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## Building a wider learning community in higher education through the PeopleWiki approach

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### Abstract

University is not a self-sufficient world in which students learn skills that they will apply later. It is an element of a wider learning system with stakes well beyond the study years and a campus. In fact, a university is a complex organization not only based on the teacher/student relation but on industrial partnerships, alumni, students self-organization ... This wider community has to collectively manage a huge quantity of information and realize complex coordination between thousands of people. One of the main obstacles in this is its lack of self-awareness (matching offers and demands, knowing who works in which company) and of appropriate means of coordination. Thus, resources are hard to match with needs and cooperation between alumni and their alma mater university and within the university itself is very often found wanting. Fostering cooperation and partnership is even more important as concern over the economy permeates university business and graduates increasingly have trouble finding jobs

Starting from a study of the emergence of wiki communities on the internet, we describe and analyze the use of an academic wiki based on the concept of PeopleWiki [1] [2]. **PeopleWiki is a specific type of wiki in which the core content of the wiki is about community members.** Thus they are the main subject of the information produced, discussed and archived on the wiki.

In the first part of this paper, we start by exploring the concept of Community of Practice introduced by Lave & Wenger [3], as a process of social learning. We survey the typology of wikis as studied by Challborn & Reimann [4], Majchrzak et al. [5], Gaved et al. [6], Moshirnia [7]. Starting with some specific problems of wikis: participation [8], altruism and motivation to contribute [9] [10], we put an emphasis on information systems closely related to academic wikis: corporate wikis described by [5] and Learning Management System [11]. The use of wiki in learning [12] and the propagation of academic wiki implementation [13], its narrow ties with constructivism and collective learning [14] are discussed. We also point out the limits and failures of these experiments [7].

In the second part of this paper, this article will discuss our experience with CentraleWiki, the PeopleWiki which has been running for more than a year in our Grande Ecole in France. We review its degree of success and explain the choices made in different domains. The question of information reliability, core wiki content dealing with persons and observed use are tackled. As a conclusion we examine the effective use made of the wiki by the community and point to further developments.

### Keywords

Wiki, PeopleWiki, Academic Wiki, Community of practice.

## 1. INTRODUCTION

Lave and Wenger [3] introduced the concept of Community of Practice to convey the emerging process of social learning as a group of people work cooperatively. According to Lave and Wenger, Communities of Practice emerge from cooperative work that spans on a notable span of time and consists in tasks like the discovery of new ideas, finding solutions to problems, building items together. Community of Practice is both the process of working together and the group of people taking part in it. In a later paper, Wenger [15] highlights the duality between participation and reification.

**Participation** is the social experience of belonging to a community while **reification** is the translation of an experience into an object (information system, sketch, method, prototype...). The process of reification reduces the meaning conveyed by the experience, but provides a collective anchor that allows the sharing and capitalization of knowledge. This paper examines wiki as contributing to reification in the wider community of practice of a university.

Wikipedia, the online encyclopedia, is one of the websites with the most traffic and the first reference used by web surfers looking for information, whether historical, a famous person, technology or even their own town. What is less well known is that Wikipedia is implemented on an OpenSource application named MediaWiki.

MediaWiki is used in numerous other projects:

- Some, like wikibooks, wikiquote or wikiversity are sponsored by the Wikimedia foundation, which also hosts Wikipedia.
- but MediaWiki is also used to run other kinds of wikis:
  - wiki farms containing a series of topical wikis [4]
  - corporate wikis, [5]
  - wikis of locality [6]
  - academic wikis have also emerged [7] and [webography].

This research is based on the practical implementation of a specific type of wiki which is not one of those mentioned, although it has common points with the last three. It is also related to the “en vogue” concept of social networking, as implemented in Facebook and business networking sites like LinkedIn or Viadeo [webography].

In a PeopleWiki, actors of the wider academic community are not only readers and editors but **they are themselves the core subject of the information brought by the wiki**. So our paper is about implementing both a social networking tool **and** an academic wiki with pages pertaining to courses, governance of the university, student’s associations, curriculum projects and training periods. Now what we get is more than a mere mix between a Learning Management System [11] and a social networking website: some of the characteristics of our wiki match the use of a wiki in constructivist pedagogy some a more alike a corporate wiki.

In short, PeopleWiki in academia could be defined as **a means for the academic and alumni community to be aware of itself as a community of practice**.

## 2. WHAT ARE WIKIS?

The first wiki was implemented by Ward Cunningham, who defined it as "the simplest online database that could possibly work". WikiWikiWeb, was developed in 1995 from the Portland Pattern Repository [webography]. The success of wikis is major element of the emergence of the web 2.0. The concept of web 2.0 encompasses new uses of World Wide Web technology aiming to enhance information sharing, collaboration and creativity.

