Academics' Views On and Uses of Wikipedia

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Abstract. Web 2.0 technologies bring both opportunities and challenges to our formalization of collective knowledge and its use. The collective generation of knowledge without the control of a central authority has raised discussions in academia over the validity and the reliability of the knowledge generated. An online encyclopedia, Wikipedia, is central to some of these discussions. In this paper, I discuss academics' views on and uses of Wikipedia as an academic source. A semi-structured interview protocol was used to collect data from a purposively selected group of graduate students and university faculty. Results revealed that participants have a positive attitude towards Wikipedia's use for nonacademic purposes however they believe that use of Wikipedia for research and coursework should be limited. Participants' views on and uses of Wikipedia mirror the opportunities and challenges Web 2.0 technologies present and provide an ongoing discussion for further enhancement of collective knowledge generation tools.

Keywords: wikis, Wikipedia, Web 2.0, online learning, online encyclopedias, collective knowledge generation, reliability

1 Purpose

The purpose of this study is to explore academics' views on and use of "Wikipedia" as an academic resource. The main research question guiding this investigation is "How do academics approach Wikipedia as a resource in their courses and research?"

2 Introduction

Developments in communication technologies have yielded to innovative modes of interactions ranging from basic chat rooms to Wiki tools. While the first generation of web technologies aimed at distributing content, the second generation web technologies (Web 2.0) made it easier to collectively generate and share knowledge. The potential implications of these technologies bring both opportunities and challenges to traditional instructional practices.

Web 2.0 technologies, for example, weblogs, wikis, and social networking tools, brought innovation in the way collective knowledge is formed and shared. Before the emergence of the Web 2.0 technologies, the Internet was mostly used to distribute centralized information. After the Web 2.0 technologies, the consumers of knowledge became the generators at the same time.

Even though the Web 2.0 technologies extensively changed our utilization of the Internet, academia has a more conservative attitude towards adapting these technologies. The collective

generation of knowledge without the control of a central authority raises discussions over the validity and the reliability of the knowledge generated. The online encyclopedia Wikipedia is central to some of these discussions.

2.1 Wikipedia

Wikipedia offers articles collectively generated by millions of users in an extensive variety of subjects. It provides users with a non-traditional environment for sharing information and a means of reaching to such information.

In Wikipedia, social barriers are overthrown during recruitment of authors. Accumulated reputation functions as a source of authority (Ciffolilli, 2003). However the openness that makes Wikipedia appealing to its contributors discomforts some scholars (Read, 2006a).

In different platforms, like professional forums and conferences, college professors expressed their concerns about the students' use of Wikipedia as a resource in their class work. "I get an e-mail every week from some college student who said, 'Help me; I cited you and I got an F on my paper,'" said Jimmy Wales, Wikipedia's co-founder (Read, 2006b).

By allowing anyone to edit any page within the web site, Wikipedia has flourished by presenting a low barrier to participation (Lih, 2003). However the reliability of information has been put at stake with this freedom. Generally, an article in Wikipedia is written by multiple people and anonymously edited by many others. This makes it difficult for scholars to evaluate the reliability of an article by considering the reputation and authority of its authors. Another challenge is the lack of permanence in Wikipedia articles. If you refer to some information in a Wikipedia article, since contributors continuously modify the information in articles, there is no guarantee that the referred information will be there over time.

Wikipedia attempts to stay reliable by imposing a content policy structure on its authors. There are three documents expressing the content policy of Wikipedia: (1) Neutral point of view (NPOV), (2) verifiability, and (3) no original research. Authors contributing to Wikipedia are expected to abide with the policies stated in these documents. According to the NPOV (Wikipedia:NPOV, 2008), the authors should have a neutral stance towards the topic to which they are contributing. This entails representing major, and often opposing, views about the topic in an equal and fair way. Verifiability (Wikipedia:verifiability, 2009) requires the authors to provide references to reputable resources when they present factual information. According to the no original research (Wikipedia:no original research, 2009) policy authors cannot publish research on Wikipedia. All research mentioned in a Wikipedia article should have been published in a reputable resource.

