Social Software in Academia: Three Studies on Users' Acceptance of Web 2.0 Services

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ABSTRACT

This paper presents a summary of the results of three surveys, questioning different groups of users on their usage of social software tools in academic settings. The first survey addressed students across various disciplines, the second one addressed only students in information science and related disciplines, and the third one addressed researchers and university teachers across several disciplines. The different studies had slightly different foci (and thus did not comprise the same set of questions), but all considered aspects such of 'which Web 2.0 services are known?' and 'how are they used?' In this paper, the different survey results related to use of social software are summed up and compared.

Keywords

Social software, Web 2.0, user behavior, user study, survey, science 2.0, academia.

1. INTRODUCTION

With the success of various social software tools (likes wikis, social networking services, blogs, pod- and vodcasts, social bookmarking, microblogging or video and photo sharing sites) the World Wide Web has become a place of user participation and user interaction. The amount of user-generated content on the Web is rising and includes a variety of topics and different types of resources. This also means that handling the available information appropriately (in order to obtain the right content at the right time and to reduce information overload effects) is becoming even a greater challenge for Web users.

The ability to retrieve information and judge their quality and appropriateness is included in the concept of 'information literacy' [1]. Besides classical approaches to information literacy as provided mainly by libraries [14], new approaches focus on socio-technological skills [19] and consider sociological, ideological and technical contexts to support learning aptitude and communication skills. These approaches gain in importance in context of Web 2.0 research, leading to new paradigms [4] which have also been called 'information literacy 2.0' [6].

The technical innovations which are summed up under the terms 'Web 2.0' or 'social software' offer various new possibilities to train communication skills (e.g. writing blog posts, plan and produce vodcasts or edit and review wiki articles) as well as to organize information resources and improve information access (e.g. wikis for information management, social bookmarking tools for resource management or social tagging for document indexing). But to do so, novel competencies are needed in order to apply the respective tools appropriately. Approaches to include these aspects in efforts to teach and improve information literacy are still in their very beginnings.

The usefulness of social software has been pointed out for various contexts. They include academic settings with discussions on scientists' use of social software [21, 22] on one side and usage of social software for teaching, in classes and for students' daily work on the other side [13]. Libraries have started to integrate social dimensions to their services.

Main condition to use social software tools in academia is a basic understanding of the different services. To name just a few examples: Teachers familiar with the characteristic features of social software applications may for example use wikis for students' team work and course material or produce and distribute learning videos via social video platforms. Scientists could share bookmarks and references via social bookmarking systems, establish discipline specific wikis or join in scientific discussions via blogs. Students could make use of social networks for organizing study groups or share their knowledge via wikis. Certain social applications can also be useful knowledge resources for students and researchers: not only Wikipedia but also social bookmarking platforms or social communities like Slideshare and certain parts of YouTube.

In long term, we want to investigate the chances and challenges of social software in academic settings in more detail. In a first step, we started to identify *which* social software tools are known and used by students and academic staff – and to get some first indications on *how* they are utilized. In this context, we have so far conducted three distinct surveys. The first survey [10] addressed students across various disciplines (Survey A), the second one [3] addressed only students in information science and related disciplines (Survey B), and the third one [12] addressed researchers and university teachers (Survey C) across several disciplines. The different studies were carried out independently from each other; they had slightly different foci (and thus did not comprise the same set of questions). We are aware that options for direct comparisons are so far rather limited. The studies have been set up as first unstructured individual initiatives but may become the foundation for a broader coherent research project. The first and second study mainly focused on aspects of information

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literacy, particularly on students' information behavior in class-related research tasks. They considered single selected social software tools. The third study focused directly on scientists' and university teachers' acceptance and usage of certain social software applications.

This paper will first introduce the specific focus of each survey as well as the general terms of its conduction (section 3). It will then summarize the main findings of each survey and provide cross-references if applicable (section 4.1 to 4.3). The paper terminates with a short discussion and an outlook to future work (section 6).

2. RELATED WORK

The potential of online communication in general and of certain social software tools in particular for usage in academic settings have become a distinct area of research related to both computer science and social sciences (sometimes under headlines such as "science 2.0" or "scholarship 2.0"). Resulting for example in projects like "Use and Relevance of Web 2.0 for Researchers" [15] and conferences like ScienceOnline [17]. Some developers directly turn to an academic target group and create specific social software applications for science. Besides this, several studies focus on young peoples' information literacy or information behavior. They all demonstrate the Web's high influence in general (e.g. [9]), some include a more specific focus on information retrieval. Very comprehensive studies have been published by the CIBER Group, University College London UCL [20] (on information behavior of the "Google Generation"), and by the Online Computer Library Center OCLC [2] (on college students' behavior). Similar approaches can be found in [5], [16], and [8]. An overview on several studies is given by Moayeri [11].

