


Winter 2-10-2013

Accommodating the Wikipedia Project in Higher Education: A University of Windsor Case Study

Timothy A. Brunet
University of Alberta

Follow this and additional works at: <https://scholar.uwindsor.ca/etd>

 Part of the [Communication Technology and New Media Commons](#), [Higher Education and Teaching Commons](#), and the [Organizational Communication Commons](#)

Recommended Citation

Brunet, Timothy A., "Accommodating the Wikipedia Project in Higher Education: A University of Windsor Case Study" (2013). *Electronic Theses and Dissertations*. 504.
<https://scholar.uwindsor.ca/etd/504>


This online database contains the full-text of PhD dissertations and Masters' theses of University of Windsor students from 1954 forward. These documents are made available for personal study and research purposes only, in accordance with the Canadian Copyright Act and the Creative Commons license—CC BY-NC-ND (Attribution, Non-Commercial, No Derivative Works). Under this license, works must always be attributed to the copyright holder (original author), cannot be used for any commercial purposes, and may not be altered. Any other use would require the permission of the copyright holder. Students may inquire about withdrawing their dissertation and/or thesis from this database. For additional inquiries, please contact the repository administrator via email (scholarship@uwindsor.ca) or by telephone at 519-253-3000ext. 3208.

2-10-2013

Accommodating the Wikipedia Project in Higher Education: A University of Windsor Case Study

Timothy A. Brunet

Follow this and additional works at: <http://scholar.uwindsor.ca/ctlpub>

 Part of the [Communication Technology and New Media Commons](#), [Higher Education and Teaching Commons](#), and the [Organizational Communication Commons](#)

Running head: ACCOMMODATING THE WIKIPEDIA PROJECT

Accommodating the Wikipedia Project in Higher Education:

A University of Windsor Case Study

By

Timothy Allan Brunet

Submitted to the Faculty of Extension University of Alberta - in partial fulfillment of the
requirements for the degree of Master of Arts in Communications and Technology

February 10, 2013

Acknowledgements

The support offered to me throughout the writing of this project was indispensable. The curriculum, my cohort, and professors in the MACT program helped me to gain the skills necessary to complete the paper. Longtime friend and former classmate Dr. Marcel O’Gorman read a very early draft of the project and his suggestions helped me to refocus my efforts to make my end project more manageable. The resources provided to me at the University of Windsor were a key advantage during the research phase. I initially met with Ann Kaye from the Leddy Library. She provided excellent information regarding the most current means of online research for the project. I learned new interview skills through a project with Ph.D. candidate Lisa Plant and under the guidance of Dr. Shelagh Towson. Interview participants were particularly gracious in offering their time and expertise to the project. Dr. Towson graciously provided detailed edits before the final copy was submitted. It is however my advisor Dr. Marco Adria at the University of Alberta who supported the project with the most encouragement. His comments, meetings, and suggestions laid the bedrock for the project. I was thoroughly impressed with his expert and expeditious review of the work that I submitted. It was also Dr. Adria’s course that drew me to Winston’s model which is woven throughout this project. Finally I would like to thank my family who made many sacrifices so that I might complete the many courses, assignments, and this project.

Table of Contents

Acknowledgements	2
Abstract.....	5
Introduction	6
Literature Review	9
Seminal Works	9
Media.....	10
Websites.....	11
Scholarly Journals.....	11
The Birth of the Wikipedia Project	12
Winston’s Model of Innovation and Wikipedia.....	12
Nupedia	16
The State of Higher Education in Ontario during the Birthing of Wikipedia.....	20
Wikipedia Intersects with Higher Education.....	23
Changing the Network of the Knowledge Industry.....	35
<i>Wikipedia’s Online Advantage.....</i>	<i>39</i>
Methodology	43
Findings	46
University of Windsor Interviews.....	49
Teaching and Learning.....	49
<i>University of Windsor as Pedagogical Contributor.....</i>	<i>54</i>
Research and Credentials.....	56

Moving Beyond the Presearch Function of Wikipedia 57

Accessibility..... 60

Administration and Economics 62

Substitution..... 63

Can Universities Respond to the Environmental Pressures of Communication Technologies?..... 65

Summary of Findings **68**

Conclusion **69**

References..... **71**

Appendix A..... 79

Appendix B..... 82

Appendix C..... 83

Appendix D 83

Appendix E..... 88

Abstract

This study explores the question: How has higher education accommodated methods for organizing and disseminating knowledge during the development of the Wikipedia project? The prominence of the Wikipedia project on the Internet has caused an increasing interaction with higher education. This interaction creates an opportunity to consider how knowledge is organized and disseminated within both communities. The Wikimedia foundation has expressed their desire to make Wikipedia more scholarly and more stable. Members of the higher education community want their organizations to be more efficient, nimble, and accessible. Thematic analysis of interviews conducted with subject matter experts suggested that the use of Wikipedia within higher education is on the one hand accelerated and celebrated and on the other hand regulated and discounted. This paper references Winston's model of change in communication technologies to show that higher education and Wikipedia have made accommodations for the way they organize and disseminate knowledge during the development of the Wikipedia project. The researcher frequently references the University of Windsor and his professional knowledge of higher education as points for comparison.

Search Words: Wikipedia, Post-Secondary Education, Higher Education, Education, University, College, Learning Organization, Bureaucracy, Knowledge Management, Organizational Design, Open Source, Library, Citation, Technology, Internet, Bruns, Lih, Reagle, Shirky, Winston, Alberta, Windsor.

Introduction

This study explores the question: How has higher education accommodated methods for organizing and disseminating knowledge during the development of the Wikipedia project?

The analysis is structured chronologically to view the policy changes between Wikipedia and higher education during 2001 - 2012. The development of the Wikipedia project can be divided into three chronological stages: the birth of the Wikipedia project, the disruptive phase, and convergence. At the turn of the century, the Wikipedia project is one of many organizations whose innovations caused disruption within higher education. Emerging online organizations elaborated new economic models, heightened the status of amateur publication, re-defined knowledge, and made information more accessible to the general public. Professor and Politician Lawrence Lessig stated the importance of studying the development of Wikipedia (Reagle, 2010):

A decade ago, no one—including its founder, Jimmy Wales—would have imagined “Wikipedia” possible. Today it is one of the very top Web sites on the Internet. And not just the Internet: Wikipedia has come to define the very best in an ethic of a different kind of economy or community: at its core, it is a “collaborative community” that freely and voluntarily gives to the world a constant invitation to understand and correct. More than any democracy, it empowers broadly. More than any entity anywhere, it elicits the very best of an amateur ethic—people working hard for the love of the work, and not for the money (p. ix).

Such innovation in industry has not gone unnoticed by politicians and by the Ministry of Training Colleges and University (MTCU) in Ontario. Recently the MTCU proposed that

“Technology-Enabled Learning Opportunities” can provide important changes to the higher education system in Ontario (Ontario Ministry of Training Colleges & Universities, 2012):

More widespread use of technology-enabled learning has the potential to increase access for all learners, particularly those who are prevented from attending in-class education as a result of barriers that may be financial, geographic, physical, family-related, or work-related. Innovative applications of emerging technologies not only offer flexibility in time and place of delivery, but also could support improvements to the teaching and learning process (p. 19).

At a province-wide conference held in January 2012, The Honourable Minister Glen Murray from the MTCU (Ministry of Training Colleges & Universities) spoke of using technologies such as Wikis to save time, money and collect more resources from a participatory culture within education (G. Murray, personal communication, January 26, 2012). Michael Anderson’s article (Anderson, 2011, p. 1): “Crowdsourcing Higher Education: A Design Proposal for Distributed Learning” resonates with the MTCU’s view on technology within higher education. He proposes that an online “personalized learning system (PLS) can better connect[s] knowledge-seekers with knowledge-providers.” The PLS empowers and tasks amateurs (students) to assist other students because the computer assisted technology tracks and publishes credentials of student mentors. In essence the computer assisted technology leverages amateur participation to alleviate some of the responsibilities of the professional within the teaching and learning process. The heightened participatory status of the amateur within the Wikipedia project offers an opportunity to disseminate the research and knowledge created by higher education to a broader audience. Wikipedia continues to attempt an editorial dance between the professional and the amateur where the author and the reader have the opportunity to publish information in a more accessible

environment. This accessibility includes new tactics for reading level, cost, search engine optimization, and a dense hyperlink referral system that creates new awareness of topics for more moderately educated populations. According to Bensimon, Polkinghorne, Bauman and Valleja (2004, abstract):

A prevalent theme in [these] publications is the disconnect between higher education research, policymakers, and practitioners. The solutions that have been offered to close these gaps include writing in a more user-friendly style, publishing research results in outlets that are practitioner-oriented, presenting research results at practitioner-oriented meetings, and studying problems that are high on policy-makers' and practitioners' lists of priorities.

The Wikipedia project heightens the user status by allowing the user to publish, edit and propose new articles. Editing, publishing, and proposing new articles are usually tasked only to those with academic credentials, therefore causing “the disconnect” suggested by Bensimon et al (2004). The development of Wikis creates a democratized process that hastens access to information and editorial capacity to an expansive audience. The interactive “Pro-Am” editorial dance created by the Wikipedia model offers a new bridge between higher education and the general population for the dissemination and creation of knowledge. Governments, students, and academics alike hope this new technological connection will propel a knowledge economy without disintegrating the quality of higher education. The Wikipedia project has some philosophical similarities with the traditional goals of the higher education community. The Windsor University Faculty Association Collective Agreement states: “The fundamental purpose of the University and its unique contribution is the search for new knowledge and the free dissemination of what is known” (Windsor University Faculty Association – Collective

Agreement, 2011). The chronology of policy changes reveals that Wikipedia and higher education are in a push-pull relationship as they determine how to make use of one another's resources and inescapable interactions.

Literature Review

Seminal Works

There are a number of seminal texts regarding Wikipedia that were referenced to anchor the paper with references that were more scholarly. Lih's *How a bunch of nobodies created the world's greatest encyclopedia: The Wikipedia revolution* (2009) and Reagle's *Good faith collaboration: The culture of Wikipedia* (2010) provide detailed ethnographic information regarding the Wikipedian culture. O'Sullivan's (2009) *Wikipedia A new community of practice?* and Burke's (2012) *A social history of knowledge* describe the historical context within which the innovation of Wikipedia came to fruition. Bruns covers Wikipedia within the context of open source programming in his book: *Blogs, Wikipedia, Second Life and beyond: from production to produsage* (2008) in a way that removes the barriers of technological jargon. Ayers book *How Wikipedia works: And how you can be a part of it* (2008) and Broughton's book: *Wikipedia: The missing manual* (2008) are hard copy manuals suited for those who want to participate in the Wikipedian community. A review of these texts reveals that the Wikipedia project is an accumulation of historical knowledge management projects that enjoyed a watershed moment of expansion due to the advent of web 2.0 and a comprehensive understanding of why humans participate in online forums. For example, Linux was established as early as 1991. In 2001 the concept of an open source system had already been well defined. The intersection of open source programming, social media, and the long standing historical thirst for the dissemination of knowledge made the Wikipedia project a genetic success. Brian

Winston's *Media technology and society: A history: From the telegraph to the Internet (1998)* provides a theoretical framework from which to view the development of a new technology and this theory was the lens used when analyzing the development of the Wikipedia project. Daft and Armstrong's text on organizational design was used as a synthesizing document whenever concepts of organizational design were evaluated in the findings.

Media

When possible, the New York Times was used as the main source to verify information within media. Typically, news story grow to become published in the New York Times and therefore have undergone some additional verification and vetting before being published. The New York Times can also be counted on to print retractions when errors or updates are required. YouTube clips and amateur blogs were reviewed because of Wikipedia's popular nature and high rate of amateur participation and because the researcher couldn't resist tumbling through the long lineage of links. Although blogs were not used to validate broad public opinion, blogs can provide valuable nuggets of qualitative information. References made on TV regarding Wikipedia were reviewed to help frame the pop-culture image of Wikipedia. Finally, school newspapers often birthed debates that grew to national news and mainstream media. At "Middlebury College" the policies surrounding Wikipedia at their school became a nationally published story while at the University of Toronto their school newspaper published information regarding a new partnership with Wikipedia. The author took into consideration that new media and news channels have a tendency to provide polarized views in search of an increased readership (Dr. M. Adria, personal communication, August 1, 2012).

Websites

Wikipedia.org and Wikimedia.org were referenced for information regarding policies. Archive.org was used to find documents that no longer exist on the web. For example, many authors spoke about Nupedia - the project that sprouted Wikipedia. The web service (archive.org) and the “Waybackmachine” were used to find the original source for websites -- like Nupedia.com -- that are no longer published. The University of Windsor was used as the main source of policy reference from which to measure the philosophies of higher education. University of Windsor documents accessed include only publicly available documents such as senate documents, the daily news channel, the President’s Communications, and the Collective Agreement that governs faculty.

Scholarly Journals

Preece and Schneiderman’s *The reader-to-leader framework: Motivating technology-mediated social participation* (2009) provides the structure to understand why people participate in online forums such as Wikipedia and why people may develop into leaders. While the discussion is not directly focused on the topic of Wikipedia it has direct use for this study. Their research creates a “reader-to-leader framework” to explain what motivates online community members to go from a reader to a governing leader participatory level (Preece & Schneiderman, March 2009):

This framework, supported by extensive references to the research literature, is designed to help researchers, designers, and managers understand what motivates technology-mediated social participation. This will enable them to improve interface design and social support for their companies, government agencies, and non-governmental organizations (p. 14).

Head and Eisenberg (2010) used focus groups and online surveys to study how college students use Wikipedia. The study used a formal research process for the focus groups and online survey. Although their sample size was not intended to be representative of a broader population, the author's general experience in interacting with students from the University of Windsor aligns with the published findings. Questions from Head and Eisenberg's study were taken under consideration when authoring and when probing participants during the interviews conducted for this study.

Finally Forte, Larco and Bruckman (2009) used Ostrom's "eight design principles for self-organizing communities that manage natural resources" to examine the decentralization in Wikipedia governance. The study is valuable information for this project because Wikipedia/knowledge is viewed as a public good. The concept of education as a public good is currently hotly contested throughout Canada as students continue to protest the rise in tuition costs. Ontario students currently pay the most in Canada and the tuition is continuing to rise while the MTCU continues to propose new ways to find efficiencies to lower the cost for students, and tax payers. Comments regarding philanthropic sentiments directed at Wikipedia were broadly considered due to Forte et al.'s study.

The Birth of the Wikipedia Project

Winston's Model of Innovation and Wikipedia

Brian Winston's model of innovation elucidates recurring historical patterns for media and technology in society (Winston, 1998). The first phase of Winston's model begins when a new scientific innovation occurs, for example, the Internet and/or the World Wide Web. The next phase "moves the technology from the ground of scientific competence up to the level of technological performance" (p. 4). Technologists are now able to propose uses for the invention.

But the strongest “amorphous” forces on the prototypes come from “generalized social forces” titled “supervening social necessities” (p. 6). Winston states that supervening social necessities: can range from the objective requirements of changed social circumstances (such as the consequences of the introduction of one technology forcing the development of another) through to the subjective whims of perceived needs (such as the introduction of new consumer technologies to fulfill essentially the same function as those filled by previously diffused consumer technologies).

It is supervening social necessities of one kind or another which define the various different sorts of prototypes discernible in the historical record and which transforms such prototypes into inventions (p. 7).

For the purposes of this paper, I will use the idea of the Internet as the innovation that created the enabling technology for Wikipedia. As the Internet developed, organizations and individuals in society experimented with how they could “coalesce” (p. 6) their needs and desires with their current processes to innovate. The manipulations created by organizations that published encyclopedias are examples that offer important clues for the future of the academy. Lih (2009) explains the various prototypes of digital encyclopedias during the early stages of the Internet:

World Book came out with a CD-ROM edition of its encyclopedia as well, appealing to the same household market, but chose not to have an online version. Among the three big players [World Book, Britannica, and Encarta] in the English-language market, there was no complete and modern encyclopedia available for free on the internet. With content behind the “subscription firewall,” Encarta and Britannica had annual prices [about \$2,000/year] tailored to big-budget institutions, such as libraries and universities (p. 217).