Jimmy Wales (2004), co-founder of Wikipedia, explained why no original research policy is imposed on the authors in a Wikimedia discussion board message:

> The phrase originated primarily as a practical means to deal with physics cranks, of which of course there are a number on the web. The basic concept is as follows: it can be quite difficult for us to make any valid judgment as to whether a particular thing is "true" or not. It isn't appropriate for us to try to determine whether someone's novel theory of physics is valid, we aren't really equipped to do that. But what we can do is check whether or not it actually has been published in reputable journals or by reputable publishers. So it's quite convenient to avoid judging the credibility of things by simply sticking to things that have been judged credible by people much better equipped to decide.

By imposing the no original research and verifiability policies Wikipedia avoids making value judgments if a particular argument, research, fact or opinion is legitimate or rigorous. This is consistent with the general mission of Wikipedia as it was stated by Jimmy Wales (2005): "Wikipedia is first and foremost an effort to create and distribute a free encyclopedia of the highest possible quality to every single person on the planet in their own language." Encyclopedias review accumulated knowledge in a wide range of topics instead of publishing original research; since Wikipedia is an encyclopedia it upholds this goal too. The measure for the reliability of a piece of information is judged based on whether this information was taken from a reputable resource or not. Hence, the verifiability policy complements the no original research policy. No original research policy prevents people from publishing their research for the first time in Wikipedia and verifiability policy provides the criteria for evaluating which of the existing research is reputable and legitimate to use in Wikipedia.

In his article "Can Wikipedia ever make the grade?" Read (2006a) states that academics are split on whether to ignore Wikipedia or to contribute to it. Read claims that most university professors are skeptical towards Wikipedia because it is difficult to know if the information presented was written by an established scholar in the field or someone "with an ax to grind." According to Read, academics do not like the fact that Wikipedia refuses to give priority to academics or other experts. Read tells the story of a university professor who put Wikipedia's power of correcting inaccurate information to the test. The professor slipped thirteen errors into various articles. To his surprise, other authors corrected all thirteen errors in three hours. Read mentions some Wikipedians who prefer not to have academics as contributors. A quotation from a Wikipedian, Elliah Meek, summarizes this attitude: "The university needs Wikipedia more than Wikipedia needs the university".

The way knowledge is generated in Wikipedia challenges our traditional understanding of intellectual property ownership. Miller (2005) discussed the ownership of the generated knowledge and how the traditional understanding of authorship changes in a collectivist tool such as Wikipedia.

> Just as Newton acknowledged that he stood on the shoulders of giants, so wiki authors understand that the recording of information by any one of us really only builds on the efforts of all the other thinkers, readers, and writers who have gone before. It embraces the process nature of reading and writing, preferring the constantly-evolving-but-never finishing to the static and rapidly obsolescing product (p. 3).

Miller (2005) explains how the identity of each author becomes unimportant during the collective effort. Bryan, Forte, and Bruckman (2005) examined how authors endeavor to sustain an identity where no entity completely belongs to one author but each author has a share in many entities. This resembles a communal structure where no one is allowed to own personal property but everyone is allowed to use and contribute to public property. Jaron Lanier (2006), critical of the collective nature of Wikipedia, states that the collective "hive" mind is not always smart. He focuses on the content in Wikipedia and explains how the personal voice in the text disappears in Wikipedia articles. "A desirable text is more than a collection of accurate references," said Lanier, pointing out that Wikipedia is a part of a disturbing trend on the Internet where collective thought is mindlessly valued over individual intellect. He expressed that the reader should sense the personality of the author so that she can have a better grasp of the meaning behind the language. Although collective generation of knowledge in Wikipedia limits a personal voice in the articles, this still does not undermine its function as an encyclopedia.