Wiki gives to the ordinary user powers that were beforehand only given to the system administrator: on a wiki the reader can most often read all existing information but also edit it, adding or suppressing data. He can create new pages and even change the structure of information and alter templates used in many pages. A wiki is an open information system and since it uses a simplified markup language, a never-ending construction that anyone can contribute to. On the other hand, wikis can be very rich as the information they contain is continuously updated and discussed.

While corporate wikis were quickly adopted in companies as collaborative software [5] they remain less studied than Wikipedia which had a huge public success and an open access. Wikipedia is discussed in many research papers. Amongst of the qualities of Wikipedia and wikis in general that have been put forward, the most important to us are:

- Cost efficiency. Most wikis are set up on free and open source applications, and starting up a wiki is nearly costless and very fast. No preliminary work is really needed: the wiki is build and structured as it develops.
- Fast collaboration. Not only a wiki allows a series of people to work extremely fast on editing a document, but it features tracking functions allowing the user to be warned as

- soon as a page is edited. So instead of multiple emails with hundreds of back-and-forth, groups can collectively edit and develop documents in a very simple way.
- Scaling. Either a small team or a huge community can benefit from a wiki alike.
- Long memory. As chunks of knowledge and ideas are entered, they remain in place for someone to find them even long after the first contribution was made.

Scientific studies have also made some interesting observations on the limits of wikis.

- Although many think of the wiki as an egalitarian system, Felipe et al. [8] study shows that the fact that it is easy to contribute does not mean that all authors contribute with the same intensity. Calculating the level of inequality of the contributions to Wikipedia was done using the Gini coefficient. This shows that Wikipedia thrive on a kernel of very active users with less than 10% of the total number of authors being responsible for more than the 90% of the total number of contributions. So growing a wiki is not in fact about making all users participate equally, but about all about recruiting and retaining core contributors. The question of “wiki gardening” is also tackled by the WikiPatterns community [webography] in which People and Adoption Patterns and Anti-Patterns are discussed.
- Involvement in a wiki is another a key question: what are the motivations that make users contribute to a wiki? Wagner et Prasarnphanich [9] and Kollock [10] show that in a open and free community motivations like 1/ altruism, 2/ anticipated reciprocity, 3/ one's reputation, 4/ a sense of efficacy in contributing [16] 5/ filling someone's or some group's needs and 6/ commitment one can have to the group can all play a role. These research contributions are very interesting in setting up a wiki though they do not automatically apply to a corporate wiki or to an academic wiki. In these cases, the community exists before and outside of the wiki and it strongly affects the stakes and the incentives to contribute.

### 3. WIKIS IN HIGHER EDUCATION

Wikis can also be learning tools and their use in education draws more and more interest: according to Forte and Bruckman [12], a search for the term “wiki” in the Educational Resources Information Center database [webography] returns one publication in 2003, two in 2004, three in 2005 and thirteen in 2006. As of today (October 2008), there are a total of thirty papers dealing with wikis available on ERIC. Most of these approaches promote a constructivist view of knowledge and learning, in which the wiki helps people collectively construct their own understanding of the world, and thus their particular knowledge. In this regard, the adoption of wiki affects teaching, classroom practices, and student behavior.

Researchers studying wikis in education retrace their adoption: from universities in which many were created to secondary and primary education. Rick and Guzdial [13], in their chronology of wiki adoption show how the CoWeb application - started in 1997 in Georgia Tech - turned into a pedagogical innovation and was transferred to secondary and primary education. Forte and Bruckman also highlight how the availability of free, easy-to use and reliable applications has been important in adopting wikis in education. More than individual learning, collective learning is hailed as foremost with a wiki, and Bruckman [14] shows how it is important that information systems designed to foster learning create and structure social interactions. On a wiki, reification of knowledge is a social process, as students write for other students to read and work in a process of shared editing. Other authors [17] discuss how wiki help collective work on pedagogic projects.

