

**Academic Social Referencing tools: a user trial with
BibSonomy and Cite-U-Like organized by the Library of the
University of Amsterdam**

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This study was carried out as an assignment from the Library of University of Amsterdam.

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1. Introduction

A trial with academic social referencing software – also called social bookmarking software – has been carried out with members of the Research Group Systems- and Network Engineering (SNE) of the University of Amsterdam.

The idea for a user trial started after Marten Hoekstra of the SNE group contacted the University Library of the University of Amsterdam for advice and recommendation on using one of the academic social referencing tools. The University Library recognized the value of the social bookmarking site Del.icio.us, but concluded that this was not optimal for academic work¹. Three other academic social referencing software tools were identified and analysed. Possible advantages of these academic social referencing tools for academics are listed in the textbox below.

In order to assess the potential value of Web 2.0 applications for library services, and specifically academic social referencing tools, a user trial was set up by the University library with the members of the SNE group. Pleiade Management and Consultancy was asked to document and report the feedback from the users during the trial. The user trial was supervised by Driek van Heesackers of the University library and Marten Hoekstra of the SNE group.

What are the possible advantages of academic social referencing tools?

The following advantages for users are reported:

➤ **Quick and easy bookmarking articles and web pages and store it in a personal reference collection on the web**

The ASR tools allow the user to save links to any online content during browsing and reading digital literature (by including one-click saving using bookmarklets). The collection of reference materials is stored online in one place by simply saving links to them. In addition, the ASR tools often recognise links to certain websites, and automatically collect the bibliographic information for the article or book that is being linked to.

➤ **Organising the personal reference collection by tags and personal notes**

The user can organise his collection of references and websites by simply assigning tags (categories or labels) to the links that are saved.

Another way of organising the personal collection is by adding personal notes to the reference.

➤ **Discovering new content through other users and tags**

By saving references in an academic social referencing tool, the user is connecting his reading to that of other users of the system. Users can then click on related tags to discover new articles and links.

Making a bibliography or literature list

When it comes to writing up the results in a paper, most ASR tools enable the user to export the collection of references to either BibTeX or Endnote to build it into a bibliography or literature list.

¹ The metadata that can be added to a resource is very limited; for instance, there are no separate fields for journal title or even author, which makes it difficult to generate reference lists.

2. Methods

2.1 Three phases in the user trial

The trial consisted of the following phases:

- *At the start of the trial:* An inventory of the present habits and workflow of the members of SNE with regard to storage, management and sharing of literature references. This inventory was carried out by a group discussion with seven members of the SNE group and a questionnaire via the Web filled in by 12 members of the SNE group.
- *During the trial:* A trial period of several months, in which the participants in the trial used an academic social reference software tool and reported on their usage by filling in a logbook. In practice, there were two separate experimental periods:
 - July – August, using BibSonomy
 - August - December, using Cite-U-Like.
- *At the end of the trial:* A group discussion with six participants of the user trial, assessing the feedback of the participants and the possible advantages and disadvantages of the academic social referencing software tools.

2.2 Three academic social referencing software tools

Three academic social referencing software tools were identified and analysed by the university library. The main results are depicted here. The three software tools are:

- Cite-U-like, a privately run non-profit site: www.citeulike.org
- Connotea, developed and sponsored by Nature Publishers: www.connotea.org
- BibSonomy, run by the University of Kassel: www.BibSonomy.org

All sites offer these functions:

- Organize academic references
- Tags and personal notes can be added to these references, visible for all users.
- Social functions: you can see who else has this article in their collection.
- Offer 'bookmarklets' to add references with a single click
- Import and export is possible
- Limited group functionality
- RSS feeds for searches, tags, etc.

The differences are presented in the table at the next page.

Feature	Cite-U-Like	Connotea	BibSonomy
Full set of metadata	yes	no	yes
Can be used for both URLs and citations	no	yes - all mixed together	yes - shown separately
Mark references as 'to read'	yes	no	? ('pick to download')
Sorting	date added / ranking	only on date added	only on date added
Add (private) PDF of article	yes	no	no
Import formats:	BibTeX	RIS, bookmarks	BibTeX, del.icio.us
Export formats:	BibTeX, RIS	RIS	BibTeX, rss1.0 [rdf]
Smart parsing of articles, limiting typing by hand	For journals for which a filter is available. There is an active community of users that add and update filters (documented format).	no	For journals for which a filter is available. Users cannot contribute filters.
Entering a reference with only DOI	no	yes	no
Search personal notes from other users:	no	yes	yes
Privacy level: references can be hidden from your group / all users	2 levels: private or visible to all. Groups exist, but when a user joins a group, all his publications are automatically pooled with the group.	2 levels: private or visible to all	3 levels: private, visible to group, visible to all
Privacy: personal notes (on references) can be hidden from other users	2 levels, private/all; can be set separately from the reference	linked to reference	linked to reference
Includes OpenURL link (UvA-Linker)	no	yes	no
Web-API:	not yet - under development	0.1, experimental	not yet - under development
Final score (counting full support 2, partial support 1)	16	15	15

2.3 The course of the user trial

From the group discussion at the start of the user trial it appeared that the participants thought that was quite important to make personal notes about literature references that would be only readable for colleagues in the same research group. The main argument was that if the personal note would be readable for 'the entire world', one would have to spend much more time on the writing of the personal note, and one could not give strong opinions about a certain article for fear of antagonizing other people. At the same time, comments of colleagues about literature references were seen as the main advantage of using the academic social referencing tool: one could decide NOT to read an article on basis of the comments of a colleague and thus save time.

Since BibSonomy was the only academic social referencing tool with the possibility to make references and the comments linked to them only available to other members of the group, it was decided to use BibSonomy for the user trial. However, after two months it appeared that most participants were not using BibSonomy anymore because of the lack of user friendliness of its interface. Therefore, it was decided to switch to Cite-U-Like, because of its user friendliness. For this reason, the period of the user trial was extended until December 2006. A final group discussion with the participants in the user trial was held at January 25, 2007.

3. At the start of the user trial: results of group discussion and the questionnaire

3.1 The group discussion at the start of the user trial

In the group discussion at the start of the user trial the following topics were discussed:

- Present habits and workflow with regard to management and sharing literature references
- The expectations about the academic social referencing software tool
- The critical success factors in the eyes of the respondents

A summary of the results is presented below.

3.1.1 Present habits and workflow re management and sharing literature references

- Few participants have a systematic way of searching literature and finding new literature references.
- It is generally seen as a problem 'how to keep the value of what you have read'. That is mainly due to a lack of organisation on the part of the respondent himself.
- In general, a lot of time is spent on reading literature. One respondent estimates this at least at one hour a day. 'We are always searching for pieces of information'.
- All see a trend that they increasingly cite in their own articles web pages and URL's instead of references to official scientific articles.
- What is the definition of literature? A number of participants used mainly manuals or/and standards or other information on the Internet. Therefore, literature is not strictly defined as scientific literature: it should be defined as all information useful for their work that they need to keep and refer to.

3.1.2 Expectations about the academic social referencing software tool

- **Subject indexing / tags:** One respondent stresses the importance of subject headings or tags. He thinks that if everyone of the group will use the same tags, it will be easier to share literature with each other. Most participants express an interest in tagging and grouping of the literature references. This is the way of organising literature references, which they now often lack.
- **Time-saving:** This is seen by all as a very important aspect of the new system: when using each others' personal notes, the question is to read or not to read. All participants expect to save time with NOT reading an article, because a colleague has stated in a personal note that this article is without value. This is seen as a potential big advantage of the system. 'I will save one hour of reading time!' In other words, the participants expect to use each others' qualifications of the literature to make a better selection of the literature to read.
- **New literature:** Some participants also expect to find new literature references by the system: literature references in the personal collections of their colleagues, they did not know of yet.

