WIKI SKILLS

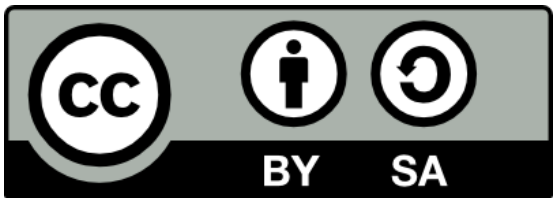
Empowering and fostering social, professional, cultural and civic skills through pedagogical use of Wiki technologies and methodologies.

Using Wikis in Education: Guidelines for Teachers and Trainers

Education and Culture DG

Lifelong Learning Programme

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use that may be made of the information contained therein.



You are free:

to Share — to copy, distribute and transmit the work
to Remix — to adapt the work
to make commercial use of the work

Under the following conditions:

Attribution — You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work), in this case:

Barajas, M., Frossard, F. (2012). Using Wikis in Education: Guidelines for Teachers and Trainers. Universitat de Barcelona (www.ub.edu/euelearning)

Share Alike — If you alter, transform, or build upon this work, you may distribute the resulting work only under the same or similar license to this one.

With the understanding that:

Waiver — Any of the above conditions can be waived if you get permission from the copyright holder.

Public Domain — Where the work or any of its elements is in the **public domain** under applicable law, that status is in no way affected by the license.

Other Rights — In no way are any of the following rights affected by the license:

- Your fair dealing or **fair use** rights, or other applicable copyright exceptions and limitations;
- The author's **moral** rights;
- Rights other persons may have either in the work itself or in how the work is used, such as **publicity** or privacy rights.

Notice — For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do this is with a link to this web page.

This summary is located here: **http://creativecommons.org/licenses/by-sa/3.0/**

There is a human-readable summary of the Legal Code (the full license), located here: **http://creativecommons.org/licenses/by-sa/3.0/legalcode**

These guidelines have been produced thanks to the contributions of the following authors:

University of Barcelona
Mario Barajas
Frédérique Frossard

Ynternet.org
Théo Bondolfi
Florence Devouard

HEIG/VD
Miguel Alarcón

CESGA
José Manuel Abuín
Maria Malmierca

Wikimedia Sverige
Anna Bauer
Leonard Wallentin

MAC-Team
Pascal Echardour
Yves Boisselier

Die Berater
Jenifer Ziegler

Ellinogermaniki Agogi
Argiris tzikopoulos

TABLE OF CONTENTS

INTRODUCTION

This handbook has been developed in the context of the *WikiSkills European project*, which aims to apply the benefits of wikis to promote educational lifelong learning opportunities. This handbook is *a practical guide for educators at all levels interested in designing and implementing their own wiki-based learning scenarios*.

› The WikiSkills project

Wikis are simple to use, asynchronous, web-based collaborative hypertext authoring systems.

Recently, Wikis have been widely used in various sectors and levels of education, as they can enhance collaborative learning. In a wiki-based learning scenario, participants co-edit web pages. During such processes, peer interaction can motivate participants, who construct synergically shared knowledge.

The WikiSkills project aims to analyze and apply benefits of adopting a wiki-culture.

Within common learning scenarios, participants from different educational sectors, cultures and ages (schools, universities, professional and adult training) learn how to use wikis for their socio-professional development. The project develops, implements and evaluates an innovative training curriculum focusing on how to make the best use of wiki environments in educational settings, so as to reach high learning objectives and foster a community of learners within Europe.

The project's objectives are the following:

- Provide opportunities for meaningful collaborative learning activities;
- Promote digital literacy, as well as social skills, writing skills and critical thinking;
- Develop a sustainable virtual community of practice among the different project countries;
- Enable educational communities to contribute to the actual information society;
- Empower civic behaviours, social inclusion, employability and cultural understanding.

WikiSkills promotes innovative pedagogical approaches that foster creativity, competitiveness, employability and entrepreneurial spirit, equity, social cohesion and active citizenship.

› How to use this handbook?

This handbook tries to be a practical guide to help educators at all levels and sectors in using wikis in their teaching contexts. It can interest you if…

… you are a teacher or educator at a school, university or professional / adult training institution

… you are considering using wikis as a learning resources with / for your students

… you want to increase creativity in your classroom

… you are interested in creating a wiki, but you think an initial push would help you.

The handbook is structured in four chapters.

- **Chapter 1 introduces the main concepts around wiki culture**, and describes its application to learning contexts. It is especially useful for readers who are taking the first steps with wikis.
- **Chapter 2 provides practical advices on how to use wikis for educational purposes**. First, it outlines advantages, challenges and solutions related to the use of wikis in teaching contexts. Afterwards, it hints good practices of using wikis in teaching settings. The chapter also lists success factors for the relevant use of wiki environments in educational settings.
- **Chapter 3 addresses the WikiSkills training approach**. It describes the methodology through which the project aims to teach educators about wiki culture, and specifies the modalities and the tools used in this context.
- **Chapter 4 provides a toolkit of useful resources**, i.e. links to videos and readings of interest, which were carefully gathered by the consortium for readers aiming to get a deeper understanding of the use of wikis in education.

1. THE WIKI CULTURE IN LEARNING SETTINGS

1.1. What is a wiki?

› A wiki is a tool enabling online-group collaboration and asynchronous communication.

It is a website whose users can *add, modify, or delete* its content via a *web browser* using a simplified mark-up language or a rich-text editor. It supports hyperlinks and has simple text syntax for creating new pages and cross-links between internal pages, allowing the emergence of a *non-linear, evolving, complex, and networked environment*.

› A wiki affords a series of meta-features...

... such as the *history of a page* (including comparison of versions and roll-back to earlier versions), *notification of revisions*, and *discussion spaces* assigned to particular pages. In this way, producing content and structure in the wiki can be accompanied by comments, discussion, and annotations. This is where the interdependent and collective orientation of the wiki emerges. What separates the wiki from other online, distributed environments is its *open architecture*. The structure is not imposed or predetermined (as in an LMS) but emerges as a result of participation. It allows users to edit the overall organization of contributions as the content itself.

› Wikis are typically powered by wiki software...

... and are often created collaboratively by *multiple users*.

› The essence of the wiki concept may be described as follows:

- *A wiki invites all users to edit any page or to create new pages* within the wiki website, using only a web browser.
- *A wiki promotes meaningful topic associations between different pages*, by making page link creation intuitive and showing whether an intended target page exists or not.
- *A wiki is not a carefully crafted site for casual visitors;* instead, it seeks to involve the visitor in an ongoing process of creation and collaboration that constantly changes the website landscape.

› Wikis may serve many different purposes.

Examples include community websites, corporate intranets, knowledge management systems, and note-taking. Below are some examples of uses:

- *Collecting historical data and building encyclopaedic content:* purpose heavily inspired from Wikipedia, it is frequently used within companies.
- *Drafting and reviewing material:* co-design of public documents, reports, books, documentation, annotated bibliography, meeting minutes, writing assignments, etc.
- *Keeping directories updated:* keep personal or collective information up to date through easy administration. An example is Diplopedia, the wiki of the US Diplomatic Department.
- *Project knowledge management:* collaborative activities such as brainstorming, sharing of ideas, coordination of activities, etc.
- *Diffusing temporary events:* host information about a conference program, speakers, list of talks, etc. Information can be easily updated by editors.

1.2. The "Wiki Way"

› A defining characteristic of wikis is the ease with which pages can be created and updated.

Generally, there is *no review* before modifications are accepted. Many wikis are also largely *open to the public* and an explicit effort has been made to lower the barrier to participation as much as possible both at the technical level or at the social level.

> *According to the "Wiki Way", "Open editing has some profound and subtle effects on the wiki's usage. Allowing everyday users to create and edit any page in a Web site [...] encourages democratic use of the Web and promotes content composition by non-technical users."*
>
> *(Ward Cunningham[1])*

› Trust people and the process is a major element in the "Wiki Way".

It has been observed that in most cases, when editors are given the *freedom* to stir the direction of a project and have developed a *sense of ownership*, they tend to *self-organize* to support the development of the project in a meaningful and positive way rather than let it all fall into chaos.

› Transparency as a central principle of leadership.

Every single action made by an editor is *recorded* and is *visible* to all other editors. This *transparency* makes it possible for every editor to know what is going on, at the global level or at the fine-grain level, a situation that fosters a sense of ownership and *trust*.

1.3. Pedagogical applications of wikis

Wiki software is relatively flexible, and can be adapted to a wide range of learning environments and educational levels. There may be four different forms of educational wikis:

a) *Single-user wikis* enable collecting and editing thoughts using a web-based environment.

b) *Small wikis* enable students keeping notes online and allow peer-reviewing and edition by fellow students.

c) *Collaborative writing wikis* can be used by a team for joint writing.

d) *Knowledge base wikis* provide a knowledge repository for a group.

The four main uses of wikis may be listed as such:

- *Co-authoring:* writing technical documentation, writing Q&A, grant requests, creative writing, annotated bibliography.
- *Meetings:* defining the agenda, recording participant names, writing reports, archiving reports, collaboratively drafting decisions on the go, online voting.
- *Brainstorming and community of practice:* Gathering and publishing of good practices, discussions, summaries of thoughts.
- *Project management:* Collaboratively listing tasks, resources, prerequisites, deadlines, completion status.

[1] http://wiki.org/wiki.cgi?WhatIsWiki

A few specific examples of pedagogical application of wikis are listed below.

› Writing assignments

Wikis can be used for class project with an encyclopaedic format (instructions, user manuals, glossaries, etc.) or a bibliographic format (that requires students to locate websites related to a topic). They can also support the creation of handbooks (e.g. students can build a guide to correct punctuation, which could be compiled and evaluated as a class, giving every student a stake in the project and benefiting each from the authoring process). Another option may be to implement collaborative creative writing, in which students collaboratively write a story through a wiki.

› Project-based learning

Wikis represent a powerful tool for project planning and documentation. When used for collaborative class projects, they allow students to meet virtually at their convenience and work on projects together. Wikis can be useful in project knowledge management, including brainstorming and exchange of ideas, coordination of activities, coordination and records of meetings, etc.

