a collaborative way requires several real-time meetings. Each time that the group decides to meet in a virtual environment to discuss the presentation, one of its members clicks on the 'Start presentation' button in the upper right-hand corner of the interface (a).

- Once the presentation is ready, the group members must brush up on their presenting skills. Taking the initiative, Sebastian assumes the role of presenter (a). Karolina, Barbara and the group facilitator are his audience. Sebastian also invites some other students to join this virtual meeting by sending them its URL (b). All the participants use Skype to listen to and discuss the presentation made by Sebastian. They can also use the chat feature (c) to give any comments or suggestions.



Figure 7. Rehearsing the presentation

5.6. Doodle

[Karolina Grodecka]

Whenever a group of people wish to meet online, they may experience some problems with synchronization. Using common calendar tools to plan and organize group events or group work is not enough when decisions need to be made quickly.

When students are working on a project together they need to divide tasks among the members of a group and monitor the progress of the project. This requires the students to engage in collaboration, discussion and decision making processes. In the context of bringing different cultures, educational systems, levels of teaching, languages and technology skills into a common virtual learning space, planning a series of meetings several weeks in advanced may very simply not work. Taking this into account, students must adopt a simple solution to meet their needs. But do not panic! There are plenty of solutions which can help to make your project run smoothly. One of them is Doodle (see Appendix A for source information).

Doodle can be described simply as a web-based tool for finding suitable dates for appointments with other people. To quote one of Doodle's users:

This is simply the most elegant, focused, and useful web app I have ever used.

And the opinion of *CNET News.com*:

Doodle is a brilliantly simple polling system that helps people coordinate times when they can all meet. [...] [I]t just works.

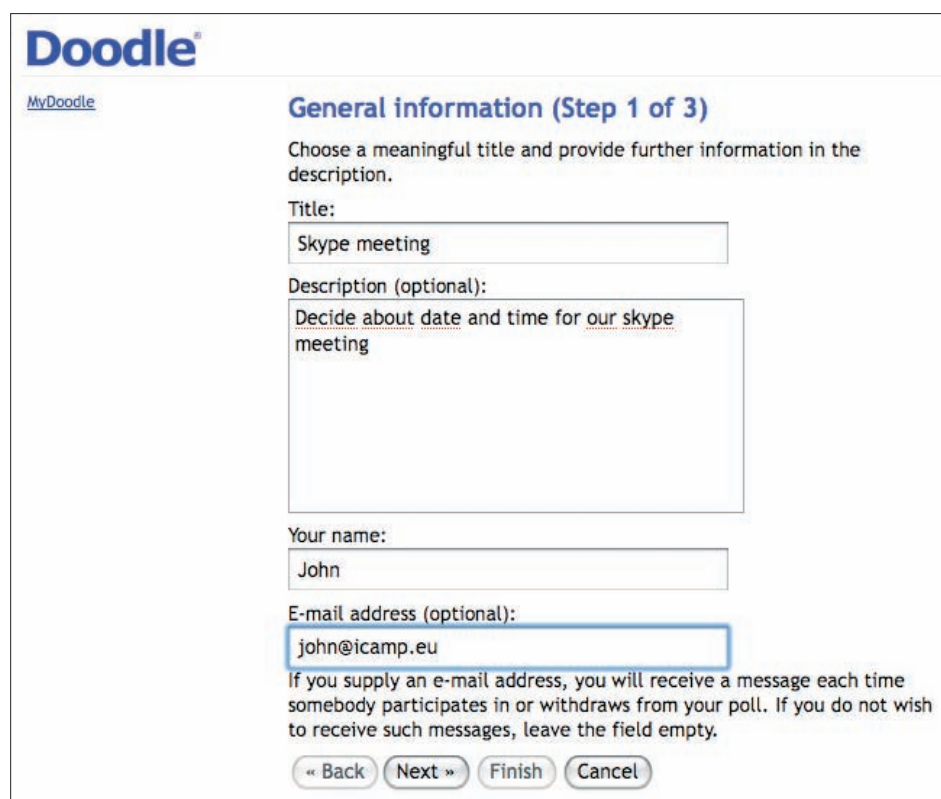
After reading such comments, the next logical question would be: what is so special about this Doodle? Well, for a start, it is not necessary to download or install anything. Furthermore, Doodle's interface has been translated into 24 languages. The tool does not require authentication or registration during voting, either. This makes Doodle particularly useful even for when people do not use the same calendar or groupware system. Doodle can fulfil many purposes in an educational context.

Doodle allows learners to plan their meetings with facilitators, supervisors and other students. In addition to time management, it can be used to vote for any other issue that arises as part of the distance learning process; for example, the literature that needs to be selected and analysed in order to complete a particular task. From a facilitator's point of view, Doodle can be used to vote, for example, for assessment schemes.

Below, we describe one possible learning situation, based on experience gained during the iCamp project.

Scenario

Some students taking part in an international project are required to work in group of five. They have to design and prepare an e-Learning course based on Web 2.0 solutions. Working online on such an assignment requires a lot of real-time discussions, and reflection on assumptions and purposes, which usually change over the course of an activity.



Doodle
MyDoodle

General information (Step 1 of 3)

Choose a meaningful title and provide further information in the description.

Title:

Description (optional):

Your name:

E-mail address (optional):

If you supply an e-mail address, you will receive a message each time somebody participates in or withdraws from your poll. If you do not wish to receive such messages, leave the field empty.

« Back Next » Finish Cancel

Figure 1. Creating a new poll

One of the students, named John, has already had some experience using the Doodle tool, which he uses to schedule family meetings, dinners with colleagues, movie nights, or any other group event amongst friends and family. So why couldn't this be applied to learning purposes? Students from his project group are trying to choose an appropriate time for an online meeting. So John decides to let them vote and creates a poll on Doodle. John opens the web browser and enters the URL of the Doodle homepage. Once there, he clicks on the 'create poll' link and gets to work. At no point does he need to log in or create an account.

He enters the title, description, his name and his email address. This last piece of information is optional but very useful, since by completing this field he will receive a message each time somebody participates in or withdraws from a poll.

The next step is to pick the date. John proposes the 13th and the 14th of October as feasible days for the meeting. To select these days, he simply clicks on them on the calendar.

Select dates (Step 2 of 3)

Select days by clicking them. Click a selected day to deselect it. Click << and >> to change month.

<< October 2008 >>

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Selected dates:
Oct 13, 2008
Oct 14, 2008

<< Back Next >> Finish Cancel

Figure 2. Selecting potential dates

The next step is to decide on the time for the meeting.

Select times (Step 3 of 3)

Fill in as many time slots as you need. You must provide at least one time per date.

If possible, what you enter is interpreted as a time. For example, 9, 13:30, 2250, 01, and 18 would be interpreted as 09:00 AM, 01:30 PM, 10:50 PM, 01:00 AM, and 6:00 PM, respectively.

If you are in a different time zone than the one displayed, choose your time zone, too.

without time-zone support

Central European Time / Central European Summer Time (Europe/Warsaw, Poland)

	Time 1	Time 2	Time 3	Time 4	Time 5	
Mon, Oct 13, 2008	2	3	4	5		Add further time slots Copy and paste first row
Tue, Oct 14, 2008	2	3	4	5		

<< Back Next >> Finish Cancel PowerDoodle

Figure 3. Selecting potential time slots

Here, all he has to do is enter the times as simple numbers and Doodle automatically interprets them as times on a 24-hour clock. In addition, John also wants to change the type of questions and limit each participant's answers. To access these extra features he clicks on the 'PowerDoodle' button.

PowerDoodle

Example

	August 1973	March 1975	
	Sun 05	Sat 15	Wed 26
Paul	OK		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Answers

- Yes-No Poll
- Yes-No-Ifneedbe Poll

Visibility

- Transparent Poll (all participants see all answers)
- Hidden poll (only you see all the answers)

Number of OKs per participant (row)

- unlimited
- limited to 1

Number of OKs per option (column)

- unlimited
- limited

Limit:

« Back Next » Finish Cancel

Figure 4. Additional options

Here he opts for a 'Yes-No-ifneedbe' poll, which offers the participants an additional alternative answer (could find time if absolutely necessary).

After clicking 'Finish', John receives two emails: one containing a link to the administration page and the other containing the link that should be forwarded to potential participants to allow them to cast their votes. John sends the email to the members of his group. In

order to participate, all they need to do is click on the link, enter their name in the relevant field, choose their answer and click 'Participate'.

Poll "Skype meeting "

Initiated by John.

Enter your name in the text box below and cast your vote by selecting the corresponding fields. Click the "Participate" button to save the information.

If you are in a different time zone than the one displayed, choose your time zone first and then click the "Update" button.

Central European Time / Central European Summer Time (Europe/Warsaw, Poland)

Update

October 2008								
Mon 13				Tue 14				
2:00 AM	3:00 AM	4:00 AM	5:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Caroline

Participate

green = have time
 yellow = could make time if absolutely necessary
 red = do not have time

Figure 5. The poll

John receives an email notifying him that one of his colleague has just voted.

Doodle also allows users to create an account. This lets them organize a poll with full text questions instead of just yes or no ones. Registration is simple: just enter your name and email address and choose a password.

General information (Step 1 of 2)

Choose a meaningful title and provide further information in the description.

Title:

Description (optional):

Your name:

E-mail address (optional):

If you supply an e-mail address, you will receive a message each time somebody participates in or withdraws from your poll. If you do not wish to receive such messages, leave the field empty.

« Back Next » Finish Cancel

Figure 6. Creating a new poll after registration

John discovers this feature and this time he wants to initiate quick voting which can help with task distribution among the project group. He creates an account and, after logging in, clicks the 'New text poll' button.

In the next step, John enters a task in each field.

Enter options (Step 2 of 2)

Please enter all the options you want to offer in your poll. Participants will later be able to cast their votes for each of these options.

Option 1:

Option 2:

Option 3:

Option 4:

Option 5:

Option 6:

Figure 7. Creating full text questions

Next, John can also change the type of a question and set the limits in 'PowerDoodle'.

The resulting poll looks like this:

Poll "Our responsibility "

Initiated by John.

Enter your name in the text box below and cast your vote by selecting the corresponding fields. Click the "Participate" button to save the information.

Legend:

1. Create group blog
2. Searching for relevant articles
3. Managing group calendar
4. ...

	1. Create g...	2. Searchin...	3. Managing...	4. ...
Karolina Grodecka	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Participate

green = in favor
yellow = could live with this option
red = against

Figure 8. The poll with full text questions

Among the additional features of Doodle, it is worth mentioning the commenting options and the program's multilingual interface.

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We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

FeedBack plug-in for WordPress

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Moodle FeedBack module

Anna Danielewska-Tulecka (AGH - University of Science and Technology, Poland)

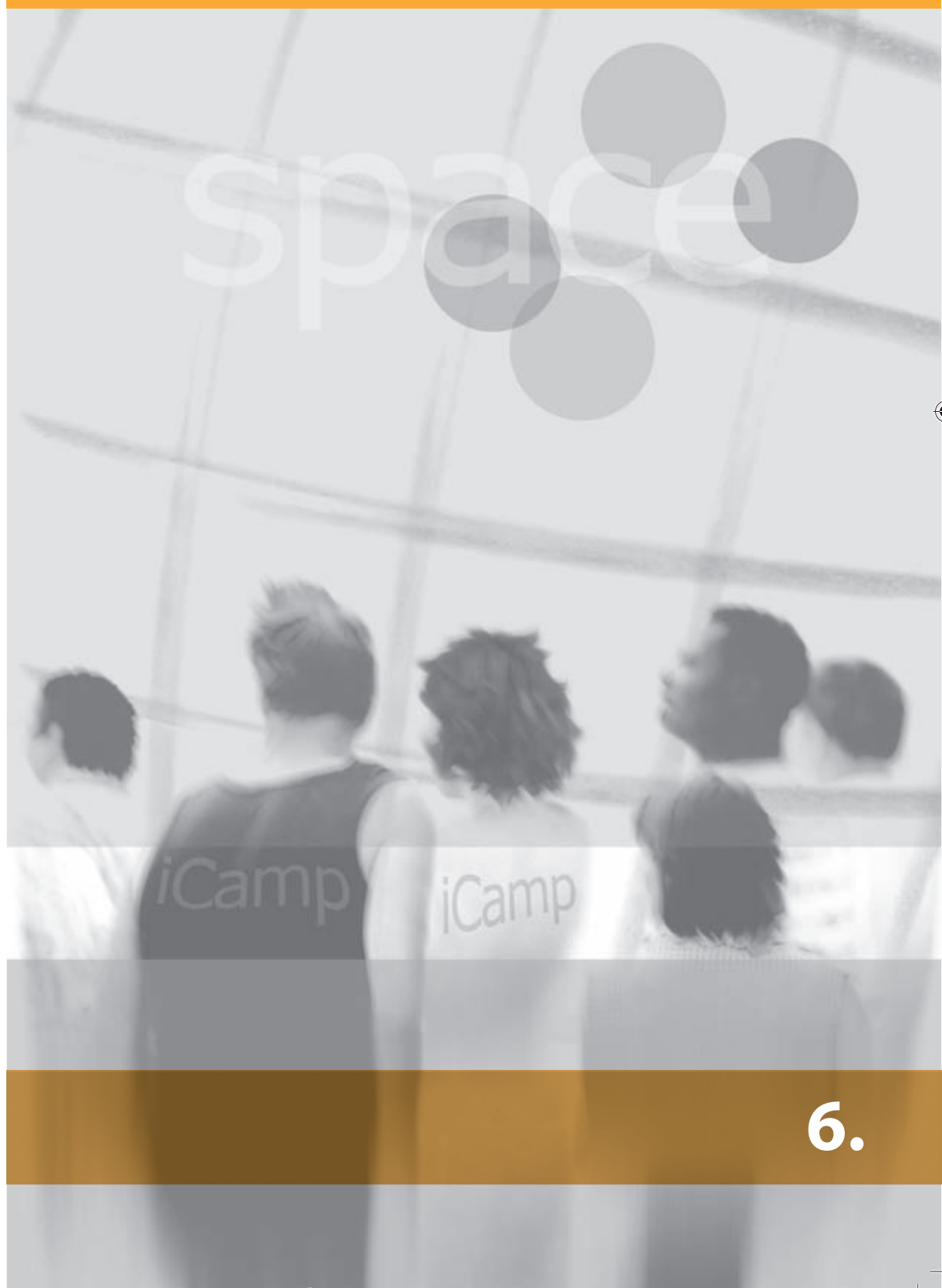
XoWiki

Gustaf Neumann (Vienna University of Economics and Business Administration, Austria)

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SELF-ORGANIZATION OF THE LEARNING PROCESS



6. SELF-ORGANIZATION OF THE LEARNING PROCESS

[Barbara Kieslinger, Karsten Ehms]

6.1. Introduction

Self-organization of the learning process occurs when responsibilities and instructional functions gradually shift away from the formal educational system and its representatives (facilitators, teachers, tutors, etc.) and towards the participants (or learners). The reasons for these shifts of responsibilities and instructional functions may vary from institution to institution and from facilitator to facilitator. Sometimes, such a move is based on educational philosophies or particular learning theories and sometimes it is simply a reflection of organizational preferences or economic demands.

However, there is growing evidence that in many work (and life) contexts, individuals (and groups) cannot, and indeed do not, rely on educational authorities and formal instructional systems to structure and support their intentional learning and change projects. Adults increasingly benefit from the development and advancement of skills that enable them to carry out self-direction and self-organization of intentional learning and change projects in various contexts. An increasing number of educational scholars predict the growing importance of such skills for coping with life in general (Rychen, 2003), and many challenging work contexts in particular (Erpenbeck and Heyse, 1999). Competencies in the area of self-direction and self-organization is an important prerequisite for successfully participating in life-long learning and developing skills within the information society.

6.2. Personal Learning Contracts

A personal learning contract can be a useful vehicle for driving the self-reflection process. Like Harri-Augstein and Thomas (1991), at iCamp we understand this pedagogical tool as a conversational contract that a learner enters into with him or herself and that helps them to describe their learning goals, strategy, outcomes and to review their progress. The term 'learning contract' is also used in educational settings to mean a written agreement between the learner and the tutor. It is sort of like a code of conduct which defines certain rules, on both sides, regarding behaviour (e.g. punctuality, etc.). However, in this handbook we will not be referring to this kind of contract, which usually only supports self-reflection in a very limited sense.

Self-reflection activities are part of our strategy for coping with problems in situations where we need to direct our action plans. The activities of self-direction include diagnosing and formulating needs, identifying resources, choosing and implementing suitable strategies, and evaluating outcomes (Knowles, 1975). Brockett and Hiemstra (1991), have pointed out that self-directed learning activities always take place in a certain social context and cannot be separated from that social setting and other people. As such, effective self-reflection and self-direction calls for challenging situations, the presence of others, and a reflective exchange with these other people. However, these studies have demonstrated that learners have a rather limited set of skills when it comes to self-directing their own learning.

Self-reflection is an important element of the self-organization of learning activities. As learning is an observed change, it must be inferred, from the available evidence, that there has been some significant change in somebody else's, or our own, way of thinking, perceiving,

and doing something (Harri-Augstein & Thomas, 1991). Therefore, to make such observations of change one has to consciously observe and reflect on the learning process.

While conscious self-reflection always plays a role in our internal decision-making process, people seldom express these controversial arguments, even when they are alone, let alone share them with other people. Conversations with others or with oneself (by explicit process monitoring) enable us to clearly formulate our responses to the situations which have arisen. This makes our own thinking clearer to us. The development of various e-Learning tools, for example forums and chat services, that save conversation protocols, provides learners with the means to record conversations and use these for post-activity self-reflection. Yet such resources are rarely made use of.

Although we see the personal learning contract as something that learners are only completing for their own benefit this does not mean that the facilitator has no role to play in the process. Particularly in the early stages, when learners are still unfamiliar with self-direction and self-reflection procedures, facilitators must guide learners in the management of their contracts. In addition, both the facilitator and peers are expected to comment upon and challenge the reflections of the learner. In this chapter, we present two different technologies that can be used for online personal learning contracts.

Conversational learning diaries

A useful procedure for aiding self-directed and self-reflecting learning with technology is the use of conversational learning diaries. Weblogs, the electronic successors to traditional diaries, can be used to record our dynamic self-reflections in challenging situations. However, putting our thinking processes on display in search of external support from the community is still a new idea, which is not easy for many people to accept. As well as internal self-reflection and self-directed actions, social software applications – especially weblogs, micro-blogging tools, and personal wikis – enable people to record their reflections externally, and to keep track of previously published reflections. Learners can also plan their activities in advance and monitor their self-directed actions in a self-reflective manner. Scaffolding elements to support self-reflection can be used in a similar way as in learning contracts, and the ability to add comments allows both facilitator and peers to point out and contribute to any interesting aspects that the author has described in his self-reflective weblog entries. Sometimes such conversational diaries are used together with personal learning contracts. In this case, the contract is the more static part, defining the goals, strategy, outcomes and review, whilst the diary is used for reflective writing and for documenting the dynamics of the learning process. Through writing in the diary, a learner may even decide to add to or revise their personal learning contract.

Scenario

A tutor giving a university lecture on the history of modern architecture wants to encourage his students to take more responsibility for their learning projects. In the past, he has been aware that many students rely solely on the instructions of the tutor, and he has witnessed a lack of critical reflection from certain students. Since they are facing challenging situations in their daily practices and will face even more later on in their jobs, he feels responsible for educating his students not only in the subject itself (which, in his case, is the history of modern architecture) but also for encouraging a higher level of self-organization in his students. The tutor decides to make use of social software on his course so as to allow for a more flexible time schedule for the participants. He becomes familiar with the concepts of conversational learning diaries and personal learning contracts. At the

beginning of the course, he tells all of his students about the conditions of the course, namely that each student is required to produce a personal learning contract, in an electronic format. He suggests using either **a blog** or **the iLogue** tool for this purpose. The students must define their learning contract right at the outset of the course. They are asked to reflect upon their goals, their planned activities and their resources. A time schedule is agreed and it is made clear that after a certain period the learning contracts are to be revised during a discussion between the facilitator and each individual student. The facilitator will also comment upon the initial version of each student's learning contracts. The participants agree on a deadline after which the learning contracts will no longer be able to be changed. From the point of view of subsequent assessments, this learning contract documents the initial goals. The students are also asked to periodically reflect upon their learning process. The facilitator keeps an eye on his students' reflections (having already subscribed to the RSS feed of each student's learning contract) and he gives comments in those cases where he finds it necessary. At the end of the course, the facilitator and each student together reflect upon on the student's learning progress.