However, while wikis are often displayed as introducing radical changes to teaching, recent research, Moshirnia [7] challenges this claim. In effect, while the wiki open source model seems to promise a new pedagogy (based on decentralized discovery, learning and collaboration), student concern for individual grades lowers the motivation for wiki-based collaboration, and teachers end up seeking measures to ensure individual grading. What is observed by Moshirnia [7] is a centralization of wikis, as student requests and teacher concerns progressively transform an open wiki into a closed system with “explicit formatting instructions, incentives, and mandatory assignments”. While these changes may have created a more useful academic tool, they also contradict some of the basic characteristics of a wiki. Likewise, Grant [18], p10 concludes that “the social and cultural practices of collaborative working that need to accompany the use of the software in order to take advantage of the functional affordances of the tool (are) not in the students’ repertoire of shared practices. Instead, they import practices of individualised written assessment”. When this type of situation prevails, as is it often the

case, a Learning Management System (LMS) [11] can do the job better than a wiki in the field of classroom learning.

#### **4. OUR WIKI AT ECOLE CENTRALE DE LILLE**

Let us start this section with a preliminary remark: the mode of usage of the wiki that we promote is not exclusive of those we described above. Even if introducing people as being the main subject of the information archived on the wiki is a dramatic turn, using the wiki in a more 'classical' way is also very profitable. Thus, the sharing of ideas, the collective production of knowledge, how-to's and submitted materials will provide a very good entry point into the wiki for students as well as teachers. At our university, several courses introduce or use the wiki as an organizational tool, and students take a very active part in setting up, managing and regulating the wiki.

An introduction to the fundamentals of PeopleWiki being already published [2] we shall deal here with three major questions we had to tackle: core content, informality and actual use. Further documents are available on our website [webography]. Some further questions like the structuring of the wiki into category trees, incentives to contribute, technical choices and user's charter will be dealt with in further papers.

The development of academic wikis has been very strong these last years: hundreds, if not thousands of academic wikis have been started in these last years, according to a wikia list [webography]. Now academic wikis oriented toward alumni involvement are harder to find. Those we know are more alumni-only such as Arts en metiers or HEC Paris business school. However, access to these wikis is not open to a wider public so it is not possible to assess their exact usage and whether they could be considered PeopleWikis or not...

##### **Core content of the wiki: people**

The XVI<sup>th</sup> century philosopher Bodin pushed forward the idea that "there is neither strength nor wealth but from men" and indeed this idea is the guiding principle of PeopleWiki. On these wikis, community members are themselves the main subject of the information produced, discussed and archived on the wiki, freshmen students have an opportunity to introduce themselves and update their skills and hobbies as they move forward in their study years and later in their jobs. Thanks to the wiki system, the way in which they introduce themselves can vary greatly but no template can be imposed, the emphasis is more on finding a features and taxonomies they find relevant themselves.

Technically, this is achieved not by using the *user:* namespace of MediaWiki, which is dedicated to contributors but the default (void) namespace which is dedicated to "normal" entries with shared content and discussion page. Thus, people can be the subject of a page, even if they are not contributors of the wiki (non-users, deceased users...). In sharp difference with classic wikis, the information the classification of the pages most of the time helps find persons: their vitae, their home country and town, their professional skills, their activity in student's association, their projects of business creation... All these can be shared and be an occasion for getting in touch, as they are embedded with the activities and points of interest of the community.

However, dealing with data about persons, triggers numerous questions and constraints vis-à-vis privacy and what information can or should be archived on an information system. In Europe and most specifically in France, there are specific laws and regulations. All these considerations have led us to include specific rules and rights, allowing individuals to choose not to be mentioned or to remove their contributions. As for the right to access and amend information, it is natively implemented on a wiki. Overall, assurances given as to respect of privacy and control of personal information are way above what is proposed on commercial networking systems e.g. when you issue a personal information or your picture on Facebook, you loose any control over it and it can be used for commercial or other purposes later.

## Should wiki content be official information?

One of the big questions we had to settle in the first months of existence of the wiki was to define the status of the information it contains: should it rather be official or should it be informal?

The first way to tackle the question is to make a parallel with a debate on the accuracy of the information presented on Wikipedia. This debate has been fed by a study by Giles [19] who surveyed the number of errors within "hard science" pages of Wikipedia and matched it with the same article of Encyclopedia Britannica. Interestingly, the number of editors and the ease of correction made Wikipedia more reliable.

Another factor dramatically improves information accuracy: like corporate wikis and many academic wikis, our choice from the start was to restrict wiki access community members. Concerning university staff, we used their academic email address as an authentication means. Concerning students, they are issued a lifetime mail address as they enroll, so there is no problem identifying them and keeping in touch, even after they graduate. So, every contribution can be retraced to its real-life author, giving him or her effective ownership of it and deterring any vandalism.

But the value of information does not only originate its accuracy, it also stems from the fact it can be certified as coming from a reliable source. How do wikis do it that respect? As a matter of fact, and in spite of the idea that "anyone can edit", wikis feature a lot of safeguards that makes them extremely reliable for sourcing information.

1. Information within a wiki can be traced very precisely, as each contribution is saved as page history. So, it is always possible to know who made an edit. And on our restricted access wiki anonymous edits are impossible.
2. Another strategy helps improve information reliability: some pages can be locked so that no unauthorized person can edit it.

In CentraleWiki, our dilemma didn't come from technical constraints, but from the question of whether it was good for the development of the wiki to make it official and insure a full reliability of its content. After all, if you want a 100% reliable wiki, you just have to lock all its pages. What you get is a website which is very easily updated, user-friendly and easy to search. The drawback; however is that your wiki ... is not a wiki anymore. In this way we faced a paradox: each locked page, while making the information more reliable, hinders wiki development. So since wiki is about collating user generated content, most is lost in this regard.

The solution to this dilemma was helped by another consideration: i.e. existing information systems. As one can guess there were already many web-based information systems on our campus: courses schedule, official website, intranet, LMS... So when issuing official information is necessary, we already have what we need. So instead of insisting on reliability or official information, CentraleWiki was dedicated to fast-updated, interactive content brought by as many editors as possible. As a consequence we choose in favor of easy information update over reliability. At the bottom of each page, a disclaimer reminds of the "no-guarantee" nature of the information contained. Of course it invites the reader to amend and update information as needed. When official information has to be given, we point to another website, even if it is less often updated. The very few pages we locked are those who are on many users' watchlists in the purpose of avoiding having multiple users receive mail abusively.

## Use and statistics

CentraleWiki was officially kicked-off in October 2007. The active community on this first year was mainly composed of 500 students. On his first birthday, CentraleWiki contains a little more than 3000 pages, 1000 of them being full articles. There have been around 180.000 page readings and 25.000 edits. Over one thousand files have been imported (personal pictures mainly).

Beside the PeopleWiki use, the uses made of the wiki are:

- Students' projects, which are around 2000 man-hours are each introduced on a specific page which lists the project team and partners.
- Guidebooks and how-to's to help

- Some courses make use of CentraleWiki: knowledge management, project management, sociology. The wiki helps page links to resources : course material, readings ... and students are asked to subscribe to the page to be informed as new information appears
- Each training period can be entered on one's personal presentation page, and each company or organization has its own page linked to that page.
- Information and archives about the history and activities of students associations.
- Dedicated pages allow voting to nominate the "best page of the month".
- Consideration on the decisions and governance of the university, student's charter, process for choosing degree specializations ...
- Laboratories, MBAs and research programs within the university and for further study in France or abroad. Of course, students interested by these programs are urged to get in touch with alumni.
- Pages aimed at groups of professionals of several fields have also been introduced, but they are not very much used yet... 98% of users today are students.

## 5. CONCLUSION

In the paper, we sought to introduce and discuss a specific type of wiki based on introducing and capitalizing not only information which is commonly shared of wiki, but information on persons as well. Another goal was to have an information system which would run, not only because of administrative and teachers support, but which would be managed and developed by the students as well. After six months of structuring and getting to know the MediaWiki Opensource application, during which we have defined: a rationale for contributions, a category tree for pages, initialized help pages, started various how-to's. We have also trained students ... the wiki is now run by a wiki club mainly managed by students, some of them having sysop rights and it seems quite successful. However, during this first year, few alumni took actively part in the wiki and we expect that this will take time and will develop as our students graduate and want to keep in touch with their alma mater.

While this paper is based on an experience implementing a PeopleWiki dedicated to an academic community, we do not think PeopleWiki is only relevant within academic/alumni communities. They could also be relevant within other communities: corporate wikis could be extended to contain more information about company employees and some topical wikis especially those build around professional communities could gain from a PeopleWiki-oriented approach. However some specific thinking would be required to adapt the model to each situation.

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#### **Additional documents on CentraleWiki**

Papers, posters, presentation slides <http://rb.ec-lille.fr//CentraleWiki.htm>

#### **Webography**

CentraleWiki (restricted access) <http://www.centraliens-lille.org/wiki>

The Portland Pattern Repository <http://c2.com/cgi/wiki?WikiWikiWebFaq>

WikiPatterns, How to grow a wiki <http://www.wikipatterns.com>

A list of Academic Wikis: <http://universitywikinodewiki.wikia.com/wiki/University-wikis>

Linkedin, Viadeo : [www.linkedin.com](http://www.linkedin.com), [www.viadeo.com](http://www.viadeo.com)

Educational Resources Information Center (ERIC) <http://www.eric.ed.gov>