EduTech Wiki - an all-in-one solution to support whole scholarship?

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Daniel K. SCHNEIDER
TECFA, FPSE, Université de Genève
Daniel.Schneider@tecfa.unige.ch

Abstract: One of the greatest challenges to educational technologists is to apply our research to ourselves, e.g. use technology to enhance our own intellectual development, and the way we teach and interact with others. There are many explanations why technology is underused even by educational technologists. We may find one in the uncomfortable relationship between research and teaching. Boyer (1997) distinguishes between scholarship of discovery, integration, application and teaching. At least in European research universities only the first one (research) is relevant in terms of career planning. In other words, it is a bad strategy to invest in time-consuming technology-enhanced pedagogies, in collective knowledge building/integration or in application activities. However, I believe that most academics still would agree that these would be "nice to have". EduTech Wiki is an attempt by an educational technologist to lower the cost of engagement in Boyer's "lesser" scholarships though using the same medium for multiple purposes, e.g. preparation of literature reviews, integration of ideas, teaching materials preparation, activity-based teaching (writing-to-learn), tutoring and finally sharing and co-constructing with others. We suggest that some of this work may be considered domain independent good practice.

The EduTech Wiki project (http://edutechwiki.unige.ch/)

I started working on EduTech Wiki about 2 years ago in order to create a support tool for a course on project-oriented teaching. At some point, I decided to turn it into a multi-purpose tool. Currently the two wiki versions (English and French) include over 900 articles of various length (between one and 40 pages). Entries cover various subject matters related closely or loosely to the field of educational technology. I wrote about 80% of the contents and did profit from other's contributions.

The wiki is open to everyone for writing. Only one out of the other top contributors was from outside my direct circle of influence (co-workers or paid graduate students) and this gave me the idea that we might focus on individual's return on investment to foster such kinds of endeavors. I will report on some outcomes, both somewhat measurable ones and subjective impressions.

EduTech Wiki is implemented with MediaWiki software, i.e. the code basis of Wikipedia.

Purposes and major outcomes

Over time, a whole set of use cases (purposes) for wiki-supported scholarly activities emerged. Some now may be considered interesting practice, some are yet open and some are a failure. Below is a provisional summary table of purposes and direct outcomes (for me as author/user) and indirect outcomes (for others).

Purposes	Outcomes (personal)	Outcomes (others)	Comments
1. A tool for note taking and mapping out ideas:	I used this wiki to prepare a 200-page textbook for a distance teaching university. I now have the subjective impression to have gained a good understanding about the various strands that make up the field of educational technology.	Only occasional contributors from "outside". Most contributors just fix little mistakes.	I did not actively try to find contributors or even encourage passive use of this web site, except once at the Dallas AECT 2006 annual conference. Only elder accomplished instructional designers showed interest in the concept. The younger population did not show interest.