Tutorial: Blog

The following steps could be followed in order to make a personal learning contract within a blog:

1. Create a blog using, for example, WordPress (see Appendix A for source information). This can be the same blog as the one that is going to be used by the learner for the specific learning activity or it can be a separate blog dedicated to the learning contract.

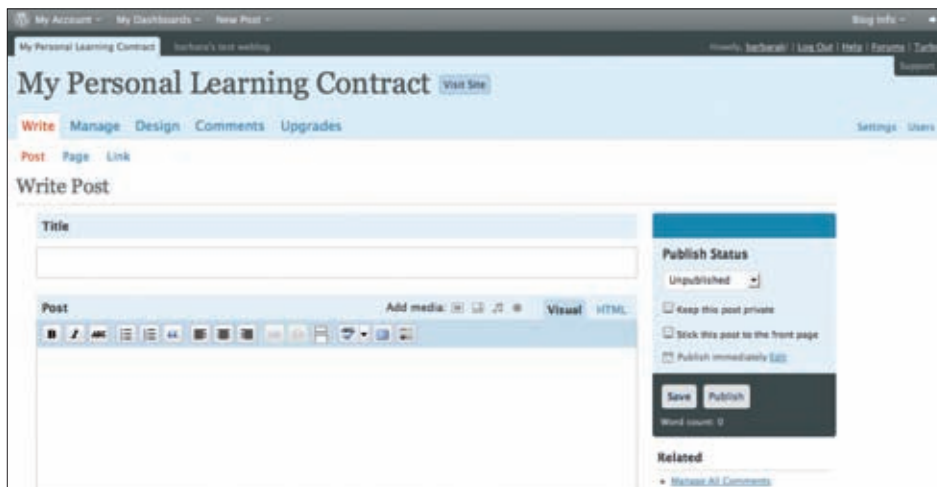


Figure 1. Creating a weblog (writing a new posting)

2. Define the minimum required elements of the learning contract in a weblog entry or in several weblog entries. The elements of the contract shall be agreed upon by the facilitator and the learner. Normally, they will include: purpose, actions, and resources. Both facilitator and peers can leave comments about the elements of the learning contract.



Figure 2. Preview of a blog posting

- Periodically, write some reflections upon the learning process: did the plan work out? Are the objectives the same? What happened when collaborating with the others? Are the resources adequate? etc. Peers and facilitators might want to leave comments about some of the reflections (e.g. to share similar experiences or to give advice about how to overcome certain problems, etc.)

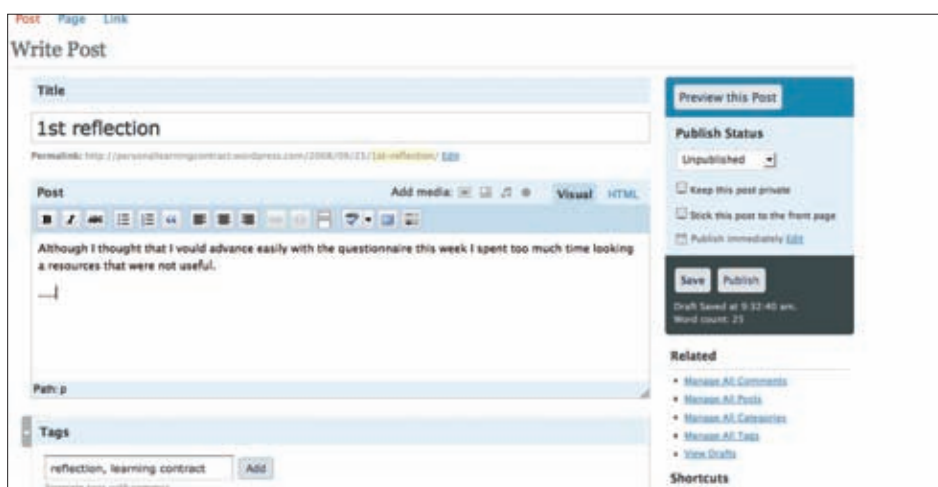


Figure 3. Writing a reflection

- Update the initial weblog entry with regards purpose etc. if necessary. This can be done either by simply adding a comment to the original contract entry or by creating a completely new entry and linking it to the original entry. The facilitator should discuss the updated contract with the learner. We recommend that you agree on a date for the final revision of the contract, after which time the contract should not be changed any more. The contract can then be referred back to at the end of the intervention to discuss the achieved learning outcomes vs. the learner's initial intentions. We do not

recommend using a personal learning contract as a conversational tool. No automatic conclusions should be drawn from the content. Instead, it should serve as a basis for discussion and further reflection.

Tutorial: iLogue

Introduction and purpose

iLogue (see Appendix A for source information) is an attempt to realize the concept of personal learning contracts, as staged and discussed by Harri-Augstein (1995) by means of a wiki-style authoring environment. Personal learning contracts were conceptualized as instruments for allowing for structured conversations regarding the (inner) dialogues of people who are actively participating in formal learning processes, letting them reflect upon the activities and artefacts of these formal learning processes (Harri-Augstein, 1995).

iLogue can be used to create personal learning contracts to be used as instruments to support personalized learning experiences for self-directed and self-organized learners. Learning contracts allow for a learning scenario in which the learner himself can assemble, compile and aggregate learning actions, resources and thoughts on a more operational level and specify what he or she wishes to learn, how he wants to do so and how his learning is to be evaluated (Codde, 2006). This implies active engagement in the learning process from start to finish, sharing the responsibility of both the planning and the learning experiences. They can help learners to build upon past experiences and to determine their needs as they carry out learning activities. Learning contracts can also be used to provide a method for reconciling the needs and expectations of organizations or professions with the learner's internal need and interests. On the other hand, learning contracts can help to make learning objectives clear and explicit for both learners and facilitators. By participating in the process of analysing personal needs, setting up objectives, identifying resources, choosing strategies, and evaluating accomplishments, the learner develops a sense of ownership over the plan.

iLogue is a pre-structured wiki environment for managing personal learning contracts (PLCs). Although there are many general tools such as generic wikis, collaborative authoring environments etc. available for this purpose, iLogue was designed to provide a little more structure right from the start.

Besides the four structured sections of your learning contract, iLogue can hold as many alternative versions of your contract as you like.

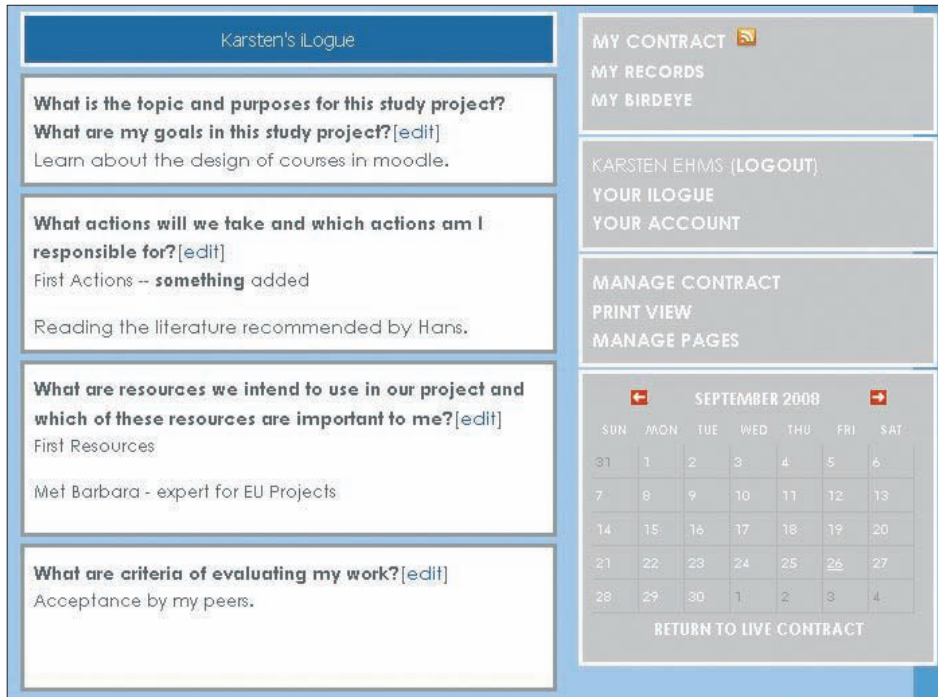


Figure 4. Main screen of your iLogue

From a technical point of view, iLogue is an application of **XoWiki**, a more generic wiki environment (described in chapter 4).

Tutorial

Register via <http://teldev.wu-wien.ac.at/register/user-new?return%5furl=%2f>

Figure 5. Registering

Log in via (http://teldev.wu-wien.ac.at/register/?return_url=%2f)

Visit any iLogue (or the demo iLogue at ...) and click on YOUR ILOGUE (<http://teldev.wu-wien.ac.at/ilogue/register>). Enter or confirm the URL for your new iLogue.

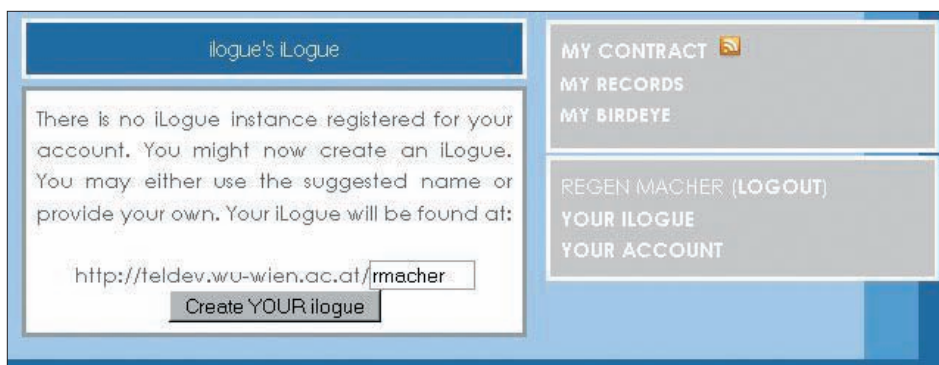


Figure 6. Create a new iLogue

Click on the 'Create YOUR iLogue' button.

You will be forwarded to your personal learning contract.

Save the URL for future reference and subscribe to the RSS feed (next to the 'MY CONTRACT' link) with your favourite feed reader, to track and to be able to create links to your iLogue instance in the other tools of your personal learning environment.

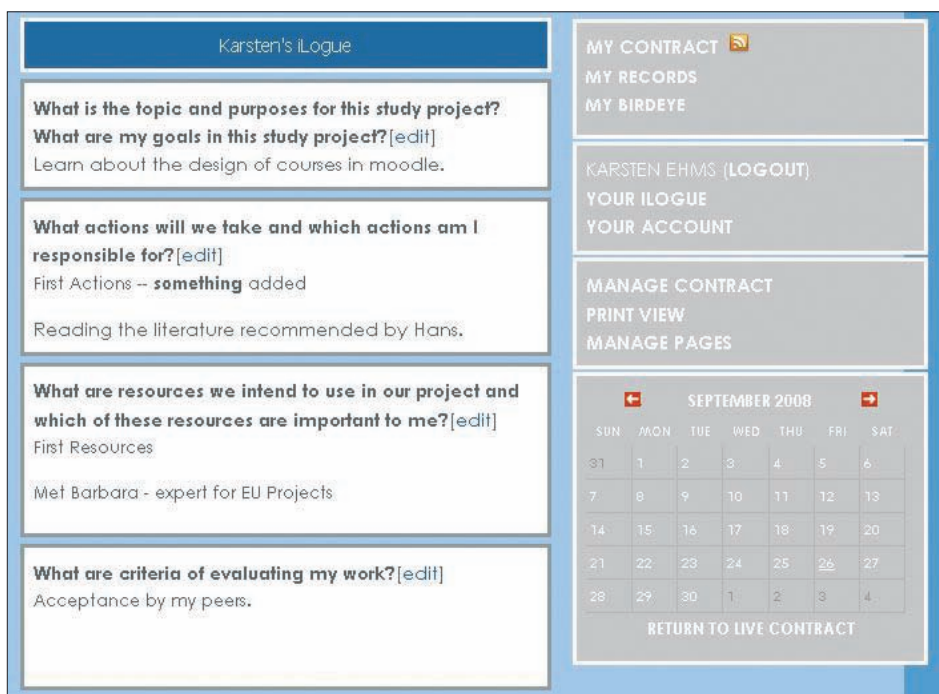


Figure 7. Preview of your personal learning contract

Whenever you wish to look at your goals or your progress, browse to the iLogue main screen showing the current version of your contract (e.g. <http://teldev.wu-wien.ac.at/YOUR-ALIAS/>).

Click on 'LOGIN OR REGISTER' to log in and make your PLC editable.

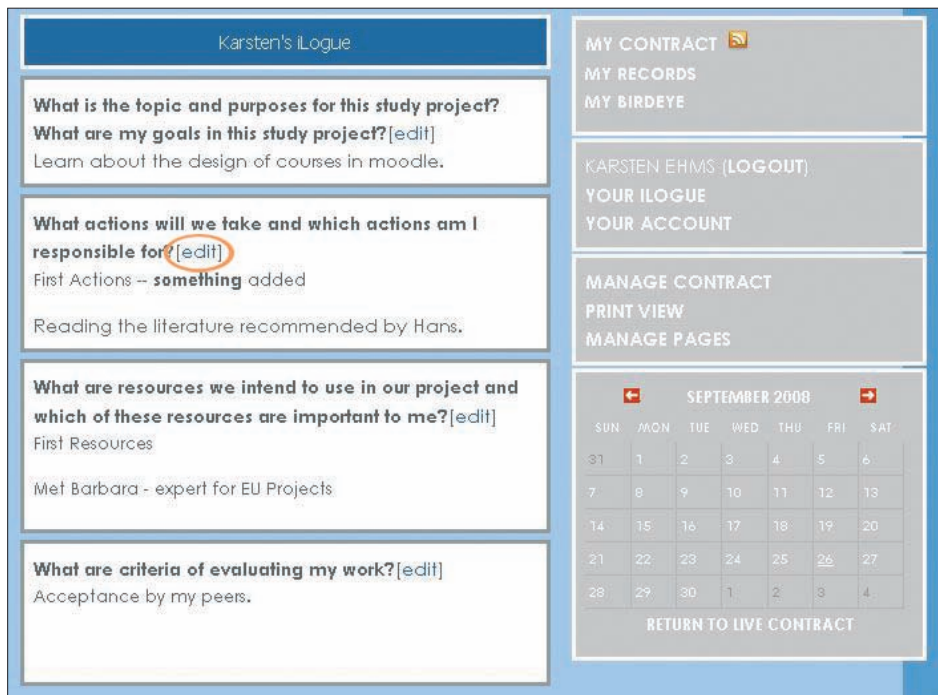


Figure 8. Click on Edit

Click on the 'edit' link of the section you want to change.

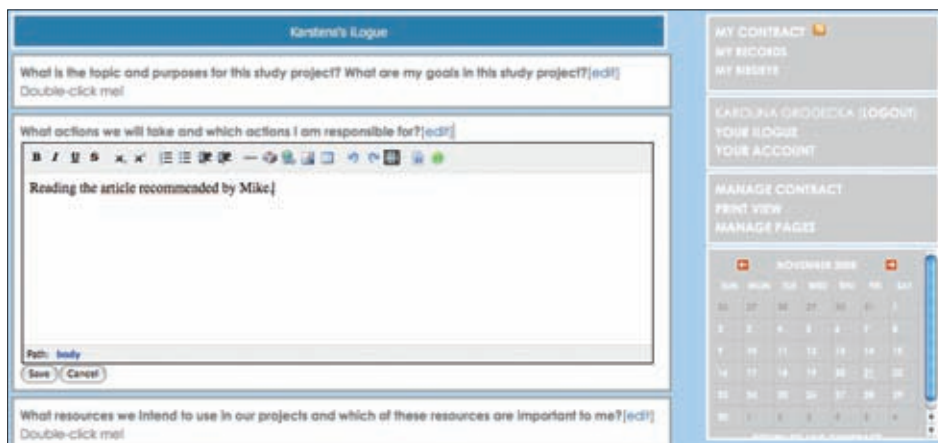


Figure 9. Editing

Make your changes and 'Save' them.

You can jump back in time to previous versions of your contract using the calendar element in the bottom right-hand corner of the screen. 'RETURN TO LIVE CONTRACT' always takes you back to the most up-to-date version of your contract.

As a normal user you should not need to worry about the MANAGE CONTRACT or MANAGE PAGES functions. More general aspects are covered in the XoWiki section of this handbook (see section 5.3. in chapter 5).

iLogue distinguishes three feature sets:

- Negotiating and developing learning contracts: The overall idea of this set of features is to provide a means to lay down a contract in a textual form. This is done, first of all, by offering basic categories of contract items that can be used as guides. These categories currently relate to task descriptions, task purposes and strategy formulations, descriptions of intended outcome and, lastly, reviewing parts. The items can be written and developed further across the lifecycle of the contract. Revisions to bits of text are recorded and, therefore, traceable. In addition, new categories can be added to individual contracts when this is considered necessary. This is more or less the area where the forms of structured wiki authoring are considered valuable (see the iLogue area labelled 'My Contract').
- Allowing for the creation of records of action: Records of action are meant to be 'side notes', made during the course of a formal learning process. They should subsequently be compared with the initial descriptions in the learning contract, thereby allowing for more in-depth self-reflection (see the iLogue area labelled 'My Records'). These records can either be written within the iLogue tool or can be syndicated via RSS from any external blogging application.
- Facilitating and supporting a review phase: Once the formal learning task has been completed, people are encouraged to enter and articulate a self-reflective step. iLogue supports this phase by making changes to the contract, records of action etc. more visual, within a dedicated authoring environment (see the iLogue area labelled 'My Birdseye'). iLogue is not meant to be a stand-alone application. It should be used in conjunction with the individual's and group's personal tool environment to provide an enriched vision of the artefacts produced in these environments.