3. DATA COLLECTION

All three distinct studies were carried out as online surveys (designed and published with Surveymonkey [18]), which were distributed via mailing lists or via direct e-mails to contact persons. All surveys have been published in German language. They all have origins in students' research projects and should be viewed as preliminary work to identify single important aspects and indicative results to determine directions for more intense qualitative follow-up studies.

3.1 Survey A: Students across Disciplines

Overall topic of this study [10] was students' information literacy and information behavior. It focused on aspects of popularity of certain research tools and information resources and on preferences of services for certain research tasks. Single social software services were included in the considerations. The survey comprised the following sets of questions: a) Eight questions concerning information retrieval – not only limited to digital information resources (e.g. "You need a definition of terms. Where would you try first?" – answers could be chosen without defaults and also resulted in statements such as "I ask a friend"). b) Three questions on electronic research tools (such as Web search engines, publication databases, electronic library catalogues): are these different tools known to participants and how often are they used for private and scientific information needs. c) Three questions on Web 2.0 usage: are tools like Wikipedia, social networking services or blogs known and have participants ever performed certain actions (like editing a Wikipedia page)? d) Five questions on information behavior, mainly concerning judgments on reliability of certain Web sources and plagiarism.

This online survey was accessible for six weeks in winter 2007/08. It was principally open to all students, but as it was mainly distributed via an internal mailing list at the Heinrich-Heine-University Düsseldorf (Germany), 95% of participants were students of this university. Altogether, 1043 students participated[1]. Of the total participants, 37% were male and 63% female. There were no limitations to certain fields of studies (disciplines included: 38% humanities, 29% science, 6% law, 5% social sciences, 5% medical disciplines, 3% economics, 14% other) and participants were at different stages during their curriculum (e.g. 24% in their first semester, 21% after their eighth semester; 79% of participants were aged between 19 and 27).

3.2 Survey B: Students in Information Science and Related Disciplines

This study [3] focused on aspects of information literacy for students in information science and related disciplines. The main question was how these students use certain information sources (many of them not related to Web 2.0 principles) as well as how certain aspects of information literacy are handled during the course of studies. While most of the survey results are mainly of interest for the German information science community, others are also relevant within this paper as they deal with the acceptance of Web 2.0 services among specialized students. Students in information science (as would for example also be the case for computer science) are intensely confronted with Web developments during their studies and are thus expected to accept new Web services quickly. Social software tools that were considered in this survey are Wikipedia, wikis in general, blogs, pod- and vodcasts, further Web services that were investigated are Google, other Web search engines and internet forums. The survey comprised the following sets of questions: a) One general question on the personal definition of 'information literacy'. b) Two questions on the usage of different online and offline research tools and information sources (like search engines, library catalogues, wikis, blogs) and one on the usage of advanced search options (like Boolean search, controlled vocabularies). c) Two questions on judging credibility and reliability of certain tools and information sources. d) Three questions on judging personal research strategies. e) Seven questions on the role of information literacy in the curriculum/ in the schools library, and three general questions on the contents of the curriculum.

The online survey was accessible for five weeks in summer 2009. 13 German, Austrian and Swiss schools that offer degree programs in information science, information management, library science or related disciplines were contacted directly via e-mail to invite the respective students to participate. 346 students[2]

[1] And usually 931 survey forms could be evaluated. Answers to single questions were not mandatory. Thus, all forms were utilized; also if not all questions were answered. This is the same for Survey B and C. Within this paper we will name the number of total answers for each question as 'n' in the caption of every figure.

[2] Compare footnote 1; 214 participants have completed all questions. Usually n is about 250, the respective values will be named for every figure.

from ten different universities or universities of applied sciences took part in this survey (132 of them study at the Cologne University of Applied science, 46 at University of Applied Sciences Chur, 44 at Heinrich-Heine-University Düsseldorf, 38 at University of Hildesheim, 35 at HTWK Leipzig, and 46 at other schools, 5 not specified). There were 64.5% female and 35.5% male participants, the average age was 25 (lowest 18, highest 54), and participants were in average in their sixth semester (lowest 1, highest 20).

3.3 Survey C: Academic Staff

Survey C directly addressed the question which social software tools are used by academic staff and for which purposes [12]. The survey covered the following sets of questions: a) Four general questions on definitions of the term 'Web 2.0' and one concerning general use of internet services. b) The main section of this survey concerned the following Web 2.0 applications: social networking sites (such as Facebook, Xing, MySpace or the German StudiVZ), video communities (e.g. YouTube), wikis (and Wikipedia in particular), social bookmarking services (e.g. Delicious), photo communities (e.g. Flickr), weblogs, Twitter, pod- and vodcasts, social tagging. For each of these social software types questioning was arranged as in the following general example: 1. Do you know *x*? 2. if yes: do you use *x*? 3. If yes: for which purposes do you use *x*? Do you use it as an active contributor or passive user? How important is *x* for your work? The survey closed with an open question on the personal perception of the usefulness of Web 2.0 services.