Chart 1.1 identifies some of the various organizations fuelled by the Internet since the 1990's (Lih, 2009, p. 17; Shirky, 2008, p. 11; Wikipedia, n.d.).

Chart 1.1

Timeline of Web 2.0 and other projects relevant to Wikipedia			
1991	Linux launched		
1993	Microsoft publishes CD-ROM-based Microsoft Encarta encyclopedia.	Internet moved to the World Wide Web enabling supervening social necessities. This stage represents the prototype era for online encyclopedias	
1994	Britannica publishes CD-ROM product and online edition (\$2000/year).		
1995	Amazon, MSN, Yahoo launched. Ward Cunningham creates the first Wiki.		
1998	Google, Napster		
1999	Nupedia offered for free.		
2001	Drupal, Kazaa and Wikipedia (Beta) launched.		
2002	MIT Open Courseware project announced.		
2003	Skype, LinkedIn launched.		
2004	Facebook launched.		Broad-based diffusion of Wikipedia as the invention sparks a time of acceleration and braking for the online community
2005	YouTube launched.		
2006	Twitter launched. Wikipedia announces 1 million articles.		
2012	Encyclopedia Britannica announces the end of print edition.		

In the earliest stages, it was, the IT industry experimenting with the notion of open source programming that created new economic models and horizontal work flows. Variations of the open source movement would soon find their way into other organizations and enable amateurs to create new services and resources online. The organizations that heeded the ethos of the Internet would use their incumbency and Internet savvy to obtain network superiority (Shirky, 2010). Herein lies the progression of success for the Wikipedia project which remains uniquely

a not-for-profit organization amid financial giants. Winston's model of innovation is used to elaborate how prototypes are considered during the advent of the Internet. This prototype phase occurs before the eventual dominant prototype emerges as the 'invention' that rises to a broad state of "diffusion." Winston identifies prototypes in these categories: rejected, accepted, parallel, or partial. A prototype is rejected "because a supervening necessity has not yet operated and no possible use for the device is seen" (p. 7). A prototype can be accepted because there is a "partial need [in society] which the prototype partially fills" (p. 7). A parallel prototype occurs "when the device already exists but solves another technological problem" (p. 8). The partial prototype represents "machines designed to perform effectively in a given area but which do not" (p. 8). The fifth prototype is the invention. Winston points out that communication technology often takes decades to diffuse and be broadly used within society. Such is the case with the various forms of networks that eventually formed the World Wide Web. For example, two iterations that preceded the World Wide Web are Arpanet, and the Internet (Winston, 1998). Wikipedia in this document will be viewed as a spinoff of the invention of the World Wide Web (in this paper the term Internet and World Wide Web are used interchangeably). Winston explains that "Spinoffs" have similarities to prototypes. Spinoffs, prototypes and inventions are all subject to "Supervening Social Necessities" and "The Law – Suppression of Radical Potential." It is the final phases "Supervening Social Necessities" and "The Law – Suppression of Radical Potential" that best describe the interactions between higher education and Wikipedia. Wikipedia eventually served many purposes or "Supervening Social Necessities." Wikipedia best leveraged the Internet for a fluid editorial process, allowed for amateur authors to publish/edit, and gave Internet users from many cultures the opportunity to look up just about any topic, quickly, and for free. These "Supervening Social Necessities" represent what many

might argue were not readily supplied by the confined peer review process of higher education during the diffusion of the Internet. “The Law – Suppression of Radical Potential” acted as a ‘brake’ on the development of the Wikipedia project. Some examples include: vandalism to Wikipedia articles, rapid growth and need for financial resources, the (in)ability of amateurs to publish highly academic information, and schools/professors condemning and/or banning the use of Wikipedia. Winston explains his notion of the ‘accelerator’ and the ‘brake’ within his model:

In this model, the ‘accelerator’ is the supervening social necessity transforming the prototype into an ‘invention’ and pushing the invention out into the world – causing its diffusion. But there is also a ‘brake’: this operates as a third transformation, wherein general social constraints coalesce to limit the potential of the device radically to disrupt pre-existing social formations. I will refer to this particular ‘concentration; of determining social factors as the *‘law’ of the suppression of radical potential* (p.11).

It is within the above context that my discussions surrounding Wikipedia calm overzealous “technophiliacs and/or jeremiads” into an agreement that the innovation of Wikipedia represents a “fundamental continuity” of changes between Wikipedia and higher education (p. 2). There are then three general phases of development for the Wikipedia project that can be evaluated in a chronological order: the birth of the Wikipedia project, the disruptive phase, and convergence.

Nupedia

The earliest version of Wikipedia was titled “Nupedia.” In Winston’s model, “Nupedia” would be classified as a **partial prototype** because it was designed to be effective in completing a certain task but was unsuccessful (p. 8). The innovations proposed for “nupedia.com” were two-fold: leverage the new possibilities of the Internet to collate resources/expertise and publish an online encyclopedia using an open content license. Their webpage explained (Nupedia.com:

What is Nupedia?, 2000): “**What is Nupedia?** Nupedia is a new online encyclopedia. It will be searchable and also organized hierarchically and alphabetically. Nupedia is ‘open content’; we want the contents of the encyclopedia to receive the widest possible distribution.” Skimming through their volunteer/staff pages in the year 2000, the reader can see that the goal was to recruit experts to organize, edit, and author its first edition. The list on the page included biographies of scholars with PhDs from around the world (Nupedia.com: Reviewers, 2000). The idea to publish using an open content license was new for the publication of an encyclopedia but was not new in the world of programming and the Internet (Nupedia.com: About, 2000):

What does it mean to say that Nupedia is "open content"?

It means that you will be able to use any part of the contents of Nupedia.com in any way you see fit, with our compliments. There are just two conditions: (1) you must give Nupedia.com prominent mention as the source of your material, and (2) you must not attempt to stop anyone else from using the material. Those familiar with the "open source" movement in software development may immediately understand the tremendous implications this has. For more information on this, or if you do intend to use materials from Nupedia, please consult the Nupedia license.

At the time the Nupedia prototype was new but did not align with the ethos of the Internet. It was a traditional model of organization vis-à-vis the organizational structure that supported hierarchy, bureaucracy and vertical processing (Shirky, 2008). This layering of the traditional model of publication onto the various digital encyclopedias suppressed the technology of the Internet. The desire to have quick access to information on the Internet meant that technologists attempted to iterate a number of digital encyclopedia prototypes. Winston’s “Law of Suppression of Radical Potential” expressed itself when the Nupedia project failed. First, it

seemed that the professional model of publication used by Nupedia was not going to develop without considerable investment. Wired Magazine reporter Daniel Pink (2005) explained the sluggish process of publication for Nupedia created by co-founder and academic Larry Sanger:

With Sanger as editor in chief, Nupedia essentially replicated the One Best Way model. He assembled a roster of academics to write articles. (Participants even had to fax in their degrees as proof of their expertise.) And he established a seven-stage process of editing, fact-checking, and peer review. "After 18 months and \$250,000," Wales says, "we had 12 articles." Then an employee told Wales about Wiki software. On January 15, 2001, they launched a Wiki-fied version and within a month, they had 200 articles. In a year, they had 18,000. And on September 20, 2004, when the Hebrew edition added an article on Kazakhstan's flag, Wikipedia had its 1 millionth article. Total investment: about \$500,000, most of it from Wales himself.

In a long rambling Slashdot entry, Larry Sanger clarifies that the Nupedia editorial board knew their first model would need to be adjusted (Sanger, 2005):

Nupedia had "just over 20" articles--not 12--after 18 months. We always suspected that we would wind up scrapping our first attempts to design an editorial system, and that we would learn a great deal from those first attempts; and that's essentially what happened.

The ensuing Wikipedia model was less bureaucratic and more inviting for an amateur online culture. The end result was an increase of published articles and huge cost savings. This open editorial participation philosophy launched the new versioning of the digital encyclopedia into an extreme period of growth and popularity. Winston (1998) wrote this about the state of the internet in the 90's:

The [Network Working Group] with its endless exchange of suggestions and decisions on protocols and other operational details, offered a viable model as to how work could go forward internationally without any formal authorization being required. Again, the cultural sense of being outside external authority was reinforced (p. 329).

It makes sense that in 2001 Jimmy Wales (the current figurehead of Wikipedia) and Larry Sanger moved to open up the participation to include an amateur population. Linux had already been running for 10 years, Drupal was just beginning, and Amazon.com had already made great strides in online participatory culture. Yet the model for open participation at the time seemed farfetched as Jonathan Zittrain (2009) during a Ted Talks presentation explains:

If a man named Jimbo [Jimmy Wales] came up to you in 2001 and said, “I’ve got a great idea! We start with seven articles that anybody can edit anything, at any time, and we’ll get a great encyclopedia! Eh?” Right. Dumbest idea ever. (Laughter) In fact, Wikipedia is an idea so profoundly stupid that even Jimbo never had it.

Jimbo’s idea was for Nupedia. It was going to be totally traditional. He would pay people money because he was feeling like a good guy, and the money would go to the people and they would write the articles. The wiki was introduced so others could make suggestions on edits - - as almost an afterthought, a back room. And then it turns out the back room grew to encompass the entire project (July 2009, 9:16).

The innovation of using the web to publish an open access encyclopedia did not scale until the project accommodated the ethos and technology of the internet. Wikipedia enabled amateurs to become editors, publishers, and managers of an endless number of online publication projects.

The new Wikipedia structure juxtaposed not only Nupedia but the standard organizational design of the traditional higher education institution in North America and beyond. In 2001 (and to the

present) universities were -- and still are -- hierarchical, bureaucratic and under the direction of a vertical management structure. In its early stages, Wikipedia did not receive much attention within Canadian higher education institutions including the University of Windsor. However, the ethos of the Internet was abuzz on many campuses with the advent and proliferation of email and websites. Before moving on the next phase of development in the Wikipedia discussion, it is important to take a snapshot of technology at the University of Windsor in the first few years after the turn of the century.

The State of Higher Education in Ontario during the Birthing of Wikipedia

Exploring Wikipedia's organizational model and philosophical handling of knowledge shows that universities take far fewer chances in how they create and manage their products – teaching, learning, and research. The discussion paper, “Higher Expectations for Higher Education,” (Rae, 2004) includes many references to quality and the call for better measurements related to the student experience. This quote from the document shows the resources poured into measuring and leading the knowledge processes at universities (2004):

Within universities, there is a range of practices: peer reviews, curricular committees, senate or board reviews of academic programs, centres and projects for the improvement of teaching, faculty evaluation and assessment, and external program accreditation in professional programs. Universities also develop and report on performance indicators to their governing boards. On a system-wide basis, the Undergraduate Program Review Audit Committee audits each university's quality assurance policies for undergraduate programs and the Ontario Council on Graduate Studies evaluates the design of each graduate program. There is generally no public reporting regarding the results of these processes (p. 16).

The academics and administrators charged with vetting programs, publications and research would find the very notion of Wikipedia to be in direct conflict with their focus on quality assurance. To explore the matter further, let us review the University of Windsor's state of affairs during the birthing of the Wikipedia project.

Among the major areas of concern at the University of Windsor in the first decade of the century, were the serious needs to upgrade the physical plant, replace numerous faculty and staff due to retirements, and continue to manage a new onslaught of student enrollment.¹ However, if a student had been asked about their concerns, their answer would have likely been the relentlessly rising cost of tuition causing new levels of student debt. During a town hall meeting held at St. Clair College in Windsor, the community bombarded the visiting panel of higher education experts with comments regarding student debt and rising tuition. The article in the local newspaper the next day was entirely focused on the shortage of funds to universities, students, and student debt (Macaluso, 2004, December 2). Wikipedia in this phase would be insignificant despite its achievements in efficiency. However this quote taken from the University of Windsor 2002/2003 annual report does hint at a new focus of user input on campus (University of Windsor: Annual Report, 2003):

The University of Windsor Provost will oversee a major new initiative to develop a more learner-centred campus, one of the major priorities in the new plan. This will include launching a three-year process to review and reform curricula and teaching methods and an innovative project to define and implement program specific outcome measures for the knowledge, skills and future performance of Windsor graduates. All areas of the

¹ The onslaught of enrolment was due to the recent elimination of the final and fifth year at Ontario high schools. This meant that the students on the five year program and the first group of students who completed the four year program would be entering university at the same time.)

university will continue to improve services to students, encouraging innovations proposed by front-line staff and providing much more training and support to faculty and staff in the realization of such changes (p.16).

The effort and focus on the University of Windsor's Strategic Plan showed the commitment and the robust manner in which their goals were to be considered. All along, the advent of the Internet created rapid development of a compendium of organizations that could develop a wide array of products and services that would propose new "free" economic models that would raise the status of the end-user as producer and scale projects more efficiently than higher education. A hint of attention was given to the effects of the World Wide Web and electronic communication in the 2002/2003 annual report (University of Windsor: Annual Report 2003, p. 14) with the inclusion of statistics regarding rapidly increasing website visits and email contacts from the external community. Neither the email services nor the University of Windsor website could have competed with the advanced state of the Wikipedia project which was only a few years old. Wikipedia had already developed a much more accessible two-way communication platform for the publication of the world's soon to be largest encyclopedia. While universities were bogged down in committees, five-year plans, branding, and quality assurance, Wikipedia quickly became a cost effective, social outlet for amateur publication that scaled beyond imaginable proportions of the day. Even Winston with his in depth of communication technologies would have had difficulty believing that an encyclopedia could be created in such an open participation and social manner. Winston's (1998) understanding of amateur participation and its radical potential did not predict the prolific nature of the Wikipedia project:

However the radical impact of such a system [the Internet] on the academy say, will be contained for the foreseeable future by traditional requirements of authorship and

publication. Other uses such as the creation of a virtual social community seem to have less, if any, purpose as a sort of hobby (p. 335).

Wikipedia's success in amateur publication shows how a "hobby" can become something that can compete with a professional model. The Wikipedia project used a social platform allowing users to make up their own online names, create clubs with Wikipedia related mandates, and eventually to hold live face to face meetings and conferences. Wikipedia then was disrupting this notion of the academy as the deciding force that vetted and legitimized information within publications on the World Wide Web. In Winston's model the challenges of cost and efficiency within the Ontario university system represent a supervening social necessity that would make the Wikipedia project and other similar organizations more noticeable to higher education. Technologists and Wikipedians worked diligently, knowing that the new platform could offer new levels of accessibility to knowledge and efficiency for organizations around the world. By 2004, Wikipedia had grown to intersect with higher education in a more significant manner. This intersection caused a disruption within higher education and for the Wikipedia project.

Wikipedia Intersects with Higher Education

By 2006, the rapidly rising use of smart mobile devices and the installation of wireless Internet throughout the University of Windsor campus meant that Wikipedia could be accessed more quickly and easily than traditional knowledge means (University of Windsor: Annual Report 2007, p. 3). Wikipedia's high Internet search ranking meant that students had difficulty resisting the convenience of doing quick references and perhaps even using the platform for more academic use. Higher education entered into schizophrenic actions alternating between accessing the convenience of Wikipedia and then regulating its use to protect the traditional peer review system. Wikipedia found its way into assignments, preliminary research, and became a

well-used forbidden fruit in the ranks of higher education (Head & Eisenberg, 2010). Winston's (1998) explanation of the 'invention' phase fits Wikipedia's development during this time period:

The *invention* now moves into the market place. Yet acceptance is never straightforward, however 'needed' the technology. As a society we are schizophrenic about machines.

On the one hand, although perhaps with an increasingly jaundiced eye, we still believe in the inevitability of progress. On the other hand we control every advance by conforming it so that it 'fits' to pre-existing social patterns (p. 11).