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We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

iLogue

Stefan Sobernig (Vienna University of Economics and Business Administration, Austria)

Sebastian Fiedler (Centre for Social Innovation - ZSI, Austria)

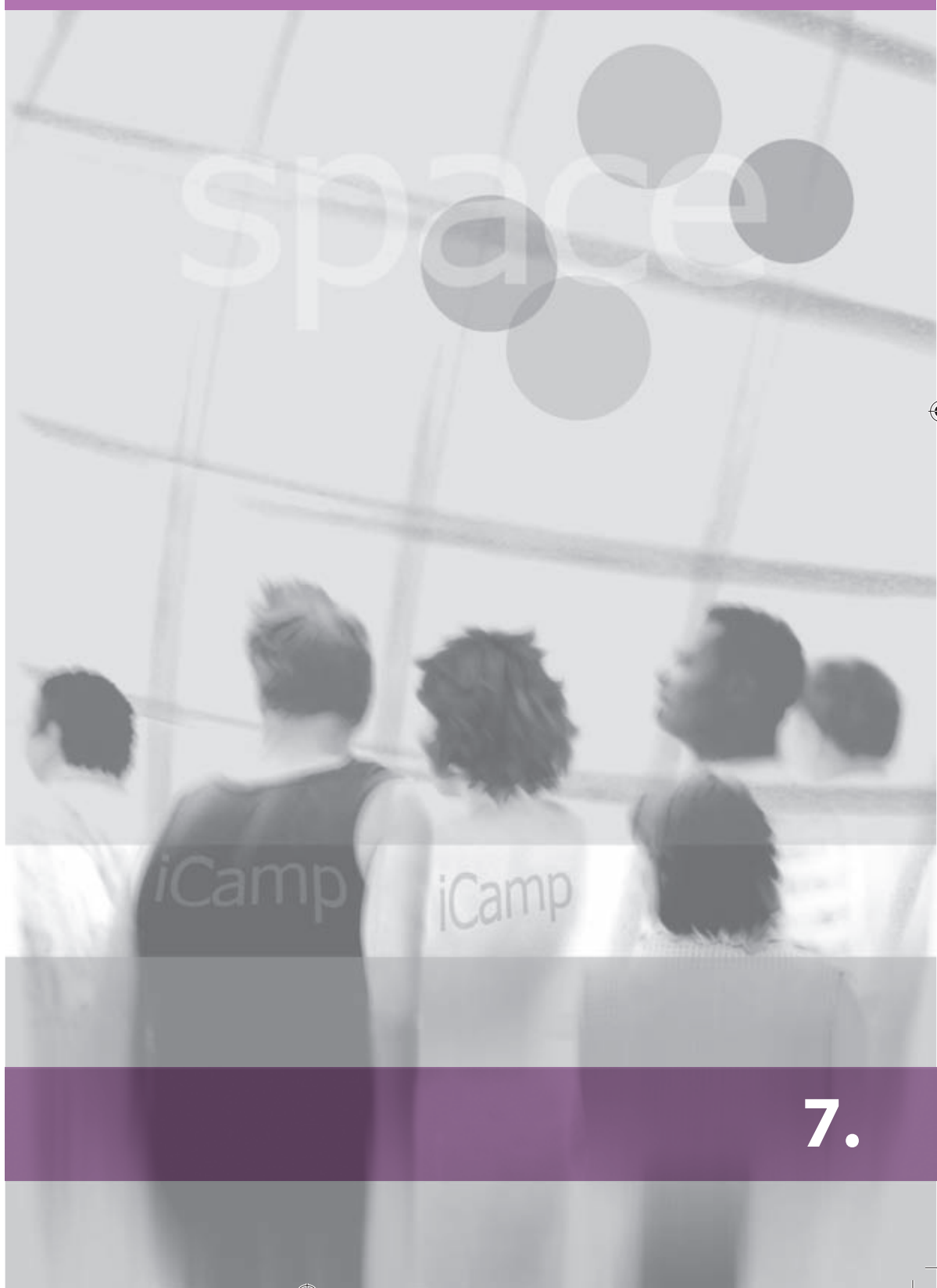
Karsten Ehms (Siemens AG, Germany)

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SOCIAL NETWORKING



7. SOCIAL NETWORKING

The main goal of social networking is to connect people. People's reasons for creating and maintaining blogs can vary enormously, but community building and social networking always feature among the top motivations.

Besides the obvious – group blogs – community structures and social networks have also been proven to exist between individual, but networked, blogs. This usage of blogs has been at least partially described in previous chapters, so here we will concentrate on some different tools.

7.1. Scuttle: a social bookmarking service

[Andrej Afonin]

Introduction and purpose

According to recent trends, most of the tools that used to be desktop-based software are moving over to the web. The web is gradually becoming a social environment for communication and collaborative content creation. Another tool that we decided to use in the framework of this project is that of the social bookmarking system – an online version of the familiar bookmarks or favourites stored by users within their web browser.

The most popular social bookmarking tool for personal storage and for sharing users' web links online, so that they may be accessed and managed from anywhere over the Internet, is del.icio.us . According to Wikipedia, social bookmarking is an activity, performed over a computer network, which allows users to save and categorize a personal collection of bookmarks and share them with others. Users may also take bookmarks saved by others and add them to their own collection, as well as subscribe to another person's list. In short, they are a kind of personal knowledge management tool.

Scenario

An online social bookmark managing tool can be widely used in education and has several possible application scenarios. Basically, a bookmark manager is used to create a set of hyperlinks to personal resources so that they can be accessed from any computer with an internet connection.

It can be used to track the updates to someone's list of artefacts (colleagues, friends, people with similar interests) using an RSS feed. A group of students working on a classroom project can share any bookmarks they have discovered with each other. As well as learners, a group of facilitators can create a shared social bookmarking account in which all the students in a group can list any bookmarks they have that are relevant to the topic. Rating and reviewing bookmarks can help to decide on the usefulness of collected resources by seeing how many other users have stored the bookmark for themselves. A social bookmarking tool allows users to find people with similar interests by exploring the bookmark lists of other users and seeing which of them have stored similar links to you. Working in a group and pooling your common resources using predefined group tags is another activity which is made easier by social bookmarking tools. It is worth adding that social bookmarking tools facilitate informal learning by permitting users to discover of resources and information which have been shared by others through their bookmarks.

Putting scenarios into practice

1. Create a set of hyperlinks of personal resources that can be accessed from any computer with an internet connection.

As mentioned before, Scuttle is a social bookmarking service developed to store users' bookmarks online so that they can be accessed from any computer which is connected to the Internet. To use the service, simply register on the system and start to save your bookmarks to your personal Scuttle environment. For more information, see the 'Registration and logging in' chapter. Use the service every time you find an interesting page online and do not want to lose it. Store it; enrich it with tags and descriptions; gather your personal bookmarks collection and access it at any time from any other online computer.

Tip: use bookmarklets to make adding a bookmark even faster and easier (Fig. 5).

2. Track someone's (colleague, friend, person with similar interests) list of updates using an RSS feed.

Find someone who has similar interests to you by exploring other people's bookmarks. Look for the 'Get RSS now' link with an orange RSS icon (Fig. 1, frame 1). After clicking this link, a yellow pop-up message will notify you that you are about to request another user's RSS feed.

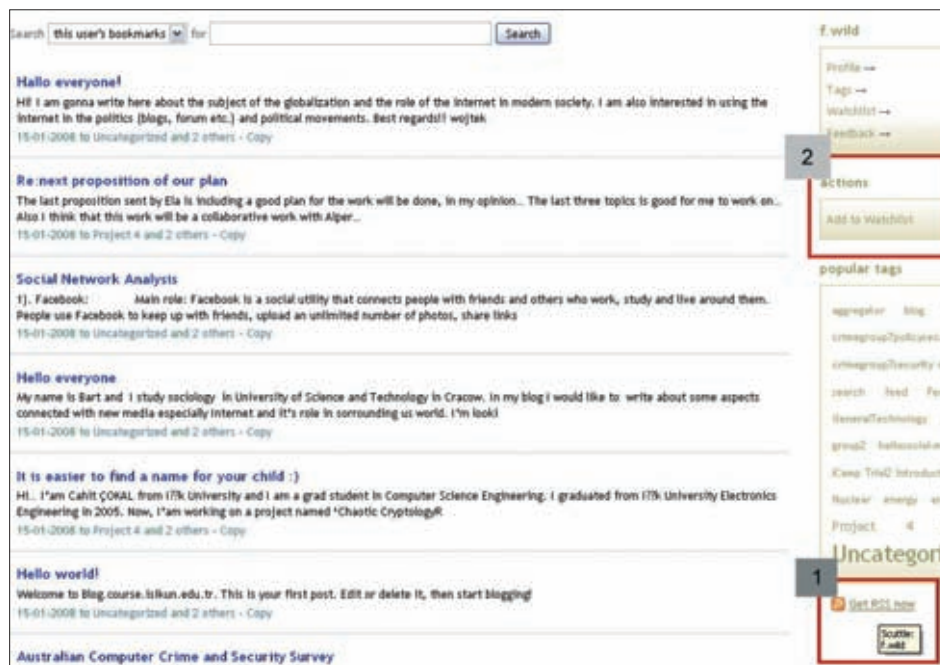


Figure 1. Discovering other users' personal environment

Copy the link location by clicking the right mouse button and selecting the 'Copy Shortcut' option (this may vary depending on the browser). Go to your preferred RSS aggregator (either desktop or online), and feed it the RSS link that you copied from Scuttle (Fig. 2). In the iCamp project we use the **Feed On Feeds** online RSS reader, although you can use whatever RSS reader you like.

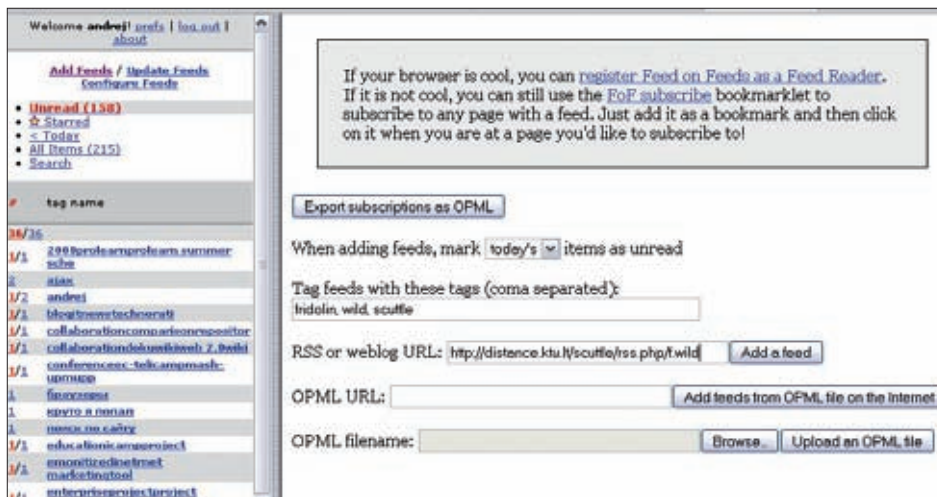


Figure 2. Feeding RSS reader with Scuttle RSS

3. A group of students working on a common task or project, sharing their found bookmarks with each other.

If you are a student working on a task with other students, sharing the hyperlinks that you have all discovered could be an efficient way to increase your productivity. Just add each other to your 'Watchlist' (Fig. 1, frame 2) while you are browsing someone's bookmarks, and share your found bookmarks with those people in your watchlist that you think might be able to help you to achieve your common goals. Another way is to use the **FeedBack** mechanism to push the hyperlinks that you have found to each other. For more information, see the **FeedBack subscription** chapter.

4. Set up a shared account where all students in a group can contribute any bookmarks they have which are relevant to the topic.

Sometimes it is more sensible to have a common shared group account, to be used by all the group members, and to store there only those bookmarks that are relevant to the group's task. This scenario would be much more practical, for example, if there are a number of groups doing research, all with the same supervisor, who is keeping track of the work of all of the groups. Watching the list of whole groups could help to give a clearer vision of the direction that each group has taken and to help them in case they are getting off track.

5. Evaluate the usefulness of a resource by seeing how many other users have stored the bookmark for themselves.

Scuttle is a **SOCIAL** bookmarking service. This means that, besides the more obvious advantages, such as the ability to access your bookmarks from any online computer, there are other benefits, derived from the **SOCIAL** aspect of the software. Sometimes, when you read something on the Internet it is hard to evaluate the quality of the information. But when you store a bookmark to this web page on your environment, the system shows you how many users, besides yourself, have stored that same page within their environment.

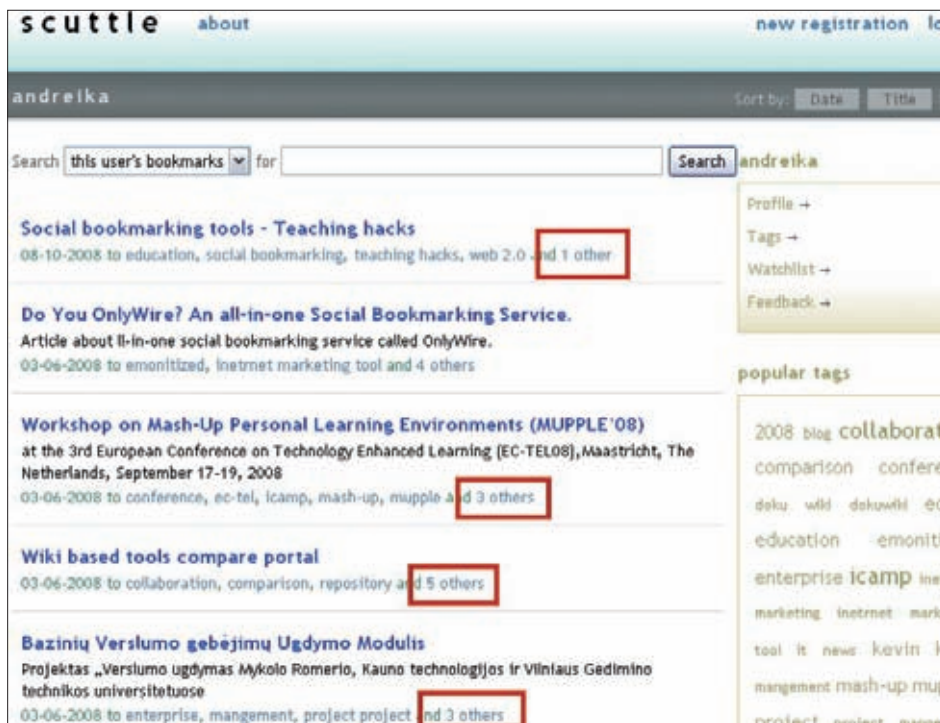


Figure 3. Number of users storing the same resources

This cannot be treated as a particularly reliable criterion, but it is handy to get a quick, rough idea of how popular a resource is. If it has been stored by many users, besides yourself, this would tend to indicate that that this particular resource is rated highly by the 'crowd mind' and suggests that it can be regarded as valuable. If a resource has not been stored by many other users, it stands to reason that it is either new or is not regarded by others as such a valuable resource.

6. Find people with similar interests by exploring other users' bookmark lists, to see which of them have stored similar links to you.

Another **SOCIAL** component is that of exploring in search of people who have the same interests as you. Exploring their bookmarks could help you to find some interesting resources which you did not know about before but which could be very useful to you. And the fact that you have stored similar bookmarks before increases the chances that another user with interesting and valuable resources will be interested in what you have found.

To find out which people have stored similar bookmarks, just click the hyperlink – if there is one – near the stored bookmark that says 'and n others' (where n is the number of other users) (Fig. 3).



Figure 4. Bookmark saving history

On the next screen, the user will see the history of the bookmark (Fig. 4). Displayed near every bookmark is the username of the person that has stored this bookmark. Also, there is a list of tags related to that bookmark in the top left-hand corner of the screen. As we can see from the picture, someone with the username **f.wild** has stored this bookmark twice. Two other users, named **dulik** and **tomaz**, have also stored the same bookmark. Clicking anywhere on the username will take you to this person's personal bookmarking environment, where you will be able to look at the other bookmarks belonging to this user and maybe find some other bookmarks that could be of interest to you.

7. Working in a group and pooling your common resources using predefined group tags.

As we saw before, tags can be used as a convenient way to discover other bookmarks stored using the same tags. The 'tag cloud' is always visible on the left-hand side of your environment. Depending on what screen you are looking at, you will see here popular tags, other people's tags, tags relating to a particular bookmark, or just your own tags which you used to label your own bookmarks. Just click on any tag and all the bookmarks

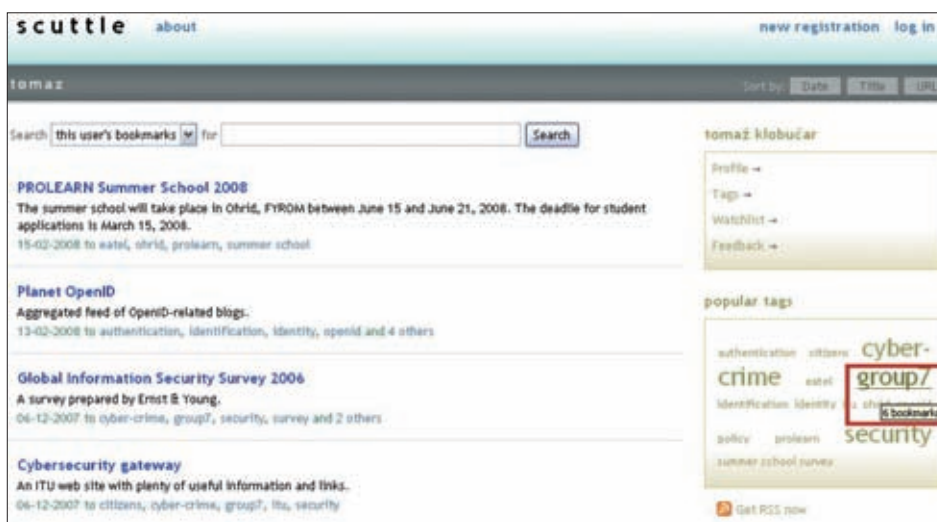


Figure 5. Using group tags to identify group resources

using that tag, from all of the users, that are stored in the Scuttle environment will be displayed on the screen.

One handy use for this feature could be if a group of people are working on the same project but store everything in their own individual environments.

Arrange with the other people in your group to store all common bookmarks using a predefined tag, such as the name of the group. As shown in the example (Fig. 5) all of the people of a group have agreed to store their bookmarks with the tag 'group7'. Now it is easy to filter all the bookmarks which are stored for this group. Just click the 'group7' tag and the system will bring up all of the bookmarks marked with that tag for you. This is even more convenient if you are a teacher and you want to help your students in different groups to discover useful resources. Just store the bookmark in the system and label it with a tag for the group that you think it will be useful for. The next time the people in that group take a look at their group bookmarks, they will find this new bookmark in the list and will be able to use it in their work.

Conclusion

We hope that this chapter on the Scuttle Social Bookmarking system has shown how successfully this web service can be used within the educational process. Its flexibility, ease of use and modern collaboration methods provide new possibilities for gathering and sharing information during the course of a learning process. We also hope that this tool will take its place in the educational process and will contribute to better collaboration between learners.

7.2. myDENTITY

[Fridolin Wild, Felix Mödritscher]

Introduction

Learning can be defined as a negotiation process aimed at reaching an agreement about knowledge and about who has this knowledge. This agreement is reached through self-organization. Large learning networks therefore naturally form complex communities with overlapping groups of varying sizes. It is clear that an individual's learning within this network cannot be independent of the whole. Through social influence and social identification and through interaction with tools and artefacts this network learns together.

Social competencies are necessary to be successful in such a learning network. Social competencies emphasize the interactions between people: it is about the potential to undertake (collaborative) actions in order to identify, manage, and master conflicts (see Erpenbeck, 2003). More precisely, possessing social competencies means having communication skills, interpersonal skills, a capacity for teamwork, and the ability to manage conflicts (Jäger, 2001).

Many studies show how social aspects influence learning. For example, Wang & Lin (2007), found that groups that have more group self-confidence use higher level cognitive skills and perform better. Similarly, Mahenthiran & Rouse (2000) found that group performance (and satisfaction) improves when friends are put into the same groups.

However, a virtual environment typically creates more misunderstandings in terms of the scope of tasks and the character of interpersonal relationships than found in face-to-face

settings (Workman, 2007). With rising 'virtualization', both formal and informal interaction decrease – thus making it more difficult to monitor activities, progress, and shared expectations. These conditions depersonalize the social environment; people become, according to Workman, 'objectified'.

Excessively high levels of cohesion usually lead to "groupthink, pluralistic ignorance, and escalated illusions of invulnerability" (Workman, 2007). Excessively low levels of cohesion, on the other hand, lead to "group polarization, a lack of cooperation, and social loafing" (Workman, 2007) and misleading stereotyping. Typically, virtual environments tend to produce levels of cohesion that are too low (Workman 2007).