This online survey was accessible for five weeks in summer 2009. It was mainly promoted in personal e-mails among scientific staff of the Heinrich-Heine-University Düsseldorf[3] – but participants were encouraged to forward the survey to scientists in other institutions as well. Thus, 89% of participants were members of the University of Düsseldorf. The survey had 136 participants[4], among them 16 professors, 60 scientific assistants, 15 assistant lecturers, 20 student assistants, 13 PhD students, 8 other types of university staff and 4 not specified. The participants work in different research disciplines including linguistics, humanities, social sciences, law, science, life science and medicine, and computer science – whereas due to privacy issues almost 50% preferred not to name their research area.

4. RESULTS

In this section, we will present selected results from the single distinct surveys as far as they are relevant in context of this paper.

4.1 Selected Results from Survey A

This study showed that online search is a day-to-day activity of students. 98.8% of participants stated that they use the Web for course-related information retrieval.

4.1.1 Usage of Services

Figure 1 shows an overview on the popularity and usage of certain social software types. Notable is the high popularity of Wikipedia. Only one respondent declared not to know Wikipedia[5]. 95.2% stated they use Wikipedia. Also highly used and well known are social networking services (81.7% use them) and video, audio or photo communities like Flickr or YouTube (68.6% use them). Blogs, pod and vodcasts as well as Second Life are quite widely known but only little used (25.0% use blogs, vod- or podcasts, only 1.1% use Second Life). The awareness level of social bookmarking services, RSS feeds and question-answering portals (like Yahoo! Answers) is below 50%.

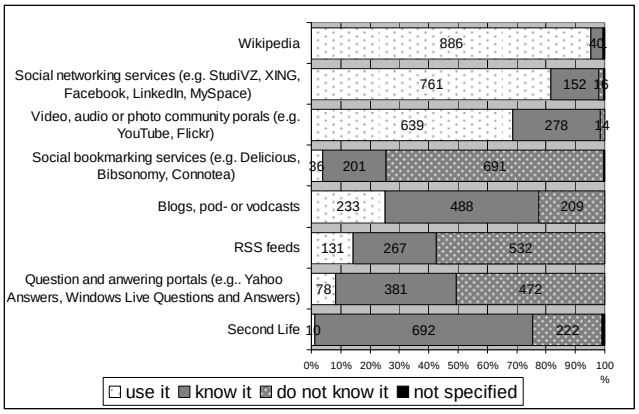

Figure 1. Survey A (n=931): Do you know/ use the following services?

Figure 2 illustrates how much students trust in certain information resources and search tools. 3.22% of participants rate Wikipedia as 'always trustworthy', but as much as 46.2% think it is 'mostly trustworthy'. Only 5.4% say that Wikipedia is 'not trustworthy' and only 3 participants said that they were not able to rate Wikipedia's trustworthiness. Ratings for Google are quite similar, while classical information sources (libraries, scientific books and publication databases) receive the best ratings. There is a certain skepticism about blogs, pod- and vodcasts as well as online communities and forums – which seems quite reasonable given that these types of resources can be of various origins. 35.7% did not want to comment on trustworthiness of blogs, vod- and podcasts at all. In a final comment box, many participants of this survey specified their view on current problems of using the Internet. One frequent comment was that it is getting harder to judge the quality of Web content. Some criticized that quality of certain content is not controlled and ensured – while others pointed out the advantage of community-based quality control in Web 2.0 services.

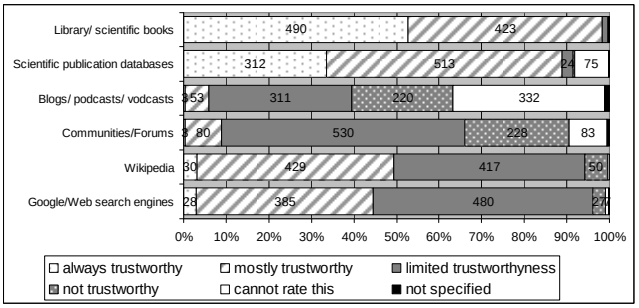

Figure 2. Survey A (n=929): How much do you trust the information retrieved via the following services?

[3] E-mail addresses were identified via the different departments' homepages and collected manually.

[4] Compare footnote one: n is usually about 114.

[5] The question in Figure 3 also included a 'do not know' option, here not a single participant checked this option for Wikipedia.

4.1.2 Wikipedia

As we have seen, 95.2% of participants use Wikipedia. A more specific question was whether certain tools are used for scientific research (in the sense of information retrieval for class-related purposes, term papers or theses): 'How often do you use the following services for scientific research?' with answer possibilities: 'always', 'often', 'rarely', 'never' and 'I do not know this service' (Figure 3). Here, Wikipedia and other wikis were considered in contrast to other traditional research tools and Google or other Web search engines. Only 7.6% of survey participants claimed that they never use Wikipedia for this purpose. 20.6% 'always' use Wikipedia for scientific research tasks (this is rank 4 behind Google with 35.6%, Libraries with 33.8% and online library catalogs with 29.9%), another 45.3% use it 'often'. Other wikis than Wikipedia are hardly used (12.9% do not know other wikis than Wikipedia). A comparison with the results for wikis and Web search engines in Survey B can be found below (Figure 6).

