

Wikis - Tools for Online Teamwork

by

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REPORT PRODUCTION CONTEXT

In keeping with the basic philosophy of the wiki, this report is the product of a collective effort by a group of ten authors working within the college environment primarily as IT Representatives. At various times over a period of two months, the group came together to exchange information and ask questions pertaining to wikis under the leadership of Alain Farmer, who administered a wiki dedicated to the research of the group, and as well, did research himself to advance the project. This report is a synthesis of this work and focuses on the essential elements to consider in creating and administering a wiki for academic purposes. Before beginning the report, sincere thanks are due to André Beauregard, Luc Blain, Alain Farmer, Frank Fournier, Jonathan-Marc Lapointe, François Lizotte, Françoise Marceau, Nicole Perreault, Serge Roy, Denis Thibault and Michel Vincent for their contributions.

THE ISSUE

Networking software is becoming more and more of a necessity. Unlike Web 1.0, where information flowed one-way, Web 2.0 gives users a voice through blogs and wikis and transforms them into network authors according to the [Actor-Network Theory](#), theorized by John Law and others.

In this new bi-directional media, wikis have become an important actor. In business, wikis are increasingly used for collaboration, case follow-up and creativity. What is their place in an educational context? Academic innovators have used them to facilitate student teamwork around specific questions. Given their inherent collaborative emphasis, wikis have proven useful for dealing with the collective development of frames of reference, problem-solving, thematic development, project follow-up, or other projects of similar complexity where students must work together to produce concrete results.

If you are interested in learning more about this tool or using it in class, this report is for you. This introductory section provides general information about wikis and the academic contexts where their use could be beneficial. The “Practical Applications” section gives a step-by-step approach to wiki creation and use. The last section gives useful references for those who wish to go beyond the overview presented in this report.

Without further ado, let us take a look at the nuts and bolts of wikis and how they can fit into an academic context.

A DESCRIPTION OF THE RESOURCE

Definition

Of Hawaiian origin, the term “wiki” means “rapidly and informally”. Designed to permit multiple contributors to easily and dynamically construct information, this category of software produces a website which can be consulted, modified or enlarged by multiple contributors, each according to their assigned access rights.

In an article appearing in the May 3, 2004 edition of the newspaper *Le Devoir* (in French) [Technologie : Le Wiki, le tableau blanc de l'intelligence collective](#) (*Technology, The Wiki, a whiteboard for collective intelligence*), Sylvain Carle defines a wiki as the warehouse of an immense collective brain, whereas in [Wikipedia](#), the same term is defined as a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content. The article emphasizes that wikis facilitate constructive collaboration, creating documents with a minimum of constraints.

A Short History

Most references attribute the origin and broadcast of the wiki concept to Ward Cunningham in 1995. Online research will permit those interested in further historic detail to discover the people and groups that contributed to the development of the resource.

Wiki-related Software

Several programs are available to support wiki creation. An enlightened choice must take into account needs, technical knowledge, the reliability of the system used, the technical support available and the eventual publishing requirements. This report chose to use the software *MédiaWiki* as an example because it is technically supported by *Profweb* on Personal Space sites. A few other examples will be examined before delving into more technical information.

Two Examples

Almost everyone has heard of the collaborative encyclopedia [Wikipedia](#) which is the most popular wiki on the Web. Even though the veracity of its contents cannot be guaranteed, this site illustrates the simplicity of this tool and the value of teamwork.

Closer to home, one finds the [wiki pédagogique de Danielle Duchesneau](#) who teaches Nursing Technology at Cegep Saint Laurent. Her site enables students to create databases for current clinical situations within the profession of nursing.

If you are already convinced of the pedagogical value of wikis, you have a good idea of how you would like to use one in your discipline, and you are eager to get going, you can skip to the “Practical Applications” section. You can return to this section later and compare its more theoretical approach to what you have done and ultimately contribute to this report by sharing your experiences with our readers.