The increasing use of Wikipedia meant that those in higher education needed to learn and teach new media literacy skills and search engine strategies. On the one hand the University of Windsor campus promoted the use of the Internet. On the other hand the University of Windsor struggled to regulate the "ethos of the Internet" and the use of platforms such as Wikipedia. Higher education would question Wikipedia's competing peer review model, its rapidly changing environment and its flattening of authority to publish information within a public forum (Bruns, 2008, p. 69). A review of the media and news regarding Wikipedia in this phase suggests that the interaction spread quickly but awkwardly throughout a number of professions (Wikipedia in Culture, 2012). Encyclopedia Britannica was among the first to consider change as the Wikipedia project evolved. The new collaborative online encyclopedia was free, easily accessible, and had the strongest ties to the rapidly expanding resource of Google (Lih 2009). For journalists, Wikipedia represented quick leads to news stories and became an outlet for citizen journalism (Bruns, 2008, p. 69). Librarians lamented that students would go to Wikipedia for preliminary information for research topics and citations (Smith, 2012). Students in university classrooms would verify a professor's teachings (personal communication Dr. Gordon

Gow 2010) and refer to Wikipedia for formulas, definitions, and concepts without raising their hand or going to visit the professor during office hours (Farr, 2012, 1). There was a sense in higher education that Wikipedia was causing an unwanted disruption in the flow of communication between professors and students. This feeling of unease with the Internet activated debates about higher education's organizational design, online presence, and the place of the 'professional' within society.

As Wikipedia became more diffused there was an increase of scholarly articles, news stories, books, and debates about how the community was organized. As early as the 1970's, Toffler (as cited in Bruns 2008, p. 26) spoke of a new organization that would compete with the bureaucratic model. He claimed that "[w]e are witnessing not the triumph, but the breakdown of bureaucracy. We are, in fact, witnessing the arrival of a new organizational system that will increasingly challenge, and ultimately supplant bureaucracy. This is the organization of the future. I call it 'adhocracy'." Toffler's adhocracy predicts the "**Learning Organization**" as described by Daft and Armstrong (2009, p. 602) who define the learning organization as "an organization in which everyone is engaged in identifying and solving problems, enabling the organization to continuously experiment, improve, and increase its capacity." Two key features added by Daft and Armstrong are its "organic" and "horizontal" qualities. This organizational model enables rapid growth, faster work flows, and resources that scale with little financial investment. The concepts of adhocracy and the learning organization are the DNA of the Wikipedia project (Daft, 2009; Bruns, 2008). During Wikipedia's rise to online prominence the community was "an organization system marked by free-flowing, adaptive processes, an unclear hierarchy of authority, and decentralized decision-making" (p. 603). Wikipedians constantly reworked community processes and their organizational structure during this phase. Issues such

as vandalism, promotional editing, political editing wars, debates on notability, arguments about the nomenclature of articles, and article worthiness, did not halt the overall progress of the project. The organizational focus on progress is what makes the learning organization grow its resources so rapidly (Daft, 2009). Wikipedia fuels a flattening of hierarchy through its processes and promotional tagline: “the encyclopedia anyone can edit” (Keen, 2007). Daft and Armstrong explain learning organizations as having “a structure that virtually eliminates both the vertical hierarchy and departmental boundaries by organizing teams of employees around core work processes; the end-to-end work, information, and material flows that provide value directly to customers” (pp. 600-601). In the case of Wikipedia many working groups developed to monitor articles, create new articles in under-represented areas, make decisions regarding article worthiness, and automate processes to manage tedious work that would have been completed by humans. Bruns (2008) further developed the notion of the learning organization -- though not using the term “learning organization” -- by presenting Wikipedia as an “ad hoc meritocracy.” The vetting of credentials in Wikipedia is done on an ad hoc or as needed basis. As a contributor collects edits on their record they can build a democratic and technological advantage over other more casual contributors/users within the Wikipedia project. Bruns (2008) and Pink (2005) noted that Wikipedia’s ad hoc meritocracy began to be threatened by a “power pyramid” that was developing within its community. This included a variety of specific levels of administrative tasks and authority assigned and defined within the community. Wikipedia tries to avoid steadfast rules such as those exhibited by tenure, promotion and renewal committees within higher education. Bruns’ (2008) statement on the structure of bureaucracy reveals the changes during this phase of disruption within Wikipedia:

The importance of [the power pyramid] structure should not be overstated, however: on the one hand, while it outlines a hierarchy of administrative personnel on the site, it does not describe the structural features of the content development communities existing around specific topics within *Wikipedia*. These communities continue to be organized on a much more *ad hoc*, fluid, and heterarchical basis which determines the centrality of participants to their community, and their resultant ‘power’ or influence within that community, very directly based on their continued performance as content contributors (p. 141).

Bureaucracies -- such as in higher education -- can overburden innovation and newcomers due to its lengthy vetting and regulatory processes. This clip from the Wikipedia article “ignore all rules” shows the prioritization of work flow within their community (What “Ignore all rules” means, 2012):

You do not need to read any rules before contributing to Wikipedia. If you do what seems sensible, it will usually be right, and if it's not right, don't worry. Even the worst mistakes are easy to correct: older versions of a page remain in the revision history and can be restored. If we disagree with your changes, we'll talk about it thoughtfully and politely, and we'll figure out what to do. So don't worry. **Be bold**, and enjoy helping to build this free encyclopedia.

Bureaucracies on the other hand are more concerned with past practice and allowing only vetted personnel to make changes to their organizations. Amid the free flowing prominence of Wikipedia in the middle of the decade, Dr. Ross Paul -- President of the University of Windsor - in his final annual report listed a key “continuing challenge” on campus (University of Windsor: Annual Report, 2007):

The University of Windsor is notable for its formalization of its culture through extensive bylaws and detailed collective agreements. A continuing leadership challenge will be to overcome the strong resistance to change inherent in such an institution to enhance the University's ability to move quickly to capitalize on opportunities or otherwise compete successfully in a rapidly evolving environment (p. 8).

During this time the Internet promoted many communities like the Wikipedia project that grew and responded rapidly to its changing environment. Wikipedia's organizational structure at once replaced cumbersome rules with a philosophical nature, the vetting of professional status with the vetting of work, and highly skilled professionals with well-organized volunteers. As Toffler predicted, the learning organization chipped away at the seemingly unbreakable idioms of prominent bureaucratic structures. While universities envied organizations that could quickly respond to their environment, higher education in general was troubled with the Wikipedia project. The peer review and publication process seemed to be the most egregious complaint for faculty members. The first reference to Wikis or Wikipedia in "The Online at Purdue" citation guide doesn't appear until September 2008 and lists this caution (Reference List, 2008): "Please note that the *APA Style Guide to Electronic References* warns writers that wikis (like Wikipedia, for example) are collaborative projects which cannot guarantee the verifiability or expertise of their entries." In 2007 (March 5) in a widespread news story specific to higher education, Noam Cohen of the New York Times reported that Wikipedia had to reconsider how people would claim their online status. A prominent Wikipedian, 'Essjay' lied about having a PhD and made large claims about his experiential credentials within higher education:

After an influential contributor and administrator at the online encyclopedia Wikipedia was found last week to have invented a history of academic credentials, Jimmy Wales . . .

.called for a voluntary system for accrediting contributors who say they have advanced degrees, like a Ph.D. or M.D.

In the same article, Florence Devouard (then the head of the Wikimedia foundation board) revealed an alternate solution that maintained the openness of the Wikipedia philosophy: “I think what matters is the quality of the content, which we can improve by enforcing policies such as ‘cite your source,’ not the quality of credentials showed by an editor” (2007, March 12). Some argued that this new vetting process challenged the professional model of publication in higher education (Keen, 2007). This notion of a replacement of the professional would leak into the media and bring to light a new awareness about the Wikipedia publication model. Here Lih (2009) describes one of the first broadly published complaints:

Things were looking bright, until a November 29 editorial in *USA Today* gave Wikipedia a full smack down.

Penned by John Seigenthaler, a noted veteran journalist, it detailed in slow motion his discovery that the Wikipedia article about him was not only factually incorrect, but accused him of being part of murder (p. 191).

An onslaught of media references to Wikipedia’s amateur status ensued. The “Wikipedia in Culture” page is thickly woven with examples of hoaxes, complaints, and media references that would embarrass even the most confident organizations (Wikipedia in Culture, 2012). The new concept of leveraging the crowd and amateur participation did not sit well with author Andrew Keen (2007). He expressed a biting concern for the concept of the “noble amateur.” He wrote that “this celebration of the amateur is having a corroding effect on the truth, accuracy, and reliability of the information we get” (p. 63). His article on the *Noble Amateur* gives numerous examples fearing the heightened allowances given to the online amateur. This paragraph

summarizes the crux of his argument and why he opposes an ad hoc meritocracy or learning organization structure:

When an article runs under the banner of a respected newspaper, we know that it has been weighed by a team of seasoned editors with years of training, assigned to a qualified reporter, researched, fact-checked, edited, proofread, and backed by a trusted news organization vouching for its truthfulness and accuracy. Take those filters away, and we, the general public, are faced with the impossible task of sifting through and evaluating an endless sea of the muddled musings of amateurs (p. 53).

During the influx of media articles, scholarly journals, and books about Wikipedia higher education was trying to lock down the use of Wikipedia. At Middlebury College Professor Neil Waters (2007) strongly contended that students should not be citing Wikipedia and passed the following policy regarding the use of Wikipedia at Middlebury College:

- (1) Students are responsible for the accuracy of information they provide, and they cannot point to Wikipedia or any similar source that may appear in the future to escape the consequences of errors.
- (2) Wikipedia is not an acceptable citation, even though it may lead one to a citable source (p. 15).

The rapid diffusion of Wikipedia made for a high level of readership on the matter. The Middlebury College story landed in the New York Times. Jimmy Wales (co-founder of Wikipedia) was quoted as saying “Basically, they [Middlebury College] are recommending exactly what we [Wikipedia] suggested – students shouldn’t be citing encyclopedias. I would hope they wouldn’t be citing Encyclopedia Britannica, either.” (Cohen, 2007, February 21). Wales’ comment regarding Britannica seemed somewhat opportunistic when he later compared

Wikipedia to the popularity of rock and roll: “If they put out a statement not to read Wikipedia at all, I would be laughing. They might as well say don’t listen to rock’n’roll either” (Cohen, 2007, February 21). Author Andrew Lih (2009) summarized the debate:

Nearly every-internet enabled student depends on Wikipedia these days, to the dismay of many educators. Venerable study aids like Cliffs Notes summaries look like creaky wooden carts next to the supersonic jetliner that is Wikipedia. But Wikipedia’s radical working model and uneven quality have resulted in it being “banned” for use in citations by a number of colleges and universities, and there is continual academic debate about the scholarly value of an encyclopedia put together by ordinary, uncredentialed common folk (p. 10).

The competitive convenience of Wikipedia broadened its use within higher education.

Wikipedia was used for purposes even beyond what its creators had anticipated. In Winston’s model he suggests that ‘*supervening social necessities*’ will act upon the new technology in ways which may go unanticipated by even the creator (Winston, 1998, p.6). The overzealous use of Wikipedia content would lead the Wikimedia foundation to reconsider its processes in order to accommodate populations (such as higher education) that were banning their content and use. Higher education in particular would apply the ‘brakes’ that Winston discusses in his model of innovation (Jacobs, 2010):

In talking with students about *Wikipedia*, it is clear to me that most of them have only been presented with rules about *Wikipedia* rather than open-ended questions. They have been told not to use it in their research and not to cite it in their papers: these are instructions they have patiently received, memorized, and repeated. By insisting that

students “bank” a particular perspective on *Wikipedia*, we ask them to be passive consumers of knowledge rather than active participants (p. 180).

Throughout this phase of diffusion, Wikipedia continued to edge toward bureaucratic processes to satisfy their users who were continuing to expand the platform’s intended use. Butler, Joyce, and Pike (2008) wrote an article titled: *Don’t look now, but we’ve created a bureaucracy: The nature and roles of policies and rules in Wikipedia*. They reported that:

[an] examination of the administrative structures of Wikipedia reveals a complex structure of rules, processes, policies, and roles. There are 44 wiki pages in the “Wikipedia Official Policy” category as of September 2007. There are 248 wiki pages categorized as “Wikipedia guidelines” which are organized into at least eight subcategories. In addition, these do not seem to be sufficient, since there are 45 pending proposals for guidelines and policies, not to mention the 200 rejected proposals for guidelines and policies (p. 1101).

The community became more vertical so that elite community members could conduct managerial tasks such as resolving disputes (Bruns, 2008). One Wikipedia admin “RickK” was quoted as having averaged 2000 edits per month (Lih, 2009, p. 186). But highly experienced managers such as “RickK” came to reject the egalitarian editorial process (Keen, 2007):

“RickK” a well-known editor exited from the community with this statement:

There is a fatal flaw in the system. Vandals, trolls and malactors are given respect, whereas those who are here to actually create an encyclopedia and to do meaningful work, are slapped in the face and not given the support needed to do the work they need to do. There is no reason to continue here (p. 187).

Despite the media and the deserting editors such as “RickK,” there are many within the Wikipedian community who vie to maintain the egalitarian editorial process and freer work flows. Angela Beesley, who was an influential leader of the Wikipedia movement in 2006, defended the open invitation of Wikipedia (as cited in Bruns 2008):

the biggest challenge is to maintain what made us who and what we are: the traditional wiki model of being openly editable. There are temptations to lock things down in order to placate the media who tend to focus on the inadequacies of the site (p. 144).

Bureaucracies apply the brakes to the open content philosophy of platforms such as Wikipedia through trying to ban its use or by competing with their own version of “open source” content. Winston’s model suggests that higher education would supplant its processes onto Wikipedia’s organizational structure and that Wikipedia would accommodate the traditional social patterns of higher education. During this phase the University of Windsor did not seem to make any noticeable changes in organizational structure, instead, the community became entrenched in the debate over when to accelerate technology and when to suppress it. However the University of Windsor did experiment with new open source content products such as Conifer, Drupal and Sakai. The Wikipedian community became more vertical, began extensive fund-raising campaigns, and began to hire paid personnel with specific expertise. Among the most disrupted bureaucratic organizations continues to be Encyclopedia Britannica, that throughout the development of Wikipedia and the Internet needed to rejig their previously tried and true manner of organization. Jimmy Wales began to be more vocal in media interviews regarding how the traditional publication processes would become an historical artifact (Stross, 2006, March 12):

When I asked Jimmy Wales, the founder of Wikipedia, last week, he discounted the importance of individual contributors to Britannica. “When people trust an article in

Britannica,” he said, “it’s not who wrote it, it’s the process.” There, a few editors review a piece and then editing ceases. By contrast, Wikipedia is built with unending scrutiny and ceaseless editing. He predicts that in the future, it will be Britannica’s process that will seem strange: “People will say, ‘This was written by one person? Then looked at by only two or three other people? How can I trust that process?’”

As the disruptive phase began to work out some of its hotly contested debates, Encyclopedia Britannica seemed to work on the shortcomings that came to light in the advent of Wikipedia (Cohen, 2008, March 16):

Encyclopedia publishers, while taking swipes at Wikipedia’s unreliability since it can be edited by anyone, have clearly adopted some of its lessons. They are incorporating more photographs and suggestions from readers to improve online content, and they are committed to updating material as facts change. Britannica says it updates an article every 20 minutes.

Perhaps the most crushing blow to Encyclopedia Britannica was when Wikipedians posted a “wikified” version of the 1911 edition of Encyclopedia Britannica as soon as the documents fell into the public domain (Baker, 2008; O’Sullivan, 2009; Reagle, 2010). It became increasingly difficult for Encyclopedia Britannica to avoid the notion of Wikipedia as competitor throughout this phase as they looked to accommodate their growing clientele. In the meantime, cash strapped higher education institutions hoped to learn new efficiencies from Internet based organizations but seemed to avoid the wiki model because of its promotion of amateur publication, its no-cost access, and open access philosophies. At this point higher education – University of Windsor included – was hindered by its existing policies, requirements to recruit and retain expensive professionals, and to revitalize its aging physical plant (University of

Windsor: Annual Report 2008, p.8). While universities invested in equipment, training, and wireless technology, Wikipedia, Google and other Internet sites secured a dense network that diminished higher education's market share of the knowledge ecosystem (Reagle, 2010). This disruptive phase marked the beginning of a broader exploration of organizational design and publication philosophy for higher education. During this phase, consumers became increasingly entrenched in the publication of knowledge (Bruns, 2008). At the Wikipedia in Higher Education Summit Sue Gardner (head of the Wikimedia Foundation) sounded apologetic when she explained Wikipedia's broad based diffusion into the market (Gardner, 2011):

. . . over a period of about 3 years it [Wikipedia] has surpassed in popularity websites of CNN, New York Times, Merriam Webster, PBS, NPR I [and] had become a dominant player in the information landscape on the Internet and that was a disruptive thing to have happen (4:12 – 4:36).