Some researchers inquired how Wikipedia can compete with peer reviewed, expert edited encyclopedias even though its content can be edited by anyone. Viegas, Wattenberg, and Kushal (2003) answered this question by developing a statistical tool named the "history flow" tool. The history flow tool seeks for collaboration patterns in the online social space. Viegas et al. (2003) concluded that there are three main principles that make Wikipedia a suitable place for the generation of collective knowledge: (1) the watch list that tracks all the editing on a document, (2) the talk pages and other discussion spaces where community members have meta-level discussions, and (3) the content policies, especially "neutral point of view" policy, which provide both a common ground and rough guidelines for solving disputes.

To assess the quality of articles in Wikipedia, Giles (2005) compared 42 random scientific articles from Wikipedia and Britannica and elicited expert opinions. The experts evaluated the articles, considering the "factual errors, omissions, or misleading statements" in the content of each article. The results showed that, although there is no expert editing in Wikipedia, both resources include a close number of "disingenuous" points. The study also revealed that 17% of the authors of the Nature journal were consulting with Wikipedia on a weekly basis, while 70 % of them are aware of Wikipedia.

Lih (2003) explains the relatively high quality of content in Wikipedia is due to its ability to track the status of articles, review individual changes, and hold discussions within the community. Lih also elucidates how Wikipedia emphasizes social interaction over technological solutions and how it encourages creativity, rather than imposing a strict and authoritarian social environment on the authors.

Overall, while the usefulness of Wikipedia together with other Web 2.0 tools is indisputable, the unique and innovative way of interaction and knowledge generation challenges our traditional understanding of reliability, representation of identity and ownership of intellectual property. Academics feel this challenge personally since both teaching and research are affected by these new ways of knowledge generation and sharing. These challenges should be discussed in academic contexts to make necessary policy changes that can open the way for the useful and productive use of Web 2.0 technologies for educational purposes. This requires extensive discussions and changes in our value systems in regard to reliability of information and how to utilize nonacademic, collective and open resources like Wikipedia.

3 Methods

This study utilized a collective case study design (Merriam, 1998; Stakes, 2005; Yin, 2003). A "case" under investigation is an "academic who uses Wikipedia in research and course studies at various levels". In order to respond to the main research question, "How do academics approach Wikipedia as a resource in their courses and research?" the following three sub-questions were posed:

- In which ways do academics think Wikipedia can be used as a resource?
- What are their concerns over the use of Wikipedia?
- What are their epistemological stances towards the knowledge generated in Wikipedia?

3.1 Participants

Faculty and graduate students who are familiar with and have used Wikipedia were the potential population for this study. After the study was approved by the IRB committee in the office of

research compliance at Indiana University, the study was announced in academic and departmental email lists for graduate students and faculty. Participants were recruited based on their willingness and availability to participate. Five people volunteered to be interviewed. Participants approved use of their responses and information about their professional affiliations in the research article. The approvals were documented in the informed consent forms signed by the interviewees. Two interviewees preferred to have phone interviews and three interviewees preferred face to face interviews. Faculty participants included two emeritus professors from Psychological and Brain Sciences program at IU (Indiana University) and one assistant professor from the Early Childhood program at Texas A&M University. One interviewee was a post-doc in the School of Optometry at IU. The last interviewee was a graduate student in the Art Education program at IU. The participants were from different academic backgrounds and had varying degrees of teaching and research experiences.

3.2 Instrument

I designed a semi-structured interview protocol aimed at exploring participants' approaches to Wikipedia as an academic resource in courses and research, their concerns over Wikipedia's use and solutions they offer, and their epistemological perspectives towards knowledge generated in Wikipedia. The first version of the interview protocol included 16 questions under three categories; (1) approaches to and use of Wikipedia, (2) concerns over Wikipedia's use and (3) epistemological approach towards knowledge in Wikipedia. After the first interview, which was conducted with an assistant professor in early childhood education (Mark, a pseudonym), I changed the interview protocol slightly to include more questions about the interviewees approach to the use of Wikipedia in research and college courses. Six more questions were added and the interview protocol was reorganized to have five categories for a total of 24 questions. These five categories are (1) Approaches to and use of Wikipedia, (2) Use of Wikipedia in college classes, (3) Use of Wikipedia in research, (4) Concerns over Wikipedia's use, and (5) Epistemological stance towards the knowledge generated in Wikipedia. The complete interview protocol can be found in the Appendix.