USING A WIKI IN AN ACADEMIC CONTEXT

Techno-pedagogic Characteristics of Wikis

Why use a wiki rather than another web resource? In order to answer this question we consulted another *Profweb* report comparing different communication tools. Although other resources have their advantages, the wiki offers the following possibilities:

- Creation of an interactive multimedia site containing text, images and multimedia simply without technical support;
- Collaborative consultation, contribution, modification and organization of knowledge;
- Peer evaluation respecting site permissions;
- Easily-mastered technology, especially when basic training is provided;
- Priority is collaborative knowledge-building rather than site's appearance.

Concerns about on-line vandalism in a wiki are frequently overblown. Access must be authorized, and prior versions of content are automatically saved. This last feature offers users the possibility to track the order of modifications and offers teachers the possibility of canceling inappropriate modifications.

Challenges

The wiki presents several challenges to users. We mention some in the interests of helping you profit from the experiences of others rather than to discourage you from using this resource.

First, notwithstanding the simplicity of learning how to use a wiki, students must still come to grips with it. Each wiki has features whose use requires time to be understood, and therefore, a certain time for training should be set aside to introduce students to the wiki.

Second, planning your activity before beginning is essential for success. Without it, students will start working without seeing the larger picture. The teacher must encourage students to think before they leap, in order to reach consensus over goals, as well as the role that each participant is to play, the nature of the final product and the time frame of the activity.

Third, added to the technical training and activity planning, students must master effective cooperative techniques. Teachers cannot assume that these abilities have been acquired by all participants and must work to guide them to plan cooperative work without losing sight of the project's objectives. Savvy teachers will consider the personality and potential of each student when assigning tasks in order to prevent chaos caused by a lack of cognitive, organizational or emotional maturity that cooperative projects of this nature require. Nonetheless, when such a situation arises, the teacher must react quickly because in the majority of wikis, it is difficult to reorganize information or to modify the structure.

The Teacher's Role

Whether for a wiki or for any other pedagogical resource, the teacher's role is to plan, to interact with students and to evaluate their performances in relation to the pedagogical model and the competencies to develop. Although detailed instructions will be presented later in this report, the following is a look at the particularities of using wikis from an academic viewpoint:

- When planning activities, the choice of wiki must take student collaboration and responsibilities as well as the objectives and pedagogic approach into account. Getting to know the application is therefore a must. The teacher must be familiar with the installation procedure, fine tune the lesson plan and determine the structure of the wiki that will be suggested to students unless, of course, this choice is left to the students themselves.
- The teacher must be certain that students' technical and cooperative abilities are equal to the task of constructing a wiki. The teacher must also foster student enthusiasm for the project, be vigilant with regard to the wiki under construction and available when required to guide the troops.
- In the end, the evaluation process will enable a critical review of student learning in terms of both product and process. This is also the time to decide if the wiki will remain active and if so, who will administrate it.

Suggestions for Learning Activities

As we mentioned earlier, wikis work well in a socio-constructive approach. Here are several suggestions for their use in a college environment:

- Present student work or other documents and then ask students for their comments according to certain criteria;
- Create a virtual encyclopedia presenting concepts that are important to your course;
- Check students prior knowledge of course content in order to adjust that content;
- Present a problem and ask students to collectively react suggesting solutions and proposing questions to be answered by you;
- Verify progress on team projects;
- Create a multi-disciplinary project by structuring the wiki to take the various disciplines into account;
- Model the material that you teach and then ask students to intervene by asking questions or making comments;
- Create a course or program portfolio and ask students to post information about their learning process.

Experience being the mother of invention, we are counting on you to suggest other possibilities. Share your experiences with us in the suggestion feature in *Profweb*, if ever you decide to use wikis in your teaching. Your entries could inspire your colleagues to innovate in ways that later could be of use to you in return.

CONCLUSION

This report is a first look at wikis. We hope that this first section has inspired you to use them in your classes. We invite you to browse through the next section which gives concrete suggestions about the academic use of this resource. If you have questions, don't hesitate to contact us using the response feature below. Your questions and our answers benefit all of our readers!