The renegotiation of organizational design for both Wikipedia and higher education would become a long-term push pull relationship fuelled by Internet experimentation and the anchoring of traditional bureaucracies (Winston, 1998).

Changing the Network of the Knowledge Industry

While organizational processes were tested, the flow of communication was repositioned by the new networks of Internet organizations. Author and professor Clay Shirky (2010) elaborates on how the networks formed new power structures:

In a historical eye blink, we have gone from a world with two different models of media-public broadcasts by professionals and private conversations between pairs of people-to a world where public and private media blend together, where professional and amateur

production blur, and where voluntary public participation has moved from nonexistent to fundamental (p. 211).

Wikipedia developed an explosive online presence, dominated search engines, and was regularly accessed by users within the knowledge ecosystem of higher education (Lih, 2009). The Wikipedian community's ability to publish an online encyclopedia using its online network, then later social connections, became one of its defining strengths (Lih, 2009). Preece and Shneiderman explain that "[t]he culture of the Internet is about much more than information transfer. It has become increasingly social and communal" (Preece & Shneiderman, 2009, p. 14). Professor Andrew Lih (2009) also lauds Wikipedia for their understanding of building an online community of contributors who will work for free and describes the social scene prior to the first Wikimania conference:

Suddenly talking about digging through stacks of books to confirm one fact, checking grammar for five hours straight, or creating thousands of maps by hand didn't seem so dysfunctional. One user showed how he prevented vandalism to Wikipedia with software he had written, while another demonstrated how he translated articles from Spanish into Portuguese. Into the night, users rearranged plastic chairs and outdoor furniture to cluster around laptops, using the wireless Internet as an umbilical cord to attach to the Wikipedia mother ship, editing, sifting, and adding to the site. Only the hostel's curfew kept them from staying up until sunrise. And oddly enough, this all happened ad hoc, in the days before the conference even formally started (p. 2).

Despite Wikipedia's online home, their organization's ability to create large scale social networks seems unparalleled in the realm of the publication of encyclopedias. As a Wikipedian you can earn badges, send "Wikilove" (an electronic compliment when a Wikipedian does

something good for the community), and attend low or no-cost face-time meetings such as “Wicnics” or “Wikimania.” Better still you can become a community leader, have your work recognized publicly, and enjoy a slice of online academic fame without having any credentials. As Shirky (2010), Lih (2009) and Baker (2008) report, some Wikipedians are extraordinarily committed and volunteer innumerable hours to the project. New York Times columnist Nicholas Baker (2008) described the contributors in this way:

It [Wikipedia] tapped into the heretofore unmarshalled energies of the uncredentialed. The thesis procrastinators, the history buffs, the passionate fans of the alternate universes of Garth Nix, Robotech, Half-life, P.G. Wodehouse, Battlestar Galactica, Buffy the Vampire Slayer, Charles, Dickens, or Ultraman – all those people who hoped that their years of collecting comics or reading novels or staring at TV screens hadn’t been a waste of time – would pour the fruits of their brains into Wikipedia, because Wikipedia had added up to something.

Despite Baker’s comments regarding the “uncredentialed,” the Wikipedia project continually interspersed into academic networks. Recent surveys report, that many Wikipedia contributors already have and/or are working on either an undergraduate or graduate degree (Glott, Schmidt & Ghosh, 2010). See chart 2.1

Chart 2.1 (Education level of the Wikipedian Community)

Education Level	Reader (%)	Contributor (%)	Total (%)
Primary education	12.08	11.05	11.75
Secondary education	37.25	33.66	36.11
Tertiary education/Undergraduate	25.23	25.99	25.47
Tertiary education/Masters	17.24	18.61	17.68

Tertiary education/PhD	2.26	4.43	2.95
Other	5.93	6.25	6.03
N=124,752	100%	100%	100%

The increasing change in the network of readers and contributors would drive the Wikimedia Foundation to formally recruit higher education contributions (Wikimedia Foundation: Strategic Plan, 2011):

We need to encourage global participation via partnerships with universities, cultural institutions and other groups who align with our mission.

[T]he Wikimedia Foundation will prioritize improving tools for collaboration, quality review and labeling, as well as new tools to enable readers and experts to aid in the assessment of information quality. Beyond simply increasing the breadth and completeness of our coverage, we must drive toward a measurable increase in the quality of information we offer (p. 21).

As Winston (1998) states: “general social constraints coalesce to limit the potential of the device radically to disrupt pre-existing social formations” (p. 11). On the one hand the speed of the Wikipedia network may be slowed down by higher education’s need for accuracy. On the other hand, higher education needs to open its access to information and broaden its allowances for the use of Wikipedia on campus. While sectors of higher education may attempt to stop the intersection of Wikipedia’s social network and online “savoir faire,” it will be incredibly difficult to undo Wikipedia’s incumbency as the website consistently ranks in the top ten trafficked websites in the world (Alexa.com, 2012).

Wikipedia's Online Advantage.

Wikipedia's Google ranking is consistently high: "[d]o a random Internet search, and it's hard not to find a Wikipedia entry in the top five results" (Lih 2009, 11). University students began to use Wikipedia because it was more convenient than logging into their online library resources, visiting/contacting the librarian, going to professor's office hours, or talking to mentors (Head & Eisenberg, 2010). Among other online resources, Wikipedia became preferred because it was so pervasive, free, and did not have pestering display advertisements (Lih, 2009). While juggernaut sites such as Google, Facebook and Yahoo found resources from advertisements and data mining, Wikipedia continues to be the only not-for-profit site that does not charge for its services (Wikipedia.org). Wikimedia chose uniquely among the largest Internet websites to be a not for profit organization that relies on donations from their many users and contributors. "In 2009-2010, the Foundation raised \$8 million from more than 250,000 individual donors" (Wikimedia Foundation: Strategic Plan 2011, p. 23). During this time when Wikipedia was establishing its online advantage, higher education -- the University of Windsor included -- was busily creating logins, paying fees for expensive journals, making strategic plans, building/repairing new facilities, charging additional technology fees for expensive computer labs, and continually raising tuition and ancillary fees. Wikipedia's focus on accessibility and new economic model resonated with Internet users around the world (2011):

Knowledge should be free

Access to information empowers people to make rational decisions about their lives. We believe the ability to access information freely and without restrictions is a basic human right. Our vision requires that the educational materials we collect and create together be

free for others to use and reuse. Our work also depends on free and open formats and technologies.

Share with every human being

The Wikimedia movement strives to include every single human being in our work by making our knowledge resources available and providing the venue for all people to share their knowledge. We prioritize efforts that empower disadvantaged and underrepresented communities, and that help overcome barriers to participation (p. 2).

Wikipedia's economic model and philosophies began to resonate with the offline world. Noam Cohen (2010, June 4) reported in the New York Times on the Wikipedia collaboration between the British Museum and their new Wikipedian in residence program:

Among those wandering the galleries was the museum's first Wikipedian in residence, Liam Wyatt, who will spend five weeks in the museum's offices to build a relationship between the two organizations, one founded in 1753, the other in 2001. "I looked at how many Rosetta Stone page views there were at Wikipedia," said Matthew Cock, who is in charge of the museum's Web site and is supervising the collaboration with Wikipedia. "That is perhaps our iconic object, and five times as many people go to the Wikipedia article as to ours."

While Wikipedia continued to grow articles through its multifarious contributors, other online encyclopedias floundered (Lih, 2009):

[Wikipedia's] direct rivals in the English language, Encyclopedia Britannica and Microsoft's Encarta, started as paid services requiring a log-in and password to access their pages. As a result, they are available only to an elite set of users, and have seen their influence and relevance drop over the years with Wikipedia in the same space (p. 5).

But the competition between encyclopedias is a much broader issue. Students were replacing old habits such as referring to online journals at traditional libraries, visiting with librarians during their presearch stage and meeting with professors outside of class (Farr, 2012; Head & Eisenberg, 2010; Smith 2012). The term “presearch” is taken from Head and Eisenberg’s (2010) study when a: “focus group participant called *Wikipedia* ‘my presearch tool.’ Presearch, as the participant defined it was the stage of research where students initially figure out a topic, find out about it, and delineate it.” But it was not just students who latched on to the quick convenience of Wikipedia, so too did professional journalists, even when that meant taking risks in relaying misinformation (Pogatchnik, 2009). While people may worry about the accuracy of Wikipedia and similar outlets, they now need to make decisions regarding whether or not to trust Wikipedia for breaking news stories. Certainly, journalists would not want to be the last to break a story but neither would they want to report inaccurate information. During the disruptive phase, the automated networks that brought users to Wikipedia became faster, more robust, and more accurate. *Nature, International weekly journal of science* noted that “Wikipedia comes close to Britannica in terms of the accuracy of its science entries” (Giles, 2005). Giles’ article was so hotly debated by Britannica that in March 2006 they published an update to defend their methodology: “The results reported in this news story and their interpretation have been disputed by Encyclopaedia Britannica. *Nature* responded to these objections” (Giles, 2005). This debate now included a new amateur audience and media attention that previously had not existed. As early as 2001 Delanty described how new communication mediums created an awkward bridge between common society and the higher education institution (Delanty, 2001):

. . . both knowledge and democracy are being transformed by communication. In the past, the age of modernity, from the Enlightenment to the postwar period, the institution

of knowledge existed in a space outside the flow of communication. This place has been occupied mostly by the university. Knowledge has been seen as a site, a place, that can be occupied by something called a university. In this conception, knowledge was located in the university, not in society, which like the *polis* for Plato, enjoyed the epistemic status of the cave (p. 2).

Over the past decade, the University of Windsor has continually tried new open source products and debated about how to provide online access to knowledge resources on campus. It could easily be argued that Wikipedia is not entirely responsible for changes in higher education. However, there is a need to consider the sheer number of people within the higher education community that make regular use of Wikipedia. Why wouldn't users begin to consider the Wikipedia philosophies and advantages within higher education? Be it consciously or unconsciously, people will expect higher education to be more accessible, nimble, and easier to access financially. For example, there is evidence of a desire for more speed in campus governance. Recently the Senate minutes disclosed that a group was formed to consider how the University of Windsor structure could be more nimble. The title of the group made the goal transparent: "Need for Speed" committee (University of Windsor: Senate Steering Committee, 2012). Perhaps this initiative is hastened by envy for web 2.0 companies who have accomplished so much in the bureaucratic 'blink' of a decade and are able to navigate the changing landscape more rapidly. Wikipedia's negotiation of regulation seems to be a faster model than what is available through the Senate and Board of Governors. On the notion of scale why wouldn't universities want to scale courses in order to get more funding from the government and students? The University of Windsor-- and many institutions like it-- continue to invest in physical plant to increase classroom space so that it can accommodate more students.

But facilities run by bureaucracies are more finite than online learning organizations.

Rodriguez's (2012) language describing MOOCs sounds very similar to the ethos of Wikipedia:

Massive open online courses known as connectivist MOOCs (MOOCs) on the other hand have been delivered since 2008. They are based on the explicit principles of connectivism (autonomy, diversity, openness and interactivity) and on the activities of aggregation, remixing, repurposing and feeding forward the resources and learning.

MOOCs have students enrolled in the thousands. But the platform has its challenges. The retention rate of these experimental courses can be deafening to the ears of the traditionalists in the world of university pedagogy. Lewen (2012, March 4) reported that "Besides the Artificial Intelligence course, Stanford offered two other MOOCs last semester — Machine Learning (104,000 registered, and 13,000 completed the course), and Introduction to Databases (92,000 registered, 7,000 completed)." As the processes for offering MOOCs are mastered, and the Wikipedia type platforms flourish, higher education will need to reconsider their organizational structures, costs, pedagogical traditions, campuses and scale.

Methodology

The researcher used personal perceptions on higher education based on ten years of experience as a Student Recruitment Officer at the University of Windsor. More specifically in the past year the researcher visited 18 Ontario Colleges, became an elected voting member on the University of Windsor Senate and is the Co-Chair of the Pan-Canadian Consortium on Admissions and Transfer (PCCAT). These opportunities led to attending a province wide Pathways conference where specific issues on the governance of higher education were debated among high level administrators from around the province. These opportunities allowed the researcher the opportunity to better understand the political underpinnings of higher education in

Ontario. Collecting online data from the University of Windsor kept the scope of the project at a manageable level and offered the researcher the advantage of having inside knowledge of the institution's organizational design. However when a University of Windsor example was not available, online information was taken from other institutions. Exploring the changes between Wikipedia and postsecondary educational (PSE) institutions began with extensive online presearch. There were challenges in developing the scope and focus of the project. Searching the topic of Wikipedia produces search results that are rife with polarized views, amateur publications, and tempting hyperlink offshoots. Therefore much of the data collected is anchored by seminal textbooks and academic journals. Online secondary sources -- Google news feeds, media reports, Wikipedia, Wikimedia resources, blogs, twitter feeds, YouTube, and PSE websites -- were viewed with caution and when possible verified by finding primary sources. Upon the recommendation of a university librarian, the researcher was able to find archived web pages using the platform archive.org in order to estimate and verify dates of online publication of website postings. Media reports were checked for accuracy by reviewing original sources, reviewing multiple newspapers, and referencing Wikipedia and Wikimedia project websites. Blogs have a high level of currency and while not always highly academic, they tend to provide clues to what is happening within the world of communication technology. Interview responses were edited in order to protect the identity of participants. Responses were also edited by removing repeated words and hesitations that did not add to the content and reduced comprehension.

The University of Windsor was chosen as the comparison model for higher education because it could be defined as a traditional higher education institution for the purposes of this research (see appendices A, B, and C). The convenience of being on campus also made the

project run more smoothly when conducting interviews (see appendix D) and accessing information about the institution. Ten members of the University of Windsor academic community were contacted in person then formally via email. Potential participants filled out an online questionnaire and used the online form to give consent for the interview and publication of results (see Appendix E). Unfortunately, three of the potential participants either could not be scheduled or did not respond to email requests for an interview. Of the seven interviews that took place, one had to be discarded due to a malfunction in recording equipment. A second interview was discarded because the participant did not sign the consent form before the analysis took place. Other potential participants either could not be scheduled or did not respond to email requests for an interview. The five participants whose interviews were analyzed had a range of academic and administrative expertise in various disciplines: English Language and Literature, Political Science, Journalism, Education, Computer Science, Business, Environmental Sciences, Social Science and Education. While the sample was small, the intention of the interviews was to get a range of opinion from subject matter experts and to verify research findings from the author's synthesized research and experiences. All participants had a strong grasp of the organizational design of the University of Windsor. Two participants seemed to have an above average understanding of the Wikipedia project. The interviews were recorded and then transcribed for thematic analysis. Both the University of Alberta Research Ethics Office and the University of Windsor Research Ethics Board approved this project.

Winston's theory of Innovation for Communication Technologies guided the structure of the interviews. Interviewees were first asked to describe their academic background, professional position, and duties on campus. Interviewees were then asked to describe their use of Wikipedia and whether the platform might have changed their work on campus in some way.

As the interview developed, the researcher proposed customized scenarios in order to better understand how the participants' use or opinions of the Wikipedia platform affected -- directly or indirectly -- the way they conducted their work at the University of Windsor. Finally the interviewees were asked questions around convergence or borrowing from the Wikipedia philosophy or strategies. This format allowed the researcher to assess participants' willingness to consider and adopt changes related to the Wikipedia project at the University of Windsor.

Findings

The development of the Wikipedia project used the advent of the Internet to radically change the publication of the traditional encyclopedia. Wikipedia promoted radical changes to the knowledge ecosystem through its new tactics for authoring, editing, and peer review. The project also launched a unique economic model within the publication industry and broadly promoted open and free access to information. The application of Winston's (1998) model of communication innovation reveals that both higher education and Wikipedia have accommodated their methods of organizing and disseminating knowledge.

Interviews with subject matter experts at the University of Windsor revealed that Wikipedia seems to be broadly used to conduct presearch and as a common quick reference. Despite the expanding use of Wikipedia, the academy categorically dismisses the new peer review model used by Wikipedia within their scholarly environment. On the one hand the academy will accelerate the use of Wikipedia for quick reference or presearch, but will reject the platform for a number of other uses. In essence accessible open source platforms such as Wikipedia have begun to compete with some of the services and vendor products offered at higher education institutions. As an example, requests for information at the library help desk have plummeted since the development of the Wikipedia project. While other online resources

have also been influential, Wikipedia's high Internet ranking and not for profit status make it a key area of interest for the higher education community.