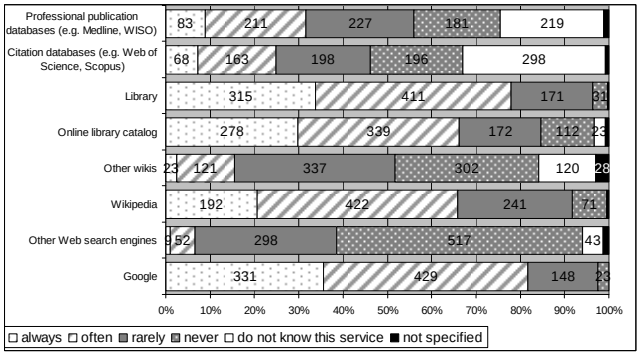

Figure 3. Survey A (n=931): How often do you use the following services for scientific research?

For the more specific search task 'You need a term's definition, where would you look for it?' (no predefined questions, multiple answers per participant) Wikipedia received the most nominations. 377 participants would directly access Wikipedia for this specific purpose, 302 named classical resources like lexicons or scientific literature, 256 referred unspecified to the 'Internet', 186 chose Google and 93 answers were other individual solutions (like 'ask a friend'). Furthermore, this survey revealed that 47% of participants have already experienced teachers prohibiting the use of Wikipedia during their course of studies. 25% of students said that they have quoted Wikipedia as a reference in a term paper or thesis.

4.1.3 User Activity

It was furthermore asked in this survey, whether participants had ever before carried out certain activities within single social software services (Wikipedia, blogs, pod- and vodcasts, YouTube, social tagging). The results can be found in Figure 4. In general, it can be seen that usage of theses services is rather passive than active. 18.8% have at least once written a blog post or published a pod- or vodcast and almost as many (18.7%) have at least once edited a Wikipedia article. No single participant did not know the editing functionality of Wikipedia, 2.3% do no know the version history pages of Wikipedia articles (and 48.2% have never looked at it) and 1.7% do not know the discussion pages (43.3% have never looked at it). Both version history and discussion pages of Wikipedia are useful tools for estimating the trustworthiness of a Wikipedia article and thus should be considered for quality judgments.

68.6% of participants said they use video, audio or photo community portals (Figure 1), and 11.3% have at least once uploaded content to Flickr or YouTube. Slightly more (12.8%) have ever tagged Web documents (e.g. on Flickr, Delicious or YouTube), but another 17.5% do not know the activity of tagging.

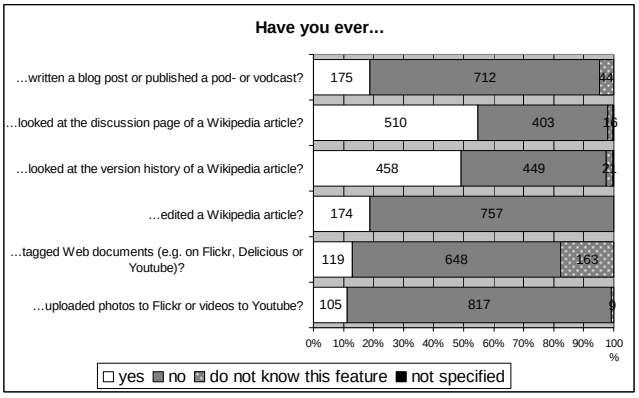

Figure 4. Survey A (n=931): Have you ever performed the following actions?

4.2 Selected Results from Survey B

Survey B in general provides insights to how students in information science, library science and related disciplines use certain research tools and how they judge their information literacy themselves. For our context, the most interesting results concern the role of wikis and Wikipedia, blogs, pod- and vodcasts in students' academic work. Our survey investigated the role of these tools in scientific work as well as a judgment on their trustworthiness. Due to the focus on general information behavior rather than on Web 2.0, we did not include other social software (such as networking sites or social bookmarking) in this survey.

4.2.1 Popularity and Usage of Services

Figure 5 provides the results for the question 'How often do you use the following services for scientific research?' (answer possibilities: 'always', 'often', 'rarely', 'never' and 'I do not know this service'). Here we have extracted the results for wikis and Wikipedia, blogs, pod- and vodcasts, internet forums, Google and other search engines and – in comparison – print and online books and scientific journals. Other services like internet catalogues and citation databases have been excluded from the current presentation.