3.3 Data Collection and Analysis

I interviewed the graduate students and university faculty one-on-one. Each interview lasted approximately one hour. As mentioned earlier, two interviews were conducted over the phone and the other three were conducted face-to-face. The conversations were tape-recorded and transcribed. The qualitative data was analyzed using the constant comparative method (Glaser, 1965). The findings are presented as an on-going discussion, which is a characteristic of a discussion-based theory building strategy proposed by Glaser and Strauss (1968). The findings are not written to make further generalization, but to initiate further discussions and to bring out other research opportunities.

4 Findings

I considered each participant as an individual case and conducted an in-depth analysis. The analysis aims at exploring the beliefs, attitudes, practices and values of participants in regard to their use of Wikipedia. In the following sections, these findings are summarized case by case.

Case 1: Mark

Mark is an assistant professor of early childhood education. He has been using Wikipedia for about four years. He uses Wikipedia a couple of times a month. When he makes a Google search, the search results often lead to articles in Wikipedia. Sometimes he goes to the Wikipedia site directly to look up information. He usually refers to Wikipedia for his personal interests. He mostly looks up information about music and singers. He also uses Wikipedia as a starting point for research. When he uses Wikipedia to look up academic information, he verifies it with other resources. He does not rely on the information in Wikipedia when he is looking up information for publication. Mark has never written an article in Wikipedia. However, he once edited an article about his favorite singer. He also finds Wikipedia a very useful tool to look up information about places he is planning on going.

Mark believes that Wikipedia has some advantages over other resources: It is up to date, it values public and general consensus, and it has a peer review system. He thinks that the peer review system is mostly an advantage but it can sometimes be a disadvantage as well. He stated that this structure may promote popular ideas and perspectives while it oppresses the view of the minority. However he believes that the peer review works as a check and balance system.

Mark regards the content in Wikipedia as user friendly, easy to read and fairly high quality. He especially believes that technical and factual content in Wikipedia is reliable.

In terms of professional usage, Mark uses Wikipedia only to look up basic terminology or basic theories if he has very limited time. In his limited experience with content in Wikipedia relevant to his field, he refers to the information as "very good, comprehensive and not overly technical."

Mark observed that many students are using Wikipedia. There were some cases where he suspected that some students plagiarized from Wikipedia articles. Nevertheless he thinks that Wikipedia is a great tool for students when they use it as a starting point for their research. He believes that students should refer to more traditional resources when they are writing papers. However he finds it reasonable for students to start their research in Wikipedia, since Wikipedia articles provide links to academically reputable resources.

He believes that it would be a compromise of Wikipedia's mission if contribution to Wikipedia is limited to experts and professionals. Hne thinks that Wikipedia is serving its purpose with its current structure.

Mark has not been informed about the content guiding policies in Wikipedia. He thinks that authors are free to put their opinions in and reflect their biases in the articles they are contributing.

Case 2: Susan

Susan (a pseudonym) is a graduate student in art education. She has been using Wikipedia for about two years. She uses Wikipedia about every other day. She uses it to look up for information about things she reads in the news and in other media resources.

Susan uses Wikipedia as a starting point for research. She thinks that Wikipedia stimulates further questions on the subject she is reading about and provides additional resources. However she thinks that Wikipedia should not be cited in a research article.

Susan thinks that Wikipedia has some advantages over other resources. She finds Wikipedia "surprisingly" up to date. She also finds it positive that Wikipedia allows for multiple perspectives that may not be presented equally in other resources. She also likes how conflicts

are resolved within the discussion pages for each article. Susan stated that anonymity can be an advantage however it can also create a sense of recklessness.