2. A medium for writing-to-learn activities:	Implemented in 2 of my courses. Students had to write and complete entries. Results were satisfactory and students were motivated.	Implemented by one co-worker and so far only in one class "from cyberspace" (see Guth, 2007).	Some student contributions turned out to be useful to me as researcher and developer. I did help other teachers to run their own wiki for teaching only, but this is not an issue here
3. A resource kit for educational technology teaching	Implemented in 2 of my technical classes, as well as in workshops.	I found some links to EduTech Wiki in other teachers' course pages	Extent of external use is difficult to measure, given the locked nature of today's learning management systems.
4. A medium to prepare structured teaching materials (alternative to Word or IMS CPs)	I wrote a quickly made introduction to Flash (about 200 pages).	I got very good help from a person I didn't know before. She found the project interesting.	Since these lecture notes are of mediocre quality, it is very useful to be able to fix them in real time. In addition, students may fix things and comment.
5. A replacement of LMS technology (e.g. Moodle)	In 2 courses, I successfully used pages to drive learning activities and I used associated discussion pages as "anchored Forums"	Others can and do use some tutorials (access statistics, web links)	However, I did not see any progress in terms of student participation in content preparation or forum participation. I mainly gained time.
6. Putting myself and our unit on the "map"	I did not yet get an invitation for a keynote talk based on my wiki work, but I do occasionally get comments like "this is a really useful resource".	EduTechwiki gets many top 20 hits on Google for given search terms. E.g. the top 20 most popular pages all show up in the top 10 positions. It is on the map.	Given the poor quality of some articles, this is quite amazing. Data from Google's webmaster tools also could be interpreted as testimonial on the quality and richness of alternative open resources on educational technology…
7. A resource kit for researchers to prepare literature reviews and such	This wiki did become my "external memory" for all sorts of scholarly activities.	Some blog entries seem to suggest that EduTech wiki is a good starting point.	Back links can be found on bookmarking sites like del.icio.us, on blogs and web pages of academics.
8. A resource kit for practitioners, e.g. teachers and designers:	I sometimes can use the wiki as reference, e.g. there are some installation notes or models to plan instructional activities	Same as above, I don't have hard data, only indirect evidence that people are using it	There are some articles for "just-in-time open" learning, e.g. instructional design models or technical mini-tutorials.
9. Quality: So far, most wiki entries lack content, depth, style, authority or all four together.	However, summarized concepts, ideas, quotations and references turned out to be valuable for my personal use (textbook writing, teaching, literature reviewing etc.)	Some data, e.g. some positive comments here and there on the web suggest similar assessment from other academics.	As I said above, my personal main goal was idea management. It remains to be seen if I will be able to manage both volume and quality, and to what extent there will be more contributors who will help at least a bit.
10. A tool for our PHD and Master students to prepare literature reviews.	Unless they were paid or had to do class work, our MA and PhD students did not only fail to contribute, but they also continue progressing much too slowly with their thesis projects…	A few references to EduTech Wiki entries in student papers (mostly in the US and in Asia)	The fact that EduTech wiki is underused in our own unit must be considered a real failure …

Wiki content organization and navigation

We believe that wiki spaces need to be carefully designed and that this process needs time and continuous adjustment. From experiments with other wikis we found that unorganized wikis quickly can turn into unmanageable spaces that badly support knowledge building. We also learnt that most users do not understand the flat architecture of a wiki. Most students and teachers believe that contents are hierarchically organized and this leads to a lot of confusion. Also (and this is known from web usability studies), typical users do not use advanced navigation features very much. A part from the search box, users tend to focus only on links inside the main area.

Here are a few design rules that we derive from our experience:

- The main page should emphasize important entry points for navigation and clearly state the purpose of the wiki.
- Entries' titles must be short, meaningful and in lower case. Otherwise, creating links becomes too complicated. This is something that students have a lot of difficulty to respect, but it must be enforced.
- The category system, which allows multiple tagging of articles, should reflect the domain: in our case, educational technology and related fields. Additional categories can be created to help students navigate through pages that are related to a course. Still others can describe the quality of an entry. In other words, some categories reflect the ontology of the domain; others have to be created for other purposes. Currently, EduTech Wiki (en) has about 60 used categories (tags). For each category, the Mediawiki software will automatically generate the contents of category pages that then can be referenced, e.g. from the front page.
- Quality and status of contents should be rated. Special banners on top of each page define their status (e.g. incomplete, stub, under construction). This is very important for two reasons. It will inform readers about the quality of and entry and it will encourage people to contribute, i.e. not be ashamed of unfinished or unpolished contents. The main problem in educational technology is for the moment less the lack of quality of online information, but the pure lack of information. Most educational technologists do not think in terms of what used to be called the "Internet spirit" in the early 1990's and today "web 2.0".
- Menu pages or menu sections (i.e. topic-oriented entry points for navigation) seem to be appreciated, but some people already feel lost in EduTech Wiki. Therefore, we tried to provide other navigation tools like tag clouds or links visualization (figure 1). However, currently we don't have enough informal data to make an educated guess about their usefulness.
- The built-in search feature does not work very well and we therefore added a "search with google" box. It provides users with more accurate results, but Google indexing is of course some days behind recent additions.