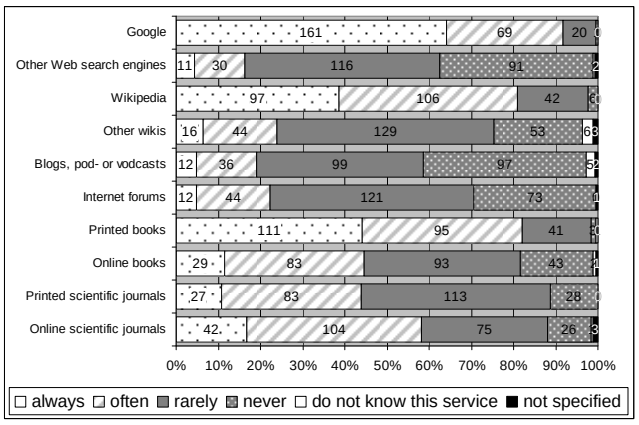

Figure 5. Survey B (n=251): How often do you use the following services for scientific research?

Figure 5 shows that Google as well as Wikipedia are intensively used during students' working processes. Not a single participant did not know Google and Wikipedia. Only one participant does never use Google for his study-related work, and only 6 do never use Wikipedia. Other search engines and other wikis are also known to these students (only 0.4% do not know other search engines than Google, 2.4% do not know other wikis besides Wikipedia). Yet, other search engines and other wikis are far less frequently used.

Figure 6 compares the values for using Wikipedia, wikis, Google and search engines for participants in Survey A and participants in Survey B. Two slight tendencies can be observed: students specialized in information science or related disciplines (Survey B) use all these tools more frequently than other students; and they have slightly higher values for knowing other wikis besides Wikipedia and other search engines besides Google.

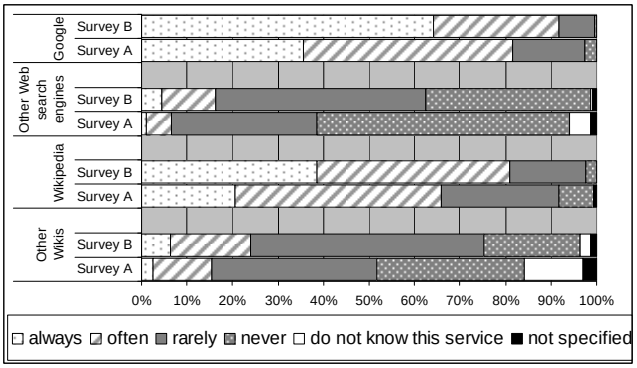

Figure 6. Survey A (n=931) and Survey B (n=221). How often do you use the following services for scientific research?

Participants were also asked to describe their research strategy when they have to face a new topic for a term paper or test (they could explain this in a simple text box). Those that mention Wikipedia in these comments basically agree in that they use Wikipedia in a very early stage of research, e.g. to get a first idea on the topic, clarify ambiguous definitions and to identify relevant search terms for queries in publication databases, library catalogs or Google. Some also explained that they use a Wikipedia article's reference and link section as main starting point for further browsing. Single comments indicate that Wikipedia is rather not used as an official reference in term papers or theses, but this question has not been investigated in more detail here.

4.2.2 Trust in Services

Figure 7 shows how much the Survey B participants trust in the different services (the same services as in Figure 5). Blogs, podcasts and vodcasts as well as internet forums receive very low ratings in trustworthiness. But trust in Wikipedia and Google still seems rather low compared to their high popularity. Only 0.8% judge the quality of Wikipedia as 'always trustworthy' and another 16.4% as 'mostly trustworthy'; for Google the respective values are 2.1% and 18.9%. Classical information sources like books and journals receive high quality ratings (with slight preferences to printed material). An interesting observation is that not a single participant admitted that he cannot estimate Wikipedia's quality.

Figure 8 compares trust in Wikipedia, search engines, internet forums and blogs, pod- and vodcasts for Survey A and Survey B participants.

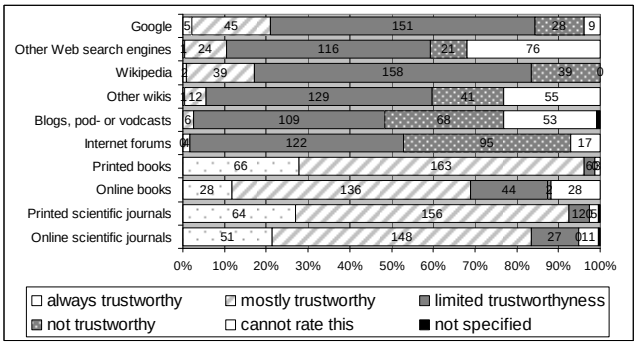

Figure 7. Survey B (n=238): How much do you trust the following services (concerning reliability, completeness, timeliness)?