Normally, virtual learning environments do not provide information about the behaviour and skills of friends and peers; they do not provide the social awareness information that is provided in face-to-face situations (see Wild & Sobernig 2007). Awareness denotes the availability of various types of context information that we perceive in our (social) surroundings and that is at first sight suppressed in virtual environments when comparing to a face-to-face situation and when looking at today's software systems. More frankly: when transferring a typical face-to-face situation to a virtual setting, there is a loss of social awareness; and this loss has to be compensated for.

myDENTITY tries to tackle this shortcoming. It is designed to make social interactions taking place via email communication more transparent to its users. myDENTITY is an intel-

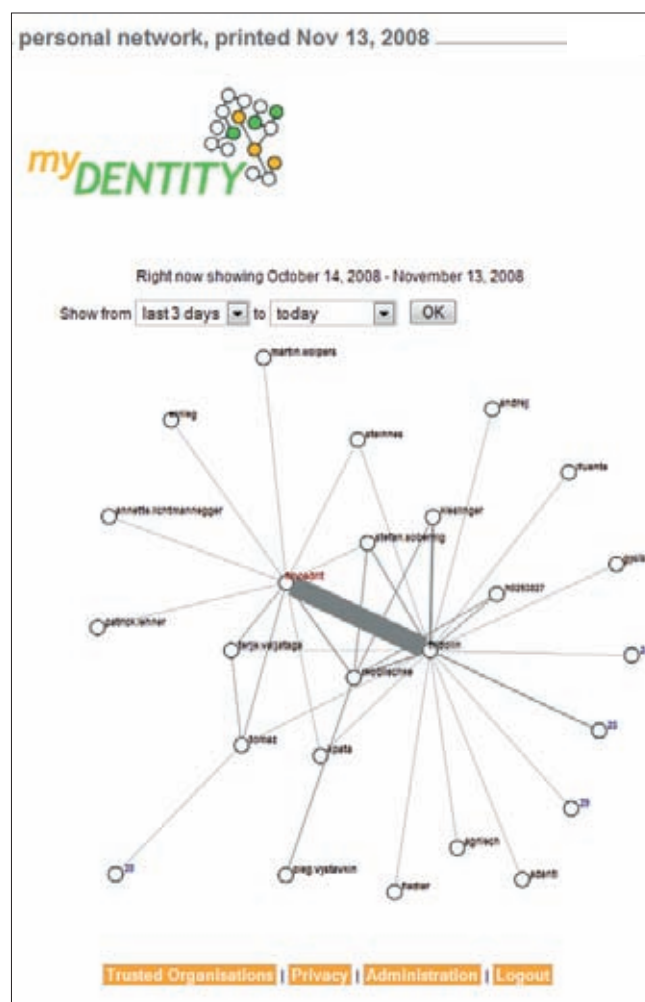


Figure 1. Social email network in myDENTITY

ligent system which forwards mail to the user's 'old' address. By doing so, the individual's own mail-interaction network can be visualized, as shown in the example in Figure 1. The individuals in this social network are either labelled with their names (direct contacts) or left anonymous (indirect contacts of e.g. a peer learner). Clicking on a name directly opens up the mail client to write an email to this user.

Have you ever dreamt of managing your own professional social network better? Of being able to discover hidden relationships? Of connecting with the in-crowd? Of helping out the loners?

myDENTITY can help you. Just register using your current email address and ask all your contacts to only write mail to your new myDENTITY address from now on. Whenever they write to you, myDENTITY keeps track of it. Whenever you write back to them, myDENTITY keeps track of that, as well. There is no software to be installed; you keep using your old email account – myDENTITY is an intelligent system which forwards mail to your 'old' address! By doing so, myDENTITY can calculate your professional network from your mail interactions and produce a visual display of this network for you. If you don't want to use myDENTITY anymore, you just stop. If you want your data to be deleted from the servers, you only need to say so. myDENTITY is in an alpha development state.

Scenario: Using myDENTITY to track email-based collaboration


myDENTITY can be used to reflect and regulate interaction between learners, peers and educators. In this example scenario, a facilitator decides to use myDENTITY to support a collaborative task carried out via email communication.

Facilitator view

Peter is giving a lecture on knowledge management and asks his students to write a joint paper. As this task requires a lot of interaction between the actors, myDENTITY should be used to keep track of communication within the learner groups as well as with the facilitator and other groups.

In the very first step, the facilitator creates an account at myDENTITY.eu by filling out the registration form. Once he has registered at this site, emails which are sent to this new account (peterallan@icamp.eu) will be tracked and forwarded to the email account entered in the form.

Oct 6, 2008



Register as a new myDENTISTRY user,

Simply sign up with myDENTISTRY. All fields are required. After you registered, you will receive an email asking for validating your request (just to ensure there is no typo in the mailadress). When you confirm, a mailforward system is configured for you.

myDENTISTRY works the following way: Whenever s.b. writes an email to your <username>@myidentity.eu, the sender is replaced so that when you write back, it will go through the myDENTISTRY server. In fact, when you write back, you will write back to a myDENTISTRY mailforward again.

By doing so, your mailforward system can keep track of your mail interactions. And that allows myDENTISTRY to calculate the form and shape of your professional communication network from these interactions.

Username

Password

Firstname

Surname

eMail

Country

Organisation

REGISTER >>>

[Trusted Organisations](#) | [Privacy](#) | [Login](#)

Figure 2. Creating an account on myDENTISTRY.eu

Secondly, Peter instructs the students to log into their accounts, divides the whole class into five groups of between three and four students, and assigns a topic and an initial task to each group via email. Each group should find relevant literature for the assigned topic, assemble a list of sources and send it to the facilitator, once everyone in the group is satisfied with the result. After receiving the five emails containing the reference lists, Peter has a look at the email communication with the groups over the days leading up to the submission.

Analysing the interactions between the learners and himself, Peter can clearly see that three of the groups (5, 11, 13) simply submitted the reference list by email, while the leader of one group (6) had a small question concerning the submission and Susan's group had some serious problems completing the task on time. After gaining these insights, Peter instructs the students to reflect upon their communication over this whole period of time.

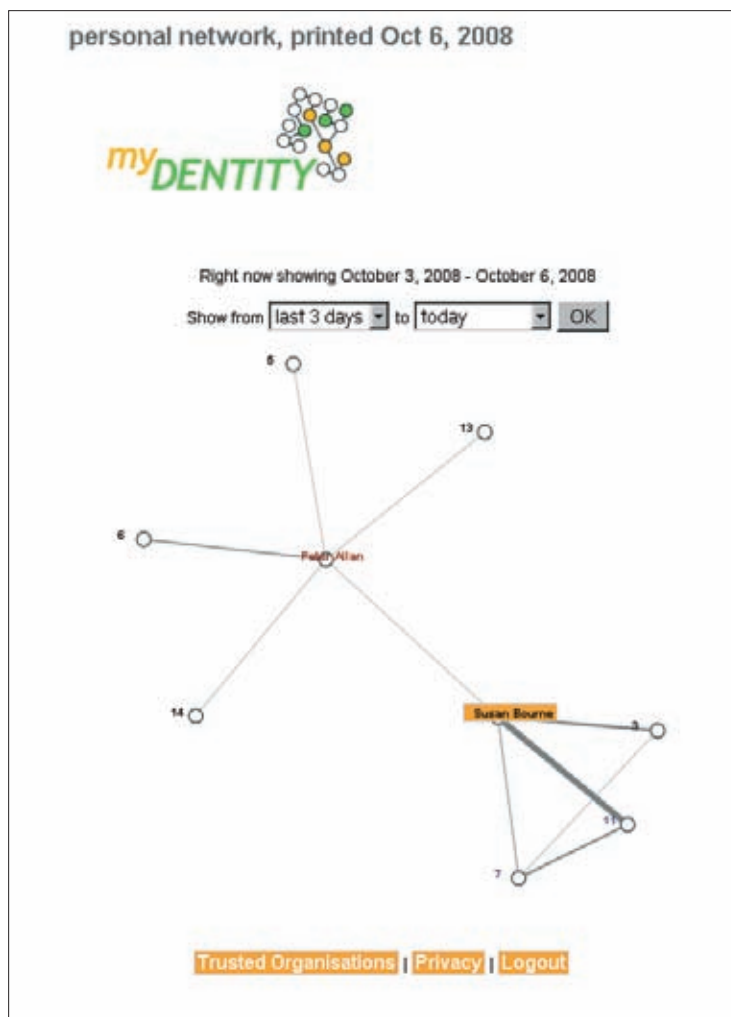


Figure 3. Visualizing the facilitator's personal network for the last 3 days

Learner view

Susan is one of the students participating in Peter's paper-writing exercise. Following his instructions to reflect upon the email communication involved in the first task, she accesses the myDENTITY page and selects the time period of the corresponding exercise. She can now see who interacted with whom within her neighbourhood.

More specifically, Susan can see the full overview of her first-order contacts (the individuals she had direct contact with) and gains a more restricted insight into the second-order contacts. The figure shows that she communicated a lot with the members of her own group (Sarah, Stefan, Fridolin) and that she seemed to be the coordinator of this group, as she was the one who communicated with the facilitator. Furthermore, it is possible to see that one of the group members (Fridolin) either worked offline or did not collaborate sufficiently, while the other three group members sent a lot of emails to each other. Finally, Susan also detects that one peer (Sarah) wrote an email to a member of another group (although she cannot see who the recipient was). She follows up on this via email and discovers a possible collaboration.

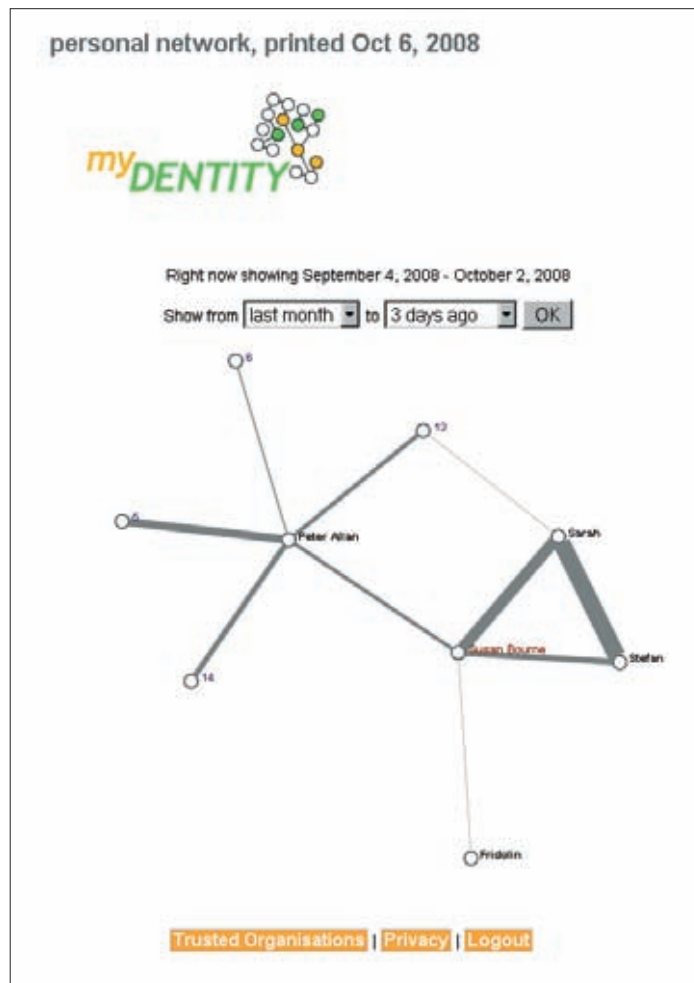


Figure 4. Visualizing the personal network of the group leader over one month

Opportunities and restrictions of myDENTITY

Although myDENTITY is a good tool for analysing email communication between learners, it has several limitations. First of all, it only tracks those communications involving the email address of the system, when emails are sent over the myDENTITY mail server. Moreover, the reply-to address of email recipients has to be set to be that of the myDENTITY account.

Of course, communication is not always based on email – so this network overview only gives an insight into a part of all interactions taking place (for example, face-to-face communication is not taken into account).

Planned further developments for myDENTITY include a feature to allow peers full access to the contacts of your own network for a limited time, and a feature to exclude (blacklist) or limit (whitelist) contacts from showing up, in order to, for example, hide private communications from an analysis of the professional network or to restrict analysis to a given set of contacts.

ACKNOWLEDGEMENTS

We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

MyDENTITY

Dariusz Górka (AGH - University of Science and Technology, Poland)

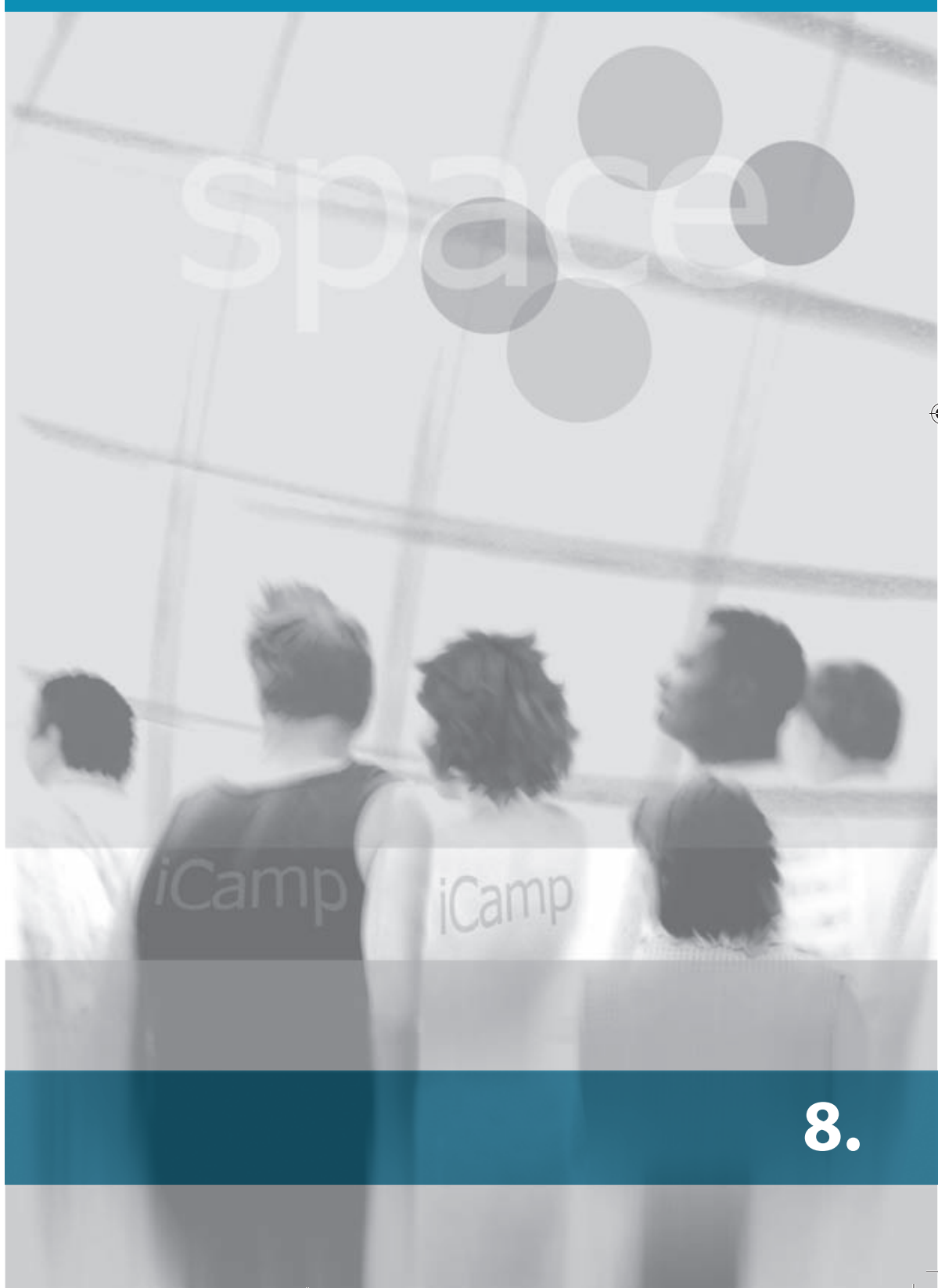
Steinn Sigurdarson, Fridolin Wild (Vienna University of Economics and Business Administration, Austria)

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SEARCHING THE NET



8. SEARCHING THE NET

[Anna Danielewska-Tulecka, Robert Koblischke, Tomaž Klobučar]

8.1. Introduction

Surfing and searching the Internet has become quite a complex and time-consuming activity. Billions of resources are freely available online, providing unlimited access to information and knowledge. Furthermore, we are witnessing a new concept; the opening up of educational resources (OER) by universities and similar institutions. Effectively and efficiently searching such a rapidly growing collection of resources requires a certain level of knowledge on how to construct the right query, on the use of Boolean operators and, of course, some practical knowledge about the specific features of different resources. In short, a user who wants to find relevant articles quickly must know how and where to search.

Just imagine this situation: you have to research an instructional design topic. As either a student or a teacher you have access to several academic and scientific databases which gather together different resources. Using them requires you to query each repository using the same keywords. It could take a lot of time and energy, couldn't it? In this chapter we present ObjectSpot (see Appendix A for source information), a meta-search engine which is the perfect solution to this research problem.

8.2. ObjectSpot and SQI

ObjectSpot is a meta-search engine designed to facilitate academic research. It can be used to find publications and other learning resources on the web. ObjectSpot realizes federated searches over an ever-increasing number of digital libraries and learning object repositories. It provides access to more than 10 million learning objects spread across famous libraries such as the Directory of Open Access Journals (DOAJ), OAIster, EBSCO, ACM, CiteBase and IEEE. In addition, several learning object repositories belonging to iCamp partner universities complement these professional libraries with learning materials from their own lectures. Some of these repositories are open access, whilst others require registration or a subscription.

Scenario

Anja is a first-year PhD student in computer science at the University of Ljubljana. As part of a course entitled 'Research seminar', she has recently started preparing a paper on privacy-enhancing technologies in pervasive systems. The paper, which aims to give an overview of the state of the art in this area, will also help her to better define the research questions she plans to tackle in her PhD thesis.

Whilst preparing the overview she is looking for the latest research articles, presentations, textbooks and similar learning materials on the topic. Fortunately, Anja has access to iCamp Space, which links together numerous learning repositories and digital libraries, and also enables her to find those papers which are not publicly available on the web. Anja accesses the network of repositories and libraries through ObjectSpot, which acts as an entry point into the network.

She enters the query words 'privacy-enhancing technology and pervasive system' into ObjectSpot, which sends them to the educational network, i.e. to a number of repositories

and digital libraries connected together by means of the SQL protocol. The query returns several relevant results from different learning repositories. Before presenting the results to Anja, ObjectSpot ranks them in order to display the most relevant ones first. Anja finds several articles she was looking for at the top of the displayed list, clicks on their titles and accesses them from the libraries where they are stored.

Tutorial

Searching

The basic interface of ObjectSpot is similar to that of most search engines on the web. To start a search, just follow these steps:

- Go to the ObjectSpot web page.
- Enter the keywords you want to search for and click 'Search'.
- ObjectSpot will now contact each learning repository and, eventually, results will start pouring in.

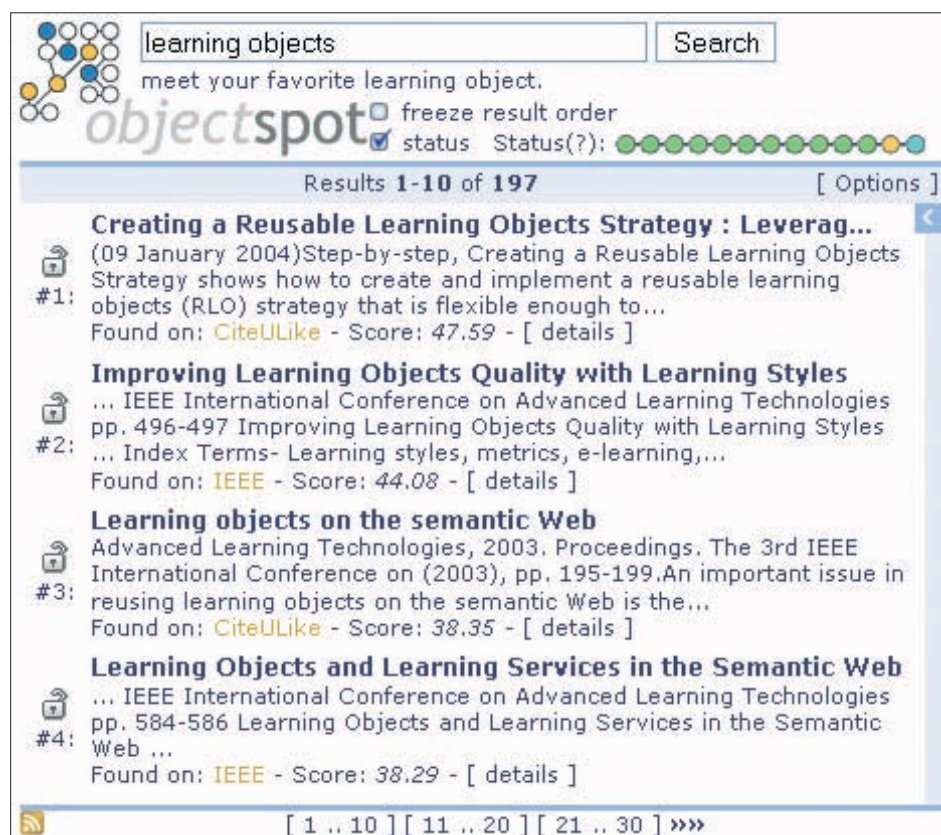


Figure 1. The list of results for the keywords "learning objects"

Interface

Once ObjectSpot has returned some results, you can start navigating through the results pages using the 'browsebar' at the bottom and the blue scrollbar on the right (or your mouse wheel).