Susan observed that the quality of articles in Wikipedia vary to a great extent. In her comparison of Wikipedia to other resources, such as traditional encyclopedias and academic journals, she referred to other resources as more stagnant but also more reliable and reputable.

Susan thinks that scholars and important social and political figures can be encouraged to contribute to make Wikipedia generate more scholarly knowledge.

Case 3: Jack

Jack (a pseudonym) is a professor emeritus of Psychology. He has been using Wikipedia a couple of times a month for about two years. He occasionally uses Wikipedia for personal interests and rarely for research. He has been teaching college classes for more than 30 years. He is currently teaching introduction to psychology courses. He sometimes uses Wikipedia in his courses.

Jack looks up information relevant to his course topics. For research, he also looks up definitions and descriptions of concepts in Wikipedia.

In his courses he does not encourage general use of Wikipedia. However he finds beneficial articles in Wikipedia for his course and puts links to those articles in the course website. He said, "I select the articles that are good and readable for them (students)." He believes that the quality of articles in Wikipedia varies.

When asked about the process of knowledge generation in Wikipedia he said that it is "wide open" and anonymous. He thinks that authors should not be anonymous in Wikipedia. He said that when someone signed a document he/she would take responsibility for the content in it.

Case 4: Jerry

Jerry (a pseudonym) is a professor emeritus of psychology. He has been using Wikipedia for a year and half. He mostly reads Wikipedia articles about psychology and sensory processing. He currently is not teaching any classes. He has taught undergraduate and graduate classes for forty years.

When I asked about citing Wikipedia in undergraduate course papers, he responded, "Well, I might accept it for low level courses; freshman and sophomore courses where they are just beginning to accumulate information." He believes that Wikipedia can be used as a starting point for research as long as it is not the only resource used. Jerry believes that students should know about the structure of Wikipedia and how knowledge is generated so that they can judge the value of information there. Jerry thinks that "students should not look up to Wikipedia as a source of extremely accurate and deep knowledge in a discipline they are learning about."

During his reflection about the use of Wikipedia in research, Jerry stated that he sometimes refers to Wikipedia and follows the links to further resources provided at the end of the article. However he believes that only the information in refereed scientific journals should be cited in research articles; the other resources, such as Wikipedia and academic databases, can be used to reach the appropriate literature. When I asked if it is fair not to cite Wikipedia since it serves as a portal providing links to more "serious" resources, Jerry said he thinks it is fair: "You don't cite whole lots of other places that give you the first thing." He said that the annual review of psychology, conferences and newspapers often point him to useful research studies that he cites in his research, however he never cites these resources in his articles; and it is the same with Wikipedia. He said, "I am afraid the only place where Wikipedia can get credit for all the good work it does is in articles about Wikipedia like the one that you are going to write."

When Jerry was asked about the structure and process of knowledge generation in Wikipedia he said that the knowledge generation is an evolving and collective activity where multiple authors contribute pieces in an article and modify and criticize other authors' contributions. He mentioned the study in Nature (Giles, 2005) comparing the content in Wikipedia to Encyclopedia Britannica: "What I have heard just in the grapevine is that, you know, Wikipedia may be one hundred percent more readable than most scientific prose but 80 percent reliable of most scientific prose. That sounds probably reasonable."

Jerry thinks that Wikipedia is fast, easy to read, very accessible and up to date. However he feels uncomfortable about the way articles are cited in Wikipedia: "I look for information and they don't have a date on them. So I need to read the references and scan through to see how recent the references are."

Jerry is surprised with the quality of content in Wikipedia. Previously he assumed that most of the authors writing the articles were high-level amateurs who are not professionals in the field they are writing about. However after his experiences with Wikipedia he thinks that his assumption might be wrong: "The articles have a professional tone mostly."

Jerry thinks that anonymity may motivate people to edit articles more comfortably. Not knowing the identities and the credentials of the authors does not disturb him: "For me a Wikipedia article is just a pointer to something else. I am not going to cite it any way." However he thinks that it would be interesting to see the name of the author if the author is someone he knows from his field. He said that it would make it easier to understand why an article is written in a certain way.

Jerry finds the content in Wikipedia "surprisingly" reliable: "I haven't seen a lot of things that I would disagree with." However he points that his experience is limited to the articles in his own field.

In his comparison of Wikipedia to other resources, Jerry used annual review of psychology and Encyclopedia Britannica as examples. He stated that Wikipedia is more accessible but less accurate compared to these resources. However he said that he prefers to use Wikipedia rather than Encyclopedia Britannica because Wikipedia is more accessible and has a wider coverage of topics: "I tolerate a margin of error when I am doing causal look up stuff."

Case 5: Abhay

Abhay (a pseudonym) is a post-doctoral researcher in the school of optometry. He has been using Wikipedia for four years. He is not currently teaching but he used to work as a teaching assistant and a proctor during his PhD studies at University of California, Berkeley. Abhay stated that he mostly accesses Wikipedia articles during his Google searches. He uses Wikipedia for both personal and academic interests: He often looks up for information about terms and techniques in optometry. He also reads articles about his personal interest topic: the Second World War. He has never contributed to or edited an article in Wikipedia.

During his work as a proctor Abhay found some undergraduate students citing Wikipedia in their research articles. He thinks that it was acceptable because the articles they referred to were accurate: "There I found students cite articles in Wikipedia. It was acceptable to me because the information in Wikipedia was the correct information. It wasn't outrageously wrong. They missed some few nuances but that was still okay." He also gives an example for a situation where he learned about a new technique in his field by following the Wikipedia article cited in one of the student papers. Abhay told us that he would absolutely encourage use of Wikipedia if he were currently teaching. He thinks that Wikipedia supports the representation of multiple perspectives better than other resources, such as text books and research papers which reflect the

views of an author or a group of authors. He stated that Wikipedia articles can be cited in student papers in introductory level courses; "At the introductory level, details are not important. Getting the big picture is the good idea. Often times Wikipedia is right on the big picture." However he believes that Wikipedia should not be cited in more advanced courses because "it misses the nuances."

In terms of his research, Abhay uses Wikipedia to get overall information about a particular subject. He also reads the referred articles in the Wikipedia article. However he believes that a Wikipedia article should not be cited because it may not be reliable. In his explanation he said that the scientific world would not accept a Wikipedia article as a legitimate citation: "The article can change anytime and we do not know who the contributors are. If a person, an eighth grade kid comes and writes something controversial, it might be a view that people in the scientific world would unlikely to accept."

When Abhay was asked about his knowledge of the structure and process of knowledge generation in Wikipedia he said that he knows that it is an open source and there is some policing. He does not know about the content guiding policies.

Abhay thinks that Wikipedia can become a portal for people to express their opinions. Therefore he believes that prioritizing expert views is not a good idea. However he thinks that the existence of an editorial group overseeing the community can be a good idea so that overly marginal ideas do not leak into the content. He also believes that there should be an editorial board where people freely express their opinions.

Abhay said that the alternating voice of the author is a concern in Wikipedia: "The tone is changing. You do not see the flow of things. I think it is because it has been edited by a number of people."

Abhay believes that the only disadvantage of collective knowledge generation in Wikipedia is the disappearance of nuances about a topic: "I agree that they have to be unbiased and they have to be neutral in content but when it comes to the nuances, if there is a continuous flux of people monitoring and changing it then the minor details are likely to be changed." Abhay thinks that Wikipedia provides very up to date reviews of some academic topics: "If you are newly entering a field, often times the review articles are as old as 1980s. For the next twenty years of research nobody has bothered to either publish or so much has been going on that things have not settled down. But Wikipedia is more likely to provide a more updated view of things."