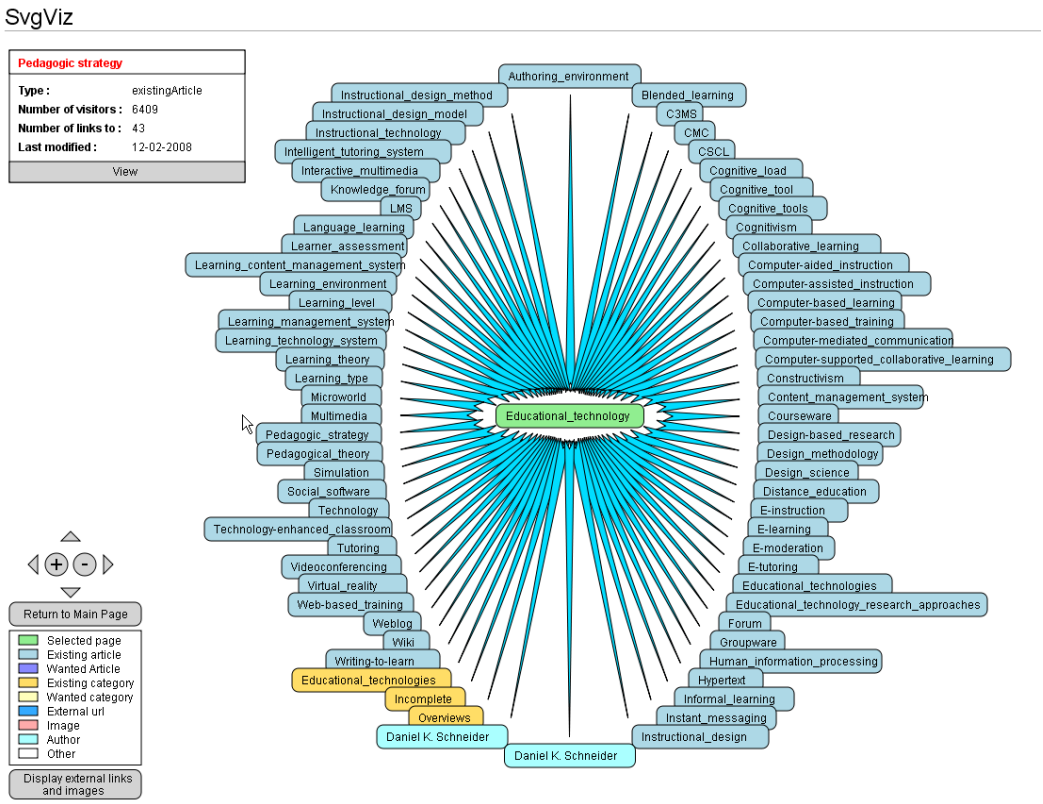

Figure 1: SvgViz extension - Links of the 'educational technology' article

Power structure and editing rules

We made it clear that this wiki is under our control and that we reserve the right to re-use contents e.g. to write a textbook. Copyright rules are simple (see below).

- Authors can sign articles and express opinions (this is very different from Wikipedia). This policy allows authors to get recognition and also to use this wiki as a tool to construct (and not just to report) knowledge.
- The rest of the rules are fairly simple and can be summarized in five points:
    1. Stick to educational technology and related fields (in a wide sense).
    2. Think of the wiki as a whole (make sure that people can find articles and quickly refer to them)
    3. Give credits (and take if you wish)
    4. Qualify the status of information
    5. Provide minimal information about yourself (a name and an affiliation name)
- So far we didn't have any inquiry or discussion about these issues (nor about copyright), probably because people don't even read these guidelines. We still feel that it is important to lay down some simple rules in order to be able to manage potential problems.

Copyright

Editing and copyright rules clearly tell users and potential contributors what they can do with contents.

- We found it useful to define a default copyright rule, but also to accept other copyright schemes in order to deal with various needs. E.g. we asked permission from various researchers to reprint figures and use a strong copyright for these (copyright xxx, reprinted with permission by xxx). On the other hand, some content that include contents copied from Wikipedia must be made available under the Gnu documentation license.
- The default license is a Creative Commons "Attribution Non-commercial Share Alike (by-nc-sa)" license, meaning that content can be reused for non-commercial purposes and that it must be attributed to EduTech wiki and the authors of an article (if appropriate).
- To facilitate citation, we added a "cite this page" link, but we do not know if this feature is being used.

