WIKIPEDIA IN HIGHER EDUCATION: AN EMPIRICAL STUDY ON FACULTY PERCEPTIONS AND PRACTICES

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Abstract

Despite the initial sceptical attitude of university faculty towards Wikipedia as a source of reliable information – mainly because of its unclear authorship – an increasing number of teaching experiences using Wikipedia have begun to appear at different universities around the world. These experiences show, in most cases, very satisfactory results and a substantial improvement in various basic skills, as well as a positive influence on the students' motivation.

We are undertaking a research project in order to systematically analyze, using a comprehensive empirical study, the perception and attitudes of university faculty from different scholarly areas towards Wikipedia. The study aims (a) to investigate relationships between these perceptions and several faculty characteristics and (b) to establish the extent to which the sceptical attitudes are related to disciplinary or generational factors on the one hand, or to an implicit conflict between the standard scientific or academic epistemological stands and the specific peer-to-peer culture of Wikipedia (as a paradigmatic example of content production in a collaborative open network), on the other.

Different studies have explored and documented how a vast majority of university students use Wikipedia very frequently and for different tasks. However, studies on faculty members are scarce and often based on a very limited empirical scope. We have launched an online survey to all faculty members of the Universitat Oberta de Catalunya.

The questionnaire was designed to measure different constructs: mainly perceived quality of Wikipedia, teaching practices involving Wikipedia, usage experience, perceived usefulness and use of 2.0 tools. Control items were also included for gathering information on gender, age, teaching experience, academic rank, area of expertise, etc.

This work presents and discusses the main preliminary results obtained by the survey. Though most faculty members have got a positive view on the teaching usefulness of Wikipedia, few of them engage in actual teaching uses. Passive use is much more frequent than active and contributory practices are scarce. Nevertheless the proportion of registered users is big and the quality of Wikipedia contents is mostly positively judged. Our analysis also deals with other institutional, professional and individual factors affecting attitudes and practices on Wikipedia.

Keywords: Wikipedia, higher education, faculty perceptions, online collaborative environments, open educational resources

1 WIKIPEDIA AS AN OPEN EDUCATIONAL RESOURCE

The greatest impact the Internet has had on university education is the vast availability of open educational contents - course materials, study guides, collections of exercises, etc. - accessible on the network for everyone and for free. This phenomenon has its roots in what has been called the Open Educational Resources movement, which began in 2001 with the creation of the initiative OpenCourseWare (OCW) at MIT (Massachusetts Institute of Technology).

MIT's initiative has spurred many universities everywhere to start similar projects and thus contribute to the international movement of open educational resources. But in recent years, the emergence of the so-called Web 2.0 has opened up a wide range of new possibilities for the network, hitherto unsuspected directions, which may also end up influencing decisively in learning processes. Among other effects, Web 2.0 initiatives have blurred the traditional boundary between producers and consumers of information.

Wikipedia represents precisely the junction where these two trends converge. On the one side it is a gigantic open repository of knowledge and information - with great potential for use in learning processes at all levels of education - and on the other side, it has become a prime example of collective construction of knowledge, through a virtual platform that facilitates collaboration on an unprecedented scale.

This paper is structured as follows: Section 2 describes previous studies involving the use of Wikipedia in higher education, highlighting the main perceptions and attitudes of faculty. In Section 3 we present our research goals and the methods used for gathering and analyzing data from faculty perceptions and attitudes. In Section 4 we review the most important findings categorizing them according to the goals described in the previous section. Finally, Section 5 summarizes the most important preliminary conclusions that can be drawn from this study and outlines current and future research lines in this topic.

2   WIKIPEDIA IN HIGHER EDUCATION

Wikipedia is currently the most important website for general consultation and is contributing positively to learning processes, both inside and outside academia. In the university context, in fact, is one of the most employed resources by students who use it regularly as a reference tool and to carry out different assignments and tasks (see [6, 12]). This is due not only to the quality of many of his articles, but to the easy access to its contents, the hypertext structure that facilitates navigation and the abundance of references and sources, according to [1, 13]. Based on a representative online survey among 4,400 students from German universities – return rate 40% - Wannemacher and Schulenburg [14] found that 80% of them use Wikipedia on a regular basis and 60% use it frequently or very frequently.

But despite students' broad and intensive use, the attitude of university faculty does not seem so positive. In general, academics perceive Wikipedia with scepticism. It is known that many academics believe, for example, it is illegitimate to cite Wikipedia as a source, because their articles do not have a clear and identifiable authorship, and therefore it is difficult to verify their content [11]. Unfortunately, empirical studies on faculty perceptions and uses of Wikipedia in learning environments are few and quite limited in scope.

Based on a survey to 14 university instructors, the authors in [2] identified both educational benefits and major barriers of using 2.0 tools. Among benefits they mention fostering of interaction, communication and collaboration among students, improving of writing and technological skills, the ease of use and flexibility and a new role for teachers as facilitators of learning rather than distributors of knowledge. The major barriers are a perceived uneasiness with openness among some students, the lack of institutional technical support for faculty and the time needed to learn and manage new tools.

Dooley (see [9]) notes that faculty negative attitude towards Wikipedia is usually based on a perception of inaccuracy in its content and also on its potential for discouraging students from using other more reliable sources of information. Her survey - with 105 respondents- shows that only 7% use Wikipedia frequently for teaching or research tasks. In a similar vein, another study [7] identifies credibility as university faculty main concern on Wikipedia and highlights academic disciplines as a key factor in explaining attitudes towards Wikipedia. This study also shows that age correlates with more negatives views and that faculty who frequently use other online resources are more sceptical on Wikipedia.

In a qualitative study based on five interviews (see [3]), the author proposes two main causes of the cautionary and cynical attitude towards Wikipedia: first, the lack of knowledge and poor understating of Wikipedia editing processes and policies by academics and second, a negative attitude toward collaborative knowledge production when occurring outside academia. Along the same line, Knight and Pryke [12] after a survey to 133 faculty state that the main reasons for academics to distrust Wikipedia is its obvious departure from "conventional models of scholarship". They mention the no-need of accreditation for contributors, the possibility of anonymous editing, the absence of formal pre-publication peer review, and the blurred authorship of entries. Most faculty members tend to favour a

'low-stakes' use by students – as initial scoping of an issue - over more high-stakes – as citing facts or as serious source of knowledge and references.

Other possible explanations of the negative attitude towards Wikipedia have to do with its particular way to produce and assess knowledge content – a paradigmatic instance of so-called *commons-based peer production* [4]. Beyond specific accuracy and credibility concerns, a more fundamental conflict on epistemological and power grounds is detected by several authors (see [5,8,10]). Based on a survey with 99 respondents Eijkman's study [10] shows that a majority of academics show "a blend of relatively cautious acceptance and/or gentle discouragement" towards Wikipedia. Surprisingly the study finds a slight negative correlation between knowledge of Wikipedia and favourable views of it, and a that 'soft-science' academics – allegedly more prone to a social constructivist view of knowledge – show a more negative attitude than their 'hard-science' fellows. His main point is nevertheless that Wikipedia has become for faculty members a symbol of opposition to the traditional power-knowledge arrangements in academia.

3 AIMS AND RESEARCH DESIGN

We are undertaking a research project[1] in order to systematically analyze, using a comprehensive empirical study, the perception and attitudes of university faculty from different scholarly areas towards Wikipedia. The study aims to investigate relationships between these perceptions and several faculty characteristics to establish the extent to which the sceptical attitudes are related to disciplinary or generational factors on the one hand, or to an implicit conflict between the standard scientific or academic epistemological stands and the specific peer-to-peer culture of Wikipedia (as a paradigmatic example of content production in a collaborative open network), on the other.

The Universitat Oberta de Catalunya[2] (UOC), launched in 1994, is a pure virtual online university physically located in Barcelona. Its mission is to provide people with official university training throughout their lives. The university's principal aim is to ensure that each student satisfies his/her learning needs in a virtual environment, gaining the maximum benefit from their own efforts. To this end, it offers intensive use of information technologies, thereby enabling us to overcome the barriers imposed by time and space for offering an educational model based on personalized attention for each individual student. Currently now, the university is providing higher and continuous education to more than 60,000 students, by means of a hierarchical structure composed of (approximately) 250 full-time teachers and almost 2,000 part-time associate teachers – some of them also teaching in other non-virtual universities, all of them being considered as faculty members. As a pioneering university, UOC provides all community members with a Virtual Campus where all teaching activities are carried on, including the use of web 2.0 tools such as blogs or wikis, among others. As its name implies (Oberta means Open in English), the use of open and collaborative environments for teaching purposes is encouraged. As the central part of this study, we have launched an online survey to all faculty members of the Universitat Oberta de Catalunya in order to know perceptions, attitudes and real usage of an open collaborative environment such as Wikipedia.

As shown in Table 1, from a universe of 2,128 individuals we got 800 valid responses. For a confidence level of 95%, and the assumption of maximum uncertainty ($p = q = 0.5$), the margin of error is 2.74%. The questionnaire was designed to measure different factors, mainly: perceived quality of Wikipedia, teaching practices involving Wikipedia, usage experience, perceived usefulness and use of 2.0 tools. Control items were also included for characterization purposes.

The questionnaire was organized in two parts. The first part aimed at collecting data on: gender, age, area of expertise, PhD degree, years of experience in university teaching, academic rank and Wikipedia registered membership.

The second part, with 41 questions, aimed at gathering information on the different aspects that can affect the (teaching) use of Wikipedia in higher education. These questions had to be answered via a 5-point Likert scale. Depending on the nature of the questions, this scale referred to the level of

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[1] http://oer.uoc.edu/wiki4HE/about/

[2] http://www.uoc.edu

agreement or disagreement with a statement (1="Strongly disagree" and 5="Strongly agree") or to the frequency of certain actions (1="Never" and 5="Very often").

Table 1. Technical information on the questionnaire

Study universe	**Faculty members of the Open University of Catalonia**
Study universe size	**2,128**
Method	**Online survey sent to the universe, with no quota groups**
Sample size	**800**
Sampling error	**±2.74% for overall data in the case of maximum uncertainty (p=q=0.5). Confidence level 95%.**
Resulting sample	**Not weighted**
Date of launching	**November 19th, 2012**
Data collection	**From November 19th to December 3th, 2012**

In order to design the final version of the questionnaire an exploratory qualitative study was carried out involving twelve interviews to faculty members – selecting two from each of the six main schools at our university. Comments and suggestions were collected this way and helped to improve the survey until it reached its final form. These interviews were conducted between October 12th and 16th 2012.

4   FINDINGS

In this section we are presenting and discussing some of the main preliminary results obtained by analyzing the data gathered in the survey.

4.1. Perceived usefulness

Three questions in the survey were designed to measure the perceive usefulness of Wikipedia as a teaching tool. 46% of respondents agree[3] that Wikipedia is useful for teaching, while only 20% disagree. When asked for particular benefits the answers are a bit less positive: 36% agree it fosters new skills for students, while 29% disagree, and 36% think it improves students' learning while 27% do not think so.

There is a sharp contrast between the perception of teaching utility – rather positive – and the actual teaching practices of faculty members. A vast majority of faculty has never or seldom used Wikipedia for teaching assignments (75%). Only about 9% say they use it frequently or very frequently for that purpose. Wikipedia is a little bit more used for developing teaching materials: the percentage of faculty who never or seldom use it is about 68% while frequent users rise to 11%.

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[3] When we just mention agreement or disagreement, we consider values 4 and 5 for "agree" and values 1 and 2 for "disagree". The remaining percentage corresponds to the middle option (value 3).

4.2. Recommending and citing Wikipedia

We have also asked faculty about their willingness to recommend students to consult Wikipedia. Almost half of the respondents (46%) never or seldom do, while about 26% do it frequently or very frequently. They are even less eager to recommend Wikipedia to their own colleagues – only 22% do it frequently. Nevertheless most of them (45%) do not see any problem in students using Wikipedia and about 23% do not feel comfortable about it.

When asked about citing Wikipedia in their academic works, faculty show a clear negative position. The biggest rate is for those that never do it (41.7%) and also many seldom do it (25.8%). Only a very small amount do it very frequently (3.5%) or frequently (9.3%).

4.3. Perceived ease of use and quality

We have also explored the perceived ease of use of Wikipedia. As expected a vast majority of faculty members think Wikipedia is easy or very easy to use (86%) and most of them also think it is rather straightforward to find the information they look for. But while this passive use for consulting shows no usability problem, active use involving editing – providing new content or modifying existing one – is perceived rather differently. About 43% disagree editing Wikipedia is easy while 42% agree. Since, as we will see later on, few of them actually contribute to Wikipedia and we may assume the number of faculty who have ever tried to edit it is not much bigger, we have to take these figures cautiously.

Four questions in the survey were designed to measure how quality of Wikipedia is perceived by academics. Three of them were specifically addressed to the quality assessment of articles. We first asked about reliability: 21.4% of respondents agree information contained in Wikipedia articles is reliable, 37.2% do not agree and 41.4% takes the option in between – answers are thus leaning towards a negative view. Secondly we asked if information was updated and got answers substantially more negative: only 14% think it is, 47% think it is not and 39% choose the medium value. Thirdly there was a question on how comprehensive articles are: this was the feature more positively assessed and the only one where positive answers outnumber negative ones. Specifically, 30% agree or strongly agree articles are comprehensive, 26.2% disagree or strongly disagree and the rest – 43.8% - takes the medium value.

There was also a question about the editing and reviewing system in Wikipedia. Here 30.7% of respondents say they trust the system and 27.5% declare they don't, while the greatest number is for those not taking clear sides (42%). It is worth noting that those who strongly disagree (about trusting the system), 6.6%, are more than those we strongly agree, 4.7%. Since the percentage of respondents who choose the medium answer is very big we may think they do not know very well the actual editing system of Wikipedia and the way the peer-review process works; this can explain their lack of clear opinion. This conclusion is consistent both with the results of the qualitative interviews in our exploratory study and with the low percentage of faculty members really contributing content in Wikipedia.

4.4. Active and passive uses

Another set of questions in the survey was devoted to tackle the previous user experience with Wikipedia. We wanted to explore both active (editing and contributing) and passive uses of Wikipedia (consulting).

Passive use was decomposed in three questions: consulting Wikipedia (1) for topics related to their own field of expertise, (2) for other academic fields and (3) for personal matters. Here a decreasing pattern is found that goes down from personal matters – the most consulted area – to the own field of expertise – the least. In personal matters more than 60% of respondents declare they visit Wikipedia frequently or very frequently. A majority of faculty – 57% - also use Wikipedia in searching for information about other academic matters, though only 37% uses for their own field of expertise and a similar percentage, 38%, say they never or seldom do.

Active use (contributing to Wikipedia), as expected, is scarce. In fact, from all frequency questions in the survey, it shows the biggest rate of 'never' answers: 63.8%. Taking together, the 'never' and 'seldom' answers amount to 84% and only 5.5% of respondents say they frequently contribute to Wikipedia.

4.5. The social image of Wikipedia within academia

An important set of questions addressed the issue of the social image of Wikipedia within the academic culture. First, a clear majority of faculty members think the use of Wikipedia is not well considered by their colleagues (52.5%) while only 13.7% think it is. We also explored faculty perception of their colleagues' actual use of Wikipedia, in order to contrast it with the previous item. Though most respondents do not take a clear side (40.4% choosing the middle option), those that think colleagues do not use it much (34.4%) outnumber those who think they do (25.3%).

Nevertheless, when asked if the open sharing of teaching resources is welcome in academic culture most of them agree (45.3%) and only 23.5% disagree. It is worth noting that the use of Wikipedia is then seen as less socially accepted (within academic culture at least) than other open educational resources.

4.6. Sharing attitude and web 2.0

We have also included in the survey three more questions regarding what we call "sharing and collaborative attitude". First we asked faculty to rate the importance of openly sharing academic content in the web. A vast majority agree this is important (81%) while only a few think it is not (3.5%). We also inquired if they think it is important to publish research results also in other media and not only in academic journals. A similar, though a bit smaller, clear majority also gave positive answers (77.4%). Finally, we added a third question on this section to know how important they considered for students to become familiar to collaborative environments in the Internet. From these three items this was the one getting the largest agreement: 86.2% agree or strongly agree with that.

Three further questions were included in order to evaluate the degree of use of web 2.0 tools. First we asked about contributing to blogs. Only 20.2% of faculty declare they contribute frequently to blogs and a broad majority do it never (35.6%) or seldom (25%). A similar negative answer was obtained when asked about publishing academic content in open environments: 28.6% never do it and 22.4% only do it seldom, while 8.4% do it very frequently and 16.6% frequently. The third question inquired about active participation in social networks. Here, though the percentage of non-users and low users was significantly smaller (17.5% and 24.5%), frequent users were still a minority (23.5%).

4.7. Institutional context and possible incentives

A last section in the survey was devoted to the topic of institutional support and possible incentives to use open environments in teaching and Wikipedia as a teaching tool. Institutional support does not seem to be a real concern, since more than 60% of faculty think their own university promotes the use of such open environments. Only 14% does not agree with the statement. We also inquired about the extent to which their university considers the use of those environments as a teaching merit. Answers on this issue were clearly less positive (agreement was declared by 41% and disagreement by 27.5%), though they still outnumber the negative view.

Possible incentives were also explored by asking the extent to which four specific factors would help them to design educational activities using Wikipedia. The four factor were (1) having a catalog of best practices, (2) having colleagues explaining their own experiences, (3) receiving specific training, and (4) getting more institutional recognition. The factor getting the best assessment was the catalog presenting good practices: 66% agree or strongly agree with the statement. The second one was "obtaining greater institutional recognition": with 53% showing their agreement. Explanations by colleagues was third with a very similar distribution of answers - agreement by 52.6% - and the less valued was specific training – though still a majority of faculty declared their agreement (51%).

5   DISCUSSION

There are a number of more general conclusions to be drawn from the preliminary analysis of our survey. First, there is a sharp contrast between the positive perceptions most faculty show of

Wikipedia and other web 2.0 tools as useful teaching resources, and the very limited use they actually made of them for educational purposes. Only a very short minority of faculty report using Wikipedia or Wikis in their teaching tasks.

When considering their level of use of Wikipedia both for professional and personal matters but without focusing specifically on teaching activities, faculty members show a similar behaviour to that reported from empirical studies on university students. Most of them are regular users of Wikipedia. In fact, our control data show that a relatively high percentage of them (13.5%) are even registered users of Wikipedia (far beyond the average population rate in Catalonia). As expected, those registered tend to use Wikipedia as a teaching tool with greater frequency.

Nevertheless a certain conflict is found between standard academic procedures of knowledge building and the open collaborative model of peer production on which Wikipedia rests. This is consistent with some of the previous literature we have discussed [5, 8, 10] and it is supported by different findings in our survey. First their overall assessment of quality of Wikipedia content is much higher than their appreciation of the editing and reviewing system of Wikipedia, which is regarded with distrust. Secondly, private instances of use – whether professional or personal – are not matched by public uses. On one side most faculty are definitely not prone to accept students quoting or citing Wikipedia in their assignments, nor do they see as legitimate citing or making references to Wikipedia in their own research or teaching works. While using it in the private sphere, most faculty think Wikipedia is not well considered by their colleagues as a respectable source of information. Although they find it useful and rich, they do not tend to recommend its use to students and even less to their colleagues.

In fact colleagues seem to act as strong role models for most faculty members on this issue, whereas the institutional context – their own university policies and culture – seems less important. Consistently with that, belonging to a specific area of expertise seems to be more decisive than formal institutional affiliation. As some of the past literature does, our study finds that faculty from hard sciences show a more positive assessment and use of Wikipedia than their soft sciences colleagues.

This work has presented and discussed the main preliminary results obtained by our survey. Though most faculty members have got a positive view on the teaching usefulness of Wikipedia, few of them engage in actual teaching practices with it. Passive use is much more frequent than active use and contributory practices are scarce. Nevertheless the proportion of registered users is big and the quality of Wikipedia contents is mostly positively judged. We are currently exploring the extent to which institutional, professional and individual factors affect the attitudes and teaching practices of faculty members.

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