PRACTICAL APPLICATIONS

The steps of integrating a new resource into your teaching should follow academic tradition by advancing from the stage of planning, to presenting and then to evaluating. To optimize each step of your first contact with wikis, pedagogical considerations and related techniques for each of these elements are presented.

A FIRST LOOK

Before beginning the adventure of creating and administering your first wiki, you should familiarize yourself with the examples of wikis mentioned earlier in this report as well as in the “Useful Resources” listings.

Your training begins by looking at the two most common roles played in wikis, that of [reader](#) and of [editor](#). Learning to be a reader is simple because it is limited to assimilating information created by others, whereas the editor must learn how to use different features in the wiki in order to publish, an activity which will be described later. We suggest that you install your own wiki to get lots of practice editing pages in private before going public with them.

In certain situations, there is a real advantage for the teacher to be the wiki administrator, however, while learning the technology, it is advantageous to have a technician in this role in order to let you take over responsibility at a pace that you find comfortable.

THREE EASY STEPS TOWARD WIKI MASTERY

Step One: Planning

Technical Manual

Installing your wiki

Once using a wiki is your choice, it is necessary to ensure that everything will be in perfect working order for your students. If you have a site in the Personal Space of *Profweb*, you are one click away from installing *MediaWiki*. For any questions related to installation, you can count on [Profweb's technical support](#). After the initial installation is successful, you will have to find technical support in your college to manage passwords and user access rights. If you don't know who can give you this technical support, a good person to consult is your [IT Representative](#) if there is one in your college.

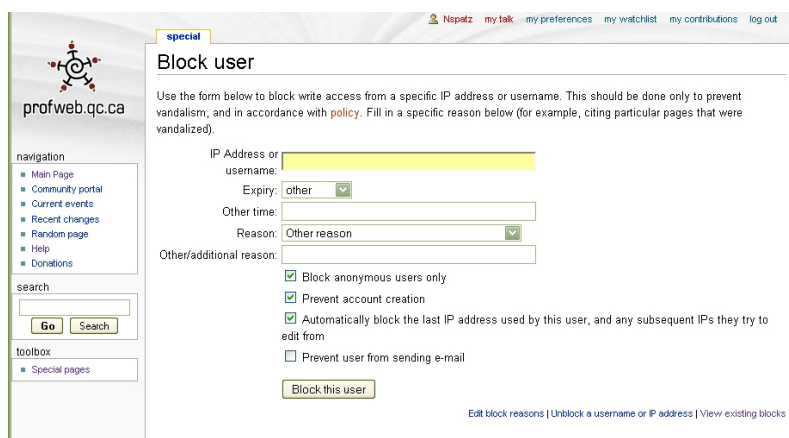
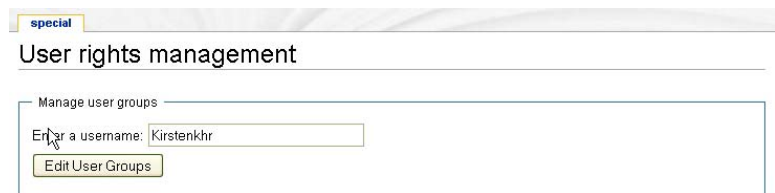
In most academic wikis, students function as editors, and you, the teacher, are an administrator managing your student users, structuring your wiki and moderating its operation. If you want your students to operate within a highly structured environment, technical support might be required to edit the Table of Contents. Also, you may find that you need additional help from your college’s technical support staff to configure elements such as image placement. Once you are certain that your wiki is configured according to the pedagogical needs of your course and that every student can gain access to it, provide students with a password and give them a tour.

Spam Protection

For spam protection, every user must have a password. Alternatively, there can be one password for all, which avoids the problems of password management. Another solution is a “captcha”, a distorted alphanumeric image which one must transcribe correctly to enter. In the last case, anonymous visitors can consult and change the wiki, but spam is eliminated. Whatever solution is chosen, remain vigilant and don’t get discouraged.