Extensions for MediaWiki software

In order to support some activities described above, we found it essential to install certain extensions to the MediaWiki server (see the references). We shall shortly describe the most important ones:

- To help people navigate in the quite complicated concept space of educational technology, one of our students, R. Sauvain, developed a simple links visualization system based on previous work by U. Richle (see figure 1)
- To help authors insert their name, there is a "<pageby>" tag extensions, which inserts the authors' login and link to their home page. E.g. a signed page may look like this:

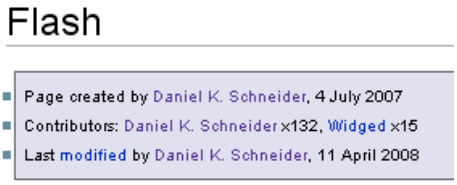

Figure 2: Sign an article with the pageby extension

- Contents can be printed as PDF (either just an article, or all articles in a category, or a manually made list of given articles). The PDF book extension also generates a table of contents and page numbers. This feature turned out to be very useful to print out handouts for technical subjects (e.g. Flash). It also is quite rewarding to see, as main author, that a bunch of entries belonging to some categories may exceed a hundred or much more pages.
- A discussion threading extension made discussion pages more forum-like. Our students did have difficulties to use wiki pages for discussion, and this extension solved the problem. E.g. a typical discussion page that is used to clarify assignments may have a structure like in figure 3. Author and date are automatically inserted (something the students often forget). In addition, each entry of the page has new/edit/reply buttons, which makes threading easier.

- We also profit from a user-side Greasemonkey script, i.e. a Firefox extension that allows displaying ordinary wiki pages in slide format. In order to achieve best results, pages have to be structured in a certain way.
- Edit warning is an extension that will warn a user that someone else is currently editing a page (curiously, this is a missing feature from the standard distribution).
- We installed several other extensions, e.g. a module to draw graphs, a citation mechanism and tag clouds. However, these are very rarely used.

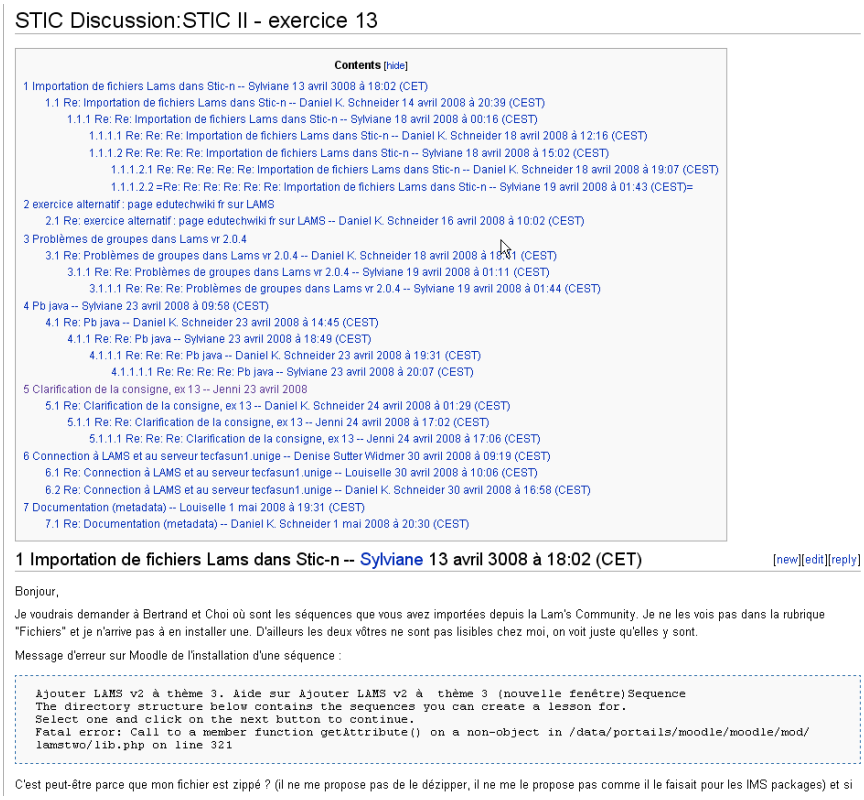

Figure 3: Threaded wiki discussion pages

Conclusion

Personally speaking, we consider this wiki to a success. It became an instrument of synergy between several activities and a good example of how a single university lecturer can combine different scholarship genres with the help of a specific medium.

It took us some time to configure layout and menus, to find the right extensions and to stabilize major categories. From experiences made with EduTech Wiki, but also from other wiki-based experiments to support classroom teaching we found it crucial to get this right. By default, a wiki is either a mess or just a menu-based list of contributions, something that could be better achieved with a tool like Zoho writer or a CMS.

It however, remains to be seen whether there will be a net gain for research (I “lost” more than 6 month), but I am satisfied with this wiki’s usefulness for various formal and informal teaching formats, and for its support to summarize, integrate and organize concepts. My point is not that wikis may be useful in education (there are many papers about this), but that wikis can be multi-purpose systems that offer enough return on investment. I believe that most technologies do not and that this is the main reason why they are underused.

I also believe that the design principles and use cases described in this piece could be applied to most other academic domains and that “ordinary” academics (i.e. non-technologists) could do it. Indeed, from my extended inventories about the pedagogical use of technology I get the impression that innovation is as much driven by practise (i.e. by all sorts of curious researchers/teachers from very different fields) than it is by our research.

So far, EduTech Wiki is not a best practice case for spontaneous knowledge community building. This may never happen because of the public goods dilemma: “It does not follow, because all of the individuals in a group would

gain if they achieved their group objective, that they would act to achieve that objective, even if they were all rational and self-interested" (Olson, 1971: 2). Indeed, most academic web sites are rather poor in content and this will not change, unless some researchers/teachers can find very personal reasons to engage in such an endeavor. I hope to have identified a few.

References and links

Bibliography

Boyer, E. (1997). Scholarship Reconsidered: Priorities of the Professoriate. Jossey-Bass.

Guth, Sarah (2007). Wikis in Education: Is Public Better?, *WikiSym' 07* October 21-23, 2007, Montréal, Québec, Canada. http://www.wikisym.org/_publish/Guth_WikiSym2007_IsPublicBetter.pdf

Olson, Mancur (1971). Logic of Collective Action: Public Goods and the Theory of Groups, Harward University Press.

Richle, Urs (2005), "WikiViz: la visualisation d'un réseau sémantique", Traivail de diplôme d'ingénieur Média HES - HEIG-VD.

EduTech Wiki links

http://edutechwiki.unige.ch/en/ (larger English version)

http://edutechwiki.unige.ch/fr/ (smaller French version)

Information about its use:

http://edutechwiki.unige.ch/en/What_other_say (some information about other's use of EduTech wiki)

http://edutechwiki.unige.ch/en/The_big_picture (Tag cloud, big picture and contributors)

Course-related

http://edutechwiki.unige.ch/en/Category:Courses_and_workshops (courses and workshops, English)

http://edutechwiki.unige.ch/fr/STIC_Discussion:STIC_I_-_exercice_2 (example of an "anchored forum")

http://edutechwiki.unige.ch/fr/STIC_Discussion:STIC_II_-_exercice_13 (threaded, better version)

MediaWiki extensions and Greasemonkey scripts

Pfiffer, Dan, Wikipedia presentation:
http://userscripts.org/scripts/show/6372

Sauvain, Romain (2006) SvgViz extension
http://edutechwiki.unige.ch/en/Mediawiki_SvGViz_extension

Kinzler, Daniel, Mediawiki PageBy extension:
http://www.mediawiki.org/wiki/Extension:PageBy

Nad, Mediawiki PDF Page and PDF book extensions:
http://www.mediawiki.org/wiki/Extension:Pdf_Export and
http://www.mediawiki.org/wiki/Extension:Pdf_Book

Pond, Jack D. MediaWiki Discussion threading extensions:
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http://www.mediawiki.org/wiki/Extension:Cite/Cite.php and
http://www.mediawiki.org/wiki/Extension:Cite/Special:Cite.php

David, Thomra, EditWarning
http://www.mediawiki.org/wiki/Extension:EditWarning

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