Note that whenever new results arrive, the results list is updated and sorted again according to the relevance scores. To prevent the list from reordering itself when new results are received, check the 'freeze result order' checkbox. If you want a single item to remain in its place, click the padlock icon to the left of that item.

The search status is displayed as a string of circles, each of which represents a repository, above and to the right of the results list. These nodes provide you with colour-coded repository-specific progress information. A yellow blinking node indicates that the search is still in progress, a green one (not blinking), that search results have arrived, a yellow one indicates an empty results list and a red one that an error has occurred. If you hold your mouse cursor over the nodes, the tooltips that appear provide you with further information, such as the name of the repository, the number of retrieved results or the error that has occurred. By left clicking on any node you can filter out the repository from the results, greying out the node in the search status. Right clicking on any node will let you exclusively filter the results list, only displaying results from this repository. You can hide the search status by unchecking the 'status' checkbox.

learning objects Search

meet your favorite learning object.

objects spot

freeze result order

status Status(?)

CiteULike 10 results

Results 1-10 of 10 [Options]

Creating a Reusable Learning Objects Strategy : Leverag...
 (09 January 2004) Step-by-step, Creating a Reusable Learning Objects Strategy shows how to create and implement a reusable learning objects (RLO) strategy that is flexible enough to...
 Found on: CiteULike Score: 47.59 [details]

Learning objects on the semantic Web
 Advanced Learning Technologies, 2003, Proceedings. The 3rd IEEE International Conference on (2003), pp. 195-199. An important issue in reusing learning objects on the semantic Web is the...
 Found on: CiteULike - Score: 38.35 - [details]

Learning objects and the e-learning cost dilemma
 Open Learning, Vol. 19, No. 3, (November 2004), 293.
 Found on: CiteULike - Score: 29.86 - [details]

Designing learning objects with the ELO-tool
 Advanced Learning Technologies, 2003, Proceedings. The 3rd IEEE International Conference on (2003), pp. 372-373. Technological innovations can be important factors for change. The Internet is...
 Found on: CiteULike - Score: 29.16 - [details]

Instructional Use of Learning Objects
 (2002) The Agency for Instructional Technology and The Association for

[1 .. 10]

Figure 2. Single repository results displayed by filtering out the other repositories (node and item score highlighted)

Results are sorted according to relevance. The score shows the relevant weight of the results. The full description and title are shown after clicking on the link.

ObjectSpot also provides recommendations, when they are available. These recommendations are based on the most popular previous choices of users with the same search request. If ObjectSpot has found any such recommendations for the given query, it will first display those recommendations belonging to a new repository node, marked in blue.

Results from other repositories will eventually be placed in front of the recommendations, but you can easily check them out again by filtering the node using the right mouse button as previously explained.

These recommendations can also be accessed via RSS. You will find the RSS icon either in the recommendations tooltip or in the bottom left-hand corner, in the browsebar. This latter also lets you access a session-wide recommendation list, meaning that you will only find items that you have selected in your current session in the exported feed. In addition, as will be mentioned later on, ObjectSpot provides an x-feedback interface, accessible from the options dialogue, to allow you to register these feeds with your x-feedback-enabled site and thus stay up to date.

ObjectSpot also has support for various reference-management tools, such as the popular Firefox add-on Zotero or any other tool based on COinS.

In the repository tooltip you will also find a graph and a globe icon. Clicking on the graph icon will redirect you to a statistics section for that repository, whilst the globe will show you the geographical location of the repository, displayed on a map.



Figure 3. Repository locations displayed by Google Maps (map link highlighted)

Options

Clicking the 'Options' link on the right-hand side of the results bar, above the results list, leads you to the options dialogue.

There you can adjust your repository filters again and change the way your results list is sorted: either by the score ObjectSpot has calculated for each item (default) or in the order

in which they are returned by the repositories. The latter mode might be more accurate in terms of a single repository, but will have the effect that items are not merged and each repository results list will simply be appended one after another as they come in. After you have made your adjustments, click 'update' to make the changes take effect.

So if, for example, you have filtered all but one repository and you set the sorting to 'Repository', ObjectSpot will display the repository results in the exact order in which they would appear using the original repository search engine.

Lastly, you can offer the RSS-formatted recommendations (items that have been selected) for the query or for the session to your **x-feedback**-enabled site (i.e. Scuttle).

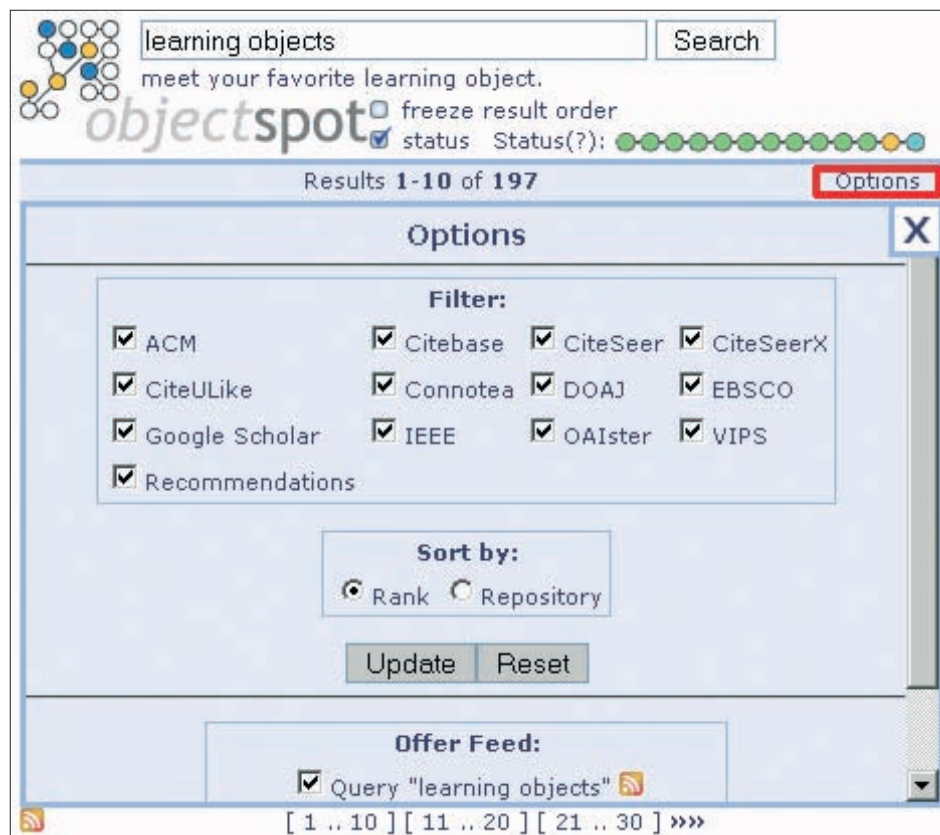


Figure 4. Options dialogue window ('Options' link highlighted)

Statistics

The repository statistics window (mainly aimed at repository owners) is accessed by clicking on the bar chart icon next to the repository tooltip. It is divided into several parts (see picture below). On the left-hand side you will find the general overview of the repository, giving a summary of how reliable this repository has been in the given timeframe. The right-hand side shows you the different results and the frequencies with which they have occurred. Clicking on a status code will show you the exact occurrence times and will filter the graph accordingly. In the middle of the page is the graph with the distribution of queries for the selected period. You can switch between a **24-hour**, **1-week** or **1-month** timeframe. Clicking '**all repositories**' lets you display cumulative statistics for all of the active repositories simultaneously.

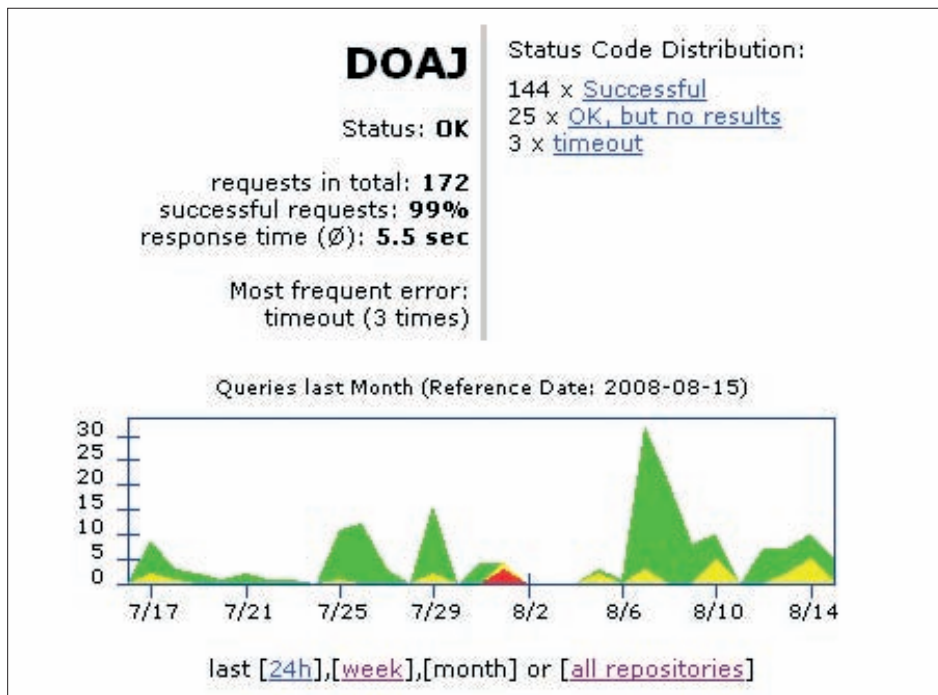


Figure 5. Statistical information about the queries to a repository (DOAJ)

Configuring your own portlet

The ObjectSpot client comes as a 'portlet', meaning that it can easily be embedded into your site along with options to alter its appearance and the repositories that it queries. For this purpose, see the configuration tool at www.objectspot.org/configure:

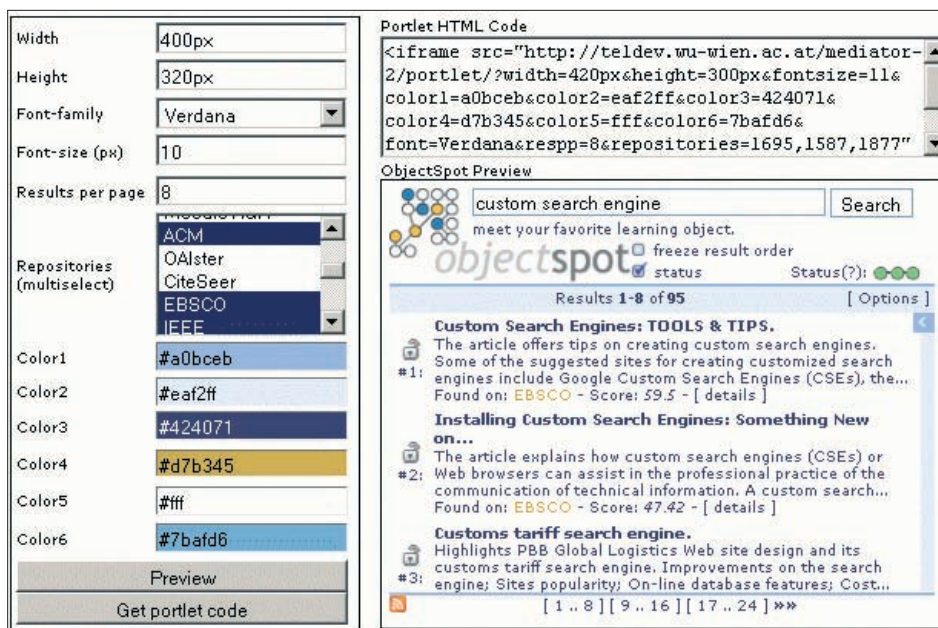


Figure 6. Configure your own ObjectSpot portlet

This easy-to-use tool lets you generate the html code needed to embed a customized ObjectSpot on your site in a matter of minutes. You can configure its proportions, font and font-size, the number of results per page, the colours and even the repositories that your portlet should query. At any point during the process you can preview your settings by

hitting the 'Preview' button. Lastly, clicking 'Get portlet code' will populate the code box with the few HTML lines that are needed to embed the generated portlet in your site.

Access policy

Of course, ObjectSpot does not guarantee that the listed content can eventually be accessed for free. Whether or not you can download copies of the papers listed depends on your private or university accounts with these databases. The goal of using ObjectSpot is to provide you with the references to papers and learning objects for your particular research interest - not to help you to infringe copyright.

SQL target administration in Moodle software installation

You can download the module for Moodle SQL target administration from Sourceforge: https://sourceforge.net/project/showfiles.php?group_id=191261.

From the module interface you can easily add the Moodle repository to the ObjectSpot search engine and then choose which resources you want to share.

The screenshot displays the ObjectSpot SQL target administration interface, divided into two main sections: 'Publish' and 'Register'.

Publish Section:

- Header:** 'Publish' with a sub-header: 'Select the courses whose course descriptions and whose learning objects you want to release. This is a one-time act and has to be repeated in case that the course has been updated. All data stays in the local system and can be found via the standardized search interface SQI (Simple Query Interface).'
- Choose courses and resources for publishing:** A list of items with checkboxes:
 - Moodle Testing Site for iCamp
 - iCamp test
 - Optimization Methods
 - Fibonacci Method
- Buttons:** 'Check all courses', 'Uncheck all courses', 'Check all resources', 'Uncheck all resources'.
- Published courses:** A list showing '1. iCamp test | remove
- Published resources:** A list showing '1. Fibonacci Method | remove
- Save:** A 'Save' button at the bottom left.

Register Section:

- Header:** 'Register' with a sub-header: 'Only when you register this SQI search interface at www.objectspot.org, the world knows that you can search for the material and courses you offer. If you register the repository, id will be automatically set so you can test it.'
- Repository name:** A text input field containing 'Moodle Testing Site for iCamp'.
- Latitude/Longitude:** Two empty text input fields.
- Administrator:** A text input field containing 'Anna Danielewska-Tulecka'.
- Organization:** An empty text input field.
- Address:** An empty text input field.
- Postal Code:** An empty text input field.
- City:** A text input field containing 'Kraków'.
- Country:** A text input field containing 'PL'.
- Admin mail:** A text input field containing 'adanti@agh.edu.pl'.
- Notification mail:** A text input field containing 'edanti@agh.edu.pl'.
- Register my SQI Target!:** A button.
- Status:** 'You already registered Moodle internal repository: your repository ID = 6803'.
- Map:** A Google Maps interface at the bottom showing a map of Poland with city names like Hamburg, Szczecin, Bydgoszcz, Poznań, Polaka, Warszawa, and Wrocław. It includes 'Mapa', 'Satelita', and 'Hybrydowa' tabs.

Figure 7. SQL target administration - module interface

After module installation, the administrator or user with admin rights should log in and use a registration form to add particular Moodle target to ObjectSpot. Almost everything is done automatically.

Register
Only when you register this SQL search interface at www.objectspot.org, the world knows that you can search for the material and courses you offer.
If you register the repository, id will be automatically set so you can test it.

Repository name: Moodle Testing Site for iCamp

Latitude: Longitude: Use the Google Maps API to find out accurate geographical coordinates. You can search, either by moving around the map and zooming in, or by typing the name of the city.

Administrator: Anna Danielewska-Tulecka

Organization:

Address:

Postal Code:

City: Kraków

Country: PL

Admin mail: adanti@agh.edu.pl

Notification mail: adanti@agh.edu.pl

Register my SQL Target!

Map navigation: Mapa, Satelita, Hybrydowa

Figure 8. SQL target administration - registering

Now, you and the other teachers may choose courses and other resources to be shared, for example, through an Object Spot portlet. The publishing script is personalized for each

teacher so he or she can only share those courses and resources that have been assigned to them. It is also possible to remove resources from the SQI sharing database.

Publish
Select the courses whose course descriptions and whose learning objects you want to release. This is a one-time act and has to be repeated in case that the course has been updated. All data stays in the local system and can be found via the standardized search interface SQI (Simple Query Interface).

Choose courses and resources for publishing:

Moodle Testing Site for iCamp
 iCamp test
 SQL interface
 Optimization Methods

Check all courses Uncheck all courses Check all resources Uncheck all resources

Published courses:

1. iCamp test | remove
2. Optimization Methods | remove

Published resources:

1. Fibonacci Method | remove

Save

Figure 9. Choose and publish courses and resources

You can also install an ObjectSpot block with a search portlet for searching repositories directly from the Moodle course.