4.1 Common Themes

The themes that emerged as a result of interview data analysis point to a general interest and positive attitude towards Wikipedia, together with some reservations. Some of the concerns expressed towards the use of Wikipedia, such as problems with reliability, the voice of the author, credibility of the authors and difficulties with referring to ever changing content structure can be generalized to cover the use of all Web 2.0 technologies, including blogs, Wikibooks and other Wikis in the academic context.

The analysis of data revealed the following common themes:

(1) Wikipedia as a starting point for research
All the interviewees, except Jack, indicated that they use and encourage their students to use Wikipedia as a starting point in research. Jerry and Abhay emphasized that they refer to Wikipedia articles especially when they seek more general information about a topic.

(2) Using Wikipedia to look up definitions and descriptions of concepts and theories
All of the participants indicated that they use Wikipedia to look up definitions and descriptions of concepts and theories in regard to both professional and personal interests. Mark, Jerry and Abhay gave ease of access as a reason to why they do not refer to formal resources in their brief replies.

(3) Up to date information in Wikipedia
Mark, Susan, Jerry and Abhay pointed out that Wikipedia is more up to date than other resources. Susan mentioned that she uses Wikipedia as a news portal because the articles about daily events are updated in minutes. Abhay approached the fast updates from a different perspective. He pointed out that people who are new to a field may have difficulty finding up to date reviews of topics in that field, which would offer insight about the big picture. He said that Wikipedia fills that gap.

(4) Presentation of multiple perspectives
Both Susan and Abhay referred to the presentation of multiple perspectives as an asset for Wikipedia. They contrasted Wikipedia articles to research articles and textbooks in this regard.

(5) Citing Wikipedia in introductory level courses
Both Jerry and Abhay stated that Wikipedia can be cited by students in introductory level college courses. Jerry selects the Wikipedia articles that can be used in his class and puts links to these articles on the course website. He does not encourage general use of Wikipedia articles in coursework. However Abhay thinks that Wikipedia articles are especially good at providing the general information. He stated that he would encourage the use of Wikipedia articles in his classes.

(6) Involvement of scholars, experts and professionals in Wikipedia
Contrary to some literature about the relationship between academics and Wikipedia (e.g. Read, 2006b), all of the participants expressed negative attitudes towards prioritizing expert views in Wikipedia. They believe that Wikipedia serves its purpose with its current structure.

(7) Knowledge about the structure and the knowledge generation process in Wikipedia
None of the participants knew about the content guiding policies imposed in Wikipedia. Mark, Abhay and Jack referred to Wikipedia as an environment where people can post their opinions and personal views. However Jerry pointed the importance of knowing about the process of knowledge generation for evaluating the information in Wikipedia. He indicated that he feels the need to learn about the content guiding policies in Wikipedia. He also stated that students should know about the structure of Wikipedia so that they do not think that the information there is "extremely accurate."

(8) Reliability of information in Wikipedia
All participants have a similar approach to the reliability of information in Wikipedia. They all stated that, within their limited experience, the information in Wikipedia is fairly reliable. However they do not approach to Wikipedia with absolute confidence. In their comparison of Wikipedia with academic resources and traditional encyclopedias they all indicated that Wikipedia is less reliable.

(9) Citing Wikipedia in Research
All the interviewees stated that it is unacceptable to cite Wikipedia articles in a research study; anonymity of the authors, concerns over reliability, absence of original research and the ever-changing nature of the articles were some reasons.

(10) Varying degree of quality and reliability of the articles

Mark, Susan and Jack pointed the varying degree of quality and reliability of the articles in Wikipedia. Mark stated that "technical and factual" information in Wikipedia is more reliable than other information.

5 Implications for Practice

The interviewees expressed general confidence in their skills for assessing the reliability of the content provided in Wikipedia, particularly content in their field. However they do not have the same confidence in students' ability to evaluate the content. This yields to the question "How should we inform students about what reliability is and the ways of assessing the reliability of content provided in online resources?" Future research can focus on students' perceptions and if their assumptions about reliability are sophisticated enough to meet the challenge of evaluating online content. Further discussion may involve developing instructional programs in introductory level technology courses at a college level, aimed at developing a certain level of proficiency to evaluate the reliability of online content. These instructional programs may also focus on copyright issues in the online context, since Web 2.0 tools differ from other online content in licensing, and since content created collectively in a public virtual space may not belong to a single individual, institution or company.

Participants' lack of knowledge about Wikipedia's content guiding policies appeared to hinder their evaluation of reliability issues. Participants' expressed the general assumption that authors are allowed to post their personal opinions while this is not allowed based on the neutral point of view policy. Participants were also not aware of the verifiability and no original research policies. This may point to a general need of informing faculty about what Web 2.0 technologies are, particularly Wikipedia, and how they can be used as a part of technology integration programs.

The data collected in this study has revealed a more positive approach, from academics' perspectives, to Wikipedia than it is indicated in the literature (Lanier, 2006; Read, 2006a). However participants also expressed some concerns about the credentials of authors, the disappearance of the "author's voice", the impersonalization of content because of the collectivist nature of knowledge generation, and the unsustainability of content that can be characterized as "anything can change anytime." There are some attempts to create Wiki communities where the identities of the authors are more emphasized and expert view is prioritized and encouraged, like Citizendium, a project of Wikipedia's co-founder Larry Sanger. The implications and possible uses of these environments in academia could be addressed in future research. Comparison studies between such environments and Wikipedia can reveal insights about the use of collective knowledge generation tools in academia.

6 Limitations

This study explored the perceptions of a limited (five) number of faculty; therefore it is not possible to generalize the results to discuss the perceptions of faculty at American universities. However, as an exploratory multiple case study design, this study might be considered as a road map for further research. Secondly, the participants interviewed was not a diverse group in terms of their fields of study. They all had backgrounds either in psychology or education, except one participant from school of optometry. Further studies with more diverse populations may reveal

emergent patterns making connections between academics' fields of study and their views on and uses of Wikipedia.

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Appendix

Interview Protocol

1.Approaches to and use of Wikipedia
How long have you been using Wikipedia?
How frequently do you use Wikipedia?
For what purposes do you use Wikipedia (personal interests, academic research, courses etc.)?
Have you ever contributed to the content in Wikipedia? Have you edited an article or created a new one?
Which topics do you read the most in Wikipedia?

2. Wikipedia's use in college classes
How long have you been teaching college classes?
What was the subject that you taught?
Do your students use Wikipedia for their course work? How?
Do you encourage or discourage Wikipedia's usage?
What do you think about citing Wikipedia articles in homework and papers?
How do you think Wikipedia should be used in college courses?

3. Wikipedia's use in research
Do you use Wikipedia in your research?
How do you think Wikipedia can be used in research?

4. Concerns over Wikipedia's use
What do you know about the process of knowledge generation in Wikipedia?
What are the advantages of Wikipedia compared to other resources?
What are the disadvantages?
What do you think about the quality of content in Wikipedia?
How do you think Wikipedia should be changed so that it can generate academic knowledge or can be used in scholarly research?
What do you think about the use of language and the alternating voice of the author on Wikipedia?

5. Epistemological stance towards the knowledge generated in Wikipedia.
What do you think about the collective and anonymous generation of knowledge in Wikipedia? What are the advantages and disadvantages?
Do you find the knowledge in Wikipedia reliable? What is reliability? Please explain.
Do you find the knowledge in Wikipedia objective? What is objectivity? Please explain.
Do you find the knowledge in Wikipedia neutral? What is neutrality? Please explain.
How would you compare the content in Wikipedia to content 1) in traditional encyclopedias (Britannica etc.) and 2) in formal academic resources (academic journals, text books etc.)