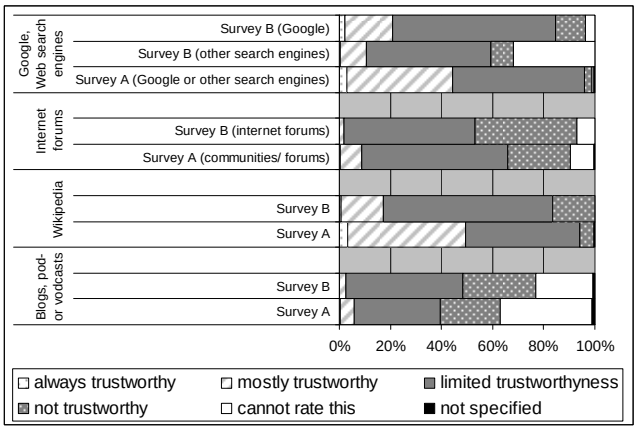

Figure 8. Survey A (n=929) and Survey B (n=238). How much do you trust the following services (concerning reliability, completeness, timeliness)?

Furthermore, we asked whether (and how well) the use of these services has been discussed in students' classes (i.e. whether information on its appropriate usage is part of the respective curriculum). Figure 9 shows that Google receives most attention, followed by Wikipedia.

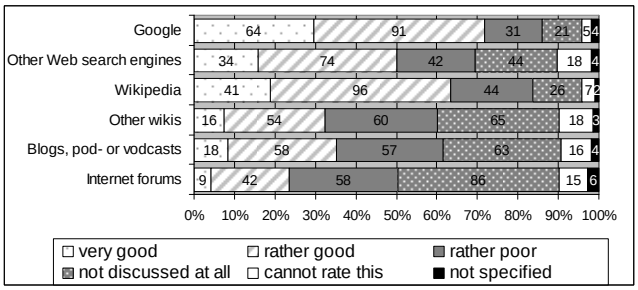

Figure 9. Survey B (n=216): How good is the discussion on appropriate use of these services in students' classes?

4.3 Selected Results from Survey C

Survey C offers a first glance at researchers' and university teachers' use of social software. The entire survey was focused on this topic and is thus of relevance for this paper.

Three quarters of participants of Survey C are familiar with the term 'Web 2.0' (Question: Do you know the term 'Web 2.0': 76% 'yes', 24% 'no' with n=133). In comparison, for the students in Survey A, confronted with the same question, the answer 'yes'

received 57% and 'no' 43%. Survey C participants were furthermore asked to name some services which they associate with 'Web 2.0'; 58% of those who stated to know the term also named some exemplary services, most frequent answers included – in random order – 'facebook', 'wikipedia', 'youtube', 'twitter', 'myspace', 'blogs', 'wikis', 'studivz', 'flickr', 'delicious', 'xing'. And they were asked to provide their own definition. The short definitions or explanations mainly included key phrases such as 'interaction of users', 'user-generated content', 'social networks', or 'communities".

97.4% of participants in Survey C stated that they use the Internet on a 'daily' basis (0.9% 'two or three times a week', 0.9% 'once a week', 0.1% 'sporadically'; n=114).

4.3.1 Popularity and Usage of Services

The main section of this survey investigated how widely certain social software tools are known and whether and how they are used. The services considered in this survey were social networking services, video communities, wikis and Wikipedia, social bookmarking services, photo communities, weblogs, Twitter, pod- and vodcasts, and social tagging.

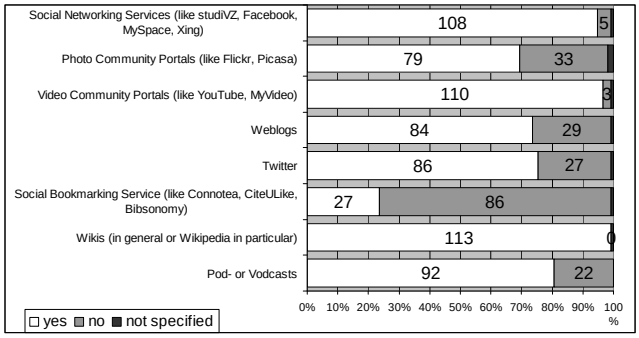

Figure 10. Survey C (n=114). Do you know the following services?

Figure 10 aggregates the answers to the different questions for single services, which all had the form 'do you know service x?' with choices 'yes' or 'no'. It shows that wikis (or particularly Wikipedia, see section 4.3.3) are known to all participants in this survey. But video communities (96.5%) and social networking services (94.7%) also have a very high degree of popularity. Less known are social bookmarking services (23.7%).

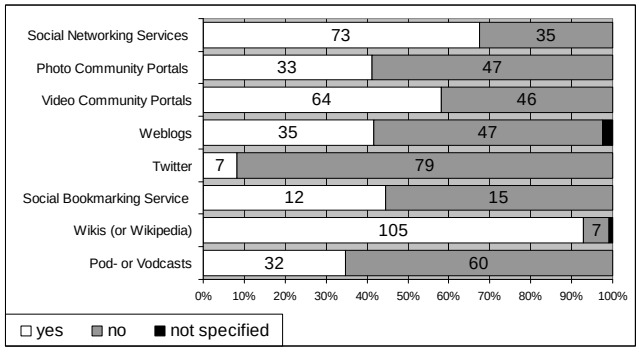

Figure 11. Survey C (n for each row depends on the answers in Figure 10): Do you use the following services?