Participants often toggled between being promoters and regulators of the Wikipedia project. The notion of contributing to Wikipedia seemed to be a favourable idea among all participants. On the one hand participants comfortably noted regular use of Wikipedia within higher education but also cited Wikipedia as causing issues of academic integrity, lethargic research habits, and over-reliance on non-authoritative information. Two participants felt that there are new pressures to publish research faster, more broadly, and for free. Participants seemed to lament their failure to contribute to Wikipedia -- and other open source projects -- citing lack of time, lack of academic credit, and overall lack of resources to do work not directly related to their professional responsibilities at the University of Windsor. One participant claimed that contributing to Wikipedia was a form of "academic suicide." There was a sense that philanthropy towards Wikipedia in higher education was a noble idea but due to the current traditions of the academy and economic cut backs, contribution to Wikipedia is neither feasible nor desirable. The economic model of Wikipedia is frequently observed by leaders in the provincial government who would like to harness those efficiencies in order to access new resources for the higher education system. Winston's model suggests that there are accelerators and brakes that move the new communication technology forward and backward and that its full integration into society can take decades (1998). Participants noted that it would have been difficult for Encyclopedia Britannica to both predict and acclimatize itself to the new peer review system due to an inability to change its traditional model of peer review and bureaucratic traditions even though the changes have occurred over a longer period of time. Participants did

suggest that the University of Windsor could learn from Wikipedia on how to be more nimble, more open, and more accessible as an organization.

The Wikimedia foundation also indicates that they are pressured by users in higher education to have a more professional standard (Gardner, 2011). Interview participants said that their use of Wikipedia has increased because the platform has become more trustworthy. There is a progression of disintegration of the university as the main organizer of knowledge in society (Delanty, 2001) where Internet organizations and others are constantly repositioning themselves as increasingly more competent to offer knowledge and educational services. As online open source projects become more widely trusted, students, professors, and researchers will hedge towards new online resources, be it for the additional quality, cost, or convenience. Delanty (2001) proposed that:

the university can become an important mediator between producers and users of knowledge and thereby contribute to citizenship. As knowledge production moves out of the university, and accordingly as a whole range of knowledge users outside the university become increasingly involved in determining the nature of knowledge, the university is forced to occupy the ground of reflexivity (p. 102).

Delanty also proposed that: “A view is emerging of the transformation of higher education by market and technological forces which the state is powerless to prevent” (2001, p. 101). From the rise of the University of Phoenix, Athabasca University, Massive Open Online Courses, to Wikipedia, higher education will need to spend more time experimenting with new communication technologies to harness more online presence, learn new economic models and redefine their space in the knowledge ecosystem. As the Wikipedia project continues to intersect

with the higher education community, each need to continually consider how to accommodate the other's needs, goals, and regulations.

University of Windsor Interviews

The final section of the investigation allowed a few key community members with knowledge about both Wikipedia and the University of Windsor to speak about the effects of the Wikipedia project on teaching, learning, and research on campus. Interviewees all had experience with Senate, upper administration, teaching, and researching. Only one participant seemed to know or have studied in some way how the Wikipedia environment worked. In one of the interviews, the participant seemed to be uncomfortable: that discomfort may have come from not being able to answer some of the questions regarding how Wikipedia worked. There was a sense that one of the participants struggled to answer the questions because their position on campus was too disconnected from practitioners due to their hierarchical standing in the organization. While the interviews do not indicate a quantitative measurement for the campus, higher education, or any larger contexts, they do provide a strong guide for future research of the topic and a new awareness regarding Wikipedia's relationship with higher education. Interviews were used at times to verify similarities to what was found in the literature and at other times to find new information regarding the relationship between higher education and Wikipedia. This next section is outlined by three main themes: "Teaching and Learning", "Research and Credentials", and "Administration and Economics".

Teaching and Learning

A number of comments were made regarding how teaching and learning has changed since the birth of the Wikipedia project. Many of the participants thought of Wikipedia as only a

small piece of why changes had occurred on campus. A number of participants categorized their use of Wikipedia. This participant was the most specific:

Great as a reference source (laughter). I use it a lot to look up discographies to see which things I'm missing from an artist. So pretty typical range I think for citizen use if you will. From an academic perspective, because my research touches into multiple domains I'm always looking for generality. I shift application domains often and I've been making a radical shift recently in moving into academic development and academic structures and tying a lot more on to learning, teaching, learning education, and academic development theory. I've been going to Wikipedia a lot to get a first idea about some of the concepts that I'm seeing. From a teaching perspective in my introductory course which is first semester introducing a perspective of how to look at complicated problems. Trying to get students to do research on issues to try and see what the full scope is. I talk about the role of Wikipedia as they are beginning that research.

In another case, the participant, a librarian, came to the realization that Encyclopedia Britannica was no longer a main purchase of the university, suggesting that his/her use of Wikipedia had become more prominent than previously anticipated. Participants also spoke of Wikipedia as an excellent way to spend time learning new things, being entertained, or to complete administrative tasks such as learning geographical facts before visiting and working with international associates. Two participants noted that platforms such as Wikipedia had rekindled the notion of learning for the sake of learning rather than completing assignments for the sole purpose of receiving a credential. All participants agreed that Wikipedia's speed and scope made the platform unique and desirable. One participant hoped that universities did not try to converge with Wikipedia because it might ruin Wikipedia's organic and fluid advantage. When asked

about having Wikipedia and higher education consider converging some of their organizational traits the interviewee responded:

But what would you gain? Not lots. . . . my gut instinct is that it's best that they don't come together in some ways because the organic strength of Wikipedia would be limited in some manner probably if we were to do that. So maybe it's not a good thing. I think what's more important is that those of us that are interested in knowledge acquisition see it as an important first step. I go back to [my] example when I was reading the . . . article. I mean I learned in literally seconds that which would've might've taken me days to have learned had I had to go on out and gotten all of those sources.

Professors suggested that they encouraged the use of Wikipedia in class because it allows students to quickly access definitions, concepts and to settle in class debates regarding accuracy of information. Participants felt that this enhanced the classroom experience because it allowed for more discussion time rather than having to regurgitate definitions and concepts:

If Wikipedia's available to quickly look that up great! It's one less drain on that time you budget of time we've got with students. Now we can focus on where the real interaction with students (referring to important in-class discussions).

Two participants raised the importance of Wikipedia for international students. One of the participants described Wikipedia as a vital resource for international students who are acclimatizing to a new culture:

Participant (P) - Wikipedia is a perfect example of those places that students go and I mean we tend to think a little myopically about our students our North American Student. You look at your students with English as an additional language trying to figure out

what the heck is going on in class and Wikipedia not only just becomes an interest, it becomes a tool, it becomes a tool for them to participate

Interviewer (I)– It almost sounds like a life line to me the way you describe it.

P – Yeah I do and I've seen it. I've seen it when I was teaching I had one student who was adjunct who was from Spain and back and forth translating all of the time I mean there's multiple ways to translate but I mean Wikipedia definitely offers immediate definitions.

While Wikipedia advantages the learning process, another participant stated that both domestic and international students would be in danger of plagiarism in using Wikipedia:

students get themselves in a lot of trouble when they quote Wikipedia instead of real work. Or they don't quote it, there's another problem. They just borrowed. (pause) Because what's in Wikipedia can look and sound an awful lot like the real source and if they didn't know that, and they thought now 'this is just general information on Wikipedia it's not real anyhow so I'll just cut and paste it from Wikipedia', not knowing that in fact that that was actually what amounts to be the real resource or something very close to it gets them into a lot of plagiarism trouble . . . I guess from a student's side here is I would argue in even further than that is that Wikipedia or not just Wikipedia but the freeness of information has made it so that writers who are researchers don't actually know how best to cite their work or the work that they depend and that creates other challenges for us.

This participant raises an important debate. It would seem that Wikipedia has become well-used on campus and can be very helpful. While Wikipedia is frequently referenced as not being academic, it would seem to be helpful for certain aspects of academia. Should we not become

more transparent regarding student and academic use of Wikipedia? A number of participants indicated the importance of teaching critical thinking, but they seem to hide Wikipedia in the broom closet of academic shame whenever citation and Wikipedia are included in the same sentence. However one of the participants who seemed to have read and studied Wikipedia in some ways explained the transition and increasing validity of Wikipedia this way:

I think people are seeing it as being very useful sort of in an everyday mode as soon as it's an academic thing stay away from it. So I think it's you know the general quality of it is perceived as not just a bunch of yahoos gettin' together writing stuff but you know that it's getting a lot more useful just because people are using it themselves. But I think there's still a more automatic reaction to not use it in academic work but I don't think it's well thought out what that negative reaction is. It just seems that it's well accepted that the articles aren't of you know sufficiently high quality.

All participants stressed that although Wikipedia is an excellent place to start it was important to teach students that Wikipedia is not a final source. One professor at once hastened the use of Wikipedia in class but then jokingly poked fun at some of his students for their over reliance on skimming Wikipedia articles:

I establish it very early on that that is not sufficient obviously Wikipedia itself . . . linking to the Wikipedia page on something is clearly not scholarly and I emphasize with students that there's nothing wrong with going to the Wikipedia page to get a little bit of information or to launch your research but scroll to the bottom of the damn page, take a . . . look for the foot notes and try to dig out some literature there at the very least. . . they lose marks because . . . [their use of] Wikipedia is not scholarly . . . when I create a

grading rubric generally research is part of that grading rubric and just going to Wikipedia pages does not qualify as scholarly research.

The quote above suggests that Wikipedia and like platforms have caused students to become more lethargic in their research. However, if Wikipedia becomes more developed than a traditional encyclopedia, certain articles may give robust references that go beyond what they could easily find elsewhere.

University of Windsor as Pedagogical Contributor

When asked how our university might contribute to the Wikipedia project, only two of the participants had envisioned such an idea as a pedagogical tool. Participants thought the notion of contributing from a philanthropic point of view made sense. The participants seemed somewhat cautious when it came to operationalizing a pedagogical experience within the Wikipedia platform. One participant noted that Wikipedia's open access philosophy could mean a closed door for use in a university course or through our learning management system CLEW:

. . . it's the other part where CLEW and other places in learning management systems is a defined set of tools in an enclosed environment which is subject to only this much maneuverability (showing a small space between his/her thumb and finger) and I do have people that are just banging at the corral that want to get out of it and so the wiki, the blogging, those are the tools that just kind of balloon out into the world. And by doing that there's risks associated and that's the conversation that I always have with instructors . . . first of all what are you trying to accomplish? And if you're doing that then what kind of material is going to be released into the wild? And that comes with consequences and you need to think about that before you start. Now if the material that you have, and everybody agrees, and is open, and permissions are given, then yeah it's cool it's perfect.

On the other hand it's student work and if [at] some point they want to come back and say it's my IP I don't want it published why is it out on Wikipedia? Why is it out there? That's where this contained system collides. So that's where we can expand and yet there's reason for some containment.

Other participants seemed to struggle with how you would manage and assess students who might edit or author articles in Wikipedia. One participant started to think through a system whereby students might be assessed for the number of pages they read on a topic but then when it was suggested that students could edit and/or author pages he/she seemed more encouraging with that as a pedagogical tool. As Wikipedia and like platforms develop should we not teach our students how to interact and contribute in these democratized electronic environments? A number of participants pointed out that time constraints didn't allow professors to learn and operationalize new technologies within the classroom. The same participant noted that they liked the Wikipedia model as a means to teach the importance of citizen contribution:

Wikipedia is just one example of how you can do something to start poking and moving the world in a better direction. So taking that idea and how do you apply it to other aspects in non-Wikipedia aspects but that can use that same model. It certainly influenced my thinking of how I can get my students in the program -- so beyond just what they're doing in courses but -- helping them shape their identity of who they're becoming. There's a lot of value to be seen in what Wikipedia does. How do WE do that? How do WE translate that into other facets of someone's life professional or personal?

This professor notes an important pedagogical issue for students who will enter the working world and he/she encourages students to be more proactive in researching how organizations

work in order to model positive changes for the future. Finally one professor suggests that the freeness and the user driven concepts of Wikipedia and like platforms is moving learning in a positive direction:

But what I'm trying to say is that the notion of learning as in your models here for it being kind of bureaucratic that is you had to put this course to get that course to get to that degree to get to this job is changing. . . I'll give you a perfect example is for kids that are home schooled they don't go to any classes at all. They take all of their instruction online. They get an Ontario diploma. But the way they're learning is very organic. They probably spend two or three times as much time studying as the average kid does. But it's self-driven. And being self-driven allows you to focus on the learning not just on the things learned.

Research and Credentials

There has been much discussion regarding the academic credibility of Wikipedia despite the fact that Wikipedia admits that their project is not intended for academic citation. However, the use of the platform seems unavoidable in an academic world. There is much interdisciplinary research and international activity that requires the higher academic population to work outside of their field of expertise. The convenience of the platform mixed in with a high demand for faster paced online access are two of the reasons people find Wikipedia too difficult to resist. In one breathe the participants discounted Wikipedia in their own area of study and in another breathe they lauded the platform when researching topics outside of their subject area. One participant describes the stigma attached to Wikipedia but later lauded the platform for its convenience and future possibilities to collaborate:

Generally Wikipedia kind of has comic book status I think amongst in terms of its regard as an academically sound tool. I think it's generally viewed as a poor . . . it's variable it's considered a poor resource or at least good in concept but not useful for what we do. We certainly hear a lot . . . don't even go to Wikipedia don't even hint that you've seen Wikipedia or breathed towards it. So I think it's generally viewed as not useful in fact possibly the opposite to useful

Students -- many of whom are digital natives -- have accelerated the use of Wikipedia in order to stay abreast of topics, definitions and concepts that are new to them and that are taught in class. It is the presearch stage that attracts the most attention for acceptable use among the participants that were interviewed.

Moving Beyond the Presearch Function of Wikipedia

There are multifarious research methods, traditions, tools, and regulations imposed upon research conducted within higher education. There are many debates and at times polarized views regarding qualitative vs. quantitative research. There is research that involves humans, animals, or other living subject matter, that at times requires much rigour in ethical consideration. Within the sciences there are millions of dollars spent on specialized laboratory equipment and computers to either model research questions, amplify the researcher's senses in order to go beyond what is accessible by a human, or to stabilize and regulate the research environment for consistent results. Clay Shirky proposes that crowd sourcing and the new communication technologies posed by the Internet promote a new twist in finding answers in the world of research (2008). No one research method has proven to be able to find all answers and each has its merits and shortcomings. Platforms such as Wikipedia may provide a new lens through which to view information and represent a new method for collecting and finding new

knowledge. Wikipedia admits in their philosophy that it is not intended for publishing original research; however, at times users have tried to move it in that direction. The Wikimedia foundation has launched other projects that would support the Wiki as research tool. Using Wiki as a support mechanism in any of the above mentioned research methods could not only hasten savings at universities but could speed up the process of moving research from the research question to publication more quickly. One participant from the sciences indicated that a platform like Wikipedia may not have any value due to the nature and scale of the research they were conducting. However they mentioned that wikis were used to collate citizen data and to generate manuals about how to use equipment or conduct research. Scientists often want to ensure that results can be consistently reproduced. Could a collaborative Wiki promote several scientists verifying procedures simultaneously using equipment and labs world-wide?

A professor who had a background in journalism indicated the importance for professionally trained journalists to go beyond looking at Wikipedia. He/she underlined the importance of going beyond what the general public could already do which would be to regurgitate what is already on Wikipedia. As Wikipedia grows, some articles have extensive synthesis of information and at times it would be difficult for one person to gather the same amount of resources in a timely fashion. This may be what will make Wikipedia move beyond its current use as a quick reference. At the root of the Wikipedia research discussion is that the method for collecting data challenges the notion of academic credentials. At least one of the participants was willing to consider Wikipedia for the validity of information as opposed to the credentials of the authors:

when the earlier world encyclopedias encyclopedia Britannica and all of these kinds of things . . . were written by someone who was credentialed who was at least vetted by the

organizers of that encyclopedia series and so when you read the encyclopedia you kind of knew, you didn't have to guess at who the author was, you kind of assumed that the author was good. Now what's changed is that we don't know who those folks are and so as we look at that information we have to not assume that it's the best possible information. But the way students learn now in the electronic worlds of Googles and all the rest of the stuff is that's a way student's learn and that's the way many of us learn these days we don't worry about who wrote it, it's the value of the information itself. And I think that's ok. In other words . . . we're starting to approach learning in more of a free form kind of a way in terms of how we get it.