ACKNOWLEDGEMENTS

We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

SQI targets

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Dariusz Górka (AGH - University of Science and Technology, Poland)

Neophytos Demetriou (Vienna University of Economics and Business Administration, Austria)

Radek Matušů, Jiří Vojtěšek (Tomas Bata University, Zlín, Czech Republic)

Moodle SQI module

Anna Danielewska-Tulecka (AGH - University of Science and Technology, Poland)

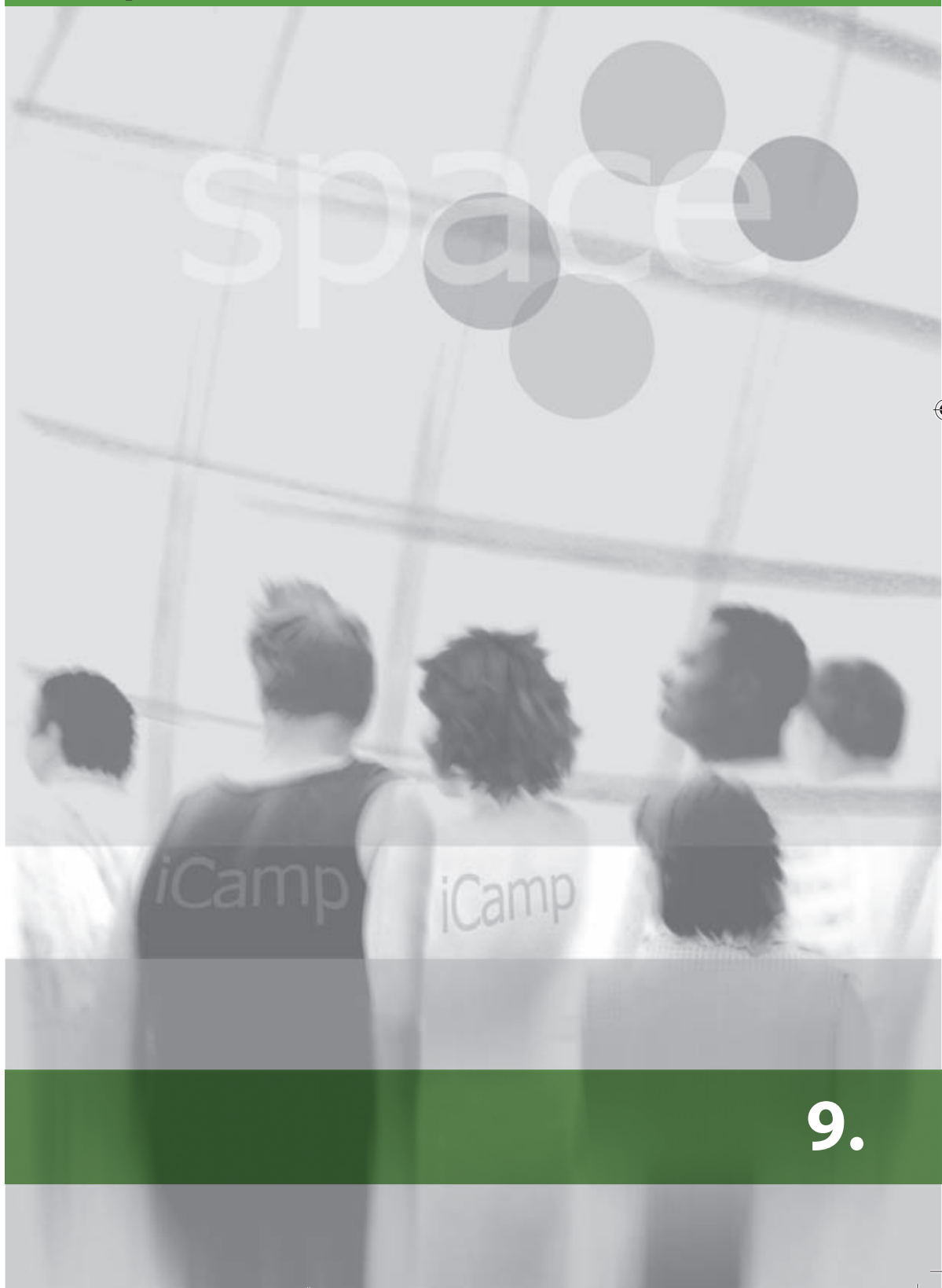
ObjectSpot

Robert Koblichke, Fridolin Wild, Steinn Sigurdarson, Stefan Sobernig, Neophytos Demetriou (Vienna University of Economics and Business Administration, Austria)

Zdenek Gauss (Tomas Bata University, Zlín, Czech Republic)



iCamp CASE STUDIES



9. iCamp: ASSUMPTIONS AND REQUIREMENTS

[Kai Pata, Terje Våljataga]

The need for intervention

In this chapter we describe the main requirements for teaching and learning in open, distributed learning environments, combining institutional tools and social software, when focusing on promoting competencies in the areas of *cross-cultural collaboration*, *social networking* and *self-directed intentional learning and change projects*. These learning contexts were planned and tested in three case studies as part of the iCamp project.

The aim of the iCamp project has been to introduce interventional strategies into the formal educational process and its environment, bringing these closer to new frontiers in changing work environments. In a formal educational setting, teaching and learning is overtly conducted in highly structured learning-management systems and abstract contexts, which differ from the future work settings, where using top-down maintained systems may be impossible, and tasks are instead situational and problem-based. The developers of institutional learning environments are ignoring the fact that there is a growing chasm between the choice of tools and selection of learning patterns in formal and informal learning-settings. The courses provide few possibilities for self-directed learning and change projects, and do not support the planning of personalized learning paths outside of institutional and formal frameworks. Cross-border collaboration and learning in communities and social networks, using various social-publishing, managing and communication tools, and also combining them with institutional systems, is, however, already becoming a mainstream strategy in real-world project situations.

Based on the limitations of formal teaching settings when it comes to meeting the competencies needed in the post-industrial work framework, the following **changes** were proposed:

- Planning learning in accordance with the uncertainty and ambiguity of dynamically evolving learning environments, which presume a constant willingness to learn, and competencies for managing and updating the environment according to the current context.
- Accepting the need to assemble learning environments beyond institutional borders and learning management systems; integrating social software and LMS systems into various learning landscapes, according to students' objectives.
- Facilitating the freedom to enter into the formal learning process with different Personal Learning Environments (PLEs), encouraging the use of these systems consistently in formal and informal learning settings for life-long learning.
- Introducing the need to shift the responsibility of planning and maintaining the personal and group learning environments and learning patterns from facilitators towards students, in order to facilitate the competencies of self-directed learning and change projects and to enable students to achieve better compatibility within different contexts and situations.
- Putting the focus of certain higher education courses on planning, monitoring, and evaluating personal and group learning processes beyond specific domain-centred courses in order to encourage the development and internalization of competencies.
- Inviting facilitators and students to initiate and participate in challenging, real-life assignments, involving communities and networks which reach beyond established institutional counterparts.

- Shifting the focus from assignments that promote private individual learning of knowledge and skills towards ones that favour shared community-based knowledge building and the obtaining of complex competencies.
- Accepting and promoting student-defined contexts and content and initiating social publishing.

Based on the changes, it was expected that in the exploratory cases **students** were:

- Involved in the collaborative knowledge-building activities, gaining experience of working within networked communities.
- Prompted to plan and monitor the evaluation methods for their learning activities, becoming more self-directed.
- Guaranteed the freedom to choose the most suitable tools for their learning activities, and to gain competence in maintaining their personal and group learning environments in order to accomplish individual and group objectives.

Carrying out empirical explorations of how learning should be organized in this increasingly unpredictable context, where students and facilitators are confronted with complex, dynamically changing, and unexpected requirements, was one of the major pedagogical tasks and contributions of the iCamp project.

The analysis of the exploratory iCamp case studies revealed several **aspects that the facilitators need to focus on when entering into the new learning situations**:

- Dealing with institutional restrictions when planning for integrated courses between institutions or beyond higher institutional borders: difficulties in integrating systems, planning domain tasks, and integrating assessment criteria.
- Coping with the stress on the part of facilitators' and students' that comes from starting to learn within an initially unstructured system that is evolving over time.
- Being prepared to reorganize the facilitation responsibilities beyond institutional borders: monitoring, scaffolding, providing technical help, organizing assessment, and motivating students.
- Reorganizing domain learning into problem-based, integrated problems, taking different students' work contexts into account.
- Coping with facilitators' and students' concerns about the fact that, at first, the learning environment cannot be filled with facilitator-defined content and that the content will be evolving as part of the student-defined activities.
- Overcoming the doubts relating to open social publishing, dealing with copyright issues and fears about the quality of learning materials.
- Making amendments to the domain learning for the sake of developing competencies for carrying out self-directed learning and change projects in an interwoven way in order to increase the chances that students will be able use these skills later in similar contexts.
- Accepting that, if not duly internalized, self-direction can hinder domain learning, and coping with the subsequent burden this may place upon students.
- Integrating individual and collaborative assignments to deal with individual self-reflection and group-level reflection and activities at both levels.

Setting up Personal Learning Environments (PLEs)

The iCamp project has treated the concept of a *Personal Learning Environment* (PLE) as more of a subjective, psychological concept, offering a broader, more naturalistic view of what comprises a personal environment in which intentional learning is to take place. It was assumed that students who need to select the technological means for creating personal or distributed environments in order to support their own work and study activities also need to be competent in terms of managing technology and its subcultures and common practices. Therefore, putting together a PLE including tools and services, resources and people often requires a trial and error approach, which in turn can help to advance the necessary skills (knowledge, skills, orientation, etc.) for self-direction in education. However, obtaining competency in evolving new social technologies and practices can only be gained by using these environments in various, personally meaningful activities without being afraid of learning from your mistakes.

A PLE of the students and facilitators in the iCamp cases encompassed all the instruments, materials and human resources that were known of and to which access was available within the context of the educational projects at any given point in time (Fiedler & Pata, 2008). The PLEs were constructed both by the students and by the facilitators, indicating that in iCamp intervention models the distinction between the different roles of student and facilitator was intentionally blurred.

Every personal environment was different, depending on the individual's preferences and expectations, and his or her process of personal development and mental processing (see Figure 1). Participants in the iCamp trials constructed their environments so that their components allowed them to create the experience they desired and to act according

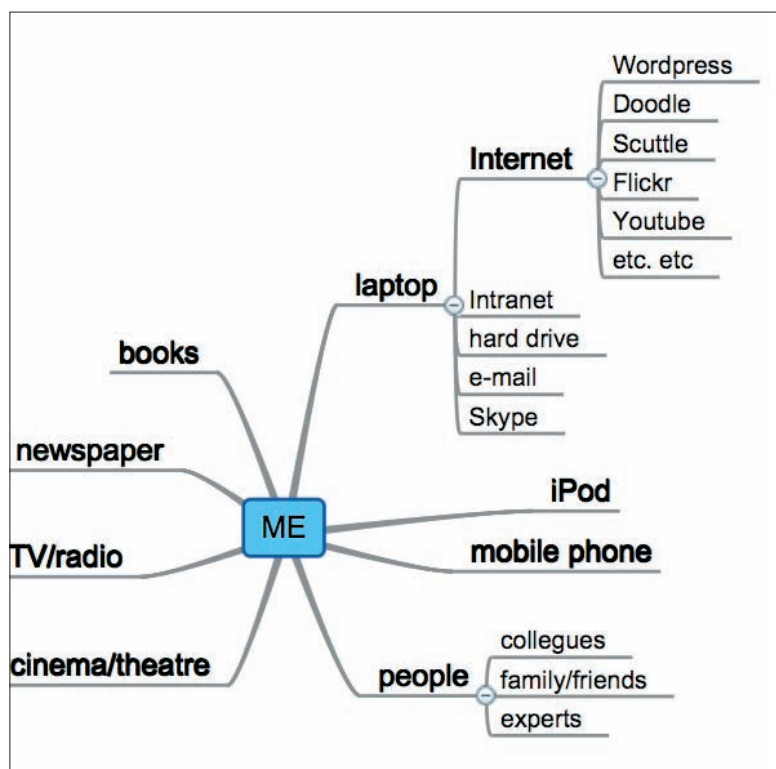


Figure 1. An example of a PLE

to their purposes. A PLE was entirely “controlled” or constructed by a participant and was adapted according to their needs and according to the current activities of each case study process. A PLE was often extended, i.e. the components of an environment were replaced or complemented with additional ones. Some components were also eliminated or temporarily excluded if they no longer served any useful purpose.

PLEs in three iCamp cases involved the following integrated tools and services: WordPress (or another blog tool); the social bookmarking tools Del.icio.us or Scuttle (or another); the Skype or XLite VoIP tools; MSN or another instant messaging tool; VideoWiki; Flickr; email; Feed on Feeds or another aggregator; the iLogue learning contract management tool; and Doodle, for organizing meetings.

A distributed group environment

When taking part in any collaborative work or study activities with others, some common goals and objectives for action need to be established and maintained (Fiedler & Pata, 2008). The challenge is to bring personal expectations, experiences, roles and environments together in order to form a functional collaborative setting. In this case, parts of a PLE inevitably start to show some of the qualities of a human activity system (Engeström et al., 1999). From an observer’s point of view, a PLE starts to partially overlap with other personal environments and a temporarily functioning **distributed learning environment** emerges. A distributed environment is useful as long as collaboration among these participants continues (Fiedler & Pata, 2008).

The iCamp project conceptualized a distributed learning environment as a group-managed environment which is a combination of parts from the participants’ personal environments and some new components that might be needed to carry out certain collaborative tasks. A distributed environment emerges when the collaborative activities, such as the interaction between participants, communication and shared activities take place. A distributed learning environment also changes dynamically in terms of its components, structure and size. Changes are defined by the participants’ preferences, negotiation process and the nature of their collaborative activities.

Participants took on various roles when using PLEs in those iCamp case settings that required collaboration and social networking. The learning environments of collaborative groups and the course were constructed by integrating different students’ and facilitators’ PLEs with the shared collaborative tools. The collaborative tools used in iCamp groups and course landscapes were: social publishing tools such as Google Docs, Zoho, Google Groups; wikis such as XoWiki, Wikispaces, and group blogs such as WordPress; synchronous group meeting tools such as Flashmeeting, Skype and XLite; social networking tools such as Scuttle; and aggregators such as Feed on Feeds or similar.

The challenges of working simultaneously in PLEs and distributed learning environments

In distributed environments, different actions can be identified: conversational actions related to subject-matter issues (terminology, concepts) or related to regulatory issues (distribution of work, roles, media) and productive actions in which the actual task is executed and objectives are materialized (Fiedler & Pata, 2007). Naturally, both types of action

are highly interwoven and participants switch rapidly from one to the other. In loosely-coupled, networked work settings, both types of action need to be mediated by an appropriate selection of tools and services. Whilst making decisions regarding the technological enrichment of a personal learning environment only requires a conversation with oneself (reflection), collaborative settings require the explication, negotiation and mutual acceptance of a selection of technological means among participants in order to form a functional distributed learning environment.

In the iCamp case studies, students were guided towards self-reflection and self-directed activities by making use of their PLEs, while at the same time they were prompted to complete collaborative activities within distributed learning environments. **Acting simultaneously in personal and distributed learning environments** demands a lot of cognitive effort.

Using feed and tag technologies enables participants to mash and combine their different types of reflections, using their capacity for self-directed behaviour. Students may also mash their reflections with those of their co-workers, peers or any experts they monitor, thus creating and visualizing new, challenging and possibly controversial constellations for them to consider. Social software also allows participants to publicly distribute their personal reflections and to share them within groups and communities.

In a collaborative setting, self-direction has to take place within the social context of the group; personal planning and actions need to be related to the shared outcomes of the group. To maintain a student's motivation, their individual learning objectives need to be tied in with the objectives people have as members of the group. This means that the personal goals and strategies for carrying out the tasks have to be dynamically revised in the context of the group. In addition to reflective self-evaluation, in a group context peer evaluation also becomes an important criterion for each individual student's progress. Self-reflection may distract from other reflection practices performed by the group during collaboration. Instead of looking at how the students achieve their learning goals as part of the group, the focus shifts to reflecting how well the group and its individual members perform.

iCamp cases: Three types of distributed environments

The research group within the iCamp project conducted several learning experiments in which students were prompted to set up their PLEs and carry out self-reflection within their personal environment whilst simultaneously participating in the group activities in distributed environments. In the iCamp case studies, students were asked to set up their personal environment. From a technical perspective, a range of pre-selected tools and services were provided to ease the process of forming one's own personal environment. Students were helped by their facilitators and technical support staff. They were then asked to form groups of between four and six students from different countries for group work. For this collaboration task the students had to negotiate the specifics of their environments and thus create a distributed learning environment. For self-reflection purposes the students were asked to set down a personal learning contract and to carry out regular (once a week) reflective writing tasks concerning their learning process. The students were recommended to use either iLogue or their personal weblogs.

The most important stages in the course design activity patterns were the following (also see Figure 2):

- Cross-institutional planning of the course: tools and systems, interoperability, content, problem-based project topics, facilitation, assessment
- Establishing readiness for change among facilitators: motivation, learning competencies in ambiguous situations, dynamically-evolving course environment, self-directed students, conversational scaffolding for learning contracts
- Assembling the learning environment: the diversity of personal environments and group environments, learning to use the systems
- Forming the groups: topic-based selection, peer selection, facilitator selection
- Individual assignments: self-reflection, conversational learning contracts, personal motivation
- Collaborative assignments: domain learning, team-level regulation, grounding the learning environments, learning from the process

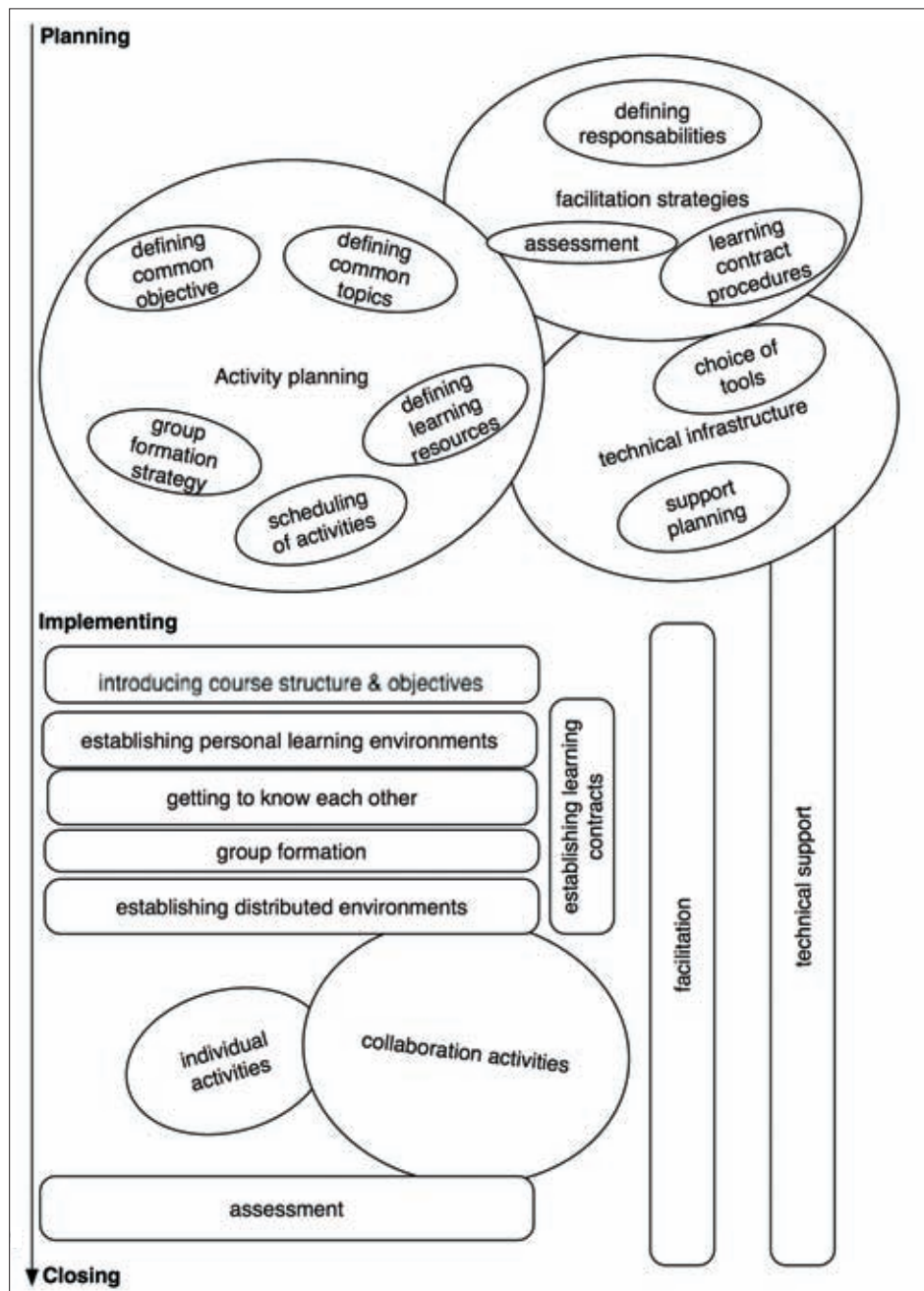


Figure 2. Stages in the course design activity patterns

- Facilitation and peer-support: Monitoring and regulating, motivating, coping with stressful situations
- Regulating cross-institutional facilitation: learning from facilitator experiences
- Assessment: self-evaluation, peer evaluation, project-based evaluation, assessment of individual and group work, coherent cross-institutional grading

In the three iCamp project case studies (see Figure 3), the complexity of new elements (e.g. self-direction with conversational contracts and social networking) increased. This was due to the learning from the previous experiments.

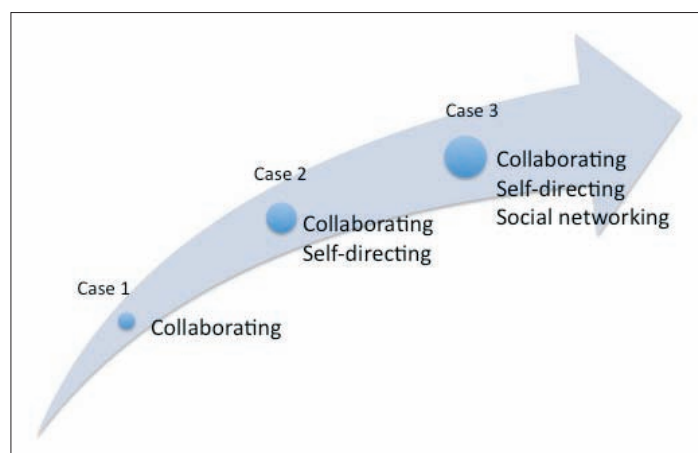


Figure 3. *iCamp Validation Trials*

For the first case study, the focus was on collaboration. Although students and facilitators were instructed to set up PLEs, the use of the PLEs was not backed up by any official course assignments. The main central collaborative space was a shared weblog, but this environment was occasionally extended with other tools for social publishing, aggregating information, and communicating synchronously. The main observations from this study indicated that the students did not use their PLEs if the PLE use had not been internalized; the PLEs were neglected for the sake of visiting and working in the collaborative space (Pata & Väljataga, 2007). Another observation indicated that in the case of tensions within the group, the tasks were completed in one central environment of the group: the shared weblog. However, when the group was more coherent in terms of objectives, and task and role management, they used various tools and divided the actions between the tools. For example, planning was done using either the Skype or Flashmeeting tools and, simultaneously, a summary of discussed issues was composed in the Google Docs environment.

In the second case study, dedicated to **self-direction** and **collaboration**, students were asked to continue to make active use of the PLEs during the learning process. Collaborative work was done in the XoWiki environment with the shared project. The use of PLEs was backed up by the self-reflection task, using the conversational learning contract method. The students had to plan, monitor and evaluate their progress using the contract elements in their weblog, or alternatively using the special iLogue tool. Students' self-reflection thoughts were commented upon by facilitators. The collaborative work environment was a wiki for each group. Several other tools were used for finding and organizing relevant information and events. These included the ObjectSpot search engine, the Feed on Feeds aggregator, the Scuttle social bookmarking tool and the Doodle event planning

tool. The second study revealed that the students tended to neglect the collaborative wiki and work individually with the subtasks of the joint project within their PLEs. They summed up their personal work mainly by glueing parts of the individually composed artefacts together. This case study revealed that there is a certain amount of competition between the individual work, self-reflection and the collaborative work. The main insight gained from the results of this case study was the need to integrate self-reflection tasks into the group tasks and to more actively facilitate the self-reflection tasks by providing various templates and consistently commenting upon students' efforts.

The third case study, dedicated to *self-direction*, *collaboration* and social networking, was run in the integrated environment consisting of the institutional Moodle for storing learning materials, offering some centralized support, enabling the students to register for the course and receive assessments in private mode. The activities of this case study took place in the distributed learning environment, which consisted of various students' and facilitator's PLEs – where they worked individually on self-reflection tasks – and the collaborative spaces that were used for carrying out collaborative assignments. We provided a set of tools developed at the iCamp project, but the students were not limited to using these tools; they were allowed to find and integrate other social software tools into their PLEs and distributed group environments. This case study was designed to give students and facilitators some experience of planning and dynamically changing their distributed learning environments, which is a task with a high level of ambiguity which can potentially lead to tensions. It was also assumed in this case study that social-networking competence develops over the long term, and that this course can only give a limited experience of how difficult it is to find, get connected to and stay collaborating with several people.

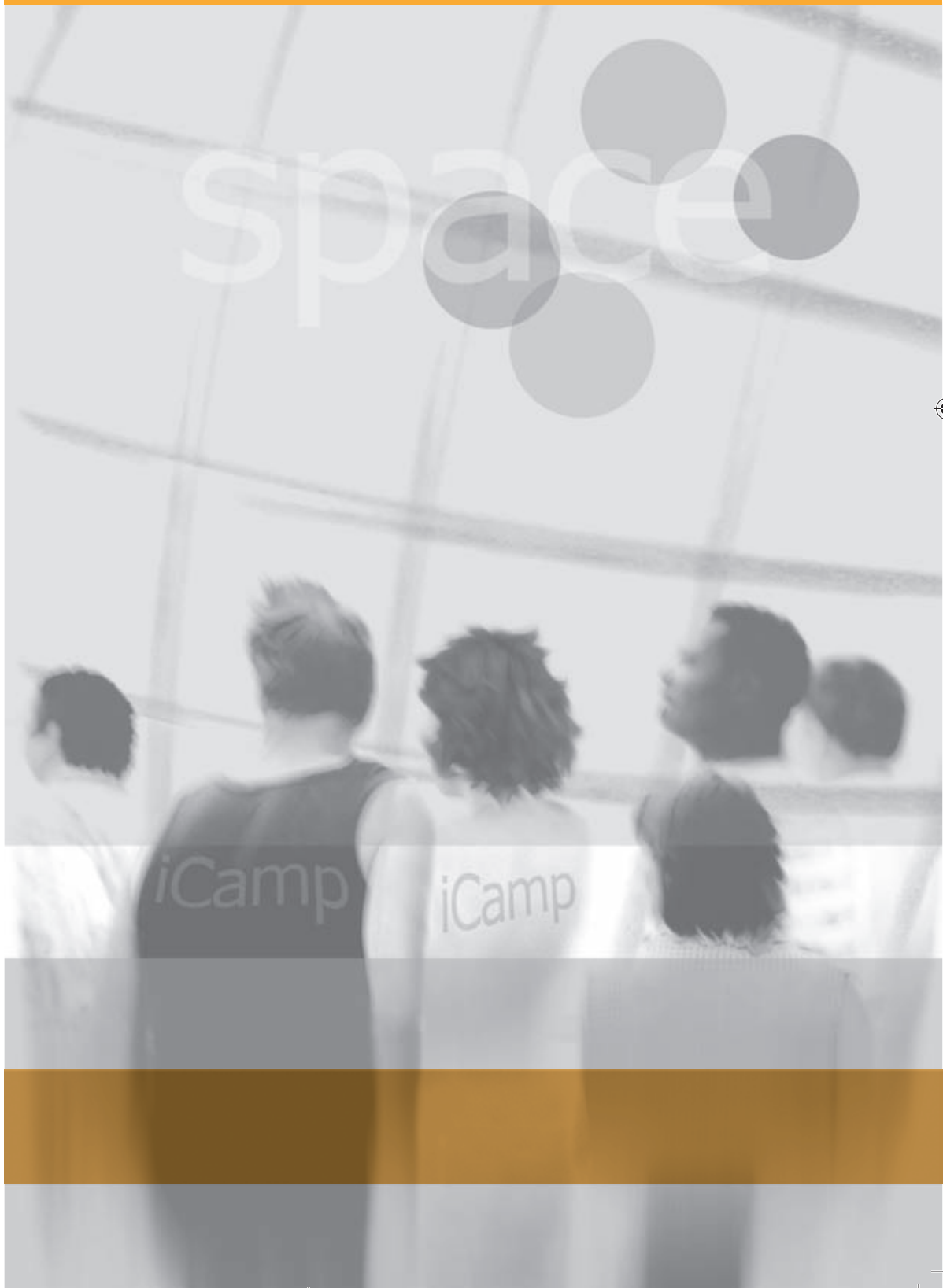
We found that if self-reflecting and self-directed tasks were planned as an integrated part of the collaborative activity, the self-reflection activities still tended to inhibit collaboration and other-directed reflective discourse, or vice versa, especially if the students were required to work under strict time limits. Our findings from the third case study indicated that it is important to relate the individual self-reflections to the group activities and to create awareness about the social system in which the individual learning is embedded. New distributed social tools and services (e.g. pushing feeds for the group, mashing and filtering group feeds) that enable people to interact in the group environment from within the PLE environment, would help to provide scaffolding for such a learning process.

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APPENDIXES



APPENDIX A. Tools: sourcing

Source information (last accessed: 13.11.2008)

- Flashmeeting: <http://www.flashmeeting.com/>
- Skype: <http://www.skype.com/>
- WordPress: <http://wordpress.org/>
- ViedoWiki: <http://distance.ktu.lt/videowiki>
- FeedBack
download: http://sourceforge.net/project/showfiles.php?group_id=191261&package_id=224627
- FeedBack
Test Server: <http://distance.ktu.lt/wordpress/>
- Feed on Feeds: <http://distance.ktu.lt/feed-on-feeds/>
- XoWiki: <http://alice.wu-wien.ac.at:8000/xowiki-doc/>
- Google Docs: <http://docs.google.com/>
- Google Calendar: <http://www.google.com/calendar/>
- Doodle: <http://www.doodle.com/>
- iLogue: <http://teldev.wu-wien.ac.at/ilogue/>
- Scuttle download: <http://sourceforge.net/projects/scuttle/>
- iCamp installation: <http://distance.ktu.lt/scuttle/>
- MyDENTITY: <http://myidentity.eu/>
- ObjectSpot:
ObjectSpot
download: http://sourceforge.net/project/showfiles.php?group_id=191261&package_id=255776
- ObjectSpot
Firefox plug-in: <http://www.icamp.eu/2008/05/15/objectspot-firefox-plugin/>

APPENDIX B. Tutorials

In this chapter you will find tutorials with step-by-step instructions on how to use three different tools: FeedBack, Feed on Feeds, and Scuttle.

1. FeedBack tutorial

Below we will show you how to install the FeedBack plug-in for WordPress and the FeedBack module for Moodle.

The FeedBack standard combines the advantages of a blog aggregator with social network functionality, such as the ability to tell your friends about your favourite blogs and 'one click' replying to interesting posts. This makes communication and learning in groups easier, and improves the control over information – blog posts

are gathered together in one place as a mashed feed of a group's weblog postings, which can be monitored and read from the so-called Dashboard area of your own weblog. The mashed area for each group becomes the communal area, where each group can see what their peers are doing. Every time a student or facilitator wants to write a reply to a post, he or she is able to write the reply post in their own weblog and monitor it from the mashed feed area.

Software installation

The FeedBack plug-in is available for **WordPress** (as a Sourceforge package with more detailed instructions: https://sourceforge.net/project/showfiles.php?group_id=191261&package_id=224627) and as a module for Moodle (https://sourceforge.net/project/showfiles.php?group_id=191261&package_id=224627&release_id=630051). If it is not installed on your version of the software you should contact your systems administrator. Once installed, you just have to activate the plug-in in WordPress. In Moodle, you can use the module after it has been added as an activity at a certain point in the course.

Plug-in activation in WordPress

From the 'Administration Panel', click on the 'Plugins' tab. Once a plug-in has been downloaded to your WordPress plug-in directory by an administrator, you must activate it from the 'Plugin Management' page and the new 'Read' tab will be added to your WordPress Dashboard.



Figure 1. FeedBack Plug-in activation in WordPress

Module installation in Moodle

The FeedBack module for Moodle is available for download as a Sourceforge package (https://sourceforge.net/project/showfiles.php?group_id=191261&package_id=224627&release_id=630051) with documentation and installation instructions attached in the INSTALL file. After the administrator has installed the module, any teacher can add it as an activity to the course page or the main site.

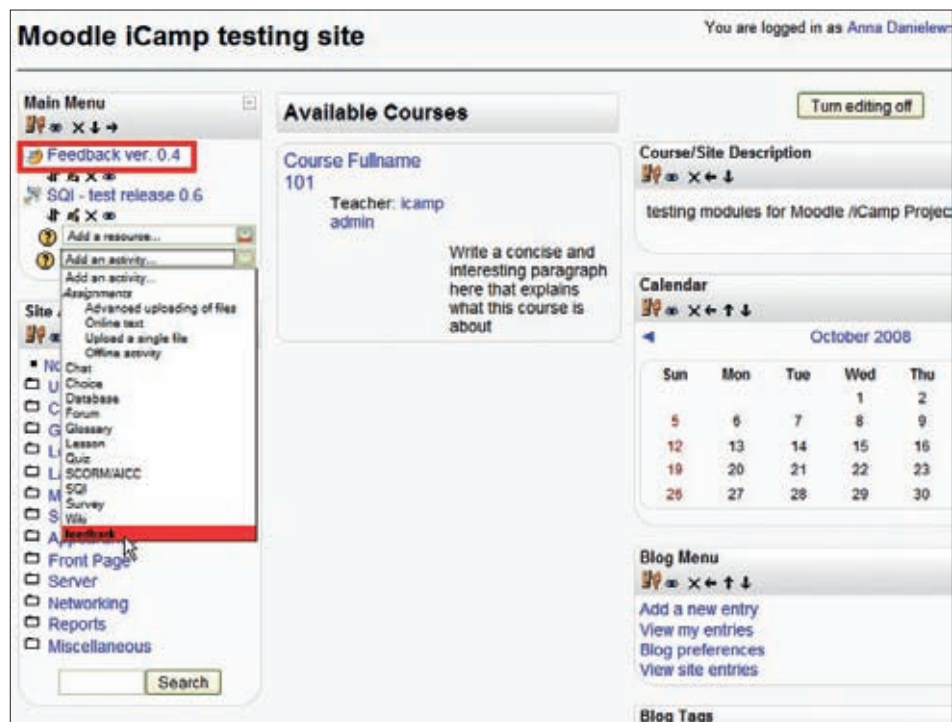


Figure 2. FeedBack module: adding activity or added (above) and accessible from the Moodle main menu

2. Feed on Feeds tutorial

This tutorial presumes that you have

- access to a working installation of Feed on Feeds
- created a user account there
- logged into the account

Adding feeds

1. After logging into Feed on Feeds, you can add new feeds. First, find some feeds that you want to add. A feed is usually marked with this icon:
2. You can follow this example and add a feeds to BBC News. First, go to the BBC homepage.



3. At the bottom of the page you will find a link with the name: 'News feeds'.

4. Choose **'World news'** and copy the URL of this RSS (the address is also given below) to the clipboard: http://newsrss.bbc.co.uk/rss/newsonline_uk_edition/world/rss.xml
5. Go back to the Feed on Feeds page.
6. Click on the **'Add Feeds'** link.
7. Paste the URL from the clipboard into the **'RSS or weblog URL'** field. Click on the **'Add a feed'** button:

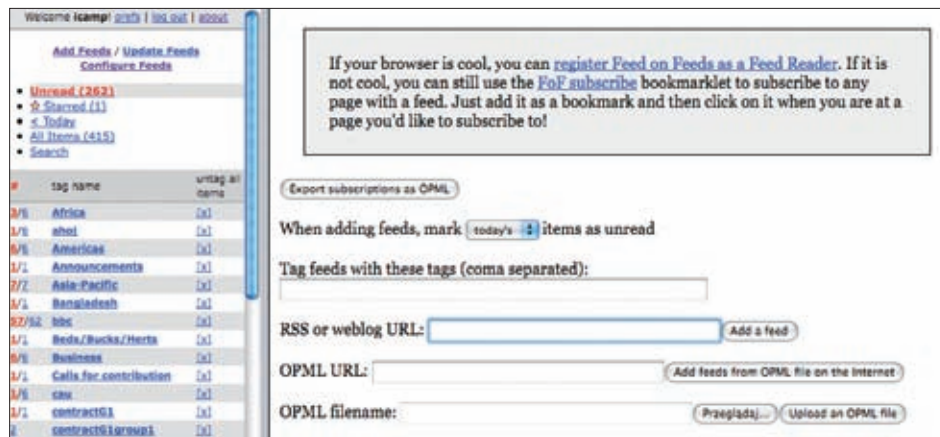


Figure 1. Adding a feed

8. You should now see a message reporting that you have successfully subscribed to the feed.
9. The new feed is now displayed in the sidebar on the left.
10. You can now add more feeds if you wish.

Browsing feeds

You can find the control panel for browsing feeds on the sidebar on the left of the interface. You can choose between five different options:

1. **Unread:** This option will show any unread items in all feeds.
2. **Starred:** You can mark some items as your favourites by marking them with a star. This option will display only those starred items.
3. **Today:** This option will only show items from the current day. In addition, you can change the date.
4. **All items:** This option will show all items from all feeds, whether they are read or unread.
5. **Search:** You can also find items by searching for words. For example, in this case you can search for all the items containing the word "europe". The search term is highlighted yellow in any found items.
6. **Search by tags:** You can also display items according to their tags. Click on a tag in the sidebar on the left and any items with this tag will be displayed.

Working with items

1. **Favourite items:** You can mark or un-mark items as being your favourites by clicking on the star on the top-left corner of an item.

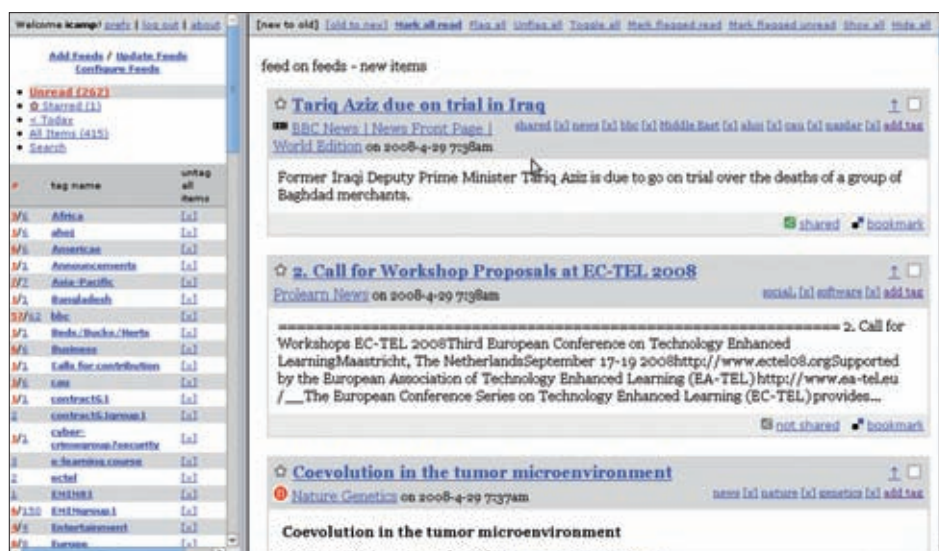


Figure 2. Items

2. Flag items: You can flag items and then click on the 'Mark flagged read' or 'Mark flagged unread' links.
3. Individual tags: Just as you can tag whole feeds you can also tag individual items.
4. green small icon If you add the 'shared' tag, the item will be marked as **shared** and will be visible to everybody. If you do not use the 'shared' tag, the item will be marked as grey icon **not shared**.
5. Bookmarks: You can bookmark any item but you need to have an account at del.icio.us in order to do so.

Changing the configuration

1. Go to preferences section by clicking on the 'prefs' link in the top left corner.
2. There are two sections:
 - a) **Feed on Feeds - Preferences**
Here you can set various parameters for the whole system
 - b) **Feed on Feeds – Plug-in preferences**
In this section, you can enable/disable plug-ins – e.g. for sharing items, integration with del.icio.us, WordPress, etc.
3. Another set of configuration options is located under the 'Feeds and Tags' link, located in the upper part of the browsing control panel. On this page, you can add and view the tags assigned to whole feeds (not individual feed items).

3. Scuttle tutorial

The open-source social bookmarking system **Scuttle** was selected for further development and for adaptation to the project's needs. Scuttle (see Appendix A for source information) is a piece of software based on an open-source project (Sourceforge, 2007) designed for storing users' favourite links in one place, making them accessible from anywhere, via the Internet, and letting users share their bookmarks with everyone. In iCamp we promoted mostly open-source tools, which is why we have chosen Scuttle as an example of a social bookmarking tool.



Figure 1. Scuttle main page

On the main page, as a guest user, the student can see a list of bookmarks that were recently added by service members (Fig. 1, frame 2). The student can browse a list of bookmarks using the tags on the right-hand side of the screen (Fig. 1, frame 6), filtering out all the bookmarks except those that are tagged with the selected keyword. Also, a guest user can review all the bookmarks of a certain user just clicking on his nickname (Fig. 1, frame 8). In this case, he or she will be able to see all those bookmarks that that user has shared as public. Finally, the student can simply type keywords into the search box at the top of the screen (Fig. 1, frame 1) and perform a search according to the information stored in the description and title fields. Furthermore, it is possible to sort the list of bookmarks currently on the screen by Date, Title or URL (Fig. 1, frame 5). For those people who prefer to read news in their RSS reader, an RSS feed is available for every page (Fig. 1, frame 7).