Although they are rather technically complex and designed for technicians and administrators, here are some anti-spam features that are not too difficult to use.

The “User rights management” box enables you to modify groups that your participants belong to.

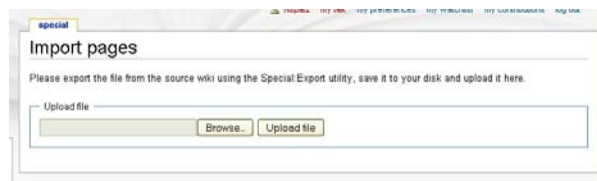
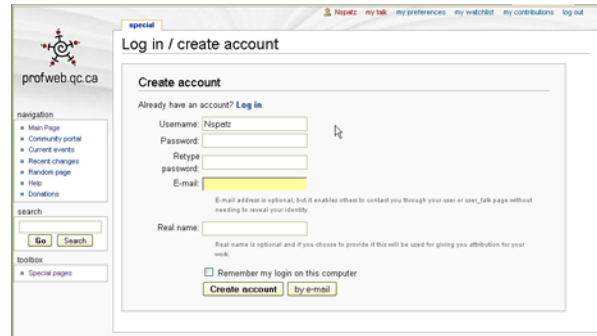


If your wiki is infected by spam, note the IP address (in the modifications history, for example), then block this address in order to prevent further posts. To readmit a banned person or consult a list of people who have been banned consult the “List of Blocked IP Addresses and User Names”.

You can also protect one page in particular so that no participant can modify it except the author and/or the administrator of the wiki. To consult the list of protected pages or to modify their status consult the [protected pages](#) feature.

Using Special Features to Prepare your Wiki

As we have mentioned before, a teacher frequently functions as a wiki [administrator](#). Even if the technician has created all accounts from your class list, situations can arrive where you wish to create special pages on your own. For example, as an administrator, [you can accept or refuse a new participant who can create an account or function as a moderator when participants import images, sound files or pages](#) (The information in the link is technical).



Pedagogical Manual

Given the diversity of activities that can be supported by a wiki, it is difficult to give definitive information in a report such as this. A wiki can be used as teaching tool or a complete teaching resource where all the pedagogical choices have been made. You can allow your students to lay out the organization of the wiki or create one yourself to serve as a guide for their activities. There are [scenarios](#) for academic use of wikis but they are not common and frequently are difficult to adapt to your material. If you believe in using a scenario to facilitate your first academic experience, on-line research might produce one that could be adapted to your needs. You might also consider a [heuristic](#) or systematic approach such as the following:

- Develop realistic objectives;
- Verify the availability of students for collaboration;
- Clarify the goals and roles of all participants;
- Establish a schedule, operating and ethical rules, and ensure student interest;
- Use the wiki to sign up students as either [readers](#) or [editors](#).

Step Two: Presenting

Getting your students to use on-line collaborative tools is really not a guarantee of success in the classroom. Leading the team is essential, and without you, your participants chances of creating something that they will learn from, are limited. As well, teamwork requires social skills, both cognitive and affective, that are not always inborn. These skills must be cultivated in your students actively in order to guide them toward success. Below is a systematic approach that can be adapted to your requirements:

Explain your wiki

- Begin teamwork with fanfare in order to clearly inform students that participation in the wiki is starting;
- Ensure that your students understand the structure of your wiki and make changes as required.

Nurture Student Learning Through Teamwork

- Discuss what students must do to successfully work together to collect data;
- Teach, model and foster [metacognitive skills](#) for your students;
- Facilitate learning by adjusting wiki's structure to take collected data into account;
- Guide student strategies and methodologies for collaborative learning;
- Ask probing questions that help expand the horizons of students' knowledge.