At least in terms of presearch, participants seemed to unleash the requirement of credentialed authorship. When asked if academics might write in Wikipedia, participants generally seemed at ease with the philanthropic notion of doing so but some were confused and wondered about personal or organizational benefits to the University of Windsor. One participant explained that it would be counterproductive for an academic to contribute to Wikipedia and how it may actually hinder career advancement. During one interview it was mentioned that a museum recently hired a Wikipedian in residence to write about some of their collection. When I probed if an academic would consider being hired by a university to be a Wikipedian in residence they responded:

Under the current reward system if they want to commit career suicide . . . sure. Yes. Cause again the mandate of museums, the organizational structure of museums, the reason people get hired at museums, and the way in which they are rewarded and develop their careers is different than an academic institution. So given the current organizational and reward career and reward structure of museums and the professionals that work in

museums it's possible to have that role, have somebody do it, do it well fulfill that organization's that institution's mandate and fulfill that person's career mandate doesn't align with in academic institutions like universities there isn't an alignment there . . . that's the kind of rethinking we need to look at if we want to be able to take all that knowledge, all that latent contribution capacity and contribute toward Wikipedia [not as a] substitute, an alternate way [of] disseminating what we know. . . you've got people spread too thin over too many unrelated pieces in their job.

Wikipedia in the realm of contribution is seen as a distraction rather than a time savings. Part of the interview offered a scenario where a PhD might participate in the publication of an article led by a Wikipedian whose credentials could not be verified. Concerns for this situation mainly stemmed around not receiving credit for publication, giving up one's academic value, and having their work edited by people who were not credentialed subject matter experts. Just as an interview, focus group, science experiment, literature review, or laboratory experiment offer excellent tools for research, higher education must continue to push the limits of research by constantly considering new methods and/or tools for acquiring research, and wikis should be more broadly studied as a tool in the world of research within higher education.

Accessibility

The librarian indicated that platforms like Wikipedia have been influential in promoting the notion of open access into academia. During the advent of the Wikipedia project and the insurgence of open access models, the Leddy Library (the University of Windsor's central Library) has seen many changes. For example, copyright has undergone great debate.

Wikipedia's model espouses the concepts of sharing, freely editing, and user participation, while

traditional copyright laws are somewhat different and becoming more complex. The librarian explained:

Our Provost . . . is very supportive of . . . broad interpretation of copyright and how it might apply on our campus and that's indicative of a more open environment rather than rule-bound hierarchical. So that's indicative of the university administration's perspective and I think that's tremendous and that's been borne out in the last few years around copyright in the sense that we are about 1 and 20 institutions in Canada that have moved away from a licensing arrangement . . . and we are seen as sort of being on the cutting edge because we're working under the copyright act as opposed to signing on to a restrictive license with this agency and paying extra money to do that. Now that decision being taken has got its monetary side and its philosophical side I mean there's two considerations in place there.

Open access can be defined in a number of ways. The participant was careful to explain that the notion of open access in our context meant that the author retained ownership on their publication. As information becomes more available in terms of access and cost, this will completely change the publication model for academics. Wikipedia on some levels proposes a new economic publication model and this brings new considerations for the future. When is the future? Winston's model would suggest that the repercussions happen gradually over a few decades (1998). Some institutions that do not move gradually with the new technologies may feel more of a jolt in the change but it would only be due to a lack of awareness of the changes that have already occurred. This professor notes the importance of the changes in publication to the academy:

So you get more people who are thinking that way contributing towards things like a Wikipedia or other sort of kinds of things, the idea of knowledge discovery dissemination and impact. You do have some academics who sort of question whether the academic journal is the only mechanism to do that. And I think that's breaking down a lot more. The publishing industry is being destroyed and rebuilt and the academic industry is dependent on the publishing industry. So if we don't destroy and rebuild how we do all of our quality control on our knowledge discovery and dissemination while the mechanism we're using is breaking apart we are screwing ourselves. So as we are looking at that people are questioning: 'How do we get the stuff out there in a quality controlled way?'

This professor showed great interest in the topic of how Wikipedia has promoted change within the academy. He/she seemed to indicate that there was a lack of awareness of Wikipedian philosophy and what it could mean for the academy in the future. Since promotion tenure and renewal are all based on publication and the publication industry continues to change, the academy may need to re-think its notion of ownership, copyright, and accessibility.

Administration and Economics

As the leaders of the Ontario provincial government at higher education institutions proselytize about the benefits of the online community, it becomes increasingly important to understand how large Internet organizations collaborate to find resources, provide services, compete with bricks and mortar organizations, and how they have managed to scale their services. When asked how long administrators had been using Wikipedia, the participants had difficulty recalling when they started to use the platform. One participant said 15 years ago, a few said 2001, and one other responded about four to five years ago. There is an awareness

factor for their responses. It is doubtful that academics started to use Wikipedia as early as 2001 because it was not really broadly used at that point. One of the participants guessed 15 years ago, and it could be that their use of Wikipedia has become overtly normalized making it difficult to really put any thought into the timeline of his/her use. The interview was designed to try and capture whether or not the use of Wikipedia or similar platforms had in some way changed the organizational design or higher education institutions. One question focused on the notion of substitution where vendors or workers would have been replaced in full or in part by Wikipedia or other open source platforms.

Substitution

The notion of using Wikipedia as a presearch tool among the participants was very common. The librarian noted a sharp decline in students who would come to see a librarian in their presearch stages:

. . . in the library we've noticed a decrease in reference interviews over the last 10 years to the extent that we have reduced the number of hours that we have professionals available for students. When I first came here 20 years ago we had reference librarians at the reference desk downstairs extensive hours. And the number of students that would come and ask for assistance in finding information was pretty substantial. And over time that has decreased and clearly it's because the students are turning to sources online. . . .

They are turning to an online source as opposed to engaging with librarians at the desk.

Our numbers have gone down a lot and that's not just us it's across the board.

One participant pointed out that he/she started with Google Scholar as opposed to Wikipedia. Perhaps it will be Google Scholar that moves students away from Wikipedia for academic use. However it will be difficult to replace Wikipedia with Google Scholar because participants

seemed to like Wikipedia for its accessible reading level. As academics use Wikipedia they will create pressure for articles to be more accurate, and more authoritative for more use within higher education. Academics however seemed to like using Wikipedia because the reading level was much more accessible and because the jargon in articles could be checked by clicking on the hyperlinks. Participant perspectives seemed to indicate that Wikipedia can serve as an enhancement, an intermediary, or eventually a wholesale replacement to certain services offered at the University of Windsor. Some of the affected relationships would be between the amateur publishers replacing the credentialed publishers for encyclopedias, librarian interviews versus online research, casual professor student interactions for clarification on concepts and definitions versus online references, and free online information versus text book use. All participants struggled to see how Wikipedia could compete with anything offered at higher education institutions. But when asked whether or not Encyclopedia Britannica could have predicted that Wikipedia would be so well diffused, they all replied that it would have been inconceivable. One participant took the notion a step further and claimed that despite any ability to make predictions, that Britannica would have been too bureaucratic and credentialed to be able enough to adapt:

with so much of social media . . . it's hard to know where these things are going to end up. So no. . . I don't even know if Britannica is in business anymore. . . they probably didn't see it coming and even if they had, would they have been able to adapt and change to it? Probably not. . . just cannot in my opinion embrace a model like Wikipedia which really opens it up and says anyone can contribute. Hypothetically that's what an antithesis of what a Britannica is so they couldn't have seen it coming no.

With new models of open access and uncredentialed editors and publishers, higher education needs to ask the question of what the next decade will bring in our own models of publication, and which resources are at risk of being overcome by online open access resources.

Can Universities Respond to the Environmental Pressures of Communication

Technologies?

During the interview participants were asked to read the following from the Wikipedia project:

Wikipedia does not have firm rules.

Rules in Wikipedia are not carved in stone, as their wording and interpretation are likely to change over time. The principles and spirit of Wikipedia's rules matter more than their literal wording, and sometimes improving Wikipedia requires making an exception to a rule. Be bold (but not reckless) in updating articles and do not worry about making mistakes. Prior versions of pages are saved, so any mistakes can be corrected.

When asked what the University of Windsor could take away or where we could apply such a philosophy, some of the participants seemed to like the idea of this being applied on campus.

One participant seemed to say that the bureaucratic structures caused some interference with the learning process: "So if we could put more focus on the learning and less focus on its documentation, more learning would actually occur." Another participant wanted more freedom to innovate:

it's amazing for an institution, for a collection of people where the purpose is supposed to be pushing boundaries asking questions of looking at what's broken and trying to fix it, looking at how to innovate, using innovation in the sense of broadly clever and not in the strict text start up sense. We're incredibly rigid and conservative and staunchly resistant

to change organizationally, which I've found as always been an interesting contradiction (laughter).

However, all participants fell comfortably upon the idea that there is an inevitability and need for some level of bureaucracy. In order to further explore the notion of open source projects, participants were asked to share their knowledge and experiences with open source projects used on our campus. One participant had technical expertise within the scope of online learning systems and wikis. When asked if the participant felt that colleagues outside of the department understood the nature of open source projects and organizations, the participant strongly doubted that our campus really thought about the nature of these organizations:

Most people don't have a clue. Most people don't understand their nature. Like there is a very tight culture of people that operate in the realm of adding and maintaining, updating, contributing, they're evangelists which we need desperately otherwise the Wikipedia wouldn't have grown to the size and the scope that it did.

But those administrators/academics who made resource decisions to use open source products alluded to the fact that allocating human time to the project was more expensive and resource needy than simply purchasing the product from a vendor:

Absolutely the resources are an issue. . .What are we in our sixth year of budget cuts? And looking at three more and we know over the last five or six years each year we've had to cut, cut, cut, cut, so the resources that we are able to put toward development of an open source product like Conifer have been reduced. It is a resource, it's definitely from our perspective being in administration it's absolutely a resource based consideration. In principle the idea of open source and community based programming is wonderful I think it's tremendous, but in practical terms in pragmatic terms it can be a real change.

There is some truth to the idea that higher education, like Encyclopedia Britannica, is awkwardly poised towards a future with increasing use of new communication technologies. Participants seemed to indicate that there is a missing structure and allocation of resources where the philosophy of contributing to open source is concerned. The sum of the participant comments seemed to indicate that while higher education is stocked full of potential, they are better structured as an end-user of open source products rather than philanthropists who could support the open source movement. But there seemed to be a lack of awareness among those who didn't study the notion of open source and what it might mean for the organizational structure of higher education in the future. However, one participant who studies "the social science of things and getting people to understand complicated systems and their mutual interactions and pressures on each other" alluded to being concerned about higher education's slow response to the new communication technologies such as platforms like Wikipedia:

It's not part of my official thing but I spend a lot of time worrying and thinking about how universities are changing and how they have to change faster than they are in response to a lot of technological and social shifts in the world. It's not just here's a new technology how do we use it but what it means to how you go about functioning as a society changes to there's a lot of we're on the cusp of having to change what it means to be academic.

Many other participants when discussing the bureaucratic and hierarchical nature of higher education -- more specifically the University of Windsor -- seemed to indicate that our structure was not nimble enough despite the institutional leadership's openness to adopt changes on campus. When asked how participants felt about Wikipedia becoming more bureaucratic some

of the more traditional organizational thinkers seemed to say that this was inevitable while others thought that it would be detrimental to the project if it got too bogged down in process.

Summary of Findings

The literature review suggests that the University of Windsor needs to restructure to accommodate new faster methods for organizing and disseminating knowledge. While Wikipedia promotes a competitive peer review model -- be it for secondary resources -- it does suggest a gradual shift in the traditional peer review methods for organizing and disseminating knowledge. While the University of Windsor has tried to make use of new technologies such as Wikipedia, Drupal, and Sakai, it does so at a cost. Some of the costs include new strains on human resources, strains on the traditional peer review standards, strains on hierarchy, and strains to learn, understand, and teach about new media in their community. Online documents published by the University of Windsor president's office suggest a desire to make changes to the institution to accommodate the new technologies; however the experimentation has brought to the fore argumentative community members who are not ready to dismantle union regulations, the traditional peer review model, and the pace at which decisions are taken on campus. While there continues to be some experimentation with new media, and a broadening of the notion of open access publications, none of this is at the scale that Wikipedia has taken on.

The interviews seem to indicate that there is a lack of general awareness about what Wikipedia has accomplished and how it could influence the future of the University of Windsor or higher education. All interviewees seem to indicate that they are using Wikipedia for quick reference but seemed to feel less than philanthropic when it came to the notion of any kind of formal academic contribution. One participant claimed that Wikipedia is so far removed from the traditional peer review model that it would be academic suicide to focus any kind of formal

contribution to the platform while another said that Wikipedia and Higher Education should try to be as distinct from one another as possible. On the one hand participants speak about an “academic distance” from Wikipedia, while on the other hand they speak of its convenience and how they think it has improved. Participants indicated that the Wikipedia platform could be the cause of changes such as new considerations for presearch resources, challenges regarding plagiarism, and new desires for more open access to information at the university. Participants believed it would be difficult for the university to re-imagine some of the processes of Wikipedia to be applied at the university or in higher education, citing the importance of maintaining value in the current methods for organizing and disseminating knowledge by peer reviewed experts.

Conclusion

Wikimedia is working to improve their standard to accommodate their increasing interactions with higher education. Higher education institutions such as the University of Windsor are moving awkwardly and slowly to accommodate the fast paced environment of broadly used communication technologies. There is a broader question of organizational philosophy, an economic shift, and sweeping changes in the publication industry. All of these areas continue to slowly erode long-standing traditions in higher education. Tuition costs are driving students to accessible and more rapidly updated products in order to supplement their learning and cut expenses. Organizations such as the Wikimedia Foundation and higher education institutions continue to experiment with new services that will completely change the knowledge ecosystem and the economic models that fund their services. Communication technologies are enabling the development -- be it in an awkwardly moving back and forth manner between the innovative and traditional -- of a multi-channel distribution of higher education services. Although Winston’s model suggests that both the technologists and the

traditions of higher education will coalesce over a period of decades, we are now in the third decade of the Internet. Wikipedia represents an important bridge between communication technology and higher education. There is now an increased use of open source products, more acceptance of Wikipedia, and more leaders looking to re-jig their organizations to accommodate for the ensuing changes.

The above study is only the beginning of a broader discussion. This study has limited scope due to the relatively small number of interviews due to the size of the campus. Because this is a qualitative study it cannot be used to specify the amount of change that is occurring at the University of Windsor, other campuses and beyond. Further study should be completed to quantify the awareness, pace, and changes that are taking place within higher education due to the new communication technologies. Higher education's interaction with Wikipedia is but one representation of imminent change for higher education within the next decade.

References

Alexa.com. (2012). Top Sites. Retrieved on July 17, 2012 from:

<http://www.alex.com/topsites/global;0>

Anderson, M. (2011, December). Crowdsourcing higher education: A design proposal for distributed learning. *Journal of Online Teaching and Learning*. Vol. 7, No. 4. Retrieved from: http://jolt.merlot.org/vol7no4/anderson_1211.htm

Ayers, P., Matthews, C., & Yates, B. (2008). *How Wikipedia works: And how you can be a part of it*. No Starch Press Inc., San Francisco, CA.

Baker, Nicholas. (2008, March 20). The charms of Wikipedia. *The New York Review of Books*. Volume 55, Number 4. Retrieved from <http://www.nybooks.com/articles/21131>

Bensimon, E.M., Polkinghorne, D.E., Bauman G.L., & Vallejo, E. (2004, January/February). Doing research that makes a difference [Abstract]. *The Journal of Higher Education*, Vol. 75, No. 1.