Registration and logging in

To get more features, students have to log in (Fig. 1, frame 4) or register (Fig. 1, frame 3). Both the 'new registration' and the 'log in' buttons are located at the top right of the main page.

Figure 2. Registration window

The registration procedure is very straightforward and simply asks for a unique username which does not already exist on the system, a password and an email address, which is used to send a new password in case the student forgets their current one. It is also possible to register and sign in using an **OpenID** identity.

Figure 3. Log in window

If the student already has an account on the system, or has an **OpenID** key, he or she only has to enter their login details and click 'Sign in'.

Main page

Once the student has signed in, he or she is redirected to their personal bookmarking environment (Fig. 4). Here, the student can see and manage their bookmarks and profile data, perform searches and carry out other any activities permitted by the system.

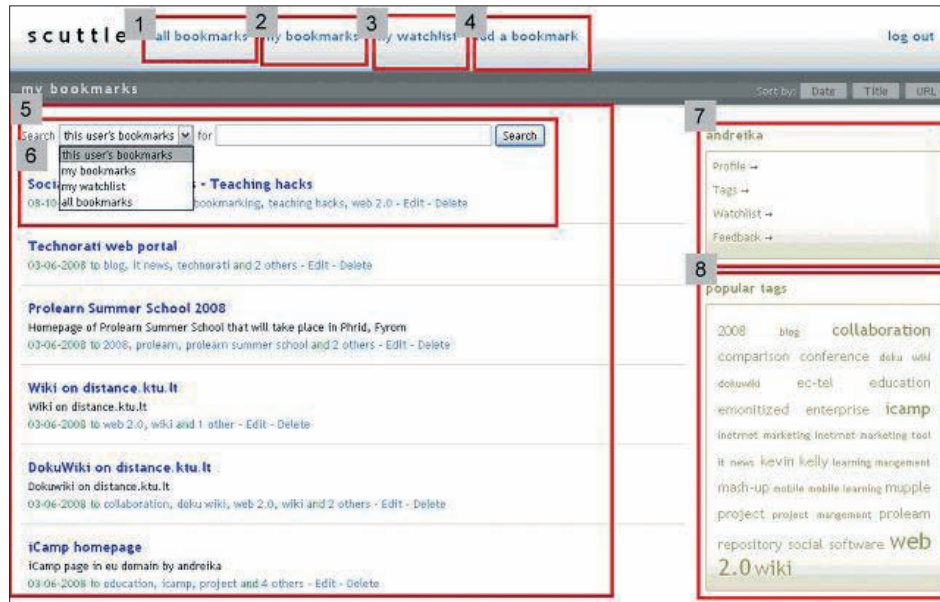


Figure 4. Personal bookmarking environment

The menu at the top of the page (Fig. 4) allows the student to view all bookmarks (Fig. 4, frame 1), see only their bookmarks (Fig. 4, frame 2), look at their watchlist (Fig. 4, frame 3) or add a new bookmark (Fig. 4, frame 4). Similar actions can also be performed by selecting a group of bookmarks from the dropdown menu (Fig. 4, frame 6) next to the search textbox. Additionally, keywords can be entered into the search box in order to narrow the displayed search results. All the selected bookmarks are displayed below, in the central part of the screen (Fig. 4, frame 5).

Another way of filtering bookmarks is by selecting a tag from the 'popular tags' block (Fig. 4, frame 8). After the student clicks on any of these tags, the system will display all the bookmarks which have been labelled with this tag. Some tags will appear larger than others. The size of the tag indicates how many bookmarks have been tagged using that particular keyword. The larger the font size of a tag, the greater the number of bookmarks that have been associated with it.

Above the tag cloud block, there is a personal information block (Fig. 4, frame 7). Here, the user can change his or her profile details, look at their tag cloud, check their watchlist (bookmarks that come from other users are added to this watchlist) or subscribe to or offer a subscription to someone else (Fig. 4, frame 7).

Adding a bookmark

To add a new bookmark, the user must select 'Add a bookmark' from the menu at the top of the interface (Fig. 4). They will then be redirected to a new screen, where they can store a new bookmark in the system.

Figure 5. Adding new bookmark

To store a new bookmark, users have to enter the required information in the 'add a bookmark' area (Fig. 5, frame 1). User must enter the URL address (required), the title (required) that will serve as the name of the bookmark for the first page, a description (not required), and any tags, to define the bookmark. Tags must be comma separated. The user can also choose whether the bookmark will be available to service users, visible to watchlist users, or stored as a private bookmark. After clicking on the 'Add bookmark' button, the stored hyperlink will appear in the user's bookmark list.

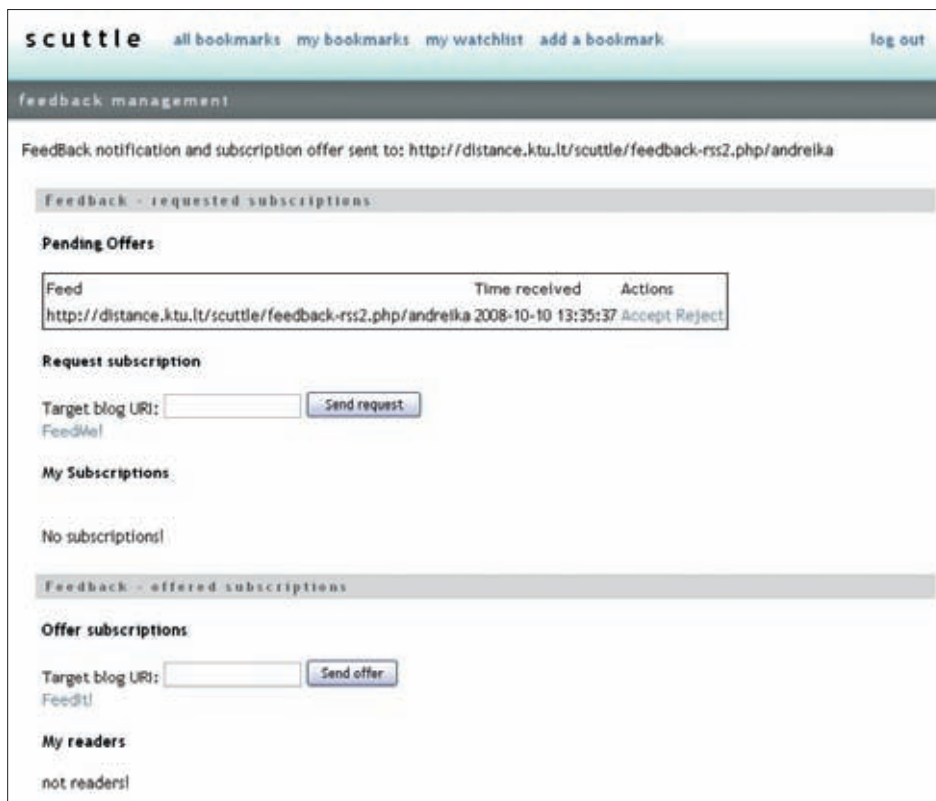
Furthermore, on this screen the user can see any other tags which were previously used to mark their bookmarks (Fig. 5, frame 2). This list can help the user to select the most appropriate tags, and avoid the creation of redundant data.

To make working with Scuttle more pleasant, the user can add a post action hyperlink to his web browser's favourites. This is called a 'Bookmarklet' (Fig. 3, frame 5). With this feature, the user no longer needs to log into the service every time they find an interesting bookmark.

Besides storing links manually, the user can import his bookmarks from a file or from the del.icio.us bookmarking system (Fig. 5, frame 4).

FeedBack subscription

The FeedBack subscription tool allows users to subscribe to each others' bookmarking updates. The main purpose of the FeedBack mechanism is to allow other users to track your updates. If a user finds someone who he or she thinks may find their bookmarks interesting, they can suggest that they subscribe to their updates.



The screenshot shows the 'scuttle' website's 'feedback management' page. At the top, there are navigation links: 'all bookmarks', 'my bookmarks', 'my watchlist', 'add a bookmark', and 'log out'. Below the navigation, a message states: 'FeedBack notification and subscription offer sent to: http://distance.ktu.lt/scuttle/feedback-rss2.php/andreika'. The page is divided into two main sections: 'Feedback - requested subscriptions' and 'Feedback - offered subscriptions'. Under 'requested subscriptions', there is a 'Pending Offers' table with one entry: 'Feed' from 'http://distance.ktu.lt/scuttle/feedback-rss2.php/andreika' received on '2008-10-10 13:35:37', with 'Accept' and 'Reject' actions. Below this is a 'Request subscription' form with a 'Target blog URI' field containing 'FeedMe!' and a 'Send request' button. Under 'offered subscriptions', there is an 'Offer subscriptions' form with a 'Target blog URI' field containing 'FeedIt!' and a 'Send offer' button. At the bottom, there are sections for 'My Subscriptions' (showing 'No subscriptions!') and 'My readers' (showing 'not readers!').

Figure 6. FeedBack subscription

To make an offer, the user enters the other user's address in the 'Target blog URL' textbox in the 'Feedback - offered subscriptions' area. To get the correct URL, the user should click the 'Feed it!' link and replace the nickname at the end of the generated link with the other person's username. The other user, the next time they access their FeedBack screen, will find a proposal to accept this subscription. If they accept, they will start to receive bookmarks from this user.

A user can also subscribe him or herself to all the bookmarks that another user has stored. To do so, the user does the same, but this time in the 'Feedback - requested subscription' area. He or she should click the 'Feed Me!' link, change the username in the address, and click the 'Send request' button. After that, they will start receiving updates from the other user.

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We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

Moodle FeedBack module

Anna Danielewska-Tulecka (AGH - University of Science and Technology, Poland)

FeedBack plug-in for WordPress

Ahmet Soylu (ISIK University, Turkey)

Steinn Sigurdarson, Fridolin Wild (Vienna University of Economics and Business Administration, Austria)

Scuttle FeedBack plug-in

Andrej Afonin (Kaunas University of Technology, Lithuania)

APPENDIX C. Communication tools

1. Instant Messaging tools

When deploying an IM system in an educational environment, the selection of the system should not be dictated solely by its popularity, but instead but consider its features. The argument that old clients must be kept so that all students, including those who are not willing to install a new IM client, can communicate, can easily be countered by referring to the many multi-protocol clients which are available, and which allow for communication using several different IM protocols simultaneously.

Let us check the current feature matrix for the most popular IM systems:

System	Protocol	Licence	Audio/video	Offline messages	Server side history	Max. message length online/offline	File transfers	Conferences	Server of your own	Message encryption
QQ	proprietary, closed	freeware	ü	ü	N/A	N/A	ü	ü	ü	N/A
MSN/Windows Live Messenger	proprietary, closed [MSN protocol]	freeware	ü	ü	ü	400 (extendable with plug-in)	ü	ü	ü	ü (SSL)
Yahoo	proprietary, closed	freeware	ü	ü	ü	800	ü	ü	ü	ü
Skype	proprietary, closed, reverse engineering difficult or impossible	freeware	ü	ü ¹	ü	no limits	ü	ü	ü	ü
AIM/ICQ	proprietary, closed	Adware	ü	ü	ü	Limited by client /450	ü	ü	ü	ü (TLS/SSL)
Jabber	XMPP (open standard)	Open source	ü ²	ü	plugin mod_archive	no limits	ü	ü	ü	SSL
eBuddy	only client for MSN, Yahoo, AIM, GTalk, ICQ, Facebook and MySpace	web-based, adware	ü	ü		?	ü	?	ü	HTTPS
IBM Lotus Sametime	SIP, SIMPLE, T.120, XMPP, H.323	commercial, example pricing: 58 EUR/user	ü	ü	ü	no limits	ü	ü	ü	TLS/SSL
XFire ³	proprietary, closed	freeware	ü	?	?	?	ü	ü	ü	?

The comparison is easy for the basic messaging functionalities like chat, multi-user conferences or file transfers. However, it becomes more difficult when it comes to comparing features such as audio/video communication or security. Why?

In the security area, many organizations have strict guidelines laid down by their management or IT/network administrators. In fact, instant messaging clients are the most frequently banned type of applications, due to the following factors:

1. chatting with people outside of the company distracts from work
2. a constantly open connection to the outside world is a possible backdoor for hackers, viruses or bots

¹ Skype does not deliver messages sent to offline contacts until both parties (sender and recipient) are online

² There exist jabber clients with audio/video conferencing features

³ XFire is an IM system targeted at gamers, so its feature set is aimed at scenarios which are very different to those of e-Learning

Out of the top 10 IM systems, there are only two which provide strong countermeasures against both of these factors: “Jabber” and “IBM Lotus Sametime”. These two systems can be installed locally and be fully controlled by the organization, including the possibility to stop any connections to the Internet.

Jabber, which has many free open-source client/server implementations, is a particularly good candidate for deployment within an educational organization.

As for the voice/audio communication, most of the IM systems have clients with audio/video support, but the functionality varies significantly. The smoothest and most problem-free implementation of voice/audio remains that of Skype, thanks to the clever peer-to-peer architecture of this system. However, this is not the cleverness of a great inventor; it is more like the cleverness of a pirate, which makes network administrators nervous and, as a side effect, it makes it impossible to optimize the network configuration for the best possible audio/video quality with Skype.

2. SIP- and H.323-based communication tools

Aside from many undisclosed, proprietary protocols used in some commercial VoIP products (such as Skype), there also exist some fully standardized network protocols for VoIP applications. The most widely used of them are SIP and H.323.

Both of these standards are fairly mature, so there already exists a myriad of software applications and hardware appliances which base their success on these protocols. We do not have enough space here to describe all of the various SW/HW products or projects, so we will provide only a general description of these two standards.

The **H.323 standard** covers a family of protocols designed specifically for multimedia communication and data conferencing over IP networks. It defines an entire, unified system for performing these functions. The standard was approved by ITU-T in 1996 and its design also considered the issues solved in the classic Public Switched Telephone Network (PSTN) world; therefore users can expect about the same level of robustness and interoperability as they are used to with the PSTN. This is confirmed by some large-scale enterprise deployments of H.323, e.g. the Czech universities VoIP infrastructure interconnecting all Czech academic fixed lines since 1999, without the users even noticing the difference.

There are many commercial and some open-source solutions for building an H.323 infrastructure. Surprisingly, compared to the world of SIP protocol, there are not so many actively developed SW clients supporting H.323. The reason for this might be the higher complexity of the H.323 protocol (compared to SIP) and also the recent growth in the popularity of SIP, which lured potential VoIP developers away from H.323.

The SIP protocol is a very successful competitor of H.323. SIP can be used for any applications that need to establish and manage communication sessions between two or more parties. One of its most famous applications is that of VoIP. However, SIP can also be used for instant messaging, online games and virtual reality - although these applications are already covered by other protocols/applications and, especially in the case of instant messaging, SIP is hardly likely to become the next breakthrough.

SIP-based VoIP solutions acquired great popularity thanks to several factors:

- The SIP protocol is text-based and it looks familiar to developers acquainted with classic internet protocols (like HTTP or SMTP)

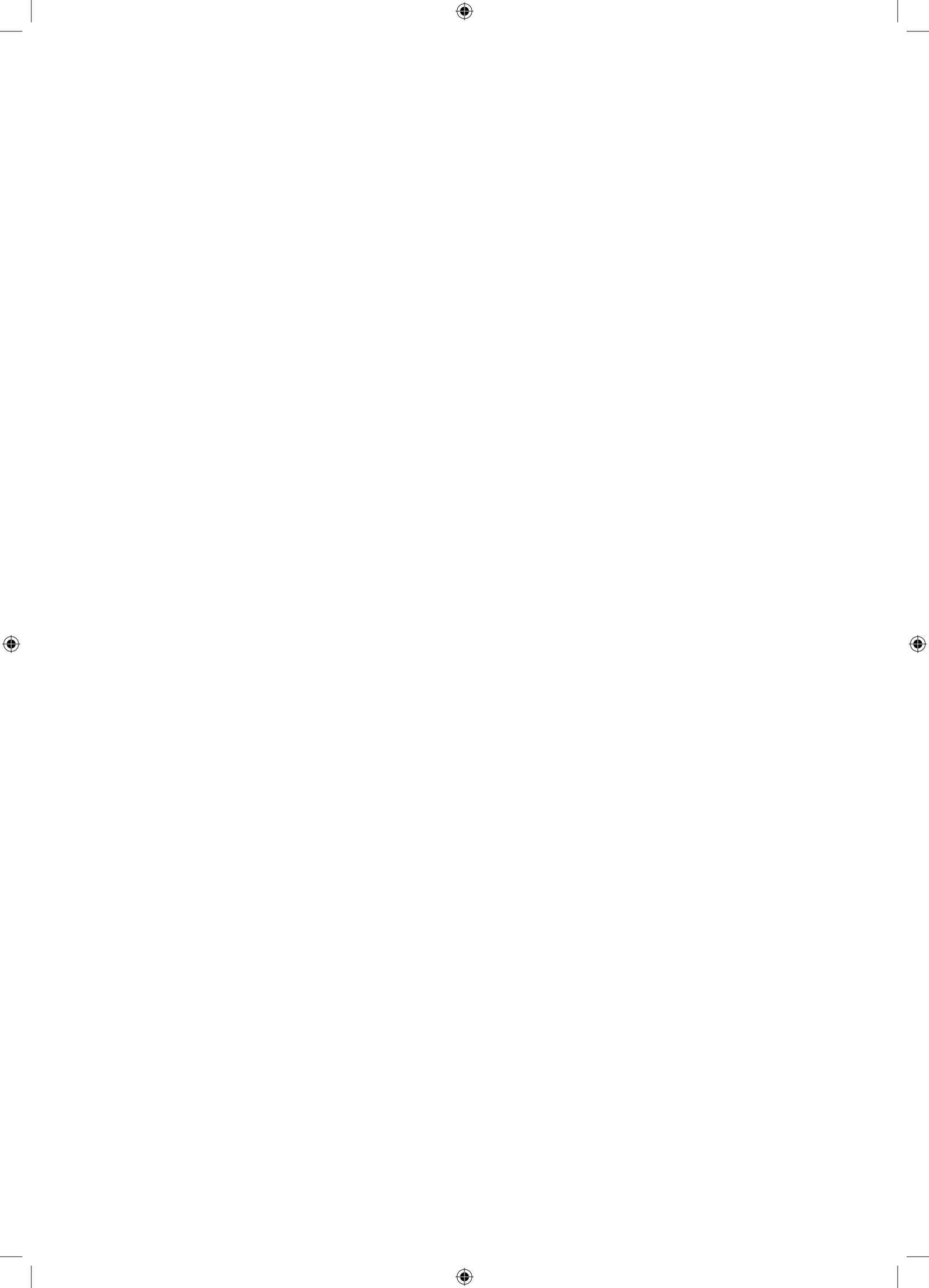
- At first glance, it seems to be simpler to implement a SIP-based client than a H.323 one. Not many developers in the first stages of their projects realize that “the devil is in the details” and the details seem to be covered better in H.323 – which is the reason for the higher complexity of the H.323 standard
- There is strong marketing push for SIP-based VoIP solutions. It is hard to guess at its origin, but part of SIP’s success may come from the SIP Forum, which has associates of more producers of end-user devices than the H.323 forum. In any case, these days almost all vendors producing network components include SIP gateways or SIP HW phones in their product lines. It would be practically impossible to count and review all these devices. Therefore, the SIP HW became incredibly cheap and widely used, which further increased SIP’s popularity. H.323 also gains from this trend, however, because many SIP-compatible HW devices support also H.323. But because H.323 is less popular, there are not so many commercial VoIP providers supporting it (compared to SIP).
- If we take Google search results as a measure of popularity, then SIP is the clear winner: entering “SIP phone” as a search phrase gives 70 times more results than “H.323 phone”.

ACKNOWLEDGEMENTS

We would like to take this opportunity to thank our project developers: the programmers and conceptualizers behind the tools.

SIP and H.323 based communication tools

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