Survey Wiki Evolution

- Ensure respect for operating procedures and schedules;
- Motivate students through constructive feedback about their work;
- Intervene in case of trouble, be on the lookout for interpersonal conflicts that participants cannot resolve without outside assistance;
- Guide activities to ensure that learning goals are met but do not seek to control the final product;
- Give ongoing feedback to prevent misunderstandings and loss of time;
- Use wiki technical features (see the box below) to stay abreast of changes being made.

TECHNICAL FEATURES

To be an effective guide, you need to keep abreast of your students' activities. The page [Recent Changes](#) will present in reverse chronological order all changes which can then be accessed through a link. Also, the [New pages](#) listings and [Gallery of new files](#) are useful to track recently added elements.

When there are several groups of participants who regularly modify their wiki, you can identify and track pages of interest. Identification is initiated by going to the page in question and clicking the 'watch' tab which will add the page to your Watch List which can then be regularly consulted. The [history tab on each page](#) is another interesting feature. Here you can see each change in detail and remove those changes that you judge to be inappropriate.

Each of the tools above will not track a particular participant. This task can be achieved using the [User contributions tool](#). In order to select a student, you must enter their user name in a field which is case sensitive. To simplify this task use the [User list](#) tool.

Note: Given that the wiki used in this study was in French, links are frequently to a French page. All titles, however, are those used in Mediawiki's English version.

Step Three: Evaluating

Summative Evaluation

As the wiki strives to increase student knowledge in a cooperative context, the final product presents problems for individual summative evaluation. Nonetheless, the wiki's individual tracking ability allows the teacher to determine the individual contributions of participants in terms of cooperative skills or related technical abilities for purposes of summative evaluation. A summative group evaluation for the final product is also a possibility. We suggest that teachers who wish to evaluate individual student progress do so in an additional summative evaluation in the form of an analysis, an open-ended question or a role-play which avoids evaluating the individual's contributions to the wiki.

Formative Evaluation

Throughout the production of the wiki, formative evaluation can be valuable. Opportunities to present related collaborative skills as well as procedural or factual knowledge abound in the environment of the wiki. Peer correction is an invaluable feature of the resource as well.

Various Wiki Features Useful for Evaluation

Certain wiki features facilitate the tasks of formative and summative evaluation, because they allow the teacher to track student activity. The box below outlines the features contained in the [special pages](#) index in the Mediawiki toolbox. Again, please be aware that as the wiki used in this study was in French, links are frequently to a French page. All titles, however, are those used in Mediawiki's English version.

TECHNICAL ASPECTS

Page Use:

[Popular Pages](#);
[Most Linked To Pages](#).

Article Use:

[Articles with the most revisions](#);
[Articles with the fewest revisions](#).

User contributions:

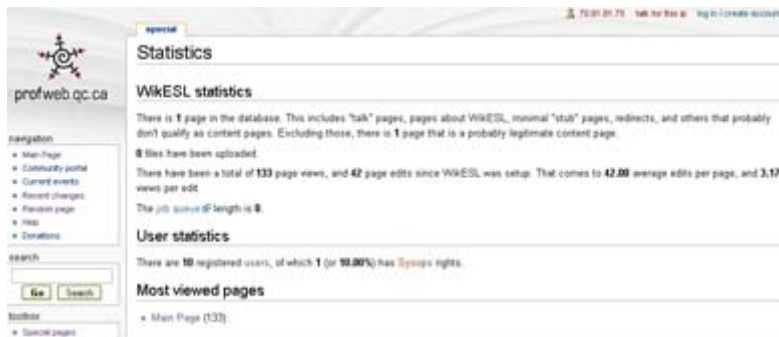
[User contributions](#);
[User list](#).

Other special pages of interest:

[Dead end pages](#) - Pages that do not link to any other page in the wiki;

[Orphaned pages](#) - Pages that are not linked from any other page in the wiki;

Erased pages – Pages that have been erased and can still be reinstated.



[Statistics](#) – A special page which summarizes activity on the wiki giving the number of participants and a snapshot of their activities.

Final Review

The teacher is encouraged to contribute to the growing body of knowledge being assembled by students and to give feedback on their contributions throughout the construction of a wiki. The conclusion of the activity entails the final evaluation of the results obtained in relation to first objectives. Comparing your results with those of your colleagues in order to determine the effectiveness of your approach against others using IT or traditional strategies at this time can also be worthwhile. As your activity draws to a close, you must also decide the future status of your wiki. If it is to remain active, its pedagogical value for future use must be determined.

CONCLUSION

We hope that you have found this report useful and interesting. Above all, we hope that you are considering using a wiki either to collaborate with your colleagues or with your students. As we mentioned at the beginning, this report is really an introduction, and those seeking additional information are encouraged to consult documents listed in the “Useful References” section or to research on the web. Now that you read our step-by-step instructions for wiki creation, think about using wikis in innovative pedagogical strategies. Everything you need is at hand, either in this text, in comments made by our readers or a virtual query away, by using the *Profweb* comments feature yourself to contact the author. As well, once you have gained a certain experience using wikis, share with your colleagues by again using our comments feature to make this report increasingly effective.

USEFUL REFERENCES

We encourage you to browse the following section, to deepen your knowledge and know-how of this socio-constructivist collaboration tool.

This section is divided as follows: (1) Technical aspects, (2) Examples, and (3) References.

Technical Aspects

- [MediaWiki Manual](#)
- [Wikipedia Help Page](#)

[MediaWiki Handbook](#)

- A list of guides and single-topic help files for the MediaWiki software, compiled by meta.wikimedia.org

Examples

[Our wiki](#)

- The wiki which was co-constructed for the purpose of authoring this Dossier.

[Wikipedia encyclopedia](#)

- History, Characteristics, Trust and Security, Communities, See also, Notes, References, Further reading, External links.

[The wiki related to the production of this report](#)

- The wiki was started with this report as a goal. Ten people in the college network have actively contributed to this French language database. Most links to features in this report use this listing as a reference.

[Le wiki de Danielle Duchesneau](#)

- A wiki developed for the discipline of Nursing Technology at cégep de Saint-Laurent.

[EduTech Wiki](#)

- EduTech Wiki is about Educational Technology and related fields. It is hosted by an educational technology research and teaching unit at the University of Geneva.

[ESL Placement Test Wiki](#)

- A wiki to gain knowledge about the ESL placement test used in Quebec's cégeps.

[Wikiversity](#)

- Wikiversity is a center for the creation and use of free learning materials, and the provision of learning activities.

[WikiHow](#)

- WikiHow is a collaborative writing project to build the world's largest, highest quality how-to manual.

[Other examples](#)

- This wikipedia page contains a list of notable websites that use a wiki model.

References

[Wiki Pedagogy](#)

- This article, authored by Renée Fountain, endeavours to denote and promote pedagogical experimentations concerning a Free/Open technology called a "Wiki". An intensely simple, accessible and collaborative hypertext tool Wiki software challenges and complexifies traditional notions of - as well as access to - authorship, editing, and publishing. Usurping official authorizing practices in the public domain poses fundamental - if not radical - questions for both academic theory and pedagogical practice. The particular pedagogical challenge is one of control: wikis work most effectively when students can assert meaningful autonomy over the process. This involves not just adjusting the technical configuration and delivery; it involves challenging the social norms and practices of the course as well (Lamb, 2004).

[WikiTimeScale](#)

- An interactive timeline of human history

[Comparison of wiki software](#)

- Over 50 wikis compared, based on 13 characteristics (columns).

[WikiMatrix](#)

- Although technically challenging, this is an interesting site whose purpose is to select wiki software.
- You can also consult the [Comparison of wiki software](#) in Wikipedia.

[Les wikis : groupware nouvelle génération](#)

- *Cybercarnet* by Cyril Fievet. This francophone site discusses the teamwork at the heart of wiki creation and the new relationships that form between participants.

[Wikipatterns.com](#)

- A wiki applying patterns that maximize people's efforts, guiding the growth of content, and recognizing other patterns that hinder growth.