Broughton, J. (2008). *Wikipedia: The missing manual*. Sebastopol, CA: O'Reilly Media Inc.

Brunet, T., Plant, L., Towson, S., & Wilson, A. (2012). University of Windsor case study. From PCCAT Conference, 2012. [Power Point Presentation] Retrieved from <http://www.uwindsor.ca/pccat/23/pre-conference-resources>

Bruns, Axel. (2008). *Blogs, Wikipedia, Second Life and beyond: From production to produsage*. New York: Peter Lang.

Burke, Peter (2012). *A Social history of knowledge volume II: From the encyclopédie to Wikipedia*. Cambridge: Polity Press.

Butler, B., Joyce, E., & Pike, J. (2008). Don't look now, but we've created a bureaucracy: The nature and roles of policies and rules in Wikipedia. CHI Proceedings – Shared Authoring, Florence Italy, April 5 – 10. (1101 – 1110). ACM digital library. Retrieved

from <http://delivery.acm.org/10.1145/1360000/1357227/p1101->

[butler.pdf?ip=137.207.120.173&acc=ACTIVE%20SERVICE&CFID=133374811&CFT](http://delivery.acm.org/10.1145/1360000/1357227/p1101-butler.pdf?ip=137.207.120.173&acc=ACTIVE%20SERVICE&CFID=133374811&CFTOKEN=71068651&__acm__=1343561319_1999356bc14833fef8e7e02caa929f7a)

[OKEN=71068651&__acm__=1343561319_1999356bc14833fef8e7e02caa929f7a](http://delivery.acm.org/10.1145/1360000/1357227/p1101-butler.pdf?ip=137.207.120.173&acc=ACTIVE%20SERVICE&CFID=133374811&CFTOKEN=71068651&__acm__=1343561319_1999356bc14833fef8e7e02caa929f7a)

Cohen, Noam. (2007, February 21). A history department bans citing Wikipedia as a research source. *The New York Times*. Retrieved from

http://www.nytimes.com/2007/02/21/education/21wikipedia.html?_r=0

Cohen, Noam. (2007, March 12). After false claim, Wikipedia to check degrees. *The New York Times*. Retrieved from <http://www.nytimes.com/2007/03/12/technology/12wiki.html>

Cohen, Noam. (2007, March 5). A contributor to Wikipedia has his fictional side. *The New York Times*. Retrieved from

<http://www.nytimes.com/2007/03/05/technology/05wikipedia.html?pagewanted=all>

Cohen, Noam. (2010, June 4). Venerable British museum enlists in the Wikipedia revolution. *New York Times*. Retrieved from

http://www.nytimes.com/2010/06/05/arts/design/05wiki.html?_r=1

Cohen, Noam. (2008, Mar 16). Start writing the eulogies for print encyclopedias. *New York Times (1923-Current File)*. Retrieved from

<http://search.proquest.com/docview/897693415?accountid=14789>

Daft, R., & Armstrong, A. (2009). *Organization theory & design*. First Canadian Edition. Toronto, ON: Nelson Education Ltd.

Delanty, G. (2001). *Challenging knowledge: The university in the knowledge society*.

Buckingham: SRHE and Open University Press

Farr, M. (2012, February 6). Are office hours obsolete? *AU/UA*. Retrieved from

<http://www.universityaffairs.ca/are-office-hours-obsolete.aspx>.

- Forte, A., Larco, V., Brukman, A. (2009). Decentralization in Wikipedia governance. *Journal of Management Information Systems*. Summer 2009, Vol. 26, No. 1, pp. 49-72.
- Gardner, Sue. (2011, July 8). Wikipedia in higher education summit – Sue Gardner. [Video File]. Retrieved from <http://vimeo.com/26322862>
- Giles, J. (2005, December 15). Internet encyclopedias go head to head. *Nature*. 438, 900-901. Doi: 10.1038/438900a. Retrieved from <http://www.nature.com/nature/journal/v438/n7070/full/438900a.html>
- Glott, Rudiger. Schmidt, Philip. Ghosh, Rishab. (2010). Wikipedia survey – overview results. *UNU-Merit*. Retrieved from http://www.wikipediastudy.org/docs/Wikipedia_Overview_15March2010-FINAL.pdf
- Head, A., Eisenberg, M. (2010, March 1). How today’s college students use Wikipedia for course-related research. *First Monday*. Volume 15, Number 3. Retrieved from <http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2830/2476>
- Jacobs, Heidi L.M. (2010). Posing the Wikipedia “problem”: Information literacy and the praxis of problem-posing in library instruction. In Accardi, M.T., Drabinski, E., & Kumbier, A. (Eds), *Critical Library Instruction Theories and Methods* (pp. 179-197). Duluth, Minnesota: Library Juice Press.
- Keen, Andrew. (2007). *The cult of the amateur: how today’s Internet is killing our culture*. New York, NY: Doubleday.
- Lewen, Tamar. (2012, Mar 4). Education. *New York Times (1923-Current File)*. Retrieved from http://www.nytimes.com/2012/03/05/education/moocs-large-courses-open-to-all-topple-campus-walls.html?pagewanted=all&_r=0

Lih, A. (2009). *The Wikipedia revolution: How a bunch of nobodies created the world's greatest encyclopedia*. New York: Hyperion.

Macaluso, Grace. (2004, December 2). Universities, colleges need cash, panel told: [Final Edition]. *The Windsor Star*. Retrieved from <http://search.proquest.com/docview/254586972?accountid=14789>

Nupedia.com. (2001, April 28). Nupedia.com. Retrieved from <http://web.archive.org/web/20010418152404/http://www.nupedia.com/>

Nupedia.com:About. (March 31, 2001). About Nupedia. Retrieved from <http://web.archive.org/web/20010331212147/http://www.nupedia.com/about.shtml>

Nupedia.com:Reviewers. (2000, April 7). Nupedia.com. Retrieved from <http://web.archive.org/web/20000517152146/http://www.nupedia.com/reviewers.html>

Nupedia.com:What is Nupedia?. (2007, April 7). Retrieved from <http://web.archive.org/web/20000407112651/http://www.nupedia.com/about.html>

Nupedia:About. (2000, April 7). Nupedia.com. Retrieved from <http://web.archive.org/web/20000407112651/http://www.nupedia.com/about.html>

O'Sullivan, Dan. (2009). *Wikipedia a new community of practice?* Farnham, England; Burlington, VT: Ashgate

Ontario Ministry of Training, Colleges & Universities. (2012). Strengthening Ontario's centres of creativity, innovation and knowledge. Retrieved from <http://www.tcu.gov.on.ca/pepg/publications/DiscussionStrengtheningOntarioPSE.pdf>

Pink, D. (2005). The book stops here. *Wired Magazine*. March 13. Retrieved from <http://www.wired.com/wired/archive/13:03/wiki.html>

- Pogatchnik, S. (2009). Student hoaxes world's media on Wikipedia. *Tech and gadgets on NBCNEWS.com*. Retrieved from http://www.msnbc.msn.com/id/30699302/ns/technology_and_science-tech_and_gadgets/t/student-hoaxes-worlds-media-wikipedia/
- Preece, J., and Shneiderman, B. (2009). The reader-to-leader framework: Motivating technology-mediated social participation. *AIS Transactions on Human-Computer Interaction*. (1) 1, 13-32.
- Rae, Bob. (2004). Post secondary review: Higher expectations for higher education. Ontario: Queen's Printer for Ontario. (isbn 0-7794-6993-3)
- Reagle, Joseph Michael Jr. (2010). *Good faith collaboration the culture of Wikipedia*. Cambridge, MIT Press.
- Reference List. (2008). Reference List: Electronic Sources. *The Owl at Purdue*. Retrieved from <http://web.archive.org/web/20080913123706/http://owl.english.purdue.edu/owl/resource/560/10/>
- Rodriguez, O. C. (2012). MOOCs and the AI-stanford like courses: Two successful and distinct course formats for massive open online courses. *European Journal of Open, Distance and E-Learning*, 13-13. Retrieved from <http://www.eurodl.org/?article=516>
- Sanger, L. (2005). The early history of Nupedia and Wikipedia: A memoir. [Web log comment]. Retrieved from <http://features.slashdot.org/story/05/04/18/164213/the-early-history-of-nupedia-and-wikipedia-a-memoir>

Shirky, Clay. (2010). *Cognitive surplus: Creativity and generosity in a connected age*. New York: Penguin Press.

Shirky, Clay. (2008). *Here comes every body: The power of organizing without organizations*. New York: Penguin Press.

Smith, M. (2012, January 19). College librarians reach out to students during Wikipedia blackout. *Inside Higher Ed*. Retrieved from <http://www.insidehighered.com/print/news/2012/01/19/college-librarians-reach-out-to-students-during-Wikipedia-blackout?width=775&height=500&iframe=true>

Stross, R. (2006, Mar 12). Inside the news. *New York Times (1923-Current File)*. Retrieved from <http://search.proquest.com/docview/93213737?accountid=14789>

University of Windsor: Annual Report. (2003). University of Windsor annual report 2002/2003 [PDF Document]. Retrieved on November 6, 2012, from <http://www.uwindsor.ca/president/sites/www.uwindsor.ca.president/files/UWindsorAnnualReport0203.pdf>

University of Windsor: Annual Report. (2007). To greater heights University of Windsor annual report 2005/2006” [PDF Document]. Retrieved from <http://www.uwindsor.ca/president/sites/www.uwindsor.ca.president/files/UWindsorAnnualReport0506.pdf>

University of Windsor: Annual Report. (2008). To greater heights University of Windsor annual report 2006/2007” [PDF Document]. Retrieved from <http://www.uwindsor.ca/president/sites/www.uwindsor.ca.president/files/UWindsorAnnualReport0607.pdf>

University of Windsor: Senate Steering Committee. (2012). From University of Windsor.

Retrieved on July 29, 2012 from

<http://web4.uwindsor.ca/units/senate/steering.nsf/982f0e5f06b5c9a285256d6e006cff78/fa6168e1c597600f852579ba0061b5d7!OpenDocument>

Waters, Neil, L. (2007). Why you can't cite Wikipedia in my class. *Viewpoint*. Retrieved on July 24 from

<http://web.ebscohost.com.ezproxy.uwindsor.ca/ehost/pdfviewer/pdfviewer?vid=3&hid=17&sid=5b325bc8-c6a5-432d-b341-9c350bdec648%40sessionmgr14>

What "Ignore all rules means (2012). In *Wikipedia*. Retrieved on November 7, 2012 from

http://en.wikipedia.org/wiki/Wikipedia:What_%22Ignore_all_rules%22_means

Wikimedia Foundation: Strategic Plan. (2011, February). Wikimedia strategic plan: A collaborative vision for the movement through 2015. From: Wikimedia. Retrieved from http://upload.wikimedia.org/wikipedia/commons/c/c0/WMF_StrategicPlan2011_spreads.pdf

Wikipedia in culture (2012). In *Wikipedia*. Retrieved on July 24, 2012 from

http://en.wikipedia.org/wiki/Wikipedia_in_culture

Windsor University Faculty Association. (2011). Windsor University Faculty Association

collective agreement 2011- 2014. Retrieved from <http://www.wufa.ca/?q=ca10>

Winston, B. (1998). *Media technology and society: A history: from the telegraph to the Internet*.

London: Routledge.

Zittrain, Jonathan. (2009). Jonathan Zittrain: The Web as random acts of kindness [Video File].

Retrieved from

http://www.ted.com/talks/lang/en/jonathan_zittrain_the_web_is_a_random_act_of_kindness.html

Appendices

Appendix A

University of Windsor

For the purposes of this interview the following definitions (Daft and Armstrong 2009) refer to the organizational structure of a typical Canadian higher education institution such as the University of Windsor.

Bureaucracy: An organizational framework marked by rules and procedures, specialization and division of labour, hierarchy of authority, technically qualified personnel, separation of position and person, and written communications and records.

Bureaucratic Control: the use of rules, policies, hierarchy of authority, written documentation, standardization, and other bureaucratic mechanisms to standardize behavior and assess performance.

Bureaucratic culture: a culture that has an internal focus and a consistency orientation for a stable environment.

Bureaucratic organization: a perspective that emphasizes management on an impersonal, rational basis through such elements as clearly defined authority and responsibility, formal recordkeeping, and uniform application of standard rules. (p. 597)

Wikipedia

Wikipedia was created as a "**Learning Organization**" to make it adaptable, fast, inclusive and comprehensive (Shirky, 2010). It was recently published that "Education level continues to be the strongest predictor of Wikipedia use" (Zickuhr, K., and Rainie, L., 2011). After more than 10 years of development, Wikipedia seems to be hedging towards similar organizational practices with the typical Canadian public university. Today's interview is an opportunity to consider how the organizational design of Wikipedia is affected by organizational structures such as institutions like the University of Windsor. Conversely we can consider how institutions like the University of Windsor are affected by the Wikipedia project.

"Learning Organization: an organization in which every-one is engaged in identifying and solving problems, enabling the organization to continuously experiment, improve, and increase its capacity." (p. 602)

“Organic: an organization system marked by free-flowing, adaptive processes, an unclear hierarchy of authority, and decentralized decision-making.” (p. 602)

“Horizontal Structure: a structure that virtually eliminates both the vertical hierarchy and departmental boundaries by organizing teams of employees around core work processes; the end-to-end work, information, and material flows that provide value directly to customers.” (p. 600 – 601)

The following information is taken directly from Wikipedia (January 7, 2012):

Wikipedia operates on the following fundamental principles, known as the **five pillars**:



Wikipedia is an encyclopedia.

It incorporates elements of general and specialized [encyclopedias](#), [almanacs](#), and [gazetteers](#). [Wikipedia is not](#) a soapbox, an advertising platform, a vanity press, an experiment in [anarchy](#) or [democracy](#), an [indiscriminate collection of information](#), or a web [directory](#). It is not a [dictionary](#), a [newspaper](#), or a collection of [source documents](#); that kind of content should be contributed instead to the [Wikimedia sister projects](#).



Wikipedia is written from a neutral point of view.

We strive for articles that document and explain the major [points of view](#) in a balanced and impartial manner. We avoid advocacy and we characterize information and issues rather than debate them. In some areas there may be just one well-recognized point of view; in other areas we describe multiple points of view, presenting each accurately and in context, and not presenting any point of view as "the truth" or "the best view". All [articles](#) must strive for [verifiable accuracy](#): unreferenced material may be removed, so [please provide references](#). Editors' [personal experiences](#), [interpretations](#), or [opinions](#) do not belong here. That means citing [verifiable, authoritative sources](#), especially on controversial topics and when the subject is a [living person](#).



Wikipedia is free content that anyone can edit, use, modify, and distribute.

Respect [copyright](#) laws, and do not [plagiarize](#) sources. [Non-free content](#) is allowed under [fair use](#), but strive to find free alternatives to any media or content that you wish to add to Wikipedia. Since all your contributions are [freely licensed to the public](#), no editor [owns any article](#); all of your contributions can and will be mercilessly edited and redistributed.



Editors should interact with each other in a respectful and civil manner.

Respect and be polite to your fellow [Wikipedians](#), even when you disagree. Apply Wikipedia [etiquette](#), and avoid [personal attacks](#). Find [consensus](#), avoid [edit wars](#), and remember that there are 3,891,111 articles on the English Wikipedia to work on and discuss. Act in good faith, and [never disrupt Wikipedia to illustrate a point](#). Be open and [welcoming](#), and [assume good faith](#) on the part of others. When conflict arises, discuss details on the [talk page](#), and follow [dispute resolution](#).