› Online / distance education

Wikis are useful tools for facilitating online learning groups. Indeed, they can support the dissemination of information, thus enhancing the exchange of ideas and facilitating group interaction. Further, wikis can be used to create a set of documents that reflect the shared knowledge of the learning group.

1.4. Collaborative learning

Traditional learning environments are often characterized by one-way knowledge transmission processes in which the teacher, as only source of knowledge, assigns a learning activity that is conducted autonomously by the student. Such processes strip learning of its social dimension.

Collaborative learning strategies can strengthen the social dimension of learning, by creating the conditions for learning as a result of group interaction.

› Definition and advantages

a) Collaboration is the process of interaction amongst people who share the same goal.

It requires individuals to be jointly engaged and coordinate their efforts in order to solve a problem or produce a product together.

Collaborative learning is an instructional method in which students at various performance levels work together in small groups toward a common goal.

The expected outcome of collaborative learning is shared construction of knowledge among students, or the creation of an artifact or product of their learning.

Collaborative learning activities include collaborative writing, group projects, joint problem solving, debates, study teams, and other activities.

b) Collaborative learning implies a change in the roles of the instructor and students.

Knowledge is viewed as a social construct which is enhanced by both the instructor and the peers. Thus, learning shifts from instructor-oriented instruction to student-oriented collaboration, and students build a community as they are learning with and for others. Students learn by expressing their questions, pursuing lines of inquiry together, teaching each other and seeing how others are learning. As a result, collaborative learning processes put learners not only as responsible for their own learning, but also for constructing new knowledge with other learners.

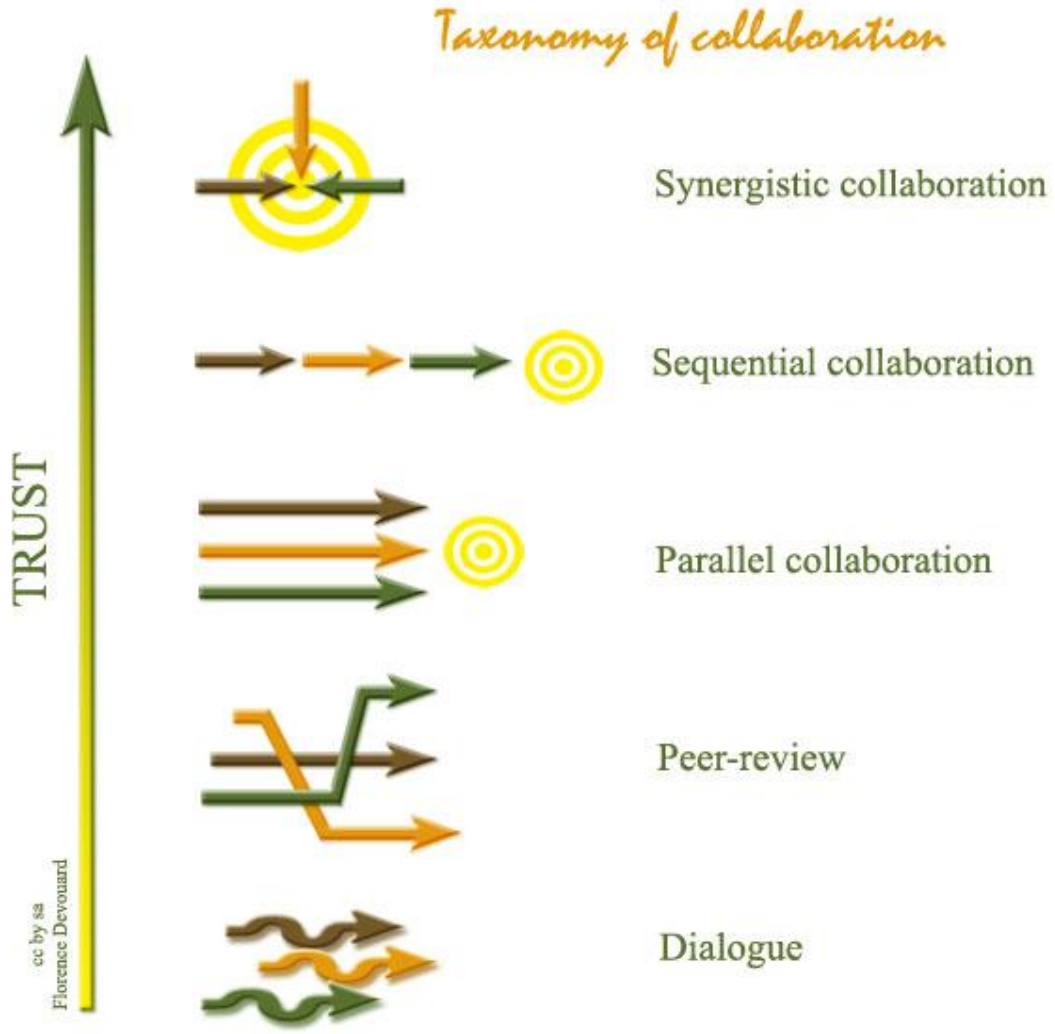
c) Collaborative learning processes can offer numerous benefits

Such as increasing student involvement with the subject matter, enhancing critical thinking skills, promoting problem-solving skills, and encouraging student learning and achievement.

› Taxonomy of collaboration

The word collaboration encompasses several meanings. The taxonomy of collaboration facilitates the understanding of each of them, from an *individual participation* to a *synergistic collaboration*. Each step in the collaboration process requires a higher amount of trust amongst participants.

This illustration may be adapted to every domain, including education.



a) At the lowest level, collaboration essentially results in a *dialogue*, sharing of facts and opinions on a specific topic between the teacher and the students.

b) Teachers may set up *peer-review processes among students* (for example, each student reviews and grades the work done by another student).

c) Another type of collaboration may consist of the *production of a collective project* commonly agreed upon, but in which each student is in charge of a specific task (e.g. co-writing a story book, with each story being written by an individual student). The *parallel collaboration* does not really require any review or coordination, but a general agreement to publish together.

d) *Sequential collaboration* requires a more coherent set of work with a *coordination system among participants*: in such context, each student has a specific task, but this task has a prerequisite and/or an impact on the other students work.

e) The true *synergistic collaboration* occurs when *the group self-organize and co-edit* the work. Ultimately, it is no more possible to say which student has written what as participation is mixed and merged.

Teaching environments frequently feature dialogue between participants (teachers and students). However, peer-review between students is far less frequently implemented though very rich in experience for all. Co-editing is quite frequent as well, in particular when two or three students are asked to work together to submit a report on a specific topic. However, when left to self-organize, most students will tend to agree on a report structure and on a list of tasks and will attribute the tasks, more frequently resulting in a parallel collaboration, than sequential or synergistic. Part of the reasons for division of tasks is that chapters are written separately on a desktop document by each student before being reunited before submission.

Wikis may facilitate synergistic collaboration by providing a central and unique writing environment.

› Associated theories

The following theories are associated to collaborative learning environments.

a) Socio-constructivism

Constructivism argues that humans generate knowledge and meaning from an interaction between their experiences and their ideas. Thus, learners actively construct knowledge by interpreting new knowledge based on their prior knowledge. Constructivist teaching approaches provide students with opportunities to participate in authentic activities requiring them to interact with their environment and create their own understanding. Constructivist teaching moves students beyond the accumulation of knowledge, as it involves them in critically thinking, reflecting, and using knowledge.

In such socio-constructivism contexts, students are offered the opportunity to learn through social, collaborative activities that occur in a meaningful context and allow them to make connections between their prior experiences and their new experiences. In these learner-centered educational contexts, teachers act as facilitators who guide students who explore their environment and construct their own knowledge.

b) Connectivism

Connectivism is a contemporary theory, portrayed as a learning theory for the digital age, which provides a premise and a framework that are useful for understanding collaborative learning in an online environment. Through connectivism, learning in the digital age is no longer dependent on individual knowledge acquisition, storage, and retrieval; rather, it occurs when individuals connect with each other and with technology, through interaction with various sources of knowledge (including the Internet and learning management systems), and participation in communities of common interest, social networks, and group tasks. Thus, learning consists of retrieving information from self, others, and machines.

c) Virtual Communities of Practice (VCoP)

Communities of practice (CoPs) are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly2. Wenger points out three characteristics of the relation throughout which practice becomes the source of coherence of a community: a) The domain – the subject of interest that brings members together; b) The community – members build relationships of mutual engagement that enable them to learn from each other; c) The practice – the shared repertoire of resources, such as experiences, stories, tools, and ways of addressing recurring problems.

In many cases, the creation and evolution of the CoP can be scattered over a broad geographical area. In such contexts, collaboration needs to be supported by Information and Communication Technologies (ICT), thus forming Virtual Community of Practice (VCoP).

[2] Wenger, E. (2006) Communities of Practice: A Brief Introduction

2. USING WIKIS WITH STUDENTS

2.1. Benefits of using wikis as learning tools

› Schwartz et al. (2004)3 highlighted several benefits of using wikis in the educational arena:

- *Cost:* most of wikis are open sources;
- *Complexity:* wiki writing is easy to learn, and technical support is available online;
- *Control:* access can be restricted;
- *Clarity:* wiki content and evolution is easy to consult;
- *Portability:* wikis can be accessed from any browser;
- *A common set of editing features:* WYSIWYG editing image insertion, etc.

› Recent literature4 underlined many other advantages of using wikis for pedagogical uses:

- *Promoting reflective learning:* Wikis offer students a context for comparing and contrasting information from diverse sources, thus stimulating reflection, knowledge sharing and critical thinking. Indeed, by participating in a wiki-based activity, students are able to perceive multiple interpretations of the same topic, as well as the natural complexity of interrelations within the realms of knowledge.
- *Involving learners in their own knowledge construction:* Wikis can involve students in their own co-construction of knowledge. Furthermore, they promote peer and self-assessment, which is considered one of the keys to self-regulated learning.
- *Improving co-writing processes:* Wikis facilitates distributed collaborative writing processes, in which students can master co-writing techniques, which are increasingly being required in the world of work.

2.2. Good practices

The WikiSkills project gathered some good examples of application of wikis in teaching settings.

› Translation tasks

Wikipedia, and other multilingual Wikimedia projects, can be used to conduct translation practices. By translating e.g. an article from one Wikipedia edition to another, the students will most likely have to engage in online discussions not only about appropriate terminology in a certain field, but also about the tonality and form of their translation.

Feedback from the community, as well as the impact of their work, can enhance students' motivation.

Target groups: Primary and secondary schools, higher education, professional and adult education.

[3] Schwartz, L., Clark, S., Cossarin, M. and Rudolph, J. (2004). Educational wikis: Features and selection criteria. International Review of Research in Open and Distance Learning, 5(1).

[4] Schaffert, S., Bischof, D., Buerger, T., Gruber, A., Hilzensauer, W. and Schaffert, S. (2006). Learning with semantic wikis. Proceedings of the First Workshop on Semantic Wikis – From Wiki To Semantics (SemWiki2006), Budva, Montenegro: June 11-14, 109-123.
Pusey, P., Meiselwitz, G. (2009). Heuristics for Implementation of Wiki Technology in Higher Education Learning. HCI International. A. A. Ozok and P. Zaphiris. San Diego, CA, Springer-Verlag: 82-90.

› Collaborative storytelling

In the context of the SoRuraLL EU project, an educational scenario was co-designed by researchers and rural school teachers, which consisted of collaboratively writing a multimedia story, among distant primary schools, through the use of a Wiki application. The scenario has been implemented in two Spanish rural schools.

The implementation of the Wiki storytelling scenario has enabled teachers and students to communicate with other rural communities featured with similar interests and contexts. Schools could also get familiarized with the use of software tools in educational contexts. Regarding learning, students could practice Spanish and acquire reading / writing skills in a creative manner. Regarding visibility of rural schools, schools were able to show the story to external audiences. Finally, they were able to develop innovative activities with creative content, in which schools collaborated to reach common results

For more information: http://orion.westgate.gr/sall2010/documents/p4.pdf

Target groups: primary and secondary schools

› Wikipedia Takes Your City

Wikipedia Takes Your City is a one-day wiki scavenger hunt and free content photography contest conducted in a particular locale, where participants compete to take photographs of as many local sights as possible. Pictures are then uploaded on Wikimedia Commons and may be used afterwards to illustrate Wikipedia articles where they are needed. This scenario has been experimented at least 25 times in various cities around the world, with great success.

Whenever working with photography, graphical elements, music, video, or some other media, the media repository Wikimedia Commons is a great place to receive feedback and attention. Any media uploaded will have to be original, out of copyright, or available with a Creative Commons Share-Alike license. Proceed to add you uploaded media to Wikipedia, or other public projects, to get even more engagement from the community.

For more information: http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Takes_Your_City

Target groups: Primary and secondary schools, higher education, professional and adult education.

› Project management

A local wiki, or a private wiki at a wiki farm, can be used as a project management tool for student during a shorter or longer group assignment. Ideally, towards the end of the projects, the trainer and the trainees can initiate a transition, converting what was at first internal brainstorming pages into a finalized showcase of the students work. This way, the wiki will work as both a project-internal platform and a display window, and students will be trained in iteration as a project management technique.

Target groups: Professional and adult education.

2.3. Obstacles to the use of wikis in teaching settings

Within an exploratory study conducted with teachers and trainers from different European countries, the WikiSkills project identified some difficulties for implementing feasible and relevant wiki-based learning scenarios.

› Technical obstacles

Educators sometimes do not have the necessary *informatics skills* to adequately use wiki functionalities for their teaching practices. Furthermore, some educational institutions lack the necessary *equipment* to successfully conduct wiki-based learning activities, as *Internet connections* are sometimes weak, and the number of computers available for students is low.

› Pedagogical obstacles

Generally, teachers and trainers are not comfortable with giving students the responsibility to publish content online. Furthermore, the *diversity of students' profiles* can make effective collaboration difficult. In addition, some teachers have high *curricular objectives*, which do not allow for activities which involve time consuming planning. Finally, the use of wiki environment should ensure adapted *evaluation methodologies*, in order to be effectively integrated in their teaching activities.

› Community obstacles

Some educators fear that communities of practice among teachers do not last in time, and that contributions are not equal, which would make it difficult to maintain collaboration and ensure successful learning scenarios. In addition, the resistance to change of some institutions and educators may be a barrier to the integration of wiki approaches within educational communities.

2.4. Success factors for teaching with wikis

In order to overcome these obstacles, the WikiSkills project set a list of success factors to the relevant use of wikis in educational contexts. They are based on an extensive review of the current literature review, an analysis of existing wiki platforms and projects, good practices provided by the project partners, and national surveys conducted among the different partners' countries.

The success factors have been distributed among four different categories, which correspond to the steps necessary for using wikis in educational settings.

› Preparing the wiki soil

- *Make ICT resources available:* ensure the availability of computers and internet access for each participant.
- *Make clear what and who you want to teach:* define your teaching objectives, learning content, and the specific characteristics of the editing community.
- *Make sure that students have sufficient ICT skills:* make sure that they will focus on the learning subject, rather than on technical issues (e.g. know how to install and use dictionaries and correctors, save text automatically, search options, etc.).
- *Consider accessibility issues:* the wiki environment should be usable by students with special educational needs, as well as provide interfaces that can be adapted according to users' characteristics: font size, use of keyboard, mouse or adaptive external devices, etc.

› Setting up the wiki ground

- *Define essential rules:* provide a minimum set of rules necessary for an efficient use of the wiki environment, although limiting the number of rules.
- *Define a clear organizational structure:* provide a minimum structure for organizing the wiki environment, while keeping it flexible and open.
- *Define and import initial content:* start filling in the wiki environment in order to avoid, from participants, fear of empty spaces or being the one to start.
- *Choose the adapted wiki platform:* identify which wiki software is best adapted to your educational objectives and your students. Decision should be made according to the special features of each platform, the technical environment required, the software license, the prior familiarity required to use the interface, the training availability, students' level of skills, languages available, the stability of the software development project, etc.
- *Prefer platform with page locking and/or edition conflict resolution system, as well as help links:* this will avoid having students editing the same page simultaneously.
- *Prefer platforms with statistics tools:* this will enable to follow up participants' progress and to extract useful information about the project's spread.

› Gardening the wiki

- *Be flexible with rules:* keep the rules open and encourage students to participate in their definition. This will foster their sense of ownership.
- *Open the wiki environment to a global audience:* when relevant, diffuse the project to external audiences, so students become aware that their work can be seen by others.
- *Track portfolios of edits and updates tied to individual users:* this will allow you seeing the amount of time spent online and provide qualitative and quantitative data on students' contribution to the wiki.

› Teaching with the wiki

- *Introduce students to the wiki functionalities:* start by showing your students what they can do and how in the wiki environment.
- *Show existing success wiki projects:* demonstrate to students the possible benefits from using wikis, to motivate them and show them the large range of opportunities they offer.
- *Introduce students to the wiki culture:* familiarise students with the social implications of working in wiki environments. For example, introduce them to collective ownership issues: make clear that they stay authors of their own contributions, that their texts may undergo revisions and are likely to be modified by others even after publication.
- *Introduce students to legal issues:* introduce students to copyright laws that forbid copying and pasting content from other external sources, giving credit for others' work, copyright laws for collective works, legal responsibilities of host provider and editors.
- *Find a balance between guidance and autonomy:* act as a moderator, rather than a supervisor, by encouraging and tracking the participation of students, and facilitating communication among them. Provide students with a clear organizational structure for the wiki, while giving them autonomy with regard to its scope and content.
- *Foster a "BeBold" attitude:* encourage students to try, fail, try again and finally succeed.
- *Foster students' collaboration:* provide students with opportunities to collaborate outside of the wiki environment.

- *Assume good faith from participants:* promote an atmosphere of trust and assume good faith from students. Mistakes may be done non voluntarily and are reversible on a wiki.
- *Foster the use of multimedia formats:* images and videos can, in some cases, illustrate a topic better than only text does. Their use can also make the environment more dynamic, and promote students' digital literacy.
- *Encourage the use of internal and external hyperlinks:* enable students to get used to the culture of linking contents, from inside and outside of the wiki site.
- *Consider using wiki-based evaluation methodologies:* use available functionalities which permit you to obtain qualitative / quantitative data on students' contribution to the wiki.
- *Diffuse your wiki:* disseminate your project through social networks and personal digital communication tools as mailing-lists, feeds, communities, etc.
- *Develop opportunities for collaboration among students from different institutions:* consider setting up wiki-based scenarios involving the participation of other educational centres.
- *Create a supportive community of practice:* communities among teachers and / or students provide opportunities for continuous collaboration and meaningful learning.

Figure 1. Success factors for teaching with wikis

2.5. Harvesting: The Wiki Key Competences

The relevant use of wikis in educational contexts would enable to develop a set Wiki Key Competences, which are resumed in the following table.

Key Wiki Competences (KWC)	Description
Creativity and innovation	- Elaborate, refine, analyse and Evaluate one's own ideas, - develop and communicate new ideas to others effectively, - Become open and responsive to new and diverse perspectives, - View failure as an opportunity to learn.
Critical thinking, problem solving, decision making	- Examine, analyse and evaluate ideas, arguments, and beliefs, and compare alternative points of view, - Present arguments.
Learning to learn	- Self-manage and reflect critically on learning processes, objects and purposes.
Communication	- Express with clarity and awareness of audience and purpose, - Write, read and understand in mother tongue, - Write, read and understand in additional language, - Monitor the writing process (from drafting to proofreading) - Formulate arguments in a convincing manner.
Collaboration	- Interact effectively with others, - Read others' contributions with patience and honesty, - Work effectively in diverse teams, respecting social and cultural differences, - Guide and lead others (teachers roles), - Find where and how to contribute, and to put abilities at the service of a common objective.
Information literacy	- Access and evaluate information critically and effectively, - Manage information from a variety of sources, - Apply a fundamental understanding of the ethical and legal issues, - Know how to use the information creating or using the structure created in the wiki environment.
ICT literacy	- Access and evaluate ICT tools critically and competently.
Citizenship, local and global	- Display solidarity by contributing to the local or the wider community, - Contribute to the construction of common goods.
Life and career	- Adapt to change, operating in varied roles and responsibilities, - Be flexible, incorporating feedback effectively and negotiating diverse views and beliefs to reach workable solutions.
Personal and social responsibility	- Show interest in and respect for others, - Be willing to overcome stereotypes and prejudices, - Be open to compromise, - Be sensitive to cultural differences, - Resistance to stereotyping and positive attitude towards inter-cultural communication.

Table 1: The Wiki Key Competences[5]

[5] The Wiki Key Competences have been identified in Deliverable 2.3. Pedagogical Framework for Wiki Uses

3. THE WIKISKILLS TRAINING APPROACH

The WikiSkills project will train teachers and trainers from different educational sectors (*primary and secondary school, higher education, professional and adult training*) so they can learn how to use wikis in their teaching contexts. They will learn about the different possible educational uses of wikis, and create wiki-based learning scenarios that they will apply with their students.

3.1. Training modalities

The WikiSkills training will focus on both technical (i.e. how to create and use wiki environments) and pedagogical aspects (i.e. how to create feasible wiki-based scenarios).

› Technical training

The training sessions include a short introductory unit to ensure a *minimum digital literacy level* for all participants. This training unit includes contents related to the basic use of Operative Systems, web navigation, basic use of e-mail skills and Basic use of text editors, as well as installation and use of "export to wiki format" and "publish to wiki" plugins for them.

Furthermore, the unit includes theoretical and practical approaches about:

- *how to create a wiki:* hosting a software solution in their own servers and using a web-based service or wiki-farm, compare different wiki applications to gain expertise to be able to choose the most appropriate one for their specific settings.
- *how to use a wiki:* create and link pages, edit texts, insert multimedia contents, manage users and groups, apply usability criteria to their wikis, organize and find content, set preferences and user options.

› Pedagogical training

Besides of technical skills, educators will learn how to create a feasible wiki-based scenario, and about the teaching methodologies that wikis can support. They will specifically learn about *evaluation methodologies* through wiki environments, *classroom management* (organizing roles among students and defining their teaching role), *creation of collaborative scenarios*, *security and follow-up*, *intellectual property* and *legal issues*.

3.2. Online tools

The WikiSkills training will be supported by different online tools.

› Chamilo

Chamilo
E-Learning & Collaboration Software

An open-source (under GNU/GPL licensing) *e-learning and content management system*, aimed at improving access to education and knowledge globally. It is backed up by the Chamilo Association, which wants to ensure the availability and quality of education at a reduced cost, through the distribution of free software, and the provision of a free access public e-learning campus. Chamilo platform features include SCORM 1.2 compatibility, multi-institutions mode, time-controlled exams, tracking of users' progress, and embedded social learning network.

› MediaWiki

A free wiki software application developed by the Wikimedia Foundation and others, which is used to run all of the projects hosted by the Foundation (including Wikipedia, Wiktionary and Commons). It is written in the PHP programming language and uses a backend database. The software is highly customizable, and the code is structured functionally. Thousands of websites use MediaWiki. Some educators have also assigned students to use MediaWiki for collaborative group projects. The software is optimized to correctly and efficiently handle projects of all sizes.

› BigBlueButton

BigBlueButton is an open source web conferencing system developed primarily for distance education. It supports multiple audio and video sharing, presentations with extended whiteboard capabilities, public and private chat, desktop sharing, integrated VoIP using FreeSWITCH, and support for presentation of PDF documents and Microsoft Office documents. Moreover, users may enter the conference in one of two roles: viewer or moderator.

3.3. Planning a wiki-based learning scenario

In order to design meaningful wiki-based activities, it is important to consider many different parameters that characterise the teaching context, such as the specific characteristics of the learning audience, the specific learning objectives, the evaluation approach, the time-space resources or the technical requirements. Moreover, the step by step organization of the learning activities should be planned.

Below is a guide which aims to facilitate teachers' process of designing their own wiki-based learning activities. It provides guidance and stimulates reflections on the necessary elements to be defined.

Title of the scenario	
Keywords describing the topic(s) of the scenario	
Targeted educational sector: - *primary and secondary education* - *higher education* - *professional training* - *adult training*	
Learners' special characteristics *Examples: students who are deaf, from rural areas, detached from the labor market, with low digital skills*	
Learning subject/ field *Examples: Management, English, Physics*	
Specific educational objectives *e.g. make students acquire:* - *writing skills* - *basic knowledge on Roman toponyms and Celtic culture* - *source criticism* - *cooperation skills*	
Narrative/sequential description of the learning activities	
Learning resources involved *Examples: books, search engines, online resource like wiki site to acquire knowledge from (Wikipedia, Wikimedia Commons, Ekopedia, JurisPedia)*	
Wiki application *Wiki software used by students to create content. Examples: MediaWiki, DokuWiki, FosWiki, XWiki, Wikifarm application (Wikispaces, PBWorks, Wikia)*	
Other ICT applications involved *Examples: standard computing programs like spreadsheets and graphics software*	
Infrastructure / equipment *Examples: Internet connection, microphone, camera*	
Prerequisite competences *e.g. to be familiar with English writing / linear algebra*	
Evaluation approach *Examples: peer-to-peer assessment, test (teacher evaluate), revision tracking, group assessment*	
Typical learning time *Examples: number of sessions needed, duration of sessions*	
Temporal mode *"Synchronous interaction" and / or "Asynchronous interaction"*	
Typical learning location *Examples: classroom with computers, outside the classroom*	

(e.g. museum), at home	

3.4. Evaluation strategy

In order to *assess the impact of the WikiSkills training approach and project*, the WikiSkills team has prepared some evaluation procedures and tools, to measure the followings aspects: a) *the Wiki Key Competences fostered by the project*, b) *collaborative learning opportunities*, c) *the creation of virtual communities of practices*, and d) *the project's impacts* on the educational communities.

Participants will be asked to participate in the project evaluation, through the following procedures:

› **Pre and post questionnaires:** at the start and at the end of the training session, participants will fulfil a short questionnaire, in order to self-evaluate regarding their wiki-competences.

› **In-depth interviews:** some interviews will be performed with selected teachers and trainers, in order to collect their impressions on the training provided, the competences they could acquire, and the project impacts on the educational communities.

4. TO GO FURTHER

Links to resources

The WikiSkills project has created a *Diigo group*, an online space which provides different kinds of helpful resources in relation to the use of wikis in educational settings. You can find a *set of videos* which include examples of wiki-based scenarios, *good practices* and *tutorials*. You can use select topics of interest by using the tagging system.

Please feel free to contribute to the group, by posting your own resources!

› Access the Diigo group at http://groups.diigo.com/group/e_culture/

Bibliography

› General literature on wikis

- Leuf, B., & Cunningham, W. (2001). The WIKI WAY. Quick Collaboration on the Web: AddisonWesley.

› Application of wikis in education

- Augar, N., Raitman, R. and Zhou, W. (2004). Teaching and learning online with wikis. In R. Atkinson, C. McBeath, D. Jonas-Dwyer & R. Phillips (Eds), Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference (pp. 95-104). Perth, 5-8 December. *http://www.ascilite.org.au/conferences/perth04/procs/augar.html*
- Coutinho, C. M. P., & Bottentuit, J. B., Jr. (2007). Collaborative learning using wiki: A pilot study with master students in educational technology in Portugal. Proceedings of World Conference on Educational Multimedia, Hypermedia e Telecommunications (ED-MEDIA), pp. 1786-1791. *http://repositorium.sdum.uminho.pt/bitstream/1822/6720/1/Edmedia2007.pdf*
- Duffy, P. and Bruns, A. (2006). The use of blogs, wikis and RSS in education: A conversation of pos-sibilities. Proceedings of the Online Learning and Teaching Conference 2006, Brisbane: September 26. *http://eprints.qut.edu.au/5398/1/5398.pdf*
- Parker, K., Chao, J. (2007). Wiki as a teaching tool, Interdisciplinary Journal of Knowledge and Learning Objects, vol 3, 2007. *http://ijklo.org/Volume3/IJKLOv3p057-072Parker284.pdf*
- Pusey, P., Meiselwitz, G. (2011). Assessments in Large- and Small-Scale Wiki Collaborative Learning Environments: Recommendations for Educators and Wiki Designers. LECTURE NOTES IN COMPUT-ER SCIENCE; (6778):60-68. *http://link.springer.com/chapter/10.1007/978-3-642-21796-8_7?null*
- Reich, J. (2012). The Wiki Quality Instrument: The Development of the Wiki Quality Instrument and its Protocols. *http://ssrn.com/abstract=2078155*
- Tonkin, E. (2005). Making the case for a wiki. Ariadne, Issue 42, January. Retrieved from *http://www.ariadne.ac.uk/issue42/tonkin/*

› Others

- Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning? Educause Re-view, 41(2). *http://www.educause.edu/ir/library/pdf/ERM0621.pdf*
- Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), Collab-orative-learning: Cognitive and Computational Approaches (pp. 1–19). Oxford: Elsevier. *http://halshs.archives-ouvertes.fr/docs/00/19/02/40/PDF/Dillenbourg-Pierre-1999.pdf*
- Siemens, G., (2005). Connectivism: A Learning Theory for the Digital Age. International Journal of Instructional Technology and Distance Learning, 2, 1. *http://www.itdl.org/Journal/Jan_05/article01.htm*
- Wenger, E. (2006) Communities of Practice: A Brief Introduction, Retrieved from *http://www.ewenger.com/theory/communities_of_practice_intro.htm*

WikiSkills project - Empowering and fostering social, professional, cultural and civic skills through pedagogical use of Wiki technologies and methodologies.

Lifelong Learning Programme – Key Action 3, 2012-2013 - Project Number: 519291-LLP-1-2011-1-CH-KA3-KA3MP

Project coordinator:

Ynternet.org

Contact:

Théo Bondolfi
Branche 17 - 1091 Grandvaux
Switzerland
Tel. + 41 (0) 78 943 44 14
info@ynternet.org

Website: wikiskills.net

Editors: Mario Barajas and Frédérique Frossard