In a next step, only those participants who said that they *know* a particular service were asked whether they also *use* this service. The aggregated answers for these set of questions can be found in Figure 11. Again, wikis (or Wikipedia) receive the best results: 92.1% of those who know these tools also said that they use them.

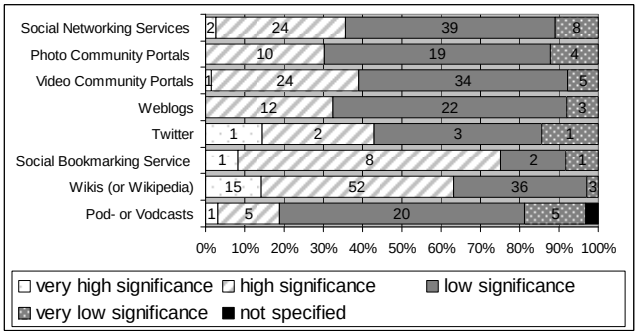

Figure 12. Survey C (n for each row depends on the answers in Figure 10): What significance do these tools have for your daily routine?

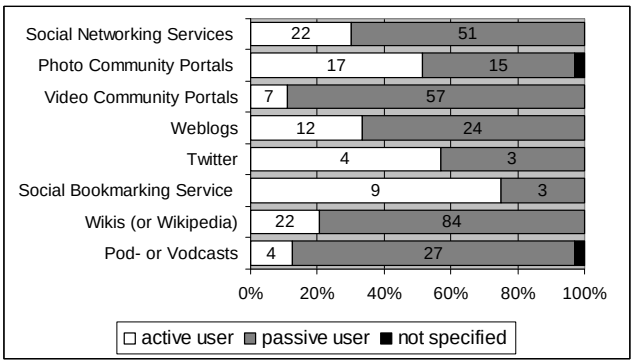

Figure 13. Survey C (n for each row depends on the answers in Figure 10): Are you an active or passive user?

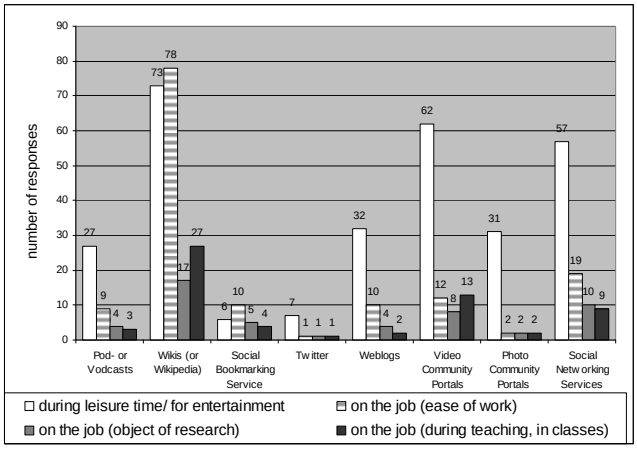

Figure 14. Survey C (n depends on the answers in Figure 8): In which context / for which purpose do you use these services? (Main categories only)

Those that *use* a certain service where asked additional questions. Figure 12 shows the results for the next question: What significance does a service have for the users' daily routine? Participants could chose the following answers: 'very high significance – I cannot imagine my daily routine without this service', 'high significance – I often use this service', 'low significance – I rarely use this service', and 'very low – I would not need this service'. Most importance is granted to social bookmarking services (75.0% 'high' or 'very high' significance).

This also correlates with the answers for the next question (Figure 13): Are participants active or passive users of the different services (whereas the 'activity' was defined with examples in the questions for each service). Social bookmarking tools register the highest percentage of active users (75.0%).

Figure 14 furthermore shows for which purposes the single services are used. It only includes the main categories which have been provided as options for every type of tool, there were sometimes additional purposes to chose which will be mentioned in the respective subsections below. Participants could also fill in a comment box to explain their motivations for using a certain tool.

4.3.2 Social Networking Services

73 participants use at least one social networking service, this are 53.7% of all participants and 67.6% of those that answered they know social networking services (Figure 10). Users of social networks were asked whether they use it rather actively (i.e. they contribute their own contents, e.g. photos or comments) or rather passively (i.e. they merely look at activities of other users). 30.1% claimed to be active users, 69.1% are rather passive users (Figure 13). In addition, more than half of them said that social networking had low (53.4%) or very low significance (11.0%) for them (Figure 12).

Those that use social networking services do this for the following purposes (multiple responses per user, Figure 14): 78.1% use them in their leisure time, 26.0% use it on their job as a supportive tool for ease of work, 13.7% conduct research about social networking services, 12.3% use it for teaching or during classes. Additional answers were: 46.6% use it as a better communication channel, 42.6% for better networking. Some of those that do not use social networking noted in the comment box that they had difficulties in handling the respective applications or that it requires to much time to get used to them or to use them regularly.

4.3.3 Wikis and Wikipedia

The questions on whether participants know and use wikis have been subdivided to capture Wikipedia as the most prominent wiki. For answering 'Do you *know* wikis?" participants could chose 'no' (0%), 'yes, Wikipedia' (38.1%) or 'yes, Wikipedia and others' (61.9%). Respectively, the answers to 'Do you *use* wikis?' were 'no' (6.3%), 'yes, Wikipedia' (49.1%) or 'yes, Wikipedia and others' (44.6%). In Figure 10 and Figure 11 we have summed up both types of 'yes'-answers. Furthermore we provided additional choices for the purposes of using wikis (in addition to main categories in Figure 14): of those participants who use wikis or Wikipedia 78.3% stated to use 'Wikipedia as a work of reference', 17.0% use wikis for 'knowledge organization within working groups' and 22.6% for 'personal knowledge management', 4.7% claimed to use wikis for collaborative editing of publications and finally 30.2% use Wikipedia for 'checking students' texts for plagiarism' (another 1.9% 'other purposes').

In a comment box, participants could furthermore explain the role of wikis for their daily work (46 participants made use of this comment box). Very similarly to the comments from students in Survey B, many of the academic staff in this survey explained that they use Wikipedia in a very early stage of research to prepare for detailed search queries in other resources. Yet, some of the comments were also rather critical, indicating that users do not trust in Wikipedia or are skeptical about the validity (but as this survey did not – like Survey A and Survey B – include a section on quality judgments of services, we cannot compare this dimension). One participant criticized the use of Wikipedia as a reference in students' term papers. Another reported that he had made it a task during his classes that students should improve Wikipedia articles.

4.3.4 Social Bookmarking, Photo- and Video Communities, Blogs, Pod- and Vodcasts, Twitter

Social bookmarking tools are only known to 23.7% (Figure 10) and only used by 10.5% of all participants (44.4% of those that know them also use social bookmarking tools, Figure 11). But as we have already mentioned, those that use them do rather rate them as important and they do use them rather actively. 83.3% of users do use them for their work/ on the job. Specific purposes were personal information management (50% of users) and information management in working groups (16.7% of users). Twitter is widely known (75.4%, Figure 10), but least used of all tools (6.1% of total participants, 8.1% of those that know Twitter). But besides social bookmarking it is the only tool with more active than passive users.

Photo or video communities, blogs, pod- and vodcasts are mainly used for private purposes during leisure time – only in exceptional cases are they used for research or teaching activities (Figure 14). Within the comment box, one user explained that he uses Flickr as a source for historical research as it provides photos on contemporary European history.

4.3.5 Social Tagging

Another question in this survey was, whether participants know social tagging applications. This received the following results (n=112): 50.0% said that they do not know 'tagging' (in comparison: 17.5% of Survey A do not know tagging), 31.3% answered that they are aware of social tagging but have never used it, 16.1% claimed to have tagged content before, 2.7% said they tag their documents frequently, and no one answered to tag on a regular basis. Answers in a free comment box showed, that some participants are generally skeptical towards user-generated tags and uncontrolled keywords. Others argued that tagging is a time-consuming task which is only useful if carried out regularly and consequently.

5. CONCLUSION & OUTLOOK

Wikipedia is the Web 2.0 application that currently plays the most important role for academic life. It is comprehensively known both to students and academic staff and has caught up with the popularity of Google. Furthermore, it is highly used in academic contexts, students and teachers/researchers use it as an information resource. But this usage is rather of passive nature. Only less than one fifth of students in Survey A have ever edited a Wiki page and 21% of academic wiki users in Survey C describe themselves as passive users.

Other Web 2.0 achievements seem to play a minor role in academic work. Those services which serve entertainment purposes (like social networking, YouTube or Flickr) are widely known to students. Academic staff participants furthermore had a considerable awareness for weblogs, vod- or podcasts, and Twitter. But they mainly use these tools in their leisure time and none of the services is of high or very high significance for more than 50% of those who use these tools. Social bookmarking services and social tagging are not very widely known.

This leaves much room for new approaches of introducing tools that support research and teaching activities.

Altogether, we suggest that social software should be integrated into the academic education. A broader awareness and also new competencies and skills are needed to tap the full potential of Web 2.0 tools for information retrieval, knowledge management, knowledge exchange and online collaboration. Quality judgment of different types of online services should be discussed in classes to foster information literacy.

Additional and standardized surveys will be needed for future work on this topic – supported by qualitative follow-up studies. Our surveys have only touched the surface of Web 2.0 services. A lot more types of social software and particular applications (e.g. Wikiversity, Nature Networks or Slideshare) should be included in upcoming considerations. Detailed interviews may be necessary to capture aspects such as: Do users (both student and teachers/researchers) perceive the tools' potentials for their academic life? Do they recognize certain problems and challenges in connection with social software? Why are some tools not applied in practical settings and which benefits could they actually provide for academic work scenarios? Guidelines should be set up to explain the individual advantages and shortcomings of social software tools and to provide guidance for their appropriate usage.

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