- **Personal notes and privacy:** It is emphasised by all participants that the personal notes about a literature reference by their colleagues are of great interest. This will probably lead to the main advantage of the system: a way of selecting the literature one has to read. However, the personal notes also lead to a lot of discussion:
 - Most participants do not mind that their colleagues from the research group SNE will read to their personal notes. However, some participants want to be able to make a note like ‘only have read this till page 3’ or ‘looks interesting, the topic is algorithm X, should read this one time’. In these cases these should be notes to themselves.
 - All foresee that one has to put some more effort in the personal notes to make them useful for their colleagues. ‘Otherwise I would write them in Italian’, says an Italian participant. However, this should be only a limited effort, which fits in the workflow of reading and making notes.
 - There is great hesitancy among the participants to make these personal notes available to the whole world. ‘In that case I should write my comments on the article in a carefully worded and balanced statement, because I don't want to insult people. This is especially true in the case when I am negative about the article. This would cost me half a day: I don't have that half a day!’ Other participants agree - no one likes to share these personal notes with the general public, especially when they consist of negative comments. One participant notes that this might be a generation-thing: his younger colleagues do share everything on the Internet with the general public. Some participants point out that these public comments often are very useful in selecting products or services. In conclusion: the participants use social bookmarks themselves and find them valuable, but are reluctant to make their personal notes about literature references available to the general public, due to time constraints.
 - The aspect of storing of the bookmarks is also seen as an advantage. Indeed, some participants point out that they download less and less, because this is also an effort and you can always find it again on the Internet.
 - An important advantage of the system might also be that when the group indeed will be using common subject tags, clusters of literature references around certain topics are being formed. This might be of special value to newcomers to the group and to students. One participant calls this a knowledge base.
 - Ranking: some participant asked if this is part of the systems - most systems indeed do have a ranking system with stars. This is another way of quickly selecting the most important articles or the least important articles in a personal collection.
- **Overlap in reading between the participants:** Do the participants have a large overlap in their reading and if yes, how much? Of course, the overlap varies between the various participants due to their research lines. Within a research line the overlap is very large. However, the participants point out that the overlap is considerable and therefore this sharing of literature references might be an excellent idea.
- **Present mechanisms in alerting each other to literature references:** There exists already a mechanism to alert each other with regard to literature references. This mechanism is the mailing lists per research line. Some participants point out that this might be more effective than the more passive system of the experiment. ‘If a

colleague sent you an e-mail with a good article, you're more likely to print it out and read it later'. The new system requires an active attitude.

3.1.3 Critical success factors of the academic social referencing tools in the eyes of the respondents

- **Starting conditions:** Generally, the fact that most members of the research group should participate is seen as a critical precondition. After some discussion, the participants decide on another precondition: to start up with this system, all participants should upload their present personal collections of literature references. Otherwise it might take too long before the system gets useful.
- **Time-saving and collaboration:** In general, the time-saving aspect (the number of articles that one did not read as a result of reading a qualification of a colleague) and the new way of collaboration with the colleagues are seen as the most important advantages. These should be large enough to make this system useful: the extra time that one has to spend on using the system should be limited (this is measured in minutes rather than hours according to some participants).

3.2 The questionnaire at the start of the trial

Shortly after the group discussion, a questionnaire was sent to members of the SNE group, which resulted in 12 filled-in questionnaires.

The main results are presented below.

3.2.1 Presently used methods regarding finding literature references

In the two tables below the results are given of two questions about the presently used methods for finding literature references. The results can be summarised as follows:

- The two most frequently used methods are (1) using general Internet search engines such as Google and (2) snowballing: from literature lists from articles and books I read.
- Colleagues from the same research group, websites from other research groups in the field, browsing the table of contents of a number of journals and conferences are other important sources for new literature references.
- Other less frequently used methods are: (1) using domain specific search engines such as CiteSeer (2) colleagues outside the SNE group and (3) mailing lists.
- Of these methods, three are seen as most important: (1) using general Internet search engines such as Google, (2) colleagues inside the SNE group and (3) snowballing: from literature lists from articles and books I read.

1. Which methods do you have for finding new literature references?	n	Answers %
using general Internet search engines such as Google	12	100,0
from literature list from articles and books I read	10	83,3
from colleagues inside SNE	9	75,0
from websites of other research groups in the field	9	75,0
browsing the table of contents of a number of journals	8	66,7
via conferences	8	66,7
using domain-specific search engines such as CiteSeer	6	50,0
from colleagues outside SNE	5	41,7
Other	3	25,0
via mailing lists	2	16,7
from work package websites	0	0,0
12 Answers		100,0

2. What is/are the most important method(s) for you?	n	Answers %
using general Internet search engines such as Google	7	58,3
from colleagues inside SNE	6	50,0
from literature list from articles and books I read	5	41,7
from websites of other research groups in the field	3	25,0

using domain-specific search engines such as CiteSeer	2	16,7
Other	2	16,7
browsing the table of contents of a number of journals	1	8,3
from colleagues outside SNE	1	8,3
via conferences	1	8,3
from work package websites	0	0,0
via mailing lists	0	0,0
12 Answers		100,0

3.2.2 Presently used to methods for storing and managing literature references

The results of a question about which methods one uses for storing and managing literature references are depicted below in a table. It appears that:

- 5 out of 12 respondents use software for these purposes (4 use Bibtex and 1 uses EndNote)
- The other respondents do not seem to use software: they download PDF's and store this at their hard disk, and/or bookmark URL's.

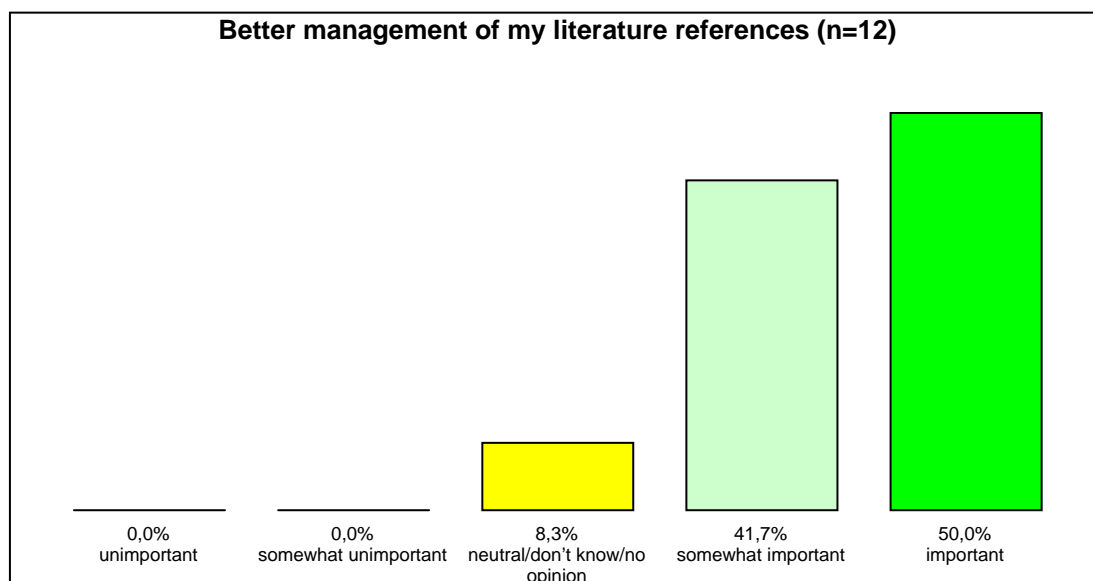
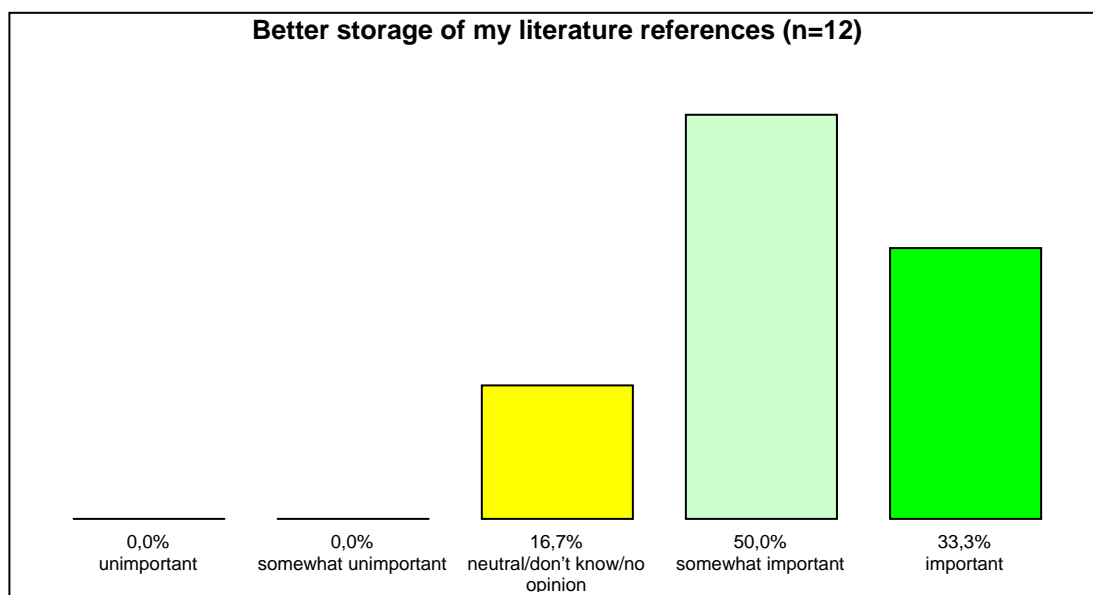
3. Which methods do you have for storing and managing references to the literature?	n	Answers %
I download the PDF's and store this in folders and subfolders at my hard disk	8	66,7
I use BibTex software	4	33,3
I bookmark the URL's and store these in my computer.	3	25,0
Other	2	16,7
I use EndNote software	1	8,3
12 Answers		100,0

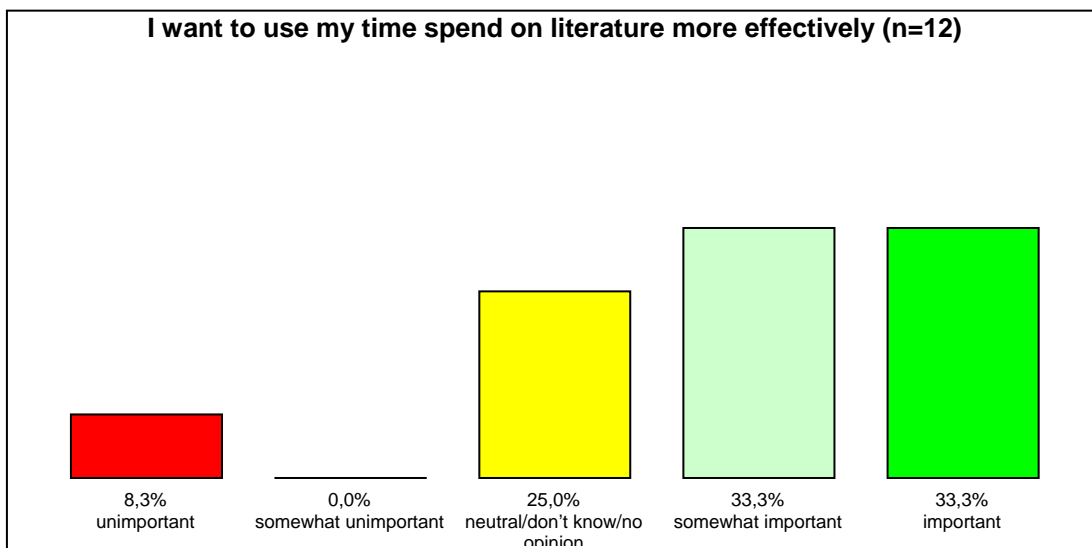
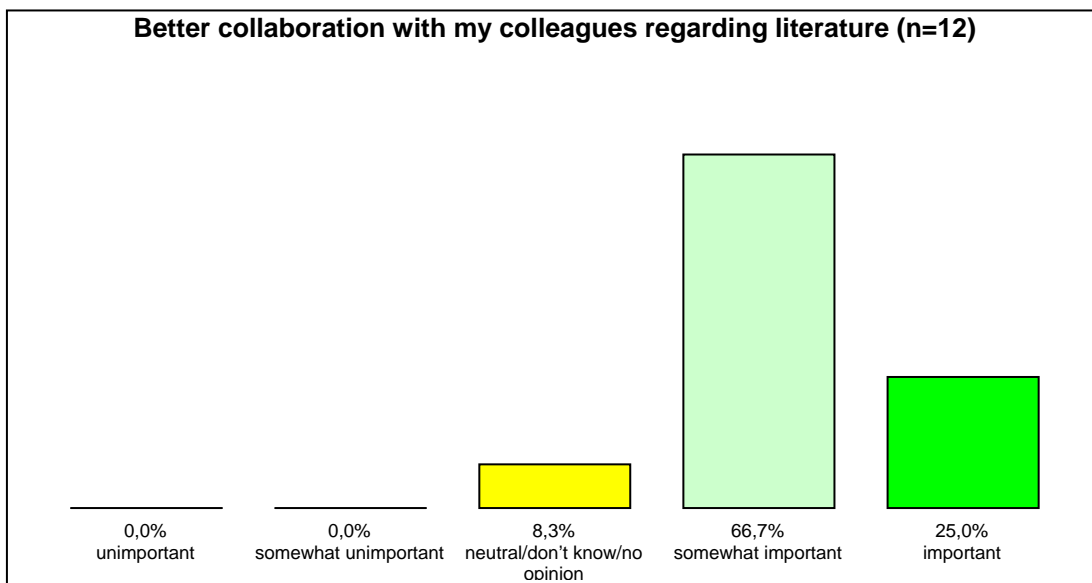
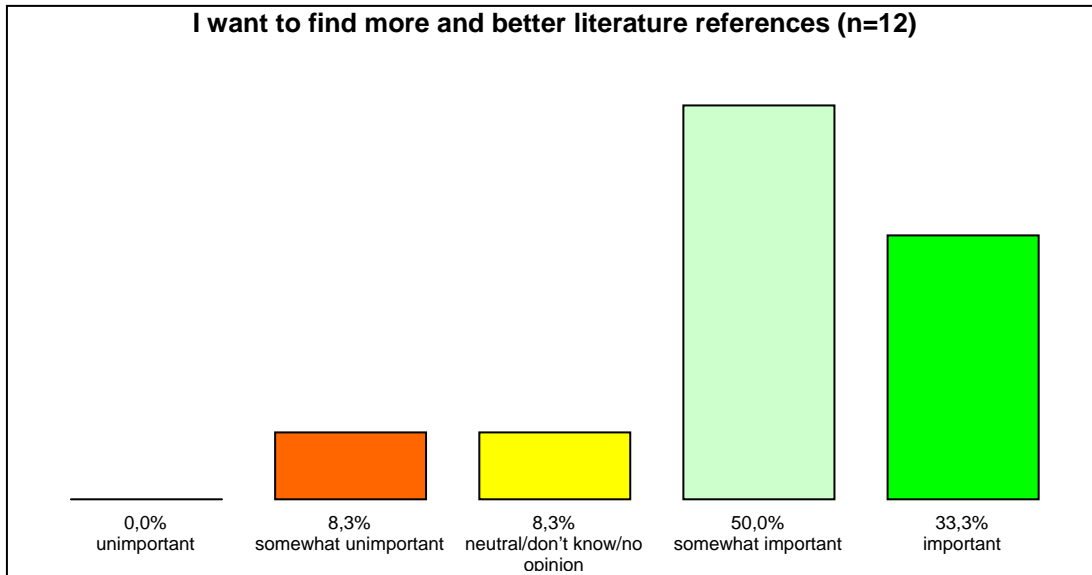
3.2.3 Potential improvements to be achieved by using the academic social referencing tools

The respondents were asked to rate the importance for them to improve the following aspects of finding and managing literature references:

- Better storage of my literature references
- Better management of my literature references
- I want to find more and better literature references
- Better collaboration with my colleagues regarding literature
- I want to use my time spend on literature more effectively

The results are presented below in bar diagrams.





In the table below the results are summarised:

- Better management of the literature references and better collaboration with colleagues regarding literature are seen as the most important potential areas for improvement.

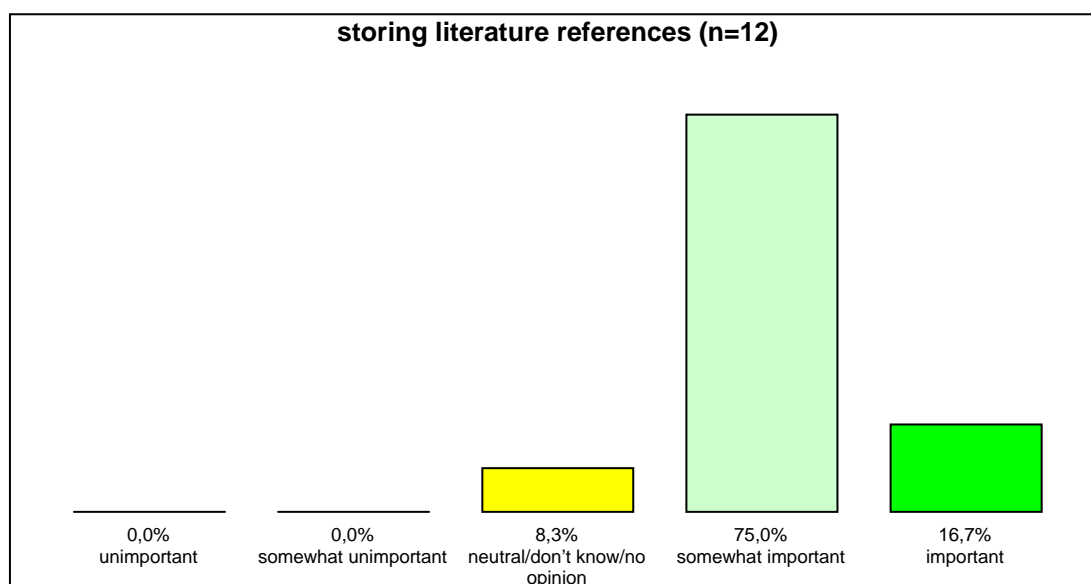
Summary potential improvements	% (somewhat) important
Better management of my literature references	91,7
Better collaboration with my colleagues regarding literature	91,7
Better storage of my literature references	83,3
I want to find more and better literature references	83,3
I want to use my time spend on literature more effectively	66,6

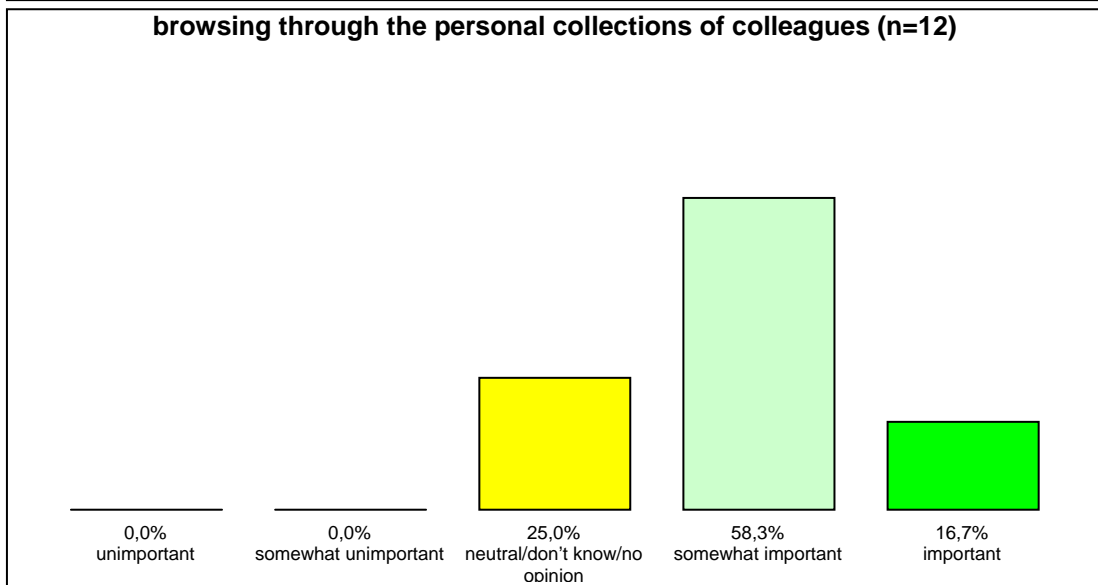
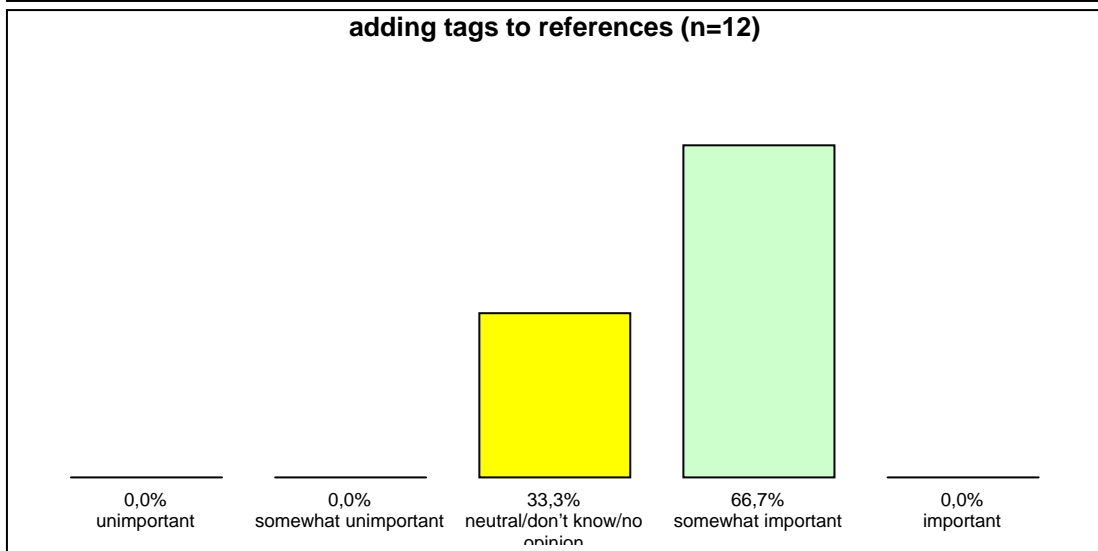
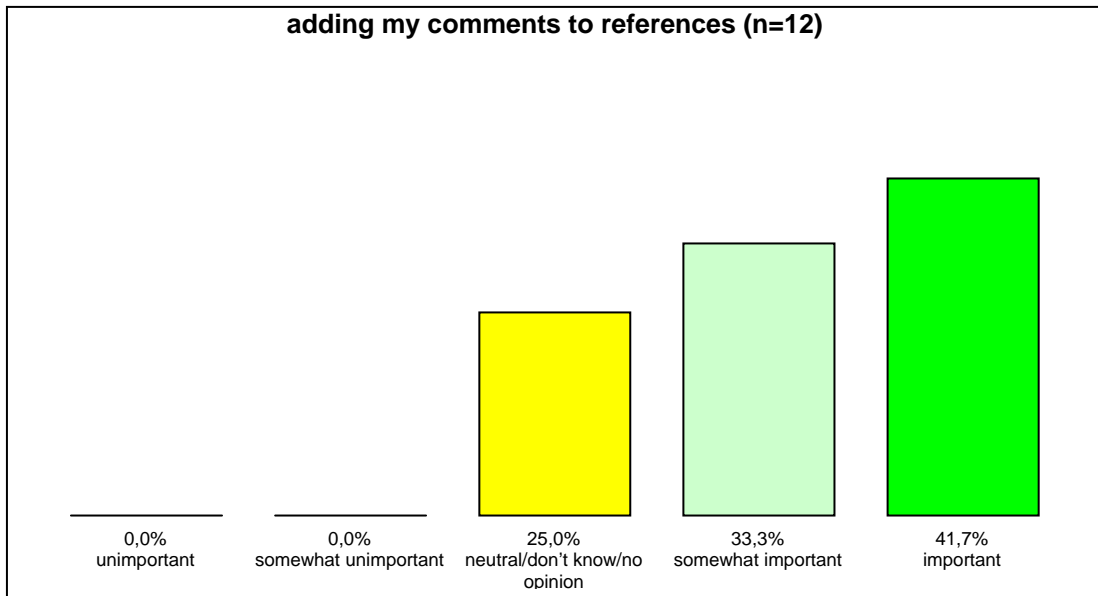
3.2.4 Expectations about the social academic referencing tool

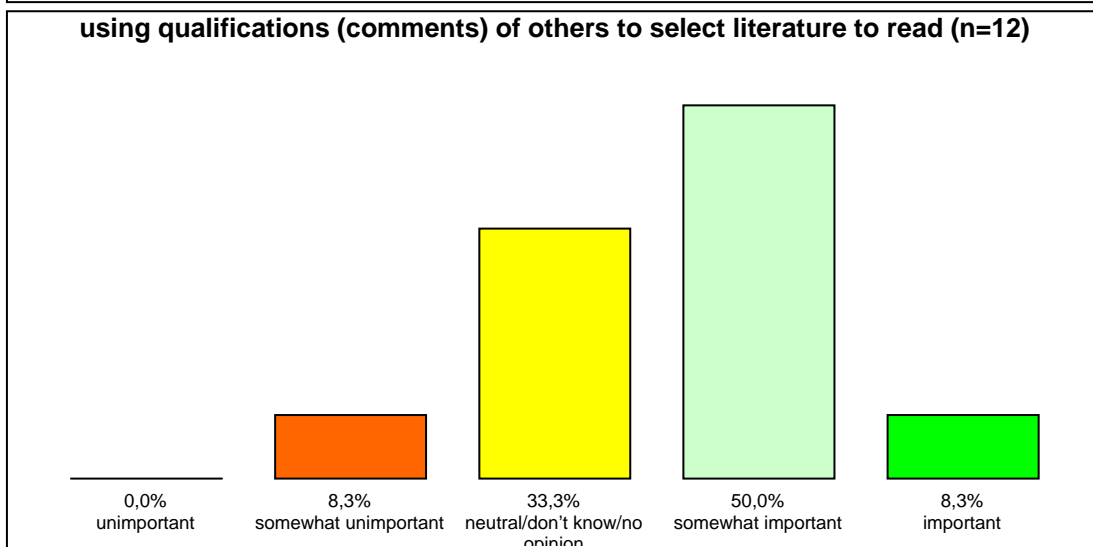
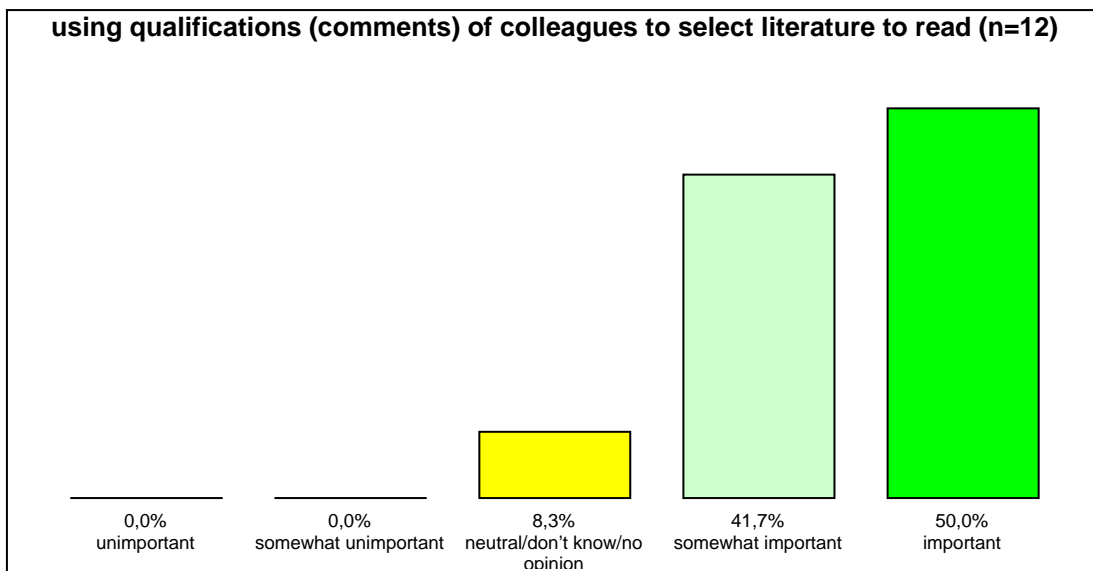
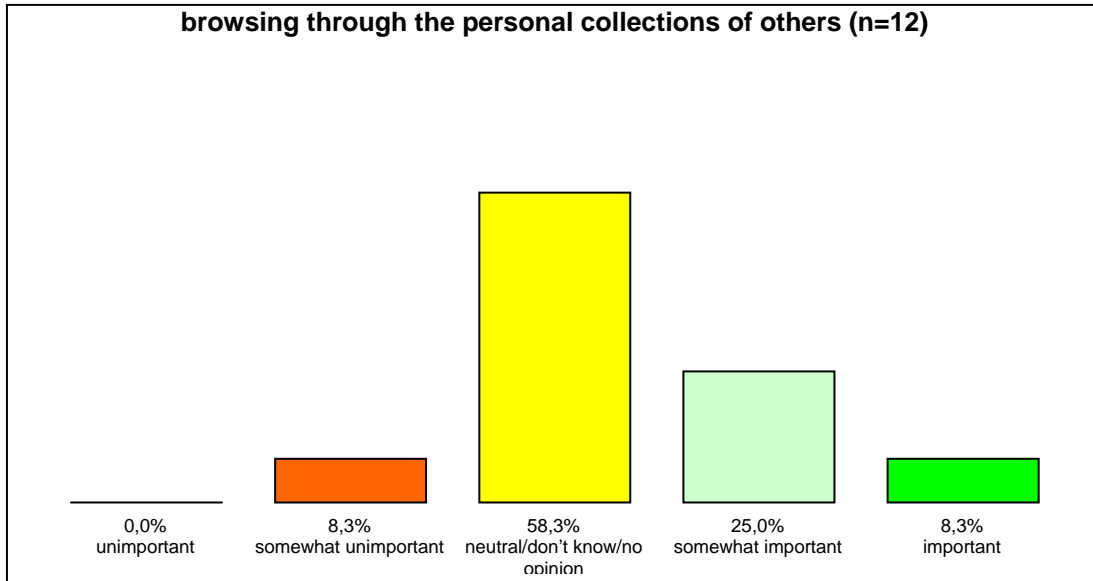
The following functionalities of the social academic referencing tool were rated by the respondents for their importance:

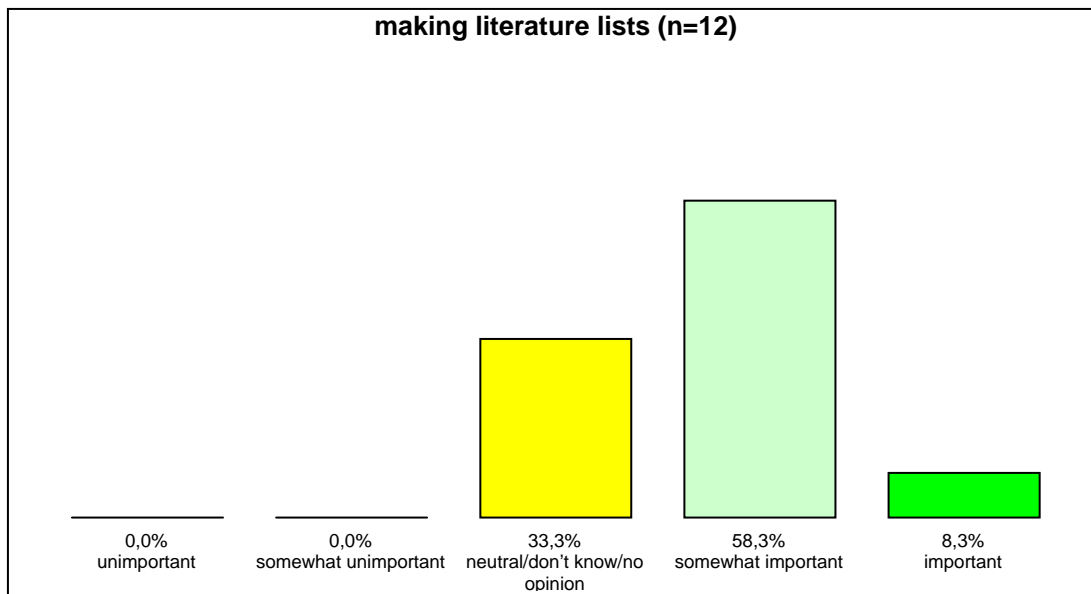
- storing literature references
- adding my comments to references
- adding tags to references
- browsing through the personal collections of colleagues
- browsing through the personal collections of others
- using qualifications (comments) of colleagues to select literature to read
- using qualifications (comments) of others to select literature to read
- making literature lists

The results are presented below in bar diagrams:









The results are summarised in the table below. It appears that:

- Storing literature references and using comments/qualifications of colleagues to select literature to read are seen as the most important functionalities of social academic referencing tools.
- Adding comments to literature references and browsing through personal collections of literature references of colleagues score also high.
- Adding text to references, making literature lists and using comments/qualifications of others (outside the SNE group) are also seen as important functionalities by the majority of the respondents.
- The option to browse through personal collections of others (outside the SNE group) scored lowest.
- When only the scores of 'important' are considered, using qualifications or comments of colleagues to select literature read and adding personal comments to a literature references is seen as the most important functionality options.

Summary table expectations	% (somewhat) important	% important
Storing literature references	91,7	16,7
Using qualifications (comments) of colleagues to select literature to read	91,7	50
Adding my comments to references	75	41,7
Browsing through the personal collections of colleagues	75	16,7
Adding tags to references	66,7	0
Making literature lists	66,6	8,3
Using qualifications (comments) of others to select literature to read	58,3	8,3
Browsing through the personal collections of others	33,3	8,3

4. Results of the logbooks

4.1 Logbooks for BibSonomy

In total, 10 logbooks were filled in by users of BibSonomy. Below the results are given in tables.

<i>What did you do in BibSonomy?</i>	n	10 Answers %
Managing My BibSonomy	10	100,0
Browsing the BibSonomy list of the group SNE	8	80,0
Browsing the BibSonomy lists of others	1	10,0
Other	1	10,0
10 Answers		100,0

<i>Which activities did you carry out? If other, please elaborate</i>	n	10 Answers %
posting publications	7	70,0
posting bookmarks	6	60,0
adding tags to my postings	5	50,0
importing with BibTex	5	50,0
adding public comments to my postings	2	20,0
adding comments for friends to my postings	1	10,0
exporting with RSS	1	10,0
adding private comments to my postings	0	0,0
importing from del.icio.us	0	0,0
exporting with BibTex	0	0,0
exporting with EndNote	0	0,0
Other	0	0,0
10 Answers		100,0

<i>6. Did you encounter obstacles or problems when using My BibSonomy?</i>	n	10 Responses %
Yes	5	50,0
No	4	40,0
9 Answers		90,0
1 Blanks		10,0

<i>If yes, please elaborate:</i>
I find it hard to enter new publications. I briefly used Cite-U-Like and for the most part it was much easier there. What I also miss is recommending things to other members of the group. Perhaps rating of publications might also be useful, although I'm not sure if it would become really useful, because of the politics that might get involved fairly quickly.
- Many journals are not supported for automatic import (maybe they could look into the filters of Cite-U-Like, those are open, aren't they?) - Difficult to get head round difference between group's articles, group member's articles
Minor issue: It was at first not clear to me that tags cannot be two words. I cannot tag something 'optical networks': it will be tagged as separately 'optical' and 'networks'
It is a shame that you cannot send an alert to group members that they should read a specific paper. Also, the PDF upload should be shareable with the group.
Browsing the citations of other SNE group members is clumsy, because it is highly unorganized. There is no logical ordering, publications are listed multiple times (if I and someone else add the same publication, I see it twice), and filtering is still hard because the keywords are a bit broad.

All respondents carried out management activities in their own BibSonomy. A large majority also looked in the list of the SNE group. Only one respondent looked in the BibSonomy lists of others.

What did the respondents do in their own BibSonomy? Many were posting publications and/or bookmarks and adding tags to their postings. Approximately half were importing postings with Bibtex. Only a minority of the respondents were adding comments to their postings, either public, private or for the group.

A majority of the respondents encountered obstacles or problems:

- 2 respondents emphasised the difficulties to enter/import new publications
- 3 respondents complained about the lack of the group functionality and/or clumsiness of options for this.

<i>What were the results of your activities in BibSonomy?</i>	n	10 Answers %
I stored results of my searching and browsing activities	3	30,0
I looked up an earlier stored reference in order to read it	3	30,0
I created a literature list	3	30,0
As a result of the comments of my colleagues of the SNE group I decided to read a certain article	1	10,0
As a result of the BibSonomy list of the SNE group I found a certain literature reference of interest to me.	1	10,0
As a result of the BibSonomy lists of OTHERS I found a certain literature reference of interest to me.	1	10,0
As a result of the comments of my colleagues of the SNE group I decided NOT to read a certain article	0	0,0
As a result of the comments of OTHERS I decided to read a certain article	0	0,0
As a result of the comments of OTHERS I decided NOT to read a certain article	0	0,0
Other	0	0,0
10 Answers		100,0

What were the results of these activities in BibSonomy?

- Three respondents used the management and storage facilities of the programme.
- Two respondents found new articles, one from colleagues of the SNE group, one from others.
- On average the respondents rated their experiences with BibSonomy with a 7.1 (on a scale from 1 to 10).
- Below their comments are presented.

<i>Please comment on the results of you activities in BibSonomy:</i>
Keeping a list of publications and making comments on them does help me read articles better and will help me in remembering more about articles (at least I hope so). I really do hope that they will find a way to enter things more quickly, because this might get annoying fairly quickly.
Reasonably happy, got a nice article from somebody else. Not totally at easy with the interface, though.
I started my registration and got a feel for the possibilities in the system.
Experience so far is good. Rating a 7/8. I use this less than I expected at times 'cause I forget it exists. And do not update it.... Still do not like the way tags are handled. You only see your previous tags but not the ones for other and you can easily create duplicates.
Cite-U-Like has an excellent system that makes it very user-friendly to add new references. I also very much like the linking feature to ACM. It is very easy to lookup the reference list of an article in ACM. They try to make references into hyperlinks when possible. This results in a very fast process where you can look up an article, its references and add it to your literature list in very few clicks.

4.2 Cite-U-Like logbooks

Only four logbooks were filled in during the user trial with Cite-U-Like. The results are shown in the tables below and discussed shortly at the end of this paragraph.

<i>What did you do in Cite-U-Like?</i>	n	4 Answers %
Managing My Library	4	100,0
Browsing the Libraries of my colleagues of SNE	3	75,0
Browsing the Libraries of others	4	100,0
other	0	0,0
4 Answers		100,0

<i>Which activities did you carry out?</i>	n	4 Answers %
Adding Tags to my postings	4	100,0
Posting articles using the mechanism of Cite-U-Like	3	75,0
Posting articles, manually	2	50,0
Adding public notes to my library	2	50,0
Importing with BibTex	2	50,0
Adding private notes to my library	0	0,0
Importing from delicious	0	0,0
Exporting with BibTex	0	0,0
Exporting with EndNote	0	0,0
Exporting with RSS	0	0,0
Other	0	0,0
4 Answers		100,0

<i>6. Did you encounter obstacles or problems using in Managing your Library in Cite-U-Like?</i>	n	4 Answers %
Yes	0	0,0
No	3	75,0
3 Answers		75,0
1 Blanks		25,0

<i>What were the results of your activities in Cite-U-Like?</i>	n	4 Answers %
I stored results of my searching and browsing activities	2	50,0
I looked up an earlier stored reference in order to read it	1	25,0
As a result of the qualifications of my colleagues of the SNE group I decided to read a certain article	1	25,0
As a result of the qualifications of OTHERS I decided to read a certain article	1	25,0
As a result of the personal collections of OTHERS I	1	25,0

found a certain literature reference of interest to me.		
other	1	25,0
I created a literature list	0	0,0
As a result of the qualifications of my colleagues of the SNE group I decided NOT to read a certain article	0	0,0
As a result of the personal collections of my colleagues I found a certain literature reference of interest to me.	0	0,0
As a result of the qualifications of OTHERS I decided NOT to read a certain article	0	0,0
4 Answers		100,0

If other, please elaborate

I found someone who apparently read one of my articles. Besides the nice little ego-boost, it is interesting to see who is following our work. Perhaps we can learn from them too.

1 Answers

3 Blanks

Please comment on the results of you activities in Cite-U-Like:

It was unclear to me how to become a member of the 'SNE' group in Cite-U-Like. Also, at first sight, it seems that the 'Watch list' is mixing all together, I think I like separate watch lists for SNE, and perhaps other authors.

I've been familiar already with the interface, but also the new things -- group stuff -- were easy to achieve

I didn't read more or less because of Cite-U-Like. Actually, I only got one article this week of a colleague by email, which I added to my long list of articles still to read. However, I appreciate the fact that I relatively easy can create a literature list. While I can't say it's anywhere from finished, I can see the networking effect (sharing simple things like titles, so I don't have to re-enter the ones others already entered in the database).

3 Answers

1 Blanks

- Average mark given is 7,25

<i>Your remarks or comments:</i>
Seems slightly better interface than BibSonomy, though I can't tell why.
Found several things that are not present, but would make using Cite-U-Like better, some of these might be redundant (because they were known upfront): - group tags: as a group we'd like to organize publications in tags, with which we can group cross-user - group-PDF's: of course difficult with access-restriction/copyright/sharing, but if I upload a PDF, it's a pity my colleagues cannot see it - There is no direct link to the pages you're watching from the manage watch list page, if this list gets longer the watch list itself would be a difficult place to find these links.
I get more the hang of it. I still find the literature list a bit unorganised. I like to see a few more browsing options. For example, (1) there is no link to the groups I'm in from the main menu (currently, only the SNE group). (2) I wish the list was sorted alphabetically rather than by submission date. It simple *looks* unorganised. I still struggle with the use of tags: too few and I trouble searching, too many and I can't easily browse. Other than this, I do appreciate the networking effect, noticing that other people have read articles too.

- From these results it seems that importing references in Cite-U-Like is easier than in BibSonomy.
- One respondent read an article, because of the literature references and qualifications of his colleagues within the SNE group. Another respondent read an article, because of the literature references and qualifications of others.
- Apparently, the group functionality is still lacking in user friendliness and functionality.

5. Results group discussion at the end of the user trial

At the end of the user trial, a group discussion was organised inviting all participants in the user trial. The group discussion was held at January 25 with six participants. The results are presented below.

5.1 Experiences of the respondents

Below the comments of each respondent about their experiences with Cite-U-Like and to a lesser extent with BibSonomy are presented.

Respondent 1:

On Cite-U-Like: 'I don't use it very often because it is not a big part of my job'. This respondent states that one important disadvantage of Cite-U-Like is that there are not many articles stored in the field of the SNE group. However, the software tool will become more useful if more people from the field will use it. The respondent: 'I think it will also very useful for our PhD students. I have advised my PhD students to use it. They have to read a lot of articles and in this way they preserve their reading better and make the results of their reading also accessible for the other members of the group'.

Personally the respondent has loaded 10 to 20 articles in the system and has added personal comments. The main advantage for the respondent is that he now has a system for maintaining his references and preserving the results of his reading by writing personal comments. The respondent claims that it is very easy to store references in Cite-U-Like and to store the PDF files of the articles in as well. For each reference he writes a personal comment and he makes these notes only available to himself.

The respondent misses an important functionality in Cite-U-Like: there is no way to alert your colleagues in an easy way about an article you have read when you think it's important.

In conclusion, this respondent states that he uses the system once in the two or three weeks. He forgot to fill in the logbooks during the user trial. He certainly will keep on using the system.

Respondent 2:

This respondent states that BibSonomy was chosen to start the user trial because the collaborative functionality was better developed. However, it appeared along the way that this functionality was rather hidden in the interface and not very user-friendly. Therefore, after a few weeks it was decided to change to Cite-U-Like, which is generally seen as more user-friendly. However, Cite-U-Like lacks a number of important collaborative functionalities.

The respondent uses the collaborative functions regularly. He has read a few articles that were in the lists of his colleagues. Another important advantage is that a well-known researcher in their field also maintains a reference collection in Cite-U-Like. This is very interesting and useful!

The respondent estimates that he uses Cite-U-Like one to two hours per month. He gives qualifications to the articles he has read, but he hardly ever writes comments. If

he makes comments, he labels them as private. Why? Because he still feels insecure about what he writes and would not like other people to read it.

The respondent emphasizes that he looks at lists from colleagues inside the group and outside the group for interesting references. With regard to this functionality, he thinks it is very annoying that you can look at the reference lists of somebody else, but not use their PDF files. He understands this is for copyright reasons, but still he would like to see this changed. This respondent states that he will keep on using Cite-U-Like, alongside Delicious (which he uses for storing URL's)².

Respondent 3:

This respondent likes Cite-U-Like much better than BibSonomy. Still he thinks that a number of functions are not well thought through. In addition, there are a number of functions that are rather clumsy in the interface and could be improved. He gives a number of examples:

- The tagging system of Cite-U-Like is not very useful: it is too broad and the system does not allow you to browse it properly.
- With regard to the browsing functions, the respondents makes the analogy that the browsing function looks like browsing through a trashcan with valuable things: there is a lot in it, but it is rather messy and not well-ordered. The respondent states that he thinks the browsing function is in this way not very useful, although he has found a few good articles in this way. However, the most common way to hear about good articles is still by ear from his colleagues.
- Bookmarking: the bookmarking function allows you to bookmark pages. However he would prefer to have it allow you to a bookmark a PDF file.

In another vein, this respondent states that he doesn't use the system that often: 'I read an article and then I put it in the system. If I read the article in its entirety, then I make an abstract in my own words. Although in theory I didn't like to see the rest of the world to read this abstract, in practice I don't care and make it available for everyone: thus it becomes a public personal comment. This function is really useful for me, because in this way I keep what I have read'.

The respondent has now approximately 10 articles loaded into Cite-U-Like, all with personal summaries.

With regard to the alerting service, there is a discussion within the group about the possibilities of an alerting service in Cite-U-Like using RSS feeds.

Respondent 4:

This respondent was on leave during the larger part of the user trial. At the start of the user trial, she used BibSonomy for a few times. She recently came back to the office and started to use Cite-U-Like.

² This respondent notes that he uses the del.icio.us system alongside Cite-U-Like. Cite-U-Like is not very handy for storing URL's; he thinks for these types of references one can better use the tags of the del.icio.us system). In BibSonomy there were two separate lists: one for URL's, one for literature references. In Cite-U-Like this is all mixed together. The respondent does not like that and therefore use del.icio.us for storing URL's. In addition, in his eyes there is a larger group effect with regard to the tagging system in the delicious system, because it is used by many more people. 'I now use Cite-U-Like and Del.icio.us next to each other as I would have liked to see BibSonomy working in one system'.

This respondent does not think that the user trial is a failure: she thinks it is very important that she and her colleagues have now system for storing and maintaining literature references. This is in any case an improvement on the methods they used before (because most of them did not have a method).

The respondent has noted that it isn't possible to change your e-mail address linked to your account in Cite-U-Like. This is very annoying, because she made a mistake and now everything in her first account is lost. If you change your e-mail address, you are forced to open up a new account. In addition, it's also not possible to change your password.

The respondent also was not clear about how to use the watch list. Other participants in the group discussion explained: the first time you see all articles, the next time you only see the new articles.

It was also unclear how you could add yourself to a group. It appears this can only be done by the group leader: this was also unknown to other respondents.

Another complaint, shared by others, instead if you look at the references from the group, there appears to be no order in it and it looks very messy.

With regard to BibSonomy, the respondent emphasizes that the tagging system was not very useful: it was unclear how you should proceed with regard to hyphen, underscores et cetera, with the result that, if you made a mistake, a new tag was created.

Respondent 5:

This respondent did use BibSonomy only once or twice in the beginning of the user trial. However, he did use Cite-U-Like a number of times and thought it was handier than BibSonomy.

The respondent likes especially the way you can make a bookmark with Cite-U-Like. Very handy! Before Cite-U-Like, his method was to find an article via Google and then download the PDF onto his hard disc. Later, he entered the bibliographic data in Bibtex – for later use in literature lists.

The respondent suggests an addition to Cite-U-Like: to add your personal profile with your real name and a short description of your job and scientific interests. In this way, it would be easier to make contact with a fellow user of Cite-U-Like.

Another disadvantage of Cite-U-Like is that it is not easy to find articles. The respondent looked for example for a number of articles by the group leader, but could not find any article in Cite-U-Like by him. However, the other participants in the group discussion assured him that there are certainly a number of articles from this author loaded onto the system. But all participants agree that the retrieval system in Cite-U-Like is not handy.

In conclusion, the respondent thinks that the retrieval mechanism and the number of relevant articles in their field are weak points of Cite-U-Like. However, he also thinks that Cite-U-Like is very valuable with regard to its function with regard to storing literature references.

The respondent states that he will keep on using the system. Why? 'Because it's better than my method I used before'. Why is it better? 'Especially, sharing resources with your colleagues is important. I can now use the efforts of my colleagues to find more useful references'.

Finally, the respondent notes that it is very good that you change the interface of Cite-U-Like into the language of your own. It appears in the discussion that two respondents did change the language of the interface into their original language.

Respondent 6:

This respondent has made quite a lot of personal comments to the references stored in his list in Cite-U-Like. The respondent states that he will use this system from now on for teaching purposes by making his reference list with the personal comments available to students of a class. This will probably be easier than giving them each time separate references.

The respondent thinks that the collaborative aspects of Cite-U-Like are not yet fully used. Only one other colleague in his special field within the group uses the system as well. In addition he did not load yet all references into the system yet. The respondent emphasizes again that he likes the system and will use it also for PhD students.

He stresses that it is very useful to write your own personal comments alongside the literature references, because this allows you to remember later what you have read. He uses the system once a week.

In conclusion, this respondent states: the system is very useful to organize my personal references. It should be more useful for collaborative purposes. The fact that you can share your references with colleagues will be very handy, but this option is now underused. However for finding references the system is not so suitable: the browsing function is not very well-organized, and not yet many people from their scientific field use the system. In addition, the watch list is not very well organized.

5.2 Results of the general discussion

In the general discussion about their experiences during the user trial with Cite-U-Like, the participants in the group discussion agree that:

1. The system is very useful for organizing your personal references.
2. The system could be more useful for sharing your references with your colleagues and others by improving the functionality with regard to the collaborative aspects.
3. The system is hardly useful for finding new references at this moment. Its usefulness for finding references is not only dependent on an improvement of the functionality in this respect, but also on the number of colleagues in the same fields using the system (and thus the number of relevant literature references loaded onto the system).

All respondents state that they will keep on using Cite-U-Like. It has to be noted that most respondents did NOT have a systematic method before this user trial, other than downloading PDF files on their hard disc³.

What about the other members of the SNE group? It is estimated that 8 to 9 colleagues are using Cite-U-Like, while the entire group counts 25 colleagues. Some participants argue that some colleagues, who often write their articles at home, will not use Cite-U-Like, because the digital library will not be available from their home. When the moderator explains that every employee of the University of Amsterdam can access the digital library from their home with a special arrangement provided by the University Library, no one appears to know about this option. This leads the participants to conclude that the Library of the University of Amsterdam should better inform new employees about their services. There is now an obvious lack of knowledge among users and potential users about the services of the University Library⁴.

What could the Library of the University of Amsterdam do to help improve the Cite-U-Like system? The following suggestions were made in the discussion:

- It is emphasized that this should be an international tool and not restricted to one University.
- The Library of the University of Amsterdam could hire a programmer to improve the collaborative functions of the Cite-U-Like system. The respondents distinguish three possible steps:
- The first step could be to improve the group functionality⁵
- The second step could be to improve the functionality with regard to browsing and tagging

³ Two respondents did have a method of storing and maintaining literature references: one of them used a Mac system, the other used EndNote (albeit sporadically).

⁴ One respondent noted that when she started working for an American university, on day 1 she received a package with all information about all aspects of her work environment, including the library. When she started working at the University of Amsterdam, she got nothing! Other respondents agree: after years of working here they still find out about the existence of important facilities in the building and in the University. When they ask someone about this, they always refer to UvA web. However, the respondents do not think this is not sufficient and also find UvA web difficult to use.

⁵ In the discussion it became clear that most respondents did not understand how you could link your account to a group in Cite-U-Like. It was also noted that there are no clear definitions for a group, a watch list etc.

- The third step could be to improve the integration of the digital library with Cite-U-Like (for instance by linking the various bibliographic databases and the catalogue of the library with this system as well as a number of full text databases). In addition, it was noted that is very important that you should be able to keep your reference collection when you will move to another job at another university. This refers to the earlier mentioned complained that you cannot change the e-mail address or the password linked to an account

Other conclusions from the discussion were:

- All respondents agreed that the BibSonomy user interface lacked in user friendliness.
- The fact that there were only a few logbooks filled in during the user trial has nothing to do with the value of Cite-U-Like in the eyes of the participants. Some respondents misunderstood the logbooks, other respondents just forgot about them.

6. Summary, discussion and conclusions

6.1 Summary

User trial

This report presents the results of a user trial with academic social referencing software. The user trial started with an inventory of the present habits and workflow with regard to storage, management and sharing of literature references by a combination of a group discussion and a questionnaire among members of the Research Group Systems- and Network Engineering (SNE) of the University of Amsterdam. During the trial itself, the participants used initially BibSonomy, but after a few weeks switched to Cite-U-Like. The participants reported on their usage by filling in logbooks. At the end of the user trial, a group discussion was held to discuss the user experiences and assess the advantages and disadvantages of the software.

Advantages of academic social referencing tools

Academic social referencing tools (also called social bookmarking tools) have four main functionalities:

- Quick and easy bookmarking and storing of literature references and Web pages
- Organising a personal reference collection by tags and personal notes
- Discovering new literature references through the group functionality options
- Making a literature list

Presently used methods regarding finding and managing literature references in the SNE group

- More than half of the respondents within the SNE group used the following methods for finding new literature references:
 - using general Internet search engines such as Google
 - snowballing: from literature list from articles and books I read
 - from colleagues inside SNE
 - from websites of other research groups in the field
 - browsing the table of contents of a number of journals
 - via conferences
- The first three (Google, snowballing and colleagues) are seen as the most important channels to find new literature references.
- With regard to managing literature references it appears that a majority of the respondents does not use specialised software for these purposes.

Potential improvements to be achieved by using the academic social referencing tool:

- The two most important potential improvements of using the academic social referencing tools were according to the respondents:
 - better management of literature references
 - better collaboration with colleagues regarding literature
- When a list of functionality options of academic social referencing tools were rated, four functionality options scored highest:
 - storing literature references
 - using qualifications/comments of colleagues to select literature to read
 - adding comments to references

- browsing through the personal collections of colleagues

From the group discussion at the start of the user a trial the following additional conclusions were drawn:

- The time saving aspect of using the social referencing tool was seen as very important: one was especially interested in using the comments and qualifications of colleagues for NOT reading an article.
- The writing of qualifications or comments after reading an article was seen as a serious investment of time. For this reason, many participants balked at the idea that these comments could be read by ‘the rest of the world’. Most preferred to make personal notes and comments and make those available for colleagues of the SNE group only.
- The starting conditions were seen as crucial: the majority of the colleagues should participate and start with loading their present literature reference collections; otherwise it would probably take too long to make the software tool effective and efficient.

Results of the logbooks:

- The number of filled-in logbooks was very low. From the final group discussion it appeared that most respondents forgot about the logbooks or did not realise they should have filled in one each time.
- The functionality options of BibSonomy to import literature references appear to be too cumbersome and hinder the usage of the software tool. This was an important threshold in using BibSonomy and the main reason to switch to Cite-U-Like. In addition, the group functionality of BibSonomy was seen as not user-friendly and rather hidden in the interface.
- Serendipity does happen: a few respondents found new literature references by browsing in the collections of colleagues or other people using BibSonomy or Cite-U-Like.

Results of the final group discussion:

- Cite-U-Like is very useful for organizing your personal literature references.
- Cite-U-Like could be more useful for sharing your references with your colleagues and others by improving the functionality with regard to the collaborative aspects.
- Cite-U-Like is hardly useful for finding new references at this moment. its usefulness for finding references is not only dependent on an improvement of the functionality in this respect, but also on the number of colleagues in the same fields using the system (and thus the number of relevant literature references loaded onto the system).
- All participants in the group discussion stated that they would keep on using Cite-U-Like.
- Cite-U-Like should be improved in the eyes of the respondents in the following ways:
- The improvement of the group functionality should have the highest priority in the eyes of the respondents.
- As a second priority, they mentioned an improvement of the functionality with regard to browsing and tagging.

- In addition, improvements with regard to the integration of the digital library with Cite-U-Like, and a greater flexibility with regard to moving accounts in Cite-U-Like when moving to another job are desirable.

6.2 Discussion and conclusions

The main functionality options of social bookmarking tools are:

1. Quick and easy bookmarking and storing of literature references
2. Organising a personal reference collection
3. Discovering new literature references through group functionality

Indeed, in the group discussion and from the questionnaire at the start of the user trial a large majority of the participants indicated to have a need for these functionalities. Especially a clear need existed for (1) organising literature references and adding personal comments ‘to keep the value of what I have read’ and (2) to use comments and qualifications of colleagues to select literature for reading.

In addition, it became apparent that a majority of the participants did not have a systematic method for finding and managing literature references. In other words, the academic social referencing tools solve a problem that really appears to exist.

Based on the results of the group discussion, BibSonomy was initially selected for the user trial. The main reason for this selection was the extended group functionality options in BibSonomy. However, after a few weeks into the user trial, it became apparent that BibSonomy was seen as lacking in user friendliness, especially with regard to loading new references into the system. Therefore, the user trial switched to Cite-U-Like. Apparently, this switch caused some confusion and resulted in a very low number of logbooks filled in.

At the final group discussion, the users appear to be rather satisfied with Cite-U-Like, as is demonstrated by the fact that all participants indicated that they would keep on using Cite-U-Like in the future. With regard to the three above-mentioned main functions, the respondents stated that Cite-U-Like was very useful for organising your personal literature references, could be made more useful for sharing references with colleagues and others and was at this moment not very useful for finding new references. Their experiences led the respondents to list the following main priorities for improvement of Cite-U-Like:

- (1) Improvement of the group functionality (thereby strengthening the function of sharing references)
- (2) Improvement of the functionality with regard to browsing and tagging (thus strengthening the function of finding new references).

The results of this user trial lead to the following conclusions:

- *A need exists for organising and sharing literature references:* A clear need exists among scientists for a combination of two functions: the personal management and storing of literature references and web pages and sharing the results of finding and reading literature with colleagues.
- *Cite-U-Like can fill in these needs:* participants in this user trial were generally satisfied with the software tool and planned to keep on using it after the trial.

- *Considering the three main functions of Cite-U-Like, organising the personal references is well-developed; the collaborative aspects and the function of finding new references could be improved:* Cite-U-Like in its present form especially is useful for storing and maintaining a personal reference collection. The collaborative aspects of the software tool are less well developed at this moment and suggestions have been made to improve this function. In addition, the other potential function – finding new literature references – could be improved by changes to the tagging and browsing system.
- *Cite-U-Like has a large potential for scientists without a systematic method for maintaining and organising literature references; its potential for scientists, who have already developed a systematic method remains to be seen:* Clearly, based on the results of this user trial, Cite-U-Like has a large potential for scientists who do not have a systematic method at this moment of storing and maintaining literature references. The users in this trial, computer scientists, did not have such systematic methods and also use a relatively limited number of literature references (most respondents stored 10 to 20 literature references over a period of 3 to 4 months). It is known that scientists from other disciplines use much higher numbers of literature references (for instance medical scientists generally read or browse several hundreds articles per year). Scientists in these disciplines often do use programs like EndNote to organise their literature references. From this user trial obviously no conclusions about the potential of Cite-U-Like can be drawn for groups of scientists, who use already systematic methods of storing and maintaining personal references such as EndNote.
- *A role for the Amsterdam University library?* The Amsterdam University library could extend its services by co-developing academic social referencing software such as Cite-U-Like. An important advantage of such a co-development could be to reach out to the users within the University, who have no systematic method for finding and storing literature references and who often lack knowledge about the other services of the University library as well.