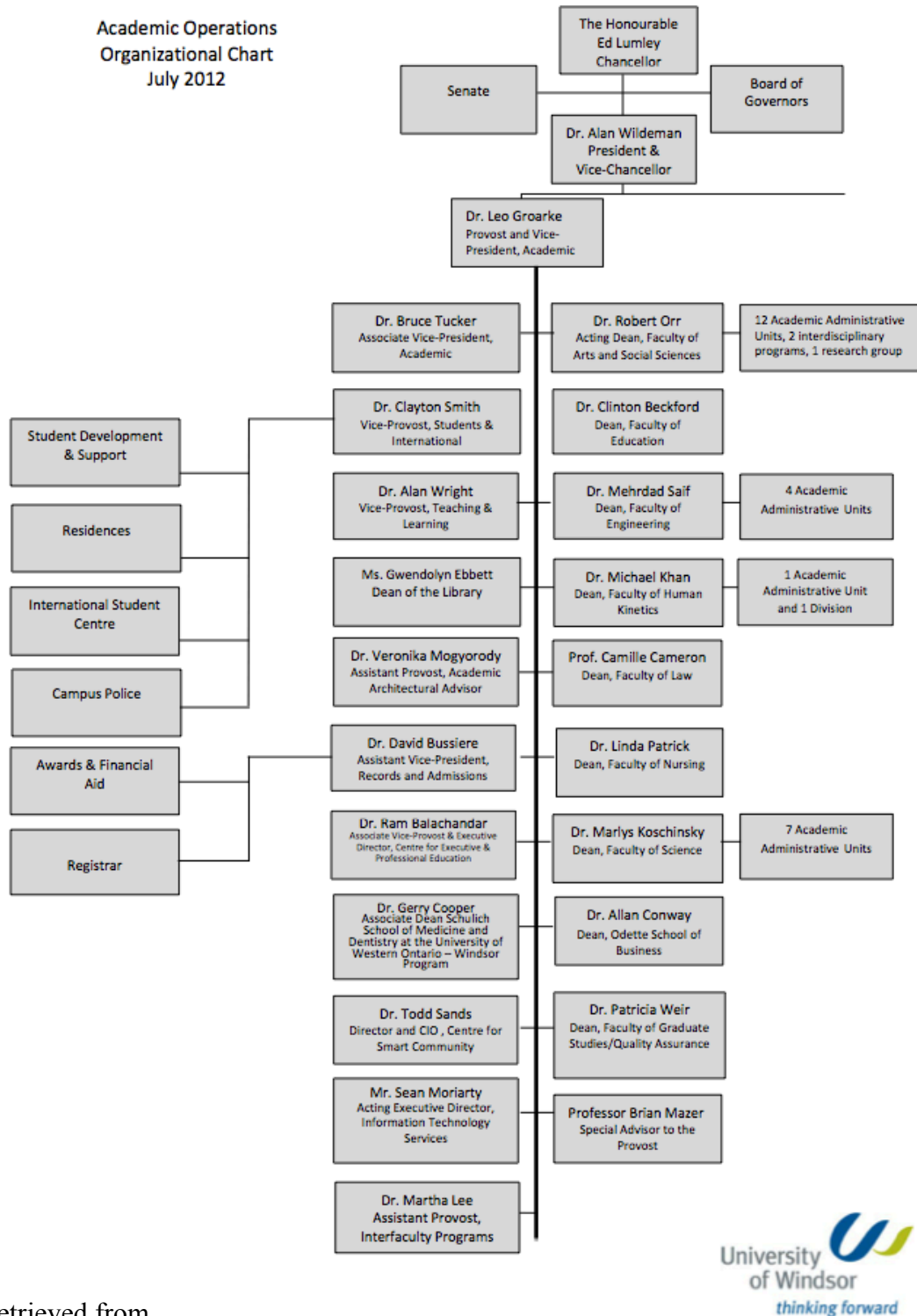
Wikipedia does not have firm rules.

Rules in Wikipedia are not carved in stone, as their wording and interpretation are likely to change over time. The principles and spirit of Wikipedia's rules matter more than their literal wording, and sometimes improving Wikipedia requires making an exception to a rule. [Be bold](#) (but not [reckless](#)) in updating articles and [do not worry about making mistakes](#). [Prior versions of pages are saved](#), so any mistakes can be corrected.

References

- Daft, R., and Armstrong, A. (2009). *Organization theory and design*. Toronto: Nelson
- Five Pillars (2012): In *Wikipedia*. Retrieved on January 7, 2012 from http://en.wikipedia.org/wiki/Wikipedia:Five_pillars
- Shirky, C. (2010). *Cognitive surplus: Creativity and generosity in a connected age*. New York: Penguin Press.
- Zickuhr, K., Rainie, L. (2011, January 13). *Wikipedia, past and present*. PEW Research Center. Retrieved from <http://pewinternet.org/Reports/2011/Wikipedia.aspx>

Appendix B

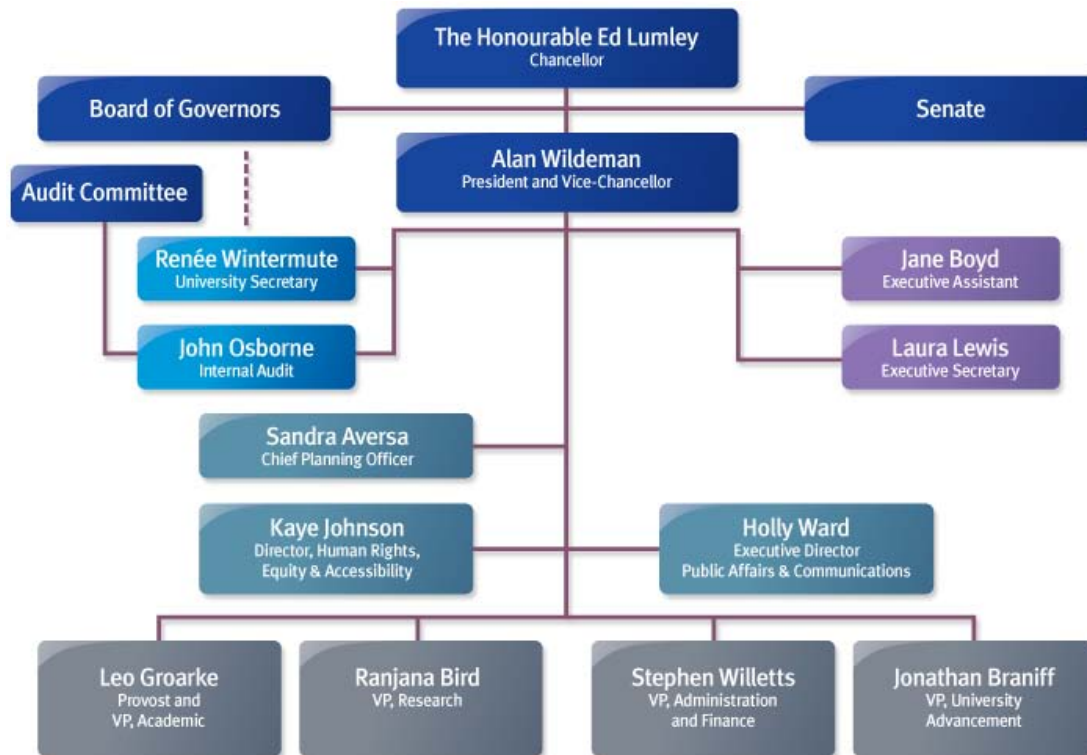


Retrieved from

<http://www.uwindsor.ca/provost/sites/uwindsor.ca/provost/files/Academic%20Operations%20Org%20Chart%20July%202012.pdf>



Appendix C



Appendix D

This is a copy of the research guide. Because the participants had different roles at the university, there were variations to the probes and some of the questions. The probes are represented as bulleted lists and are alphabetically ordered. There was also some variation in the questions due to unanticipated answers by the participants. After the interviews were analyzed, the name of the project was changed.

Interview Questions

Introduction

- Thank you for agreeing to participate in today's Interview. My study is titled Exploring the Hydraulics of Change between Wikipedia and Higher Education. This is a case study for the University of Windsor.
- Today's interview enables you to comment on how Wikipedia and higher education -- mainly through the lens of the University of Windsor-- influence one another. You are

welcome to make comments about organizational design, teaching, learning and research. All interviewees have experience within the University of Windsor and/or Wikipedia. Today I'm seeking your personal perspective. If you feel that you cannot complete the interview please let me know and I will also destroy the results at your discretion.

Before we get started:

- Could you please give a very general statement about your academic background and training?
- Could you briefly describe your role and duties at the University of Windsor?

I've placed in front of you descriptions of a learning organization (which represents Wikipedia) and a Bureaucracy (which represents the University of Windsor). Please feel free to briefly review the documents ahead of you. The documents provide some general information which I'd like you to consider as we conduct the interview.

At this time I would like to invite any questions that you may have regarding the documents presented before you.

Thank you.

Wikipedia Experience

The first part of the interview will focus on your experiences with Wikipedia.

- 1) Could you identify how you use Wikipedia?
 - a. How long have you been using Wikipedia?
 - b. Could you describe how your coworkers feel about using Wikipedia?
 - c. Have you worked on any group projects that could've benefitted from a Wiki format?
 - d. If you proposed to use a wiki for a project to collaborate either on or off campus, how might your colleagues react?
 - e. How would your colleagues respond if a Wikipedian -- whose credentials could not be assessed -- were to direct a project on campus?

Comparative Section

In the next section I'll ask you to comment on interactions between the higher education community and Wikipedia. While Wikipedia and higher education are not offering the same services, they both participate in the knowledge ecosystem. Please consider your experiences at the University of Windsor and with your colleagues at other higher education institutions when answering your questions.

- 1) How has Wikipedia **changed the way students participate and/or learn** in our community at the University of Windsor?
 - a. Has Wikipedia created any opportunities or disruptions in your work at the University of Windsor?
 - b. How might a higher education student, administrator, or professor substitute the services of their own institution for those offered by Wikipedia?
 - c. How do you feel Wikipedia or similar open source platforms have created change on our campus in the past 10 years?

- 2) How could the University of Windsor **contribute to improve Wikipedia**?
 - a. How do you think the University of Windsor could use the ethos of Wikipedia to benefit the University of Windsor community?
 - b. Wikipedia relies on donations from its users and contributors. Should the University of Windsor contribute financially to Wikipedia? Please explain your choice.

- 3) Have you **changed the way you do your work** based on some of the practices of Wikipedia?
Probes
 - a. Can you list specific challenges/opportunities for your teaching, administration and research that stems from the creation of Wikipedia?
 - b. Do you feel that universities could become more learner centred and move toward a participatory curriculum design?
- 4) Which organizational aspects of University of Windsor (a traditional Ontario university) would you recommend Wikipedia considers in the development of the Wikipedia project?
 - a. Some say that Wikipedia is hedging toward a bureaucracy with increasing hierarchy. How does this statement affect your perspective of the Wikipedia project?
- 5) How could the typical Canadian university restructure itself to provide community members an equal chance to share their ideas within the community?
 - a. For example, Wikipedia prides itself on their open policy for community participants to edit their articles. Is there a place for this at Senate, in the program development committee, the Board of Governors, in our classroom, or in our publications?
- 6) What benefits/challenges could come from collaborative projects with Wikipedia and Ontario universities in the future?

Summary

1. What I'm hearing is (provide my summary). How well does this capture what was said here today? (10minutes)

Final Question

2. The purpose of this Interview was to learn more about the interactions between Wikipedia and University and to see if it will affect our organizational structure. Is there anything that you would like to add about the project? (5minutes)

I am very grateful for your participation in today's Interview. You have been very generous in providing your time. The research findings will be submitted to the University of Windsor REB,

the University of Alberta REB so that other researchers may make use of our work completed today.

Appendix E

The following form was created and administered through Fluid Surveys and was distributed via a hyperlink in an email invitation to participate in the project.

Wikipedia Registration

Thank you for your interest in "Exploring the Hydraulics of Change between Wikipedia and higher education at the University of Windsor: Case Study." This study will use interviews involving people from the University of Windsor community. This form will help me to prepare your participation in the interviews. While this form asks for your name and contact information, it is for the purpose of contacting you and setting up the timing of the interview. If you have any questions or concerns about the research, please contact:

Tim Brunet at (519) 253-3000, ext. 2036, or tbrunet@ualberta.ca.

PURPOSE OF THE STUDY

The purpose of the project is to identify how Wikipedia and University organizational structures create environmental pressures upon one another.

AGE REQUIREMENT

Are you 18 years of age or older?

- Yes
- No

Note that you must meet this age requirement to participate in this study.

YOUR UNIVERSITY OF WINDSOR ACTIVITIES

Please check all that apply

- I am an administrator at the University of Windsor
- I am a Librarian at the University of Windsor
- I am a student at the University of Windsor
- I am in Senior Administration at the University of Windsor
- I am on Senate and/or the Board of Governors at the University of Windsor
- I teach at the University of Windsor
- I have been involved in student government
- I conduct research at the University of Windsor

Please list any other activity that may be relevant for the study _____

YOUR ACADEMIC BACKGROUND

I have an academic background from the following academic area(s)

- Arts
- Humanities
- Science
- Applied Science
- Education
- Law
- Medicine
- Health Sciences
- Business
- Other, please specify: _____

YOUR USE OF WIKIPEDIA

This question will allow me to assess your use of Wikipedia in the focus group. Please check all that apply.

- I have used Wikipedia to cite information
- I have edited Wikipedia documents
- I have created new policies in my work environment due to Wikipedia
- I have participated in a wiki
- I feel I have a strong knowledge of how the Wikipedia community works
- I do not feel that I fully understand the organizational structure of Wikipedia
- I have donated money to Wikipedia
- I wish people in my work environment were more selective of their Wikipedia use
- I am an active community member in Wikipedia
- I prefer not to reveal my use of Wikipedia

ORGANIZATIONAL STRUCTURE OF THE UNIVERSITY OF WINDSOR

This question allows me to assess your understanding of the organizational structure at the University of Windsor.

- I feel that I have a working knowledge of the University of Windsor's organizational structure.
- I have worked with or been a member of the Board of Governors and/or Senate at the University of Windsor
- Although I haven't had the opportunity to work with Senate or the Board of Governors, I wish I had more opportunities to participate in the decisions which affect the University of Windsor
- I prefer not to answer this question.

CONSENT TO PARTICIPATE IN RESEARCH

Exploring the Hydraulics of Change between Wikipedia and
Higher Education at the University of Windsor: Case Study

You are asked to participate in an interview conducted by M.A.C.T. candidate Tim Brunet under the supervision of Dr. Marco Adria from the Faculty of Extension at the University of Alberta. If you have any questions or concerns about the research, please contact:

Tim Brunet
(519) 253-3000, ext. 2036
tbrunet@ualberta.ca

PURPOSE OF THE STUDY

The purpose of the project is to identify how Wikipedia and University organizational structures and activities create environmental pressures upon one another.

PROCEDURES

You will be contacted by Tim Brunet either by phone or email to set up an interview room, time and date.

The interview is estimated to be one hour.

POTENTIAL RISKS AND DISCOMFORTS

It is not expected that you will face any risks or discomfort during your participation.

CONSENT FOR AUDIO RECORDING

The interview is a voluntary procedure and you are free to withdraw at any time. Your name will not be revealed in the transcriptions but due to the fact that general characteristics of your position will be published in the project and that the content of your answers may make you identifiable, you agree to be recorded and answer the questions.

You understand that audio recordings will be destroyed shortly after the transcriptions have been completed.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

The benefit of participating in this research is that you will likely learn more about Wikipedia and the University of Windsor. Ontario public universities and the Wikimedia Foundation, Inc. (the funding organization of Wikipedia) may also gain insights regarding how they might interact in the future.

COMPENSATION FOR PARTICIPATION

While you have the satisfaction in knowing that your answers may enhance our understanding of Wikipedia and how Ontario Universities may best interact, you will not receive any additional compensation for participating in this project.

CONFIDENTIALITY

You will be referred to by your real name during the interviews. Your name will be omitted from the final research findings; however a general description of your position on campus will be part of the research findings.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. You also have the option to remove your data from the study within 48 hours of your session should you decide to do so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Once the research is complete a brief report explaining the findings from the study will be available for those interested. The report will be available on the Research Ethics Board website.

Web address: www.ualberta.ca/hero

Date when results are available: May, 2013

SUBSEQUENT USE OF DATA

The project data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

If you have questions regarding your rights as a participant, contact:

REB 1 Administrator
Research Ethics Office
308 Campus Tower
Email: jennifer.thorn@ualberta.ca
Phone: 780-492-2614

These are the terms under which research is to be conducted.

- I understand the information provided for the study as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study.
- I do not agree to participate in this study.

CONTACT INFORMATION

Please state your first name and last name. This is for contact purposes only so please give me your common first name for contact purposes.

Please provide the email I should use for booking the interview:

Please provide the phone number(s) to which you will use for booking the interview: