Toward Credibility of Social Work on Wikipedia

Iman YeckehZaare
University of Michigan - SI 551 - Professor Soo Young Rieh

Abstract

Wikipedia is a global example of computer supported cooperative work. Over time, Wikipedia has developed formal and informal social structures and guides to improve and maintain the quality of its contents and further its role as a source of encyclopedic knowledge and a volunteer community. Graduate students and alumni of the University of Michigan are interviewed in order to understand how people interacted with Wikipedia. We investigate to what extent this community of people use Wikipedia and contribute to it. The main purpose of this study is to identify the affordances and constraints that Wikipedia provides for its users and contributors. In particular, how goals, roles, norms, incentives and rewards, conflicts, activities, representation of self, representation of others, representations of activities, and social regulations are formed, how they govern the community, and to what extent each of these factors contribute to credibility of social work on Wikipedia and affects the expectations of its users and contributors.

Toward Credibility of Social Work on Wikipedia

Introduction

In 2001 Bomis, Inc. launched Wikipedia as a potential feeder for its existing project Nupedia, an expert-contributed free online encyclopedia. Wikipedia rapidly outgrew and subsumed its parent company to become the largest and most popular online encyclopedia (Wikipedia, 2016a). It is freely accessed, created and edited through the voluntary collaboration of many people. Alexa ranks Wikipedia as the sixth most visited website globally (Alexa, 2016; Woodson, 2007). With more than five million articles (Wikipedia, 2016n) created by users in English alone, it is among the top 10 fastest growing Web brands (Wikipedia, 2016s) and a promising model for collaborative knowledge sharing. The English Wikipedia currently has more than 29 million users who have registered a username (Wikipedia, 2016r) and there are an estimated 365 million readers worldwide (Suh, Convertino, Chi, & Pirolli, 2009). "About 50% of search engine traffic to Wikipedia comes from Google, a good portion of which is related to academic research" (Wikipedia, 2016s). This is the main reason we focused on interviewing students and recent alumni. From a marketing perspective, in 2011 Business Insider evaluated Wikipedia at $4 billion if it ran advertisements (Insider, 2016).

Research suggests that success of Wikipedia stems from three key sources: infrastructural and social features that help people find and define their roles in the organization (Welser et al., 2011), technical innovations that allow substantial economies of scale in the performance of those roles (Welser et al., 2011), and social mechanisms that support coordination and conflict resolution (Suh et al., 2009; Welser et al., 2011).

In order to understand users' interactions with Wikipedia, we first briefly explore the specifications of the system, the affordances and constraints provided by it, and the rules and regulations governing the system:

Wikipedia Specifications

On Wikipedia each encyclopedia entry is known as a Wiki page. Wiki pages range from "stubs" to "featured articles," distinguished by their level of coverage on a particular topic (a stub typically consists of just a few sentences, whereas feature articles are nominated and chosen when deemed sufficiently thorough in coverage) (Wikipedia, 2016q). Article contributors, "Wikipedians" or "Editors," can be registered or unregistered and thus be anonymous (Wikipedia, 2016r). Wiki pages are accessed via direct links external or internal to Wikipedia often provided by search results.

Page Creation. If a search on a subject yields only unrelated pages, users can suggest creating a new page. The Search Result page provides an "ask for it to be created" link to initiate the activity. This links to the "Wikipedia:Articles for creation" Wiki page which details information about recently created articles, article submissions and redirects, categories, and files. Here the "Click here to create an article now!" link is accessible to registered users and redirects users to the "Wikipedia:Article wizard" page. The Help menu and tutorial pages provide guidance on how to create a new article. For new users, their proposed Article will first be created as a draft stored in Articles for creation. When finished, they will be able to submit it to be reviewed by Wikipedia's volunteers. After a successful review, it will be moved to the article namespace. Registered users can create articles directly in the article namespace, but Wikipedia strongly recommend using Articles for Creation instead: doing so will temporarily

immunize new articles from the risk of speedy deletion (Wikipedia:Article wizard/Ready for submission - Wikipedia 2016). Advanced users can create articles and also use a dedicated wizard, which enables them to create other pages or page components like: redirect for an existing article, category, disambiguation page, template, info box, and user page. Wikipedia also allows for creating user page from Static IP Addresses.

Page Editing. To edit a page, users have to log in the system. If the article is not protected or semi-protected, users can directly use "Edit Source" and "Edit Beta" hyperlinks to start editing the page. In the "Edit Source" page an Editor page is provided and users can apply their changes to the contents of the page and then in a separate box, describe the edits they made before submitting. The editor window shows only simple text without the formatting and other related objects and so the editing process provides limited feedback. This issue motivated Wikipedia to introduce the "Edit Beta" option which provides a more visual editing environment.

Quality Assessment. Wikipedia has a quality assessment system that enables Wikipedians to collaboratively categorize articles into multiple quality classes and prioritize working on the articles. The full list of these quality classes and their explanations are available at Wikipedia (2016q). Users can nominate an entry as a good article, which then goes to a reviewer to assess based on the "Good Article criteria" (Wikipedia, 2016i). Users can also submit a request to remove an article from the Good Articles list. The Good Article criteria consists of six factors: writing quality, verifiable references, neutral viewpoint, coverage range, entry stability, and image use. The reviewer who turns down a nominated page or editor who removes a Wiki-page from the Good Article list, would place an explanation for their decision in the entry Talk page (Wikipedia, 2016i).

Protection Policy. Wiki pages can be categorized by their protection level. Protection refers to access restrictions placed on page editing in cases of "a specifically identified likelihood of damage resulting if editing is left open" (Wikipedia, 2016m). Currently nine forms of protection are available to control access, the most common being fully protected and semi-protected. (Table 1) provides a brief explanation of each of the protection levels. For a complete description, please refer to Wikipedia (2016m). Administrators can place any protection type except "Protected by Office", which Wikimedia Foundation Staff have control over (Wikipedia, n.d.). Protection also affects when a user's edits "Go live," i.e. become visible to the public. Those with administrator-level access will see their edits go live immediately for all levels of protection (except Protected by Office) (Wikipedia, n.d.). Edits from new or unregistered users require approval from a reviewer before going live; however, changes done on an unprotected page will go live immediately (Wikipedia, 2016m).

User Access Levels. The user access level progresses more or less in the following hierarchy from low to high access:

Unregistered/Anonymous → Registered New → Registered Autoconfirmed = Registered Confirmed → Reviewers → Template Editors → Administrators → Bureaucrats → Stewards → Wikimedia Foundation.

The hierarchy reflects the level of trust from the community and or the users with the power to grant access levels. "Flags" refer to permits for specific rights and editing abilities and to user groups granted particular flags. Unregistered users must agree to share their Internet protocol (IP) address to make an edit and answer CAPTCHA when adding external links. Registered New users are given the flag to create pages and email other users. Registered Autoconfirmed status is determined by the system software

based on account age and number of edits made. Autoconfirmed accounts gain the ability to "move pages, edit semi-protected pages, and upload files or upload a new version of an existing file" (Wikipedia:User access levels - Wikipedia 2016). Registered Confirmed accounts are granted by administrators and provide the same flags as autoconfirmed accounts. Reviewers can approve or reject pending entry edits and nominations for page promotions such as the Good Article list. Administrators automatically have the review flag and other editors can request reviewer rights. Template editors are administrator-level as their actions can have system-wide effects on page structures. The rights and role of Template Editors are granted by administrators. Administrators (also referred to as "sysops") are highly trusted editors granted extensive abilities to manage pages (rename, delete, undelete, protect, unprotect, see Table 1) and user accounts (block, unblock including IP addresses). Such extensive rights could be misused and thus all Administrator actions on Wikipedia are logged. Editors can nominate themselves or be nominated through the Request for Adminship to obtain administrator rights (Wikipedia, 2016p). This initiates discussion by other editors on whether a nominee's contributions, understanding of policy and procedures, and level of community trust are sufficient for the administrator role. A "bureaucrat" will then determine if consensus for approval is reached (Wikipedia, 2016p). Bureaucrats have expanded rights for managing user accounts such as granting others' bureaucrat roles, granting/removing administratorship, controlling the creation and naming of user accounts, and creating bots (automated/semi-automated editing tools for Wikipedia maintenance) (Wikipedia, 2016d, 2016e). Stewards are functionally global sysops with access to all Wikimedia wikis and the ability to change any and all user and user group rights (Wikipedia, 2016c). Wikimedia Foundation Staff consists of paid employees who have the ability to perform office actions (Wikipedia, 2016h).

Wikipedia Five "Pillars".   Wikipedia lists five "pillars" of underpinning principles guiding behavior in the community (Wikipedia, 2016f):

1. It exists as an encyclopedia (as opposed to other forms of writing).

2. Entries employ a "neutral point of view" touching major points of view impartially and citing verifiable sources.

3. Entries are free for anyone to "edit, use, modify, and distribute."

4. Users interact with "respect and civility." Wikipedia provides an etiquette guide, first of which is the "good faith rule" — calling users to give others the benefit of the doubt in working to help the project.

5. Rules are not firm. Though policy and guidelines are provided, users are expected to follow the principles behind the policies and exceptions might occur to benefit Wikipedia.

Wikipedia Interface.   A typical entry is comprised of the "Read" main article contents page, "Talk" page, "View source"/"Edit source" page, and "View History" page. The main article layout includes a global navigation sidebar, lead section (to provide readers context on the article including main points of the article and an infobox for general classification/categorization of information), article contents and references, and footer with links to resources related to the particular entry. Talk pages allow Wikipedians to interact and discuss for the purpose of reaching consensus on page

contents. Each user has a user page which itself has a Talk section to allow interaction with that specific user (Wikipedia, 2016s). View history pages include logs concerning all previous edits (Table 2).

Wikipedia is Criticized in the Literature

A fundamental assumption and insight underlying Wikipedia was that credible authors outnumber non-credible ones, thus good quality content would predominate and improve gradually (Adler & De Alfaro, 2007; Leuf & Cunningham, 2001). However, the democratic nature of the platform has led to concerns about writing quality, accuracy, and the potential for vandalism (Wikipedia, 2016s). For example, anonymous users have found an opportunity to post deliberate misinformation about other people on Wikipedia (Knight, 2005). In addition, Wikipedia's reputation has attracted non-credible users to write on it to express their personal ideas to a large number of audiences. Though such contents are removed quickly, the short duration of exposure on popular pages are enough to invoke user complaints. Wikipedia's administrators decided to define and set user access levels and page protections to prohibit such problems (Adler & De Alfaro, 2007; Leuf & Cunningham, 2001). Among varieties of protections, two of them are more common: full protection that allows only administrators to modify the page; and semi-protection that permits authorized users to edit the page (Wikipedia, 2016m). Although these restrictions may have solved the mentioned issues to some extent, they are in contrast with two stated fundamental principles by which Wikipedia operates:

1. "Wikipedia is free content that anyone can edit, use, modify, and distribute." (Wikipedia, 2016f)

2. "Wikipedia does not have firm rules: If a rule prevents you from improving or maintaining Wikipedia, ignore it." (Wikipedia, 2016f)

This discrepancy has led to a number of complaints from users and concerns by observers as follows:

- User credentials are not verified which gives rise to fraudulent editors. One notorious example of this is referred as "Essjay controversy," a fraud editor of Wikipedia. This issue led users to propose that academic qualifications should be verified before being cited in Wikipedia content disputes (Wikipedia, 2006).

- Editor anonymity leads to lack of authority and accountability, and poor quality of discourse which consequently makes it difficult for users to assess page reliability (Adler & De Alfaro, 2007; Bergstein, 2007; Hickman & Roberts, 2006; Sanger, 2006; Spicuzza, 2008; Stross, 2006).

- Debates on controversial topics can lead to counterproductive edit wars (Stvilia, Twidale, Smith, & Gasser, 2008). To address this issue, Wikipedia's administrators could either review and intercede in disputes or prevent such disputes. From 2005, policy changes added quality control systems and complexity to the rule system. Several observers indicate these changes played a role in the decline in editor numbers and in discouraging newcomers (Adler & De Alfaro, 2007; Halfaker, Geiger, Morgan, & Riedl, 2012; Miliard, 2008; Wilson, 2016). Such rules include how unregistered users can no longer create articles

(Suh et al., 2009). The expansion of bureaucracy can confuse newcomers. Suh et al. (2009) also regards the higher rate of page deletions and reverts by Wikipedia as growing resistance by the system to new content and thus an increased cost for editors to contribute.

- Kamm (2007) criticized Wikipedia of being consensus-oriented in that it "seeks not truth but consensus, and like an interminable political meeting the end result will be dominated by the loudest and most persistent voices."

- The class of volunteer administrators formed to reduce vandalism and fraud produced a power inequality which permits the opinion of one class to dominate, a class structure in contrast with the aforementioned pillars of Wikipedia (Hafnerjune, 2016). To address this problem Wikipedia defined protocols to prevent administrators from abusing their power, making the administrative process more difficult and complicated (Wikipedia, 2016b). Users involved in increased administrative activities (e.g. coordinating discussion, formulating policies, regulating edits) divert their effort from direct content creation (Suh et al., 2009).

- Wikipedia editors have criticized Jimmy Wales's unilateral decisions regarding Wikipedia content (Finkelstein, 2008; Wikipedia, 2016b).

Research Method and Procedure

In this study, we explore how people use and contribute to Wikipedia; how credibility of social work on Wikipedia affects their expectations and interactions with Wikipedia and its contributors; how they perceive credibility of content and reputation of contributors on Wikipedia; would they cite a Wikipedia article in a class paper or a scientific journal paper; how they perceive repeated information on Wikipedia, is it a sign of unorganized content from their perspective? For this purpose, we have interviewed students and alumni at the University of Michigan about how they use and contribute to Wikipedia. We focused on interviewing students and recent alumni, because "about 50% of search engine traffic to Wikipedia comes from Google, a good portion of which is related to academic research" (Wikipedia, 2016s). So, one of our main assumptions is that our small subject pool is fairly representative of Wikipedia users. We leveraged snowball sampling method and recruited the subjects though the network of our friends at the University of Michigan. We conducted one of the interviews over the phone and the rest of the interviews were conducted at the school of information study rooms. Each interview took between 30 minutes to an hour and thirty minutes. We conducted 10 semi-structured interviews. The interview questions are as follows:

1. Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

2. For what purpose do you usually use Wikipedia?

3. Have you ever tried to add a new page or edit a page on Wikipedia? If yes, what did incentivize you to contribute to it? Has your proposed page or edit been accepted by Wikipedia? If not, why?

4. Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

5. Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

6. Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

7. If one adds a piece of information on Wikipedia and others edit it continuously, do you think Wikipedia should regard the original content by the first author and credible? Do you think Wikipedia should assign the first author a higher reputation?

8. If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think Wikipedia should regard the original content by the first author and credible? Do you think Wikipedia should assign the first author a higher reputation?

9. What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. o you think Wikipedia should regard the original content by the first author and credible? Do you think Wikipedia should assign the first author a higher reputation?

10. Do you have any idea to improve the credibility of Wikipedia pages?

11. What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

12. A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

13. What's wrong with Wikipedia articles from your field of study point of view?

14. Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

15. Please describe two instances when you interacted with Wikipedia and your thought going through the process. (These include but are not limited to personal, social, academic, or occupational circumstances that led you to make use of, contributed to, or interacted within Wikipedia or Wikipedians.)

Analysis of Social Work on Wikipedia

In this study, we investigate how goals, roles, norms, incentives and rewards, conflicts, activities, representation of self, representation of others, representations of activities, and social regulations are formed, how they govern the community, and to what extent each of these factors contribute to credibility of social work on Wikipedia and affects the expectations of its users and contributors. For this purpose, we have surveyed the social psychology literature about Wikipedia and interviewed students and alumni at the University of Michigan about how they use and contribute to Wikipedia. The analysis of the results is categorized as follows:

Goals

From the system's point of view, Jimmy Wales, the founder of Wikipedia, is credited with defining the goal of making a publicly editable encyclopedia (Slashdot, 2013; Wikipedia, 2016s). In this scenario, no one owns any article. All Wikipedia contents are edited collaboratively. No one, no matter how skilled, or of how high standing in the community, has the right to act as though he or she is the owner of a particular article (Wikipedia, 2016l). According to this purely democratic goal, Wikipedia makes no guarantee of validity of anything (Wikipedia, 2016g). At the same time, wikipedians are able to ignore all rules if they believe the rules prevent them from improving or maintaining Wikipedia (Wikipedia, 2016j). Also new original research is not acceptable in Wikipedia (Wikipedia, 2016k).

From users' point of view, the interviews conducted in this research show that most of Wikipedia users use it to look up unfamiliar terms and topics, before using other sources to dig deeper into the subject.

Roles

In Wikipedia one can identify social roles as: Anonymous reader, Authorized reader, and Wikipedian. Among those interviewed in this research, persona 2 and 3 are anonymous readers, and persona 1 is an authorized reader. Welser et al. (2011) has distinguished four social roles that Wikipedians play:

Technical editors.   They correct small errors related to style or formatting of articles. They engage in incremental improvements such as spelling, grammar, hyperlink format, out-of-date facts, links to other language editions of Wikipedia, categorization, building templates that help to organize and standardize Wikipedia and maintenance of Wikipedia's content (Welser et al., 2011).

Most of the Wikipeidians interviewed in this research are technical editors. Even Vandal fighters and substantive experts who have been interviewed have had some experience of being a Technical Editor too.

Vandal fighters.   They find vandalized articles, revert vandalism, and sanction norm violators. Among the interviewees in this research, although persona 2 has not registered on Wikipedia yet, whenever he sees any kind of spam or vandalism, he tries to replace it with a credible content.

Substantive experts.   They improve the quality of the content of the articles. There is only one substantive expert, persona 4, among the interviewees in this research.

Social networkers.   They support community aspects of Wikipedia and contribute little to the content and form of articles directly. Among those who have been interviewed in this research, there is no Social networker.

Lacking well-defined rules and boundaries, Wikipedia offers users many possibilities for interacting with one another. Those contributors who make frequent use of Wikipedia's networking and communication potential will be referred to as social networkers. Social networkers build strong ties with other users through channels other than article collaboration. They utilize User Talk extensively, make "Wikifriends," and create elaborate profiles that showcase their Wikipedia personalities. Their User Pages often contain many Userboxes, small snippets of self-identifying information including interests, group membership, and personal characteristics. Social networkers often participate in projects that can be seen as community-building. These include "The Birthday Committee," a variety of projects associated with "Wikipedia Culture," the

"Welcoming Committee" for new users, and parts of the now defunct "Esperanza" project whose goal was to strengthen the Wikipedia community. Though formal roles are few, Wikipedians recognize a number of informal roles as well, including welcoming new users, managing the featured article process (Welser et al., 2011) and writing tools to help the community (Welser et al., 2011). These informal roles provide an open structure that supports legitimate peripheral participation (Welser et al., 2011), the process by which new users learn to contribute by observing, and eventually emulating, the behavior of established Wikipedia editors. Success of Wikipedia depends on ordinary people playing extraordinary roles in a large and largely uncoordinated system. Welser et al. (2011) suggests that people are able to find their roles in Wikipedia.

Norms

Prescriptive and proscriptive norms: Wikipedia expects writing from a neutral point of view, representing all significant views published in reliable sources, and citing publicly available research which could be easily verified. Editors are expected to act in good faith: focus on the content to help and not hurt the project.

Disagreements are expected to be resolved through a discussion page. If consensus cannot be reached, a formal dispute-resolution process occurs with a "request for comment" from others, a volunteer mediation committee, or volunteer dispute-resolution specialists. This can be further escalated to an arbitration committee of elected volunteers which reviewed the entire records of those involved in the dispute to assess if the actors conducted themselves according to the good faith rule. This review can result in an editor being banned (permanently or temporarily) from features, entries, or Wikipedia altogether. Furthermore administrators can intervene to delete pages (as voted by the community) and block editors.

Piskorski and Gorbata (2011) conducted a longitudinal analysis on whether Coleman's social norm enforcement mechanism was evident among Wikipedia editors. They assessed Coleman's assertions of an inverse relationship between network density and norm violations wherein: 1) higher-density networks allow a structure for compensating the cost incurred by norm enforcers when enforcers apply punishment/reward to elicit norm compliance; 2) this structure allows more enforcement to occur; and 3) subsequently, the incidence of norm violations decreases.

Wikipedia provides tools for expressing appreciation of someone's editing such as thanks or talk page of the user. However, such features can be hidden from users, require additional effort to navigate to, or are too new such as the thanks button.

Given the importance of community consensus, a general rule on Wikipedia is "one editor, one account." Abuses to this rule include sock puppetry and meat puppetry. "Sock puppetry" refers to the use of multiple accounts for improper purposes such as impersonation, deception, misrepresentation of consensus, or avoiding detection/sanctions. Wikipedia recognizes there are legitimate reasons to have multiple accounts such as avoiding hijacking of their main account when using public computers or having an account for the purpose of training other users, thus Wikipedia encourages editors with multiple accounts to provide links to alternative accounts as a matter of disclosure. In a similar vein, users are expected to act using "independent judgment." As such, a prohibited practice is "meat puppetry" which is the recruitment of other, particularly new, editors into a dispute to influence a decision. Accusing another of acting as a meatpuppet is considered offensive. Users engaged in puppetry can face punishment such as sanctions. Furthermore, Wikipedia has countered such practices by

giving new-user votes less weight, treating a group of accounts suspected of sockpuppetry as sockpuppets, and push for policy-based instead of vote-based consensus in debates (Wikipedia, 2016o).

As indicated in our interviews, most of Wikipedia users define a good Wikipedia article as well referenced, succinct, unbiased and understandable. Although there is no rule in Wikipedia indicating these features of a good article, these norms have been defined gradually by the community of users and Wikipedians. In case of seeing any kind of norm violation, Wikipedians try to modify the article and make it more satisfying according to these norms. The same thing happens about spams. Although there is no definite definition for a spam, the community of Wikipedia users has gradually defined it explicitly, and they do not allow malicious authors to put spam on Wikipedia.

Incentives and rewards

Most of the interviewees in this research agreed that for a Wikipedia reader the most important factor is to find well referenced, succinct, unbiased, and understandable information. Reaching a clear understanding of the concept that they were searching for is the most important incentive, which makes them to return to Wikipedia and also encourage their friends to use Wikipedia.

For Wikipedians, analysis of the interviews showed that there are multiple incentives:

1. Altruism, ethics, and a motivation for open source projects:

   Most of the interviewees who edit Wikipedia articles were agreed on this point.

2. Wikipedia has provided a lot of tools for Wikipedians to incentivize each other to write more and better. These tools include Talk messages, WikiLove, and Barnstars, which help users to express their ideas about each others' contributions.

3. Finding a community with the same interests, being in contact with them and collaborating with them to write a shared article is exciting enough for many Wikipedians to dedicate a lot of time for it.

Nov (2007) applied six motivational factors of volunteerism described by Clary et al. (1998) to understand the activity of Wikipedia contributors:

1. **Values:** People find the opportunity to express altruistic and humanitarian concerns with others.

2. **Social:** People can find the chance to engage in activities favorable by others and be with their friends.

3. **Understanding:** By contributing on Wikipedia, People learn new things and exercise their knowledge, skills, and abilities.

4. **Career:** Wikipedia can serve as a platform to demonstrate knowledge and writing skills and an opportunity to achieve job-related benefits such as preparing for a new career or maintaining career-relevant skills or making contacts.

5. **Protective:** Wikipedia seems to provide ample opportunities for contributors to share the fortune of having knowledge with others who do not have it, reducing guilt over being more fortunate than others.

6. **Enhancement:** In Wikipedia you find the opportunity to exhibit your knowledge and have the feeling that you are needed.

Nov (2007) has studied user's incentives for contribution in Wikipedia. He conducted a survey on Wikipedians and found an average level of contribution was 8.27 hours per week with "fun" and "ideology" being top motivators for contributing, whereas "social", "career", and "protective" were not strong motivators. In addition, age was found to be significantly correlated with the level of some of the motivations: the older people are, the higher their motivations levels of the "enhancement", "fun", and "protective" motivations (Nov, 2007). From another point of view, Kriplean, Beschastnikh, and McDonald (2008) show that informal awards (Barnstars) are used to encourage and reward different types of valued work, and suggest that these Barnstars may be used to identify existing or emerging types of work that may correspond to different roles in Wikipedia.

Conflicts

Conflicts arise when users want to achieve a solution, and users have different responses to the problem. Although such a conflict can yield to series of problems, it can potentially produce intellectual development (Levine, Resnick, & Higgins, 1993).

Users on Wikipedia, like other websites, have their own opinions and points of view. When it comes to editing a page, these discrepancies can lead to repetitive editing and in some cases to "Edit War". In the first interview, the interviewee saw two editors with different opinions that tended to edit and undo each others' modifications frequently. Although these conflicts are usually destructive in such social systems, they can also motivate other users to engage in such discussions which will potentially result in intellectual development.

As mentioned in personas and scenarios, other types of conflicts are related to spams. In this case, Wikipedians use facilities that Wikipedia has provided for them to stop the spammer and revert the content.

Due to collaborative and free editing nature of Wikipedia, sometimes disputes and disagreements between users cannot be avoided, so as other reports in the literature has also showed, the Edit War observed in the first scenario can be generalized to all Wikipedia users. Yasseri, Sumi, Rung, Kornai, and Kertész (2012) has argued that conflicts on Wikipedia have their roots in whether internal or external causes. Internal causes originate from internal sources of conflict and disagreement and play an important role in conflicts. They found that controversial pages, although small in number compared to whole number of articles, are prone to experience Edit War and repetitive discussions and editions.

Due to collaborative and free editing nature of Wikipedia, sometime disputes and disagreement between users cannot be avoided. Sources of conflicts in Wikipedia can be due to both endo- and exogenous causes. Although there are numerous conflicts associated with exogenous factors like recent development related to the real-world subject of the article rather than to its text, endogenous factors are points of interest that originate in internal sources of conflict and disagreement (Yasseri et al., 2012).

When exogenous events exist, the Measure of Controversy is a function of time, but if endogenous edits are stronger (e.g. most science articles and bibliographies of persons long dead), then it is number of edits that affect Measure of Controversy (Ratkiewicz, Menczer, Fortunato, Flammini, & Vespignani, 2010).

Yasseri et al. (2012) have shown that there is a correlation between burstiness (i.e many edits done in a rather short period, followed by a rather long period of silence) of activity patterns and conflicts. Burstiness as an impact of controversy was measured in four categories of articles:

1. Disputed articles,

2. Listed articles (coming from the List of controversial articles),

3. Randomly selected articles,

4. Featured articles (assumed to be least controversial).

As one could expect, in controversial articles, there is higher burstiness.

They have also showed the role of memory effects in the Wikipedia community has created a full system of measures to resolve conflict situations, including the so-called "three revert rule": Locking articles for non-registered editors, tagging controversial articles, and temporal or final banning of malevolent editors.

For measuring controversy in an article, number of reverts and revisions were compared to the tag counts (Vuong et al., 2008).

Also (Zha, 2002) proposed counting number of deleted words between users and using "Mutual Reinforcement Principle".

It is obvious that reverting a part of an article indicates disagreement, but this may be due to deleting vandalized texts or just conflicting about the content. Latter case is used to describe Conflict between users.

To detect conflicts Yasseri et al. (2012) statistically analyzed a set of 233k articles. By using i- 1, i, i + 1 . . ., j- 1, j, j + 1 to represent the stages in an article's history, they could identify editing behavior. For example, if the text of revision j coincided with the text of revision i-1, a revert occurred between the editor of revision j and i respectively. N_i is the total number of edits by the editor of revision i. Applying this benchmark to two set of articles showed how non-controversial articles (e.g. Benjamin Franklin) had significantly fewer mutual reverts than highly controversial articles (e.g. Israel, apartheid).

Of note, controversial articles were infrequent at 12k out of the 233k articles analyzed (Yasseri et al., 2012). Also impact of editors' language should be appreciated. For example, soccer-related issues are more controversial in the Spanish pages, but not elsewhere.

Social Activities

All of the technical editing tasks in Wikipedia have two aspects: an implementation side and a negotiation side. Even simple editing tasks require some negotiation about how, what, and when and where to implement particular rules. More complex tasks require even more negotiation. So, in general we should expect vandal fighters and technical editors to have many one-off interactions on the front stage, with ongoing interactions with homophilous alters in the backstage.

Representation of self

In Wikipedia, after making an account and logging in, users will be able to make a profile for themselves. To do so, two options are provided: "Create source" and "Createbeta." Creating a source provides users with an editing window in which users can simply enter their information and upload other files and documents. This process is just like editing any other Wikipedia page. For example, "edit summary" box and citation tools are provided which are unnecessary for making personal Profiles. So, editing source provides very few specific affordances for users to make profiles.

As mentioned previously, Wikipedia has launched a beta version of Visual Editor for making profiles which takes advantage of visual editor. In the visual editor, you can easily access different editing and formatting menus and it looks like conventional word processing environments that subsequently makes it faster and easier to make your desired profiles.

A problem with both of these tools is that there is no pre-defined platform or template for making a profile and hence, it will be very difficult for basic users to make a usable profile by themselves.

The other problem arises due to the wiki nature of profile pages, i.e. other users are able to edit and modify one's profile.

Representation of others

Entering a user's Profile, a registered user can click on a heart shaped button, called "WikiLove", to send messages to that person. While composing a message, in order to appreciate, one can chose "Barnstars," "Food and drink," "kittens", or any user customized object. For example, with a message, one can send a cup of tea or coffee as a means of award or appreciation. The messages and awards will be displayed on the Talk page of that user.

Another facility to keep in contact with others is being able to add one's page to an individual's watch list to keep informed about the latest changes and news.

Although providing various communication facilities for Wikipedia users, most of the interviewees in this research were not aware of these tools and facilities. However, they expressed that they believe it will be very advantageous if they have the ability to communicate with other Wikipedians.

How can one find others. Wikipedia does not provide powerful tools for users in order to find and communicate with other users. For example, it will be nearly impossible to find which of your friends is on Wikipedia. On the other hand, if one wants to find an editor of an article, s/he can enter the history page of that article and there is a complete list of all editors of that page with a hyperlink to their profile in the "View History" page of the article. So, although finding an editor is seemingly easy, finding friends is really a challenge.

Reputation. The collaborative nature of Wikipedia allows all users to be able to edit and modify pages. Users can use the archive of past edition and roll back to those editions or undo others' editions. The main idea is that if the number of well-intentioned users is fairly higher than ill-intentioned users and vandals, valuable contents will finally dominate the undesired contents (Leuf & Cunningham, 2001).

A reputation system on Wikipedia can provide an incentive for high-quality contributions. Also applying a reputation system can provide the facility so that

controversial or critical pages are only edited or modified by highly repudiatable authors (Adler & De Alfaro, 2007).

Unfortunately, there is no robust "reputation system" designed on Wikipedia, but Wikipedia provides some facility to get information about individual editors and learn about their backgrounds and contributions. Although these facilities, such as "User Profile", "Contribs", and "Talk" page, are not efficient tools to find one's reputation, they can provide basis for a rough estimate.

User profile can contain a user's background and personal information. In the Contibs page one can find the complete activity stream of editors and number and amount of their edits. Talk page provides a better understanding of editors' reputation; also any user can post their critics or thanks to the editor. For example, users' awarded Barnstars can be seen in their talk page.

Five interviewees in this research proposed using a reputation-based mechanism to improve quality of contents on Wikipedia. Although there are many facilities on Wikipedia provided for this purpose, most of the interviewees are not aware of them, or think that they are not easy-to-use.

Representations of activity

Wikipedia provides two main elements for representation of activities: History and Edit pages.

In History page one can find a huge list of previous changes and discussions. Each item has exact date and time, the editor's username and a short description. Also it is possible to thank the editor or select two revision items to compare with each other.

On the other hand, if one wants to find out more information about any individual or editor on Wikipedia, they can find the complete records of his/her contributions and even their awards in their Contribs and Talk Pages.

Each article has a Talk page associated with it. Talk page is dedicated for discussing about the content of the corresponding article in order to improve it. In this page, users can discuss their points of view and propose modifications before applying them to the main article. Also the record of the past talks can be found under "Archive" hyperlinks.

Signs of Life. A social system without presence of its users is as scary as an abandoned building. Presence of users demonstrates "signs of life" which helps to warm the atmosphere and make it more favorable. Signs of life in a social system is defined as seeing other users' presence and recent activities in the system, especially those one is connected with (Crumlish & Malone, 2009).

In the first interview, the interviewee found that any parts of contents on Wikipedia are collaboratively produced by contribution of users. Users discuss their ideas and their suggested modifications in a Talk page, which is a parallel page to the main page. In this page one can see the signs of life as they see the presentation of other users and editors by time and date.

Also, in the "View history" of each page, one can find the chronology of logs of all edits done to that page together with the username and edit time and date. As observed in the first scenario, at the beginning, as there was only one sentence in the page, the interviewee supposed that no one had edited the page for a long time, but after seeing about 500 edits in "View history" page, including many edits each month, he realized that there have been many users editing this page in a very recent past. In

addition, the fact that over each month a fair number of users discussed about this article shows the vitality and signs of life in the community.

From another point of view, almost all the interviewees in this research expressed that the collaborative nature of Wikipedia which is the main ingredient of the system is the main reason for them to use and trust Wikipedia. This fact clearly shows the importance of signs of life on Wikipedia.

However, Wikipedia can enhance Signs of Life by introducing some more features. For example, knowing how many users/ editors are online or how many people are reading a specific page can greatly enhance the signs of life.

Although in the first scenario, signs of life on Wikipedia impressed the interviewee from a student perspective, but this observation can be generalized to all Wikipedia users. The importance of social interaction and Signs of life should not be overwhelmed by the fact that Wikipedia is proposed to be an educational site. The success of providing efficient tools for magnifying the Signs of Life has been proven by the success of prominent social networks like Facebook. So, it can greatly improve the vitality of the community and consequently improve the quality and quantity of pages if Wikipedia introduces more affordances to support Signs of life.

To improve Signs of Life, Crumlish and Malone (2009) propose a set of modifications to websites, for example introducing the indicator for number of online users or adding avatars or real images of users next to corresponding fields together with providing more robust and interactive user profiles can greatly help the Signs of Life in any online social system like Wikipedia.

Activity stream.   (feed) is a set of users' activities and updates, and makes better understanding of what the user has been doing, thinking, and saying. It includes stream of recent history, status reports and other online activity snapshots in order to show the presence of the user Crumlish and Malone (2009).

Each user has a dedicated page called "Contribs," which contains a complete list of all edits and contribution logs of the corresponding user. In this page, each edit log is listed together with its date and time of the edit, the volume of the edit in bytes, the name of the corresponding page, which has been edited, hyperlinks to "diff" (difference to the previous version) and edits history, and a short summary of the edit. The whole set of this information clearly shows the "activity stream" of the corresponding user on all pages of Wikipedia. As mentioned before, observing the excessive amount of contributions of those users in their "Contribs" pages strongly encouraged the first interviewee to improve his contributions and activities, and it can be very simply explained by the "Social Comparison" theory (Levine et al., 1993).

In the first scenario, the interviewee's inducted motivation to collaborate more as he visited the "Contribs" pages of a couple of users, which is the result of social comparison, can be generalized to other users on Wikipedia. It is worth to mention that different pages on Wikipedia that are dedicated to show the "Activity Stream" of users and pages, although not very efficient, largely improve the engagement and motivation of users to collaborate and develop contents (Levine et al., 1993). Moreover, the loose sense of profiles in Wikipedia makes it very difficult to get information about users and editors' background knowledge and validate their credits (Wikipedia, 2016b). So in the first interviewee's try to find out the cause of conflict in the mentioned experience, it could be of great help if all editors had standard and informative profiles.

Social Regulation

As mentioned previously, in Wikipedia one can find two types of social norms: the first one is Prescriptive Norm that works by encouraging a specific action and the second works by discouraging from an action which is Prospective Norm. Wikipedia users' behavior is regulated via conventional and essential norms. Conventional norms are the norms that benefit all, but on the other hand, Essential norms are conflict-resolving behavior (that benefit others but cost an individual or prohibit behavior that would harm others, but benefit the individual). This can result in a first-order free-rider problem: each actor does not comply but wants others to comply, leading to no one following this norm. Effect on the norm follower is a spectrum between:

- Conjoint norm: benefits the follower

- Disjoint norm: does not benefit follower but benefits others

Norm (and rule) violations. In the definition of "Second-order free-rider problem", each actor considers the compensation for acting as the norm enforcer as too small (relative to the cost of applying the enforcement) and thus waits for others to carry out enforcement.

Norm compliance is enforced by:

1. Rewards or punishments and carrying out punishments cost the enforcer more resources than rewards;

2. An individual or a group, thus, cost applies to an individual or is dispersed amongst a group;

3. Third parties unaffected or affected by the norm violation, with those affected more incentivized to carry out enforcement. Social norms then are norms where unaffected third parties are expected to step in and carry out punishment of norm violators. Unaffected third party enforcers would not benefit from norm enforcement.

In order to counter second-order free riding, sufficient compensations are particularly important for enforcers who enforce via punishment, enforce as an individual, or are themselves unaffected by compliance to a norm.

In contrast, "Third-order free-riding problem" is defined as: compensation of norm enforcement also has a cost. Actors wait for others to supply the cost of compensation, while they benefit from the enforcement of a norm.

Third-order free-riding could be addressed by compensating the cost of compensation, but this approach exhibits further orders of free-riding. Many theories address third-order free-riding problem by compensating enforcement through rewards, which are cheaper than punishments.

A network would require a sufficient density of social relationships to allow for an interaction between norm violator, injured party, norm enforcer, and enforcement compensator.

(Piskorski & Gorbata, 2011) tested the following hypotheses: the higher an actor's network density, the less likely he or she would violate a norm or experience a norm violation, the more likely he or she is to punish a norm violation or others would punish

violation on his or her behalf, the more likely he or she would reward those who punish norm violations or would receive rewards for punishing norm violations. They then hypothesize that actors can defect from one social system to another if they experience an unpunished norm violation or if they are the target of a norm violation (cost) and personally carry out the punishment (further cost). An actor is more likely to stay in the social system if they are the target of a norm violation but sees the offender punished by a third party.

Vandalism is considered a norm violation. Wikipedia added an undo to every version in its history to handle vandalism. A norm then developed to not use the undo function because a major norm violation is to use undo when vandalism is nonexistent and this violation has resulted in people leaving Wikipedia altogether. "Reverting the undo" occurs when the undo enacted is itself undone and can start a back and forth production of "revert wars." Reverting conveys disrespect towards to the agent responsible for the undo. As a result, Wikipedia limited each user to three reverts per 24 hours for an entry.

Conclusion

In this paper, different social aspects of Wikipedia, as an online community, and users' interactions in this community are explored. Through surveying the social psychology literature and interviewing students and alumni at the University of Michigan, we investigated credibility of the social work on Wikipedia, how users and contributors perceive it, how the norms and goals are formed, how the community identifies and mitigates conflict, and to what extent representation of reputation and design of social affordances can improve the credibility of content on Wikipedia.

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Protection	Description	Access level
No protection	Open	All
Pending Changes Protected	All can contribute, but to counter vandalism edits by unregistered or new users are reviewed by an editor with reviewer rights before the edits become visible to the majority of users.	All including Unregistered and New Users
Move Protected	Prevents moving a page to a different title.	Administrator
Upload Protected	Prevents another version of a file from being uploaded.	Administrator
Create Protected	Prevents deleted pages from being recreated, such pages are referred as "salted."	Administrator
Semi-Protected	Prevents unregistered and unconfirmed users	Confirmed Accounts Administrators
Template Protected	Applied to pages with high transclusion rates, pages which would have otherwise been fully protected	Template Editors Administrators
Fully Protected	Meant for articles facing repeated vandalism, edit wars, or have important templates.	Administrators
Permanently Protected	User CSS/Javascript pages are permanently protected.	Administrators (but cannot remove this page protection.)
Protected by Office	Overrides community consensus often in response to or compliance with legal action.	As Wikimedia Foundation Staff permits.

Table 1

Wikipedia Protection policies and descriptions.

View History Components	Description
Cur	links to the comparison page between the current version of the content and the revision as of the corresponding edit.
Prev	links to the comparison page between the previous version of the content and the content after this edit.
Edit comparisons	Radio button allows selection of two different edits for comparison.
Edit date/time	
Edit Editor user name/IP	
Talk	links to user profile Talk page.
Contrib	links to the Contribution page of the user, including the activity stream of that user.
(... bytes)	Size of the original content before the edit in bytes.
(+/-...)	The amount of the user's contribution to the page in bytes.
($\rightarrow$ ...) ...	A short description of the edit
Undo	undo the previous edit
Thank	appreciate user's contribution

Table 2

Wikipedia View History Components.

Appendix A
Personas, Scenarios, and the Scripts of the Interviews
In order to anonymize the data and hide the identity of the interviewees, all the names in the personas, scenarios, and interview scripts have changed to hypothetical names.

First Interview

  First Persona. Chris Johnson is a 27 year old Master student, specializing in HCI. Chris is basically a researcher and he starts each of his research projects by reading the Wikipedia page about that topic to figure out related keywords and popular references about the topic, and then goes through other references to investigate details about the topic and related research projects. So he goes to Wikipedia when he needs to quickly access a very high-level description of a subject. He does not like to spend a lot of time searching or reading Wikipedia articles. That's why finding his intended definition very quickly is very important for him. He reads Wikipedia articles a lot, more than other websites. He has an account on Wikipedia, but has rarely edited a page on it. He has never communicated with a Wikipedian through Wikipedia, but he really likes to learn how to use Wikipedia features to be in contact with Wikipedians. He is a fan of collaborative work, that's why he likes Wikipedia, but he does not have enough time to write on it. He believes what he reads on Wikipedia is correct. Previously he has observed biased articles on WIkipedia, but he does not care about them, because he uses Wikipedia only as a starting point of his research. From another point of view, he thinks Wikipedia has become very complicated, and there are many facilities on it that are difficult to learn and use. Also, he is not satisfied with the organization of information on Wikipedia. He can remember a couple of times when he has been lost in the maze of hyperlinks, going from a page to another by clicking internal hyperlinks of a page to learn about the corresponding concept. However, Chris likes Wikipedia because he thinks the information on it is up-to-date.

  First Scenario. Chris has been using Wikipedia for a long time as a reference to begin any research. After entering the School of Information, he met many Wikipedians, and they encouraged him to start contributing to Wikipedia. They advised him to create an account, and then study about the main principles of Wikipedia before starting editing on it, so he began with the following page, which includes the fundamental principles by which Wikipedia operates: `https://en.wikipedia.org/wiki/Wikipedia:Five_pillars` He read the five pillars, and found the last one which is "Wikipedia does not have firm rules", very interesting, and went to the corresponding page to learn more about it. He was shocked to see nothing more than a line of description in the corresponding page, "Wikipedia: Ignore all rules". The first idea that came into his mind was that the page had been created long ago when Wikipedia was born, and has not been modified for a long time. But as a matter of curiosity, he wanted to check his idea and he found a tab, called "View history". In the "Wikipedia: Ignore all rules: Revision history" he saw a long list of edit logs, which was amazing to see many changes over a long time, that resulted in only one line of description. The interesting point about this page was that there were about 500 logs of modification on the page, and he realized that from the creation of this page, there have been a fair number of edits on the page, and the last one was just added four days ago. As he went through a couple of these edits, he observed another interesting trend. He saw someone who had added 473 bytes of characters to the page, and 30 minutes later another anonymous user undid the revision and deleted the whole

modification of the previous user, and then, after eight minutes, another user returned the modifications that the first user had added previously. After nine minutes the second anonymous user returned and undone the changes again. At last, in less than five minutes, another registered user returned the exact modifications again. This is a phenomenon which is called "Edit War" on Wikipedia. Following the flow of edits, he found another conflict among editors of this page. This time two registered users had Edit War over 160 bytes of edits. They added and deleted a particular modification for eight times. To figure out the reason of this conflict, he wanted to know more about their past records and activities to find out if they have had other similar Edit Wars in the past. So he clicked on the "contribs" links of them. Although he saw the activity stream of each user in their "contribs" page, he was not able to see more signs of Edit War, because he could not see the flow of edits on individual pages by different editors. So, he returned to the talk page of the original content to see other users' opinions and discussions about each edit, which enabled him to judge about the mentioned cases. Over his first experience as a Wikipedian, he found that Wikipedia has provided many facilities for the users to collaborate with each other to improve the quality of contents, but unfortunately many of these tools are so difficult to use that many users like him who have used Wikipedia for a long time are not aware of these facilities.

First Interview Script.
1- Do you remember the last time you used Wikipedia?

Yes. Last week. If this interview is about Wikipedia, I have a lot to tell you! Because I have recently learned how to edit Wikipedia pages.

2- For what purpose do you usually use Wikipedia?

I read Wikipedia pages more than any other website on the Internet. As a researcher, I like to start each of my research projects by reading the Wikipedia page about that topic to figure out related keywords and popular references about the topic, and then go through other references to investigate details about the topic and related research projects. So I go to Wikipedia when I need to quickly access a very high-level description of a subject. I do not like to spend a lot of time searching or reading Wikipedia articles. That's why finding my intended definition very quickly is very important for me.

3- Have you ever tried to add a new page or edit a page on Wikipedia?

No, I have a Wikipedia account, but I've only edited Wikipedia pages. Actually I don't know how to add a new page to Wikipedia. What did incentivize you to contribute to it? I have been using Wikipedia for a long time as a reference to begin any research. After entering the School of Information, I met many Wikipedians, and they encouraged me to start contributing to Wikipedia. They advised me to create an account, and then study about the main principles of Wikipedia before starting editing on it, so I began with the following page, which includes the fundamental principles by which Wikipedia operates:
`https://en.wikipedia.org/wiki/Wikipedia:Five_pillars` I read the five pillars, and found the last one which is "Wikipedia does not have firm rules", very interesting, and went to the corresponding page to learn more about it. I was shocked to see nothing more than a line of description in the corresponding page, "Wikipedia: Ignore all rules". The first idea that came into my mind was that the page had been created long ago when Wikipedia was born, and has not been modified for a long time. But as a matter of curiosity, I wanted to check the idea and found a tab, called "View history". In the "Wikipedia: Ignore all rules: Revision history" I saw a long list of edit logs,

which was amazing to see many changes over a long time, that resulted in only one line of description. The interesting point about this page was that there were about 500 logs of modification on the page, and I realized that from the creation of this page, there have been a fair number of edits on the page, and the last one was just added four days ago. As I went through a couple of these edits, I observed another interesting trend. I saw someone who had added 473 bytes of characters to the page, and 30 minutes later another anonymous user undid the revision and deleted the whole modification of the previous user, and then, after eight minutes, another user returned the modifications that the first user had added previously. After nine minutes the second anonymous user returned and undone the changes again. At last, in less than five minutes, another registered user returned the exact modifications again. Following the flow of edits, I found another conflict among editors of this page. This time two registered users had conflict over 160 bytes of text. They added and deleted a particular modification for eight times. To figure out the reason of this conflict, I wanted to know more about their past records and activities to find out if they have had other similar conflicts in the past. So I clicked on the "contribs" links of the edits. Although I saw the activity stream of each user in their "contribs" page, I was not able to see more signs of conflict, because I could not see the flow of edits on individual pages by different editors. So, I returned to the talk page of the original content to see other users' opinions and discussions about each edit, which enabled me to judge about the mentioned cases.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I think it can be a very interesting facility if Wikipedia provide it for us. There are many Wikipedians that I follow their edits. I really like to encourage them to write more, but the only communication tool that I found recently was the talk page of the user in which you can talk with him and appreciate his contribution. I think it will be great if Wikipedia provides a social network or micro-blogging facility for Wikipedians to communicate with each other.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No, I have never criticized anyone, but I really like to learn how to do that, especially those why write their personal understandings of subjects which are not always correct.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

Yes. I think the only way to communicate with a Wikipedian is through the talk page in his user page. But I think it would be better if I could send them private messages.

7- How do you define good content on Wikipedia?

Very succinct and complete.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

Definitely No. Because you say others are editing it continuously. So, there must be something wrong with it.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Not necessarily. It can be in a page which has very few readers and editors.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

Again, Not necessarily. I usually read about Micro-economics on Wikipedia. I think the structure of almost all of Wikipedia pages is similar. Most of them have an abstract at the beginning of the page. I always read that abstract, but I usually don't continue to the main article. They sometimes contain very detailed Mathematical proofs which are not interesting for me. I think no one reads them. So I think if someone writes something in the abstract, it is more likely to be edited by others than details of a long article. So I think the metric that you mentioned is not a reliable measurement of a good contribution.

11- Do you have any idea to improve the credibility of Wikipedia pages?

One of the problems that I see on Wikipedia is that they put a lot of value on the number of edits and the volume of edits. If you take a look at this page: `http://en.wikipedia.org/wiki/Wikipedia:List_of_Wikipedians_by_number_of_edits` you will see that edit count is really important for them, which from my point of view is not a reliable metric.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

I highly encourage it if the professor previously read the page and verify its credibility before suggesting it to his students.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

I think what they are doing is reasonable, because the credibility of Wikipedia articles is not verified by experts.

14- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Yes, I have seen that. I don't like redundancy. I have read many repeated articles both on Wikipedia and other websites.

Second Interview

Second Persona. Ralph C. Henry is a 32 year old medical sciences researcher and considers himself a lifelong student who uses Wikipedia at work as a springboard to get a general conceptual understanding of topics. He mainly uses Wikipedia as an information consumer. In the instance that he comes across spam in a Wikipedia entry, he will submit an edit to remove the spam. He is motivated by how crowdsourcing takes the knowledge of the many to help the many and thus regards spam as counter to this idea. He does not consider Wikipedia a valid reference for science as the material is not peer reviewed by experts and the contents of an entry is in constant flux and thus access to the very ideas and phrases referred cannot be guaranteed in the future. Nonetheless he regards the information on Wikipedia as generally reliable out of the self-correcting wisdom of the crowd. His regard for the quality of an article is two-fold: the writing itself and the validity of references. In turn he regards valid referencing as unbroken links which connect to peer-reviewed published work, editor-validated news articles or books. On occasion Ralph has found entries impressive but has not entertained the thought of complementing or rating the authorship as he is not aware of

such an option of Wikipedia and has noted that assigning credit would be difficult to delineate and maintain (given the transient nature of entry components).

Second Scenario.   Ralph Henry was putting together a list of biological organisms for which whole genome sequencing was underway or completed by the global scientific community. He decided to do a Wikipedia search on a particular animal he was not familiar with. As he compiled his list he came across an obscene phrase in a Wikipedia entry which he found surprising to have been allowed and persist. It had no relation to the topic at hand and was clearly spam. Because the particular entry was short (and he considered it more obscure), he concluded that the entry as a whole was infrequently visited. He felt it was his duty as a Web citizen to rectify the entry given the spam content and the unlikelihood that the online crowd would notice this small entry anytime in the near future. Though this was a small entry in the body of knowledge, spam is counter to how the many should help the many. If knowledge is a public resource, then pollution of that resource can hurt many. He proceeded to select the Edit feature and make the appropriate deletions of the obscenities. He was glad that he could edit the entry despite not having an official Wikipedia account. He would rather not create another account to remember especially since he did not plan on becoming an official Wikipedian at this point in time. His contribution was essentially anonymous; thus he was required to permit the entry's Edit history to documenting his IP address as part of the submission. Once submitted, he could see the edit history recorded his changes but he felt there was a significant lag (two to three hours) before the entry actually reflected the change he had made.

Second Interview Script.
1- Do you remember the last time you used Wikipedia?
Yes.
Can you explain your experience?
I was looking up cellular signaling.
What was your expectation and what happened?
I was looking for images and description of pathways and for some I found the descriptions which I was hoping to find but I did not find signaling pathways.
2- For what purpose do you usually use Wikipedia?
Looking up terms I'm not familiar with. I've also looked in Wikiversity to find short lessons and Wikimedia to find images.
3- Have you ever tried to add a new page or edit a page on Wikipedia?
Yes, I've tried editing a page. What did incentivize you to contribute to it? Has your proposed page or edit been accepted by Wikipedia? I was looking up a type of antelope and found there was spam text which I proceeded to correct.
4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?
Yeah. I've read a pretty impressive introduction to a random biography. I found it by clicking a link on a website that stated it was the most impressive introduction ever. I have not communicated with contributors. I don't think it is necessary for Wikipedia to provide such capabilities. It is a communal effort that has been quite successful in carrying out its task for crowd-sourced content. Then again, since you brought it up, if there was a way to work collaboratively and simultaneously with generating the content, a communication function can be useful. The catch with this is that it would be even harder for Wikipedia to track who did what in terms of edits if there was such

collaboration.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No, I haven't criticized a contribution. I don't think it's necessary because instead of criticizing, I or someone else can just go in and change the text.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

No, I haven't communicated with a Wikipedian. I think people enjoy some level of anonymity in their contribution. It fits in the culture of collectivism.

7- How do you define good content on Wikipedia?

Well referenced, succinct, understandable, and consistent with my existing knowledge.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

I think it is fine to credit the original author but also the other contributors. For example, a biography of the current president will require continual edits as events unfold over time. Perhaps you can make an exception for current history.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

No, not necessary because it depends on how widely recognized or esoteric the information is. There is also a level of inertial among users where there are few content generators but many readers. I think you would need to account for readership of particular information to gauge the rarity of the information.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

I think you need to see what of the original text remains. If all of it is replaced then perhaps the original author was not that reliable or at least not as effective at writing as those who came after. You may also have to account for the same author returning to the same entry and continually updating it.

11- Do you have any idea to improve the credibility of Wikipedia pages?

There is always a recommender or thumbs up or rating system that is possible. The difficulty is distinguishing other reasons people would rate an item for its popularity or interest and not the actual credibility. One can also have an optional survey at the end of an entry where people can explicitly rate the entry on credibility/popularity/interest. The rating system can be a set up for bias from spamming ratings up or down. The other possibility is to check the validity of the references (broken links etc.) and this way you wouldn't have to generate more metadata.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

I think it's a decent start but cannot be the only source. I would advise it as a method of finding reliable references or springboard for generating their own search terms.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

No, I would not because it is not peer reviewed by experts.

14- What's wrong with Wikipedia articles from your field of study point of view?

The "ease" of modification for Wikipedia opens it to abuse. Many fields of study rely upon levels of expertise that cannot be guaranteed in the democratic crowdsourced culture.

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Yes, I have also seen entire duplicates of paragraphs between Wikipedia entries and other websites and I'm not sure which came first. If it is the web developer then they are just being lazy.

Third Interview

Third Persona.   Theresa Bunker is a 24 year-old law student. She is constantly connected to the mobile space via her smartphone and likes to have information on hand. She readily searches Wikipedia to check up on facts or gain a quick overview of an idea before delving deeper. Theresa would not call herself cynical but just wants herself and others to use the right information before making statements. She has not given serious consideration to adding or editing content because Wikipedia does not offer sufficient incentive, nor does she feel she has the expertise. Furthermore she would rather gain knowledge than share knowledge. She does trust the process of Wikipedia as a "marketplace of contents" where the best contents rise to the top. Theresa regards the entries as reliable and has not come across anything she would consider erroneous or spam.

Third Scenario.   Theresa Bunker is working on her thesis, and for the introduction and related work of her thesis she needs some definitions of different terms. As an anonymous reader she usually uses Wikipedia to get a basic idea of the topic before delving deeper. She starts searching about one of those topics on Wikipedia via her smart phone. She easily finds the desired pages in search results and starts reading them. Some of those pages are tagged as "stub" and too short. However her goals in using Wikipedia is more gaining knowledge than sharing it, because she thinks Wikipedia does not provide enough incentive for her to contribute. Unfortunately some of the pages, although talking about very basic explanation of the term, are too long, which takes her a considerable amount of time. She uses Wikipedia as a reference for her thesis, because she believes due to collaborative nature of Wikipedia, in which the most credible ideas are dominant, its contents are reliable and credential. After showing her thesis to her advisor, her professor encourages her to write a research paper to support her work. So she goes through different highly reputable research journals and reviews their publication rubrics. But unfortunately she realizes that many of these journals do not accept Wikipedia as an acceptable reference. She compares Wikipedia with other online collaborative systems like Quora or Reddit and thinks it can improve Wikipedia's content if it takes advantage of a similar voting system. Due to not being able to cite Wikipedia in her paper, she has to find acceptable references. So she returns to those Wikipedia pages and goes to "References" section and tries to find reliable references there.

Third Interview Script.

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

Yes. I searched for the meaning of and specific context regarding a certain phrase. My expectation was that I would discover a definition for the term. I did indeed receive a definition for the term.

2- For what purpose do you usually use Wikipedia?

I use the website to briefly learn about a topic before using other sources to dig deeper into the subject.

3- Have you ever tried to add a new page or edit a page on Wikipedia?

No.

Why?

For two reasons: 1) I am free-riding off of other people's answers. There is no incentive for me to contribute. 2) I don't feel like I have the expertise to adequately contribute.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I have never encouraged anyone to write more. I think it would be useful to reward good contributors. That would coax them to contribute more often.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No. I do not think it is necessary. The marketplace of ideas sorts out ideas, and the good ones rise to the top.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

No. I do not want to contact them. I have no interest in contacting them. I do not want to collaborate. I am only interested in obtaining knowledge, not sharing my knowledge.

7- How do you define good content on Wikipedia?

Good content provides a cursory look at a topic. It is factual, short, and to the point.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

It depends entirely on the nature of the alterations. If the alterations are merely expansions upon ideas that have been described, then the author is still credible. If the alterations are resolving factual inaccuracies, then no, the author does not have credibility.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Sure. I mean, if there are many people reading it, and no one is changing it, then they are credible. If no one is reading it, then no one really cares, so their credibility is irrelevant. So yes, they are credible.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

I don't think we should say someone is not credible because their content has been edited. There are many different types of edits. It is unreasonable to expect an author to have a perfect and full expansive contribution. He creates his contribution knowing others can edit and help the process along.

11- Do you have any idea to improve the credibility of Wikipedia pages?

Allow voting for useful/unuseful contributions, similar to Quora or Reddit.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

I think that means they just want us to know the very basics of a topic. They do not want to go into much detail.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

I don't know anything about academic citations. As long as you can find the source of the information, I do not see a problem with it.

14- What's wrong with Wikipedia articles from your field of study point of view?

Topics do not contain depth. People that are experts in topics write in places where their work is compensated ie. journals, textbooks, etc. Their time is valuable; they are not going to sit around and write a Wiki entry.

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Not that I can remember. Sometimes information pertains to different topics, so it could be useful.

Fourth Interview

Fourth Persona. Andrew Dozette is a Masters student studying Archives and Records Management and a professional Wikipedian. He has already written/ edited a number of articles. He thinks Wikipedians should try to provide good contents, which he defines as: neutral point-of-view, well-written, well-sourced material that has (ideally) been peer reviewed through a process such as Featured Articles, Good Articles, or "B" class reviews from one of various WikiProjects. He uses many different facilities of Wikipedia to communicate with other Wikipeidians. Some of those tools include simple talk messages (old school) and WikiLove (new school). He thinks it is absolutely necessary for Wikipedia to provide such a capability because it is important for contributors to know that their contributions really are valid. Moreover, he thinks positive and constructive criticism can greatly improve the quality of contents on Wikipedia. In his opinion Wikipedia has tried to address this issue by introducing "WikiCriticize" feature, but he does not use this feature because he thinks in this page users concentrate too much on negative and destructive critics which is not so much useful therefore he uses the talk page instead.

Fourth Scenario. Andrew's altruistic point of view and his interest in open source and open content projects motivate him to collaborate on Wikipedia and Writing/Editing an article whenever he finds free time. This time as he was editing an article, he thought it is not enough to only post his modifications, and passively wait for the result. He had the idea that it would be far better if he could take advantage of collaborative thinking and working as it has a synergic effect. He entered the history page of the article to see the activity of other editors and went to some of their profiles. After reading their "contribs" and "talk" pages, he concluded that posting his opinions, thanks or critics about an editors' activity can largely motivate them to engage more. His own experience on Wikipedia shows that when someone really appreciates or even criticizes ones' efforts constructively, it has a very positive influence on the author encouraging him to contribute more. Being a very active Wikipedian, one of his

classmates asked him to help while she worked on her research paper. His friend was shocked realizing that although Andrew is an archivist, this subject's related articles on Wikipedia are very short and hence not useful. Andrew strongly suggested his friend not to use Wikipedia as a reference in her research paper as he believes Wikipedia like other encyclopedias should be deemed as a tertiary source and is not suitable as a reference for research papers. He warned that Wikipedia is a user-generated project and is always prone to changes and modifications. As credibility of Wikipedia's contents cannot be guaranteed, it should never be used in scientific papers. Therefore, he advised his classmate to use other sources instead.

Fourth Interview Script.

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

Yes, I used it to search for terms with which I was unfamiliar for a class reading assignment. The very last term for which I searched was "Love Bug virus." I found all of the (basic) information that I was looking to find, and my expectations were fully met by the experience.

2- For what purpose do you usually use Wikipedia?

Looking up basic information about unfamiliar terms and topics as well as editing (on a wide variety of topics).

3- What did incentivize you to contribute to Wikipedia?

Altruism, ethics, and a motivation for open source and open content projects.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

Yes, all the time. I've done it both with simple talk messages (old school) and WikiLove (new school): in spirit, they are essentially the same (at least how I generally use them). Yes, I think it is absolutely necessary for Wikipedia to provide such a capability because it is important for contributors to know that their contributions really are valid. Knowing that even one person really appreciates your efforts is a very positive experience on Wikipedia, and I can speak to that from personal experience.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

Yes, I have, but only gently: I always try to keep my criticism constructive and positive, and also be sure to thank the user for making the effort and contributing in the first place. I believe that the talk pages are the right place to criticize other users, so this capability already exists: a "WikiCriticize" feature would not be helpful, however, as it would concentrate too much on the negative. Criticism is important for learning and growing as a beginning editor, but it must be kept constructive and positive: it should never be hostile.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

Yes, all the time. And yes, I generally do enjoy communicating with them, and collaborations are even more enjoyable because they are more substantive: you are sharing ideas and work, not just a conversation.

7- How do you define good content on Wikipedia?

Neutral point-of-view, well-written, well-sourced material that has (ideally) been peer reviewed through a process such as Featured Articles, Good Articles, or "B" class reviews from one of various WikiProjects. There are plenty of well-written, well-source,

and neutral articles that haven't been peer reviewed, however, at least not FA or GA.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

Well, credible (or not) for whatever he or she wrote in the first revision. What changes subsequently (either positively or, more rarely, negatively) should not be attributed to the first author, except of course for the individual edits made by that same author. Credibility and authorship are interesting and often nebulous issues on Wikipedia, and I would recommend checking out the "view history" of any page to gain a better understanding of how individual editors and their edits can be preserved and compared with each other. A Wikipedia article is almost always a collaborative achievement, and its authorship (and the credibility to which it relates) is also collaborative. Note: On Wikipedia, it is sources that confirm credibility, not editors. "We [Wikipedians] are only collectors," as we like to say.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Maybe: it is entirely possible this is a simple, (fairly) stable topic and the first author has written something "good enough" for the purposes of a general-interest encyclopedia like Wikipedia. More often, though, this means the topic is obscure, isn't getting many page views, and hasn't been subsequently edited at all. In either case, the credibility of the entire article will bear directly on the (one) editor. Note: On Wikipedia, it is sources that confirm credibility, not editors. "We [Wikipedians] are only collectors," as we like to say.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

This is essentially the same as my answer to question 8: the editor's credibility is only related to what he or she actually wrote, and nothing more. However, editor credibility isn't such a big deal on Wikipedia (aside from "confirmed"/"autoconfirmed" status): it is the sources that really count. Note: On Wikipedia, it is sources that confirm credibility, not editors. "We [Wikipedians] are only collectors," as we like to say.

11- Do you have any idea to improve the credibility of Wikipedia pages?

Yes, by editing the articles to improve them, typically through better writing, removal of neutrality / bias problems, and (most of all) through properly citing the work with credible sources. In a nutshell, it is the sources and references that really confer credibility to Wikipedia articles.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

I generally like it, although this often works best for giving students an overview of the topic or subject in question. Wikipedia is not (and will never be) an authoritative source, however, so it is not an apples-to-apples comparison to compare Wikipedia to, say, a scientific paper.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

I wouldn't accept it. Wikipedia isn't a credible reference in research, as it is both a tertiary source (and tertiary sources, including other encyclopedias, should never be cited in research) and it is essentially an "perpetual-beta", user-created project, which

means that it's content can be (and in some cases already is) exception, but there is no guarantee of this and thus this can never be taken for granted. It can be a great source, but it should never be cited in research for these two reasons.

14- What's wrong with Wikipedia articles from your field of study point of view?

Generally, my field of study (archivism) is underrepresented: there are too few articles, they are too short, and they could use more citations. For some fields of study, however (such as astronomy), Wikipedia is actually very good, and in some very small niche areas it is generally considered the best source in the world (these tend to relate to modern technologies, often ones that are obscure).

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Yes, I have. As long as the information is "nested" (such as having a high-level overview of the US economy in the "United States" article, a more in-depth treatment in the "Economy of the United States" article, and even more specifics in various further "subarticles"), I think similar content can be a great thing on Wikipedia. In the cases where there are two articles that are clearly about the same subject or closely related, this is a problem, but it can often be quickly and easily remedied by merging the articles together.

Fifth Interview

Fifth Persona. Fred Abbott is a 29 year-old lawyer who has recently joined a firm. He uses Google and Wikipedia as starting points for the majority of his knowledge-finding questions whether for personal curiosity or professional work. Wikipedia serves two main functions for him: 1) as a "launching pad" for further exploration of an idea; and 2) as a quick means of grasping or reviewing a concept. He recognizes that Wikipedia is secondary content and as such cannot be relied upon for professional work that depends on specific details found from fixed, unchanging original sources. He believes this to be necessary for work in history, law, and science. If hypothetically who use Wikipedia as a citation reference in these fields would be considered suspect. Notwithstanding he still has high regard for Wikipedia as a resource for consumption because of the self-regulation of its contributors. He is not aware of methods by which users of Wikipedia can interact. Additionally he regards himself to be a generalist whereas considers the community of Wikipedians to be specialists.

Fifth Scenario. Fred was heading home on the bus but still was pondering the concepts for an upcoming brief he had to compose. He recalled from law school a case which dealt with the idea of "tragedy of the commons" and decided to review the major concepts on it by first doing a web search on Google. Of the top links listed in the search was a link to the Wikipedia entry and almost instinctually he clicked on that link because of the general regard he had for the quality of material on Wikipedia. He found the entry to be lengthy and proceeded to skim through it. He considered the description as similar to a typical encyclopedia entry for establishing a decent foundation on a topic. It was here that he came across the idea of "emergent behavior" and realized that this was the concept that he specifically was looking for. It actually was quite well written and he thought, as a user outside the Wikipedia community, he did not see any method to rate the particular paragraph that he used. At least it could provide some means for a thumbs up/thumbs down or rating system. On further thought, such a system could be more nuanced by taking advantage of individual ratings. Sections of an entry with conflicting ratings could highlight for the community of editors areas that

needed further work. He felt if such a system was in place and obvious to use, he would use it to support the Wikipedia efforts as an outsider.

Fifth Interview Script.

1- Do you remember the last time you used Wikipedia?

Last time I used Wikipedia was Friday morning on the bus ride and I was looking at the concept of emergence as it applies to economic theory. I was trying to figure out the "tragedy of the commons," the concept that in a circumstance where a shared resource is scarce, each individual would act in his or her self interest and thus cost the community's longevity. I wanted to find a more technical definition of "tragedy of the commons" which led me to comments about innate human behavior which led to my looking up emergence. I first searched Google for the tragedy of the commons and chose the Wikipedia link because I tend to like Wikipedia summaries and in the "tragedy of the commons" page there was a link to the Wikipedia page on "emergent behavior." Can you explain your experience? What was your expectation and what happened? I expected to flesh out some of the more nuanced and technical theories behind concepts such as "tragedy of the commons" and yeah I think so, I feel like I did. I scanned through the "emergent behavior" entry for interesting pieces. There were a couple pieces that were useful to file in the back of my mind. It's like a regular encyclopedia in which a good portion of the page was not that interesting to me. I felt like anything I need for a decent foundation of the material was in there. I became a big fan of Wikipedia ever since I got in trouble for citing it in school. I found descriptions in Wikipedia to be more robust than what I found in accounting textbooks and that was a revelation and from that point I started using it regularly. Now Wikipedia has its own troubles with citing because it changes so much but it does have historical record of its contents. I think one day maybe we would be able to cite Wikipedia.

2- For what purpose do you usually use Wikipedia?

I use it for anytime I need to know, for work or personal information about a concept I'm either unfamiliar with, haven't explored in a while, or need to reinforce my knowledge. Wikipedia is one of the first things I go to. I would go to Google and if Wikipedia is one of the first entries that comes up I would go to Wikipedia to explore first.

3- Have you ever tried to add a new page or edit a page on Wikipedia? And why?

No, I am a user not a contributor. Well I suppose there are several reasons. There is a general reason: I haven't been struck with a "hey there is something that I contribute to" moment. Secondly, I consider myself more a generalist. The third thing is I don't know how to start. Maybe I haven't taken the time to start and I don't know how involved the process could be. Perhaps if I was a scientist or something I would feel more like contributing. I did look into editing a page briefly. I looked at a page and I thought this could use something that I know to be true. However you have to cite an existing source that is available online and I didn't know how to go about finding the source material, at least that what I thought at that time. Because I didn't know how I would go about to substantiate it with source material I decided to not edit the page.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I have appreciated the heck of many, many, many contributions on Wikipedia but I haven't expressed appreciation [directly] and I wouldn't even know how to tell which changes were made where. I wouldn't even know who to thank. I have the sense you

could look at the history pages and look at information on who made changes where. But I don't know who the big players are.

I don't know if it's "necessary" to reach out to contributor. Maybe it is necessary for regular contributors. If you are cruising the web and find something that doesn't make sense it would be good to see what they were thinking. I think the capability would be nice to have, but is it "necessary"? Since I'm not part of that community I don't know enough about the community to give a "yes/no"-binary answer to "necessary." Is it necessary for some component of the quality of the site? I would think it can be "useful" or "valuable" but not "necessary." Maybe it is necessary for maintaining quality of the site but not for the site to exist.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I have not criticized an entry in Wikipedia. I have come across entries I have thought "this may be missing a little something" or "this may not be the optimal way to discuss this" or "this may or may not be right here." I've never felt so strongly that I felt I had to go on the page and correct an inaccuracy. No, I haven't made steps of criticism. Maybe internally as in "eh" that could be better. Normally I am surprised by what I am able to access and learn. It's pretty easy to navigate. There are times where I find myself needing more information that is more in depth. I'll do legal searches in Wikipedia and pull out technical terms and put them into Google Scholar. It's [Wikipedia] a good launching pad to other resources. Sometimes I don't know enough to know what questions to ask, but I know enough to know where I should ask. For example, on the "tragedy of the commons," I wanted to brush up on the specific ways it is defined. Wikipedia is good at catching the ways variations are played out. I wouldn't have known that "emergent behavior" was what I was interested in. My exploration began and ended with the entry on "emergent behavior." It's not an end-all resource and it's a great place to get the 30,000 foot view. At times it is a great resource and I use it as the beginning and end or my inquiry. In a dream world I wouldn't have to leave the page at all but I would drill down and drill down for more knowledge. By now it's got to be the biggest encyclopedia resource out there. Google is a more comprehensive resource. Between the marriage of Wikipedia and Google I get most of what I need.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

No I haven't. I think I might like to [contact or collaborate]. I don't know. I think I would like to. If a situation arose where I felt I could add something of value that would be something I'd like to do. If I came across a page where I thought this needs to be fixed. I'd love to send a message to whoever it was working on that page and let them know. I'd like to send a message more than edit a page myself. Well if I was really comfortable with editing a page or doing it all the time, then I might but I'd rather send a message. I tend to defer expertise when I'm not familiar. My answer could change if I ever do become more involved.

7- How do you define good content on Wikipedia?

I guess, um. I'm satisfied when it tells me what I need to know. I tend to trust Wikipedia to get it right on the backside and unless the issue is of high importance I don't check source materials. I do, on a fairly regular basis, jump to source material to see where the claim was coming from. If Wikipedia makes a claim that I find surprising or doesn't mesh with my understanding of the world, I would go on other websites to see how other people view the topic. My general experience is if I even come across

something that is surprising, it usually ends up being well supported. Sometimes I come across a website where there is something left out. Sometimes I would find website where I would feel it should include more or the tenor of the words chosen is ambiguous or not necessarily true, but that is not often. I use a lot of resources when I do my research and Wikipedia is used often, and I have that feeling more on other sites. That's not to say I haven't come across that in Wikipedia. I would define good content as a fair and objective representation of source material.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

I would think probably not. It depends on circumstances. If it was 1 author whose content on multiple pages was generally not accepted I would think that person's stuff is not credible. I can see a case where one person who's trying to correct an error but another guy's agenda keeps overriding his corrections that that's one scenario.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Yeah, uh, well, you have to account for the traffic of the general rate of editing. I would say probably. You can't be for sure. Things can change, for example, someone could have a scientific entry that was credible for 10 years but a scientific discovery comes out that effectively refutes it; then that should be changed. However if it's a website that has little traffic... If a person has a page that has a lot of traffic and his entry has stood the test of time then his entry would be considered more credible. You couldn't just say time of existence is the measure. It would be more exposure. And not just any exposure but it would have be exposure to people who would do their own research on the stuff. For example if there was an entry on Paris Hilton it may have a lot of visits but not lot viewers with vested research. There are instances where someone started a rumor that somebody died but Wikipedia was able to correct this rumor within minutes but a news organization picked up on the rumor of the person's death and demonstrated a case where news organizations were not as robust as Wikipedia was. You would think news organizations would check their sources. The turnover on Wikipedia was maybe a 12-minute window. There was no check on the news organization but there is more checks on Wikipedia.

10- Do you have any idea to improve the credibility of Wikipedia pages?

You could have a thumbs up/thumbs down thing. Well... people might put their opinion in there. You can have a section where viewers would rate their perceived credibility of a particular section and vote it up and down. I can't say how that could be problematic for contributions. I wouldn't say get rid of such a system but it could flag something—a potential controversial and notify people that they need to think more about it themselves. You could trust the community to take care of that where people may not feel comfortable enough to vote and leave it up to the community. If editors see a place which gets a lot of conflicting votes then they can maybe shore up a bit. If I have a couple areas where I am expert at...if I'm an expert on monarch butterflies, I'd feel obligated to share my knowledge to the world and I'd keep track of certain pages that I am interested in. If I receive a notice of a high activity area then I can bring up more recent development in a particular field and "shore up this entry" by editing the page to make it more accurate and current so there are less conflicting votes on that particular paragraph. The most tragic are the people outside the system. If there is a mechanism to allow people to click and flag something they don't agree or

unsure about then that would help tap into the collective minds of people who are just browsing through and are not necessarily members of the community. I've never been inclined to go through the process of editing but if there was an easy way to flag something then I would probably be doing that.

11- What do you think if a professor asks his/her students to use a Wikipedia page as a reference?

I would be fine with it but there would have to be a way to lock in the specific ...It would be useful to cite in a way that would bring you to the specific version of the page that you. Now you have to consider what the person is working on. If it is their dissertation and it was found out that he cited Wikipedia then that would be controversial. I think if it was not for primary research but secondary research it would be fine.

12- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

The way Wikipedia is structured is every proposition has a footnote that references its original source so you can just use that original source at that reference. I don't think that the denial of Wikipedia citation. I think that restriction is perfectly reasonable because it would just be easier to cite the static original source. I would probably request if someone submitted a paper referencing Wikipedia I would tell them to go back and cite the original sources. And that would be flagged because scientist generally don't do that and I would be judgmental of that. I would question the scientist unless I happen to know him and he has reasons for doing it.

13- What's wrong with Wikipedia articles from your field of study's point of view?

In law you have to have direct Bluebook citation to any principle of law that you want to establish when you are trying to write a brief and Wikipedia is just not useful for that kind of precision. It's like what you have to do with scientific research you have to use the original sources because they are static and easy to look up. Wikipedia acts as an aggregating resource. You don't get the benefit of reputation from pay-for-publication journals where they peer reviewed you. When you citing Wikipedia you just don't know how accurate the source material. Adding that layer of uncertainty and complexity. In law the precision required when you citing principles it would not be an adequate resource. You would have to read the actual document contents transcribed. You wouldn't bring Wikipedia to a judge. Wikipedia helps wrap your mind around a concept. Wikipedia helps with understanding concept. It's a good launching pad for understanding. But it is a launching pad but it's not a final product. If you're trying to push the boundaries of human knowledge, that is not the foundation. Wikipedia is useful as a compass to show you where to look.

14- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

I don't think so. Not in a way that is not useful. For instance, going back to my use yesterday, it mentioned enough about emergent behavior that I knew that was somewhere I need to go to look. There was enough repetition. I have come across blocks of repeated content but that's not a common thing. But then again I don't recognize it but I would say there is one time where I looked a page where I looked a concept of what I was looking for and come across a page and one was more robust than the other and no one had caught it. And they have a disambiguation page which is useful. I use Wikipedia a lot and I can recall it happening just that one time.

15- Please describe two instances when you interacted with Wikipedia and your thought going through the process. (These include but are not limited to personal, social, academic, or occupational circumstances that led you to make use of, contributed to, or interacted within Wikipedia or Wikipedians.)

Almost always I go to Wikipedia as a result of a Google search that I've done. I use Google several times of day to look up things of interest. So I wanted to integrated into the [city's] community I wanted to see how I could be a Bear's fan I wanted a quick rundown of the current football team's season. So I went to Wikipedia to catch up. I had no doubt about what Wikipedia said here and I just run with and I would have enough knowledge to talk about Jay Cutler for instance. The converse, say I want to know about Michigan football, I never go to MGoBlog which is run by die-hard fans who are into all the little things that goes. This is all detail are so nuanced an unsupported that would never make it into Wikipedia.

Sixth Interview 1- As a CEO do you use Wikipedia? Do you remember any interesting experience about Wikipedia? I hesitate to say yes, because I am usually in lack of time and not able to spend time to surf on the Internet, but occasionally I use Wikipedia when I want to get information about a topic in a short time. I also check the page of our competitors to keep my data up-to-date. Once I was Googling about our competitors, I realized that they all have Wikipedia pages. I searched our own company's name to see if there is any page associated with it, and surprisingly I found that there are some pages related to our company, created by unknown users which contain incorrect or insufficient information. So I thought I should definitely create a Wikipedia page for our own company to reflect valid and credible information about our company. 2- What do you mean by data? By data I mean their revenue and income changes and new products and others' opinions about these companies. 3- Is this data available anywhere else? Why do you use Wikipedia? Of course there are other sources, but going through all of them takes a lot of time. Wikipedia has just summarized all of them for me, and by using it I can save a lot of time. 4- You said there were some fake pages and incorrect information about your company. So how do you trust Wikipedia for the mentioned information? Hmm, I would say you are right. We cannot verify the credibility of contents a hundred percent and we should be more cautious. I think Companies should be more active and accept the responsibility of their Wiki pages.

4- Do you know any other CEO who writes in Wikipedia? Finding an answer to your question is very difficult. As far as I know it is nearly impossible to find other people on Wikipedia. Also the case becomes more complex when they use nicknames instead of original names. 5- What if you could easily fine CEO's of other companied on Wikipedia? Could it have any advantage? For sure, at least it could make a competitive atmosphere, motivating us to collaborate more and keep our pages up to date and informative.

Sixth Interview

Sixth Persona.   Harry McDaniel is a 64 year-old business man. He runs a notable company with a fair number of customers. His company and products are known and reputed internationally. Harry usually reads about his business and their competitors on the Internet. The fact that he found many Wikipedia pages about their competitors made him to create a page for himself and his business on Wikipedia. He realized that there are a number of fake pages which were written by other unknowns related to his business, but some of them contain incorrect information. For him, the

main incentive to create a Wikipedia page was the fact that most of the competitors had created their own pages which had helped them to become more popular and widely known.

Sixth Scenario. Harry knew that in order to make any new pages he would need to create an account. So he went to the Wikipedia home page. Within the home page he spent several minutes searching for a tab or hyperlink that would indicate account creation to no avail. He proceeded to enter the search term "account" into the search box. He was redirected to a page title "Account" which he felt was unrelated to his search intent, but a second look in the top-right corner of the page showed a "Create Account" hyperlink. This link directed him to the appropriate page for account creation. After logging in again he found no hint for creation of a new page so again intuitively he searches his desired page (i.e his company name). Search returned no page with that title but a hyperlink" ask for it to be created" was shown. He clicked the link and easily found the hyperlink" Click here to create an article now!" He clicked on the proper links and entered the page with a choice enabling him to make e page for his company. But next he faced a dilemma. There were two choices to create the page: The Article is not advertising and Article that could be considered advertising (help!) He decided to read the help page before choosing between those options. He concluded that he should chose the first and due to Wikipedia's policies try not to have the voice of promoting his company or products. He created the page with the contents he wanted but a major problem he faced was how to prove his identity and differentiate his page from other fake pages.

Sixth Interview Script.

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

I was reading the page for the Gettysburg address a few minutes ago. It is the 150 anniversary of the Gettysburg address. I expected a good, well done article and I found one.

2- For what purpose do you usually use Wikipedia?

Anything from general reference at my job to entertainment when I have an odd moment between class - I can read a random article during my free time.

3- Have you ever tried to add a new page or edit a page on Wikipedia?

I have made small edits and added some images, but I have not added a new page. What did incentivize you to contribute to it? Has your proposed edit been accepted by Wikipedia? I usually make edits when I see a small grammar error or mistake, or if I have known about a subject and can improve the article even in the smallest bit.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

Privately yes, but I have never actually "liked" or sent a message to a contributor. I am generally impressed with people's work (like pictures in Wikimedia Commons) but I have never expressed it to them. It could be a good idea to provide that system and I don't think it would hurt user contributions.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No. I have not criticized anyone - and I think that would only hurt Wikipedia's user's base. If you don't like something on Wikipedia, I think it's an unwritten rule to either make something better (fix a bad contribution) or remind the user how to

improve their contributions.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

I have never done that. I have talked to a few UMSI friends who are Wikipedians in person, but never through Wikipedia.

7- How do you define good content on Wikipedia?

Good content is well cited, cleaned up, good images, and linked to all necessary related materials.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

I'm not sure. Since its hard to see the "talk" pages on Wikipedia (the link is hidden at the top) so that is not a factor in how I assess a Wikipedia article.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

I think it depends on the subject - some pages aren't edited regularly because of their obscurity. Here is an example: `http://en.wikipedia.org/wiki/Abner_Jay` This page hasn't been edited a lot (I think the last edit was made by me at my work account) but I trust it because I have read it and found the material quality. The page needs some clean up to look "professional" but that may not happen for a long time.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

Perhaps we should? I'm not sure actually. Since there is no "This page was authored by [author's name here]" I rarely look at the author but just the content.

11- Do you have any idea to improve the credibility of Wikipedia pages?

"Good" wikipedia pages have a great deal of "official-ness" to them ... lots of references, good pictures, and an "info bar" on the right side that gives me basic information about the topic. For example, on the page for the planet Neptune ... http://en.wikipedia.org/wiki/Neptune Those stats about the planet make this page look credible ... I'm not sure why. Maybe it reminds me of what I saw in a book (something I trust and think "authoritative.")

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

When I was an undergrad (2004-2008) Wikipedia was the lowest or the low quality resources. NO professor would dare even ask a student to look at something like that. Now things are a little different: almost everyone uses Wikipedia for some use and I don't think there's anything wrong with that now.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

Wikipedia is great for individual learning, but not for scientific journals. An academic has access to all of this information and citing Wikipedia shows that you didn't take the time to look up an original reference. I would not accept a paper with a Wikipedia reference.

14- What's wrong with Wikipedia articles from your field of study point of view?

My field of study is varied. I range from technical standards (which are available only anyway) to humanities info. Generally, Wikipedia is good with humanities

references and answers questions like "Who was the first President of Uruguay?" but it doesn't have much info on small state topics like the Michigan history or local issues. It's good in some places (like Germany and New York) but limited in other places.

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

I don't think I have encountered this.

Seventh Interview

Seventh Persona.   Christina is a post doc Student at Harvard University studying Biotechnology. She is interested in doing research and writing research papers. She finished her PhD with first Honor and now continues his research. She is very interested in cutting edge technologies and now she is working on a topic in the frontier of human knowledge.

Seventh Scenario.   Working on her thesis, Christina had to search web about some topics. Her previous successful experience in using Wikipedia as the first step to begin with she intuitively entered Wikipedia and searched her desired query. But this time she could find no related Article to that topic. She thought this is because there has been not such an article so others have not found a chance to contribute and develop contents. She came up with the Idea to start the topic herself with the hope that others soon or later will come and collaborate to produce a reliable and useful content. She logged in and went to "Wikipedia:Article wizard" and started to begin writing the basic ideas of the topic. She chose the Visual Editing tool because it makes the process much easier and faster than "Editing Source" option. As she is always in lack of time and reading all the editing helps and guidelines took her so much time she managed only to write a short paragraph about the topic and saved it. After couple of weeks she returned to see the article with the presumption that the article has become fairly large and complete, but to her surprise she found that the article has not changed at all at it has been tagged as a "stub article". There for this case she could not take advantages of Wikipedia at all. It is worth to mention that the topic was very specialized and was beyond the scope of most of the Wikipedia's editor who have in average at most secondary educations (Wikipedia, 2016s).

Seventh Interview Script.

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

The last time I used Wikipedia was to look up the blobfish. I saw some videos of it online and wanted to see if I could find more photos of it. Looking at the page, I was disappointed to find there were only artist's depictions of the fish.

2- For what purpose do you usually use Wikipedia?

Wikipedia is something I typically use similar to a dictionary. If there is a concept I happen upon that I don't know and would like to know more about, I use Wikipedia to get a brief overview of the concept.

3- Have you ever tried to add a new page or edit a page on Wikipedia? And why?

I have never tried to edit or add a new page. One reason is that additional knowledge on a subject is not something that I feel I can contribute. Another reason is that it hasn't really occurred to me as something I specifically would like to do.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I have not looked at any articles in terms of a specific user's contribution. I see each article as just one holistic article posted by "Wikipedia," a vague amorphous group that collaborated to put it together. I also cannot claim to know whether it's necessary for encouragement to be provided for users. I think its necessity would depend on whether there's a shortage of contributors, or a shortage of long-running contributors. Because I don't know much about that, I can't really say.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

As with number 4, I have not criticized someone's contribution because I don't tend to see articles as being made by individuals, but by a collaborative effort. I'm not sure it's necessary because I don't know whether there's a quality-assurance problem with contributions.

6- Do you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

I have never communicated with them, no.

7- How do you define good content on Wikipedia?

Good content is whatever answers the question I have about a topic. In more depth, good content gives an easy-to-understand explanation of what a concept is. It is also accurate and cited by credible references.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

I would say that whether or not others edit continuously has nothing to do with the author's credibility. What would be most important in judging an author's credibility is the quality of his/her contributions. I can't claim to know why others edited it, and I can't claim to know that continuous editing is always due to an issue of quality.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

I would give the same answer as I did for 8. I don't regard its stability as an indicator of credibility. I regard the quality of the content as defined in question 7 to be an indicator of author credibility.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

<We did not ask this one, because he had already answered it in his answer to the previous question.>

11- Do you have any idea to improve the credibility of Wikipedia pages?

Not really. As someone who is not immersed in the world of contributing to Wikipedia pages, I don't know what solutions are already being tried or not.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

If the professor recommends a Wikipedia page because the information matches the professor's understanding of the topic through other credible means, or the page itself is a quality.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

I wouldn't accept Wikipedia as a reference purely because the reference's content isn't static; It might change over time due to editing, and a reference that was once accurate may no longer be accurate.

14- What's wrong with Wikipedia articles from your field of study point of view?

There are some articles that don't give an easily understood explanation of the topic.

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

I'm not sure I have, but I think it could be helpful, if the content clearly shows how the concepts are related to each other.

eighth Interview

eighth Persona.   Namoi lives in Japan he is 27 years and is a Masters' student at university of Toyo. He is majored in communication and journalism. He loves surfing the internet and reading different article in different subjects. Every day he surfs in internet for more than eight hours and Wikipedia is one of his bookmarked websites which he enjoys to surf. Usually he searches a word which he wants to know about, when he starts reading the main article he cannot help not visiting all the related Hyperlinks and references.

eighth Scenario.   As always Namoi opened the bookmarked sites' folder in the browser. He entered Wikipedia and entered a query to search. It was a couple of days that he was reading about France and he wanted to know more about "Napoleon Bonaparte" so he search this word and entered to the main article. Just in the first paragraph there were three hyperlinks. From those hyperlinks he decided to start reading the second one "French Revolution" because to him it seemed to be very main Idea. He opened the ink in the new tab. He started reading but after overlooking many of attempting hyperlinks he realized that the subject cannot be understood without understanding the notion of "Ancien Régime." He opened again this hyperlink in a new tab and went on till he found himself reading an article about "Elizabeth I of England" and he had more than 10 different opened tabs. He was totally confused and he was unable to find any path to return to the main topic. He faced disorientation because of opening these hyperlinks one after another while not having any sense of their relation or a flow map for his navigation. He could hardly make relation between the many different pages he just had opened and read. It was not the first time he was encountering this problem while reading an interesting article including many links and articles. But as always he had to use one method he knew: Closing al the tabs and returning to the first article "Napoleon Bonaparte." The fact was that he could not make logical ink between this and the article he was reading in the past three hours .Due to the characteristics of Hyperlink and its recursive nature opening new tabs for new concepts had lead Naomi to disorientation and cognitive overhead.

eighth Interview Script.

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

My last experience using Wikipedia was to collect some materials for my homework about my hometown. I had expected to have some detailed description as well as some pictures/photos that I could use in my homework. It turned out that the descriptions were really good but the photos were not of good qualities.

2- For what purpose do you usually use Wikipedia?

Collecting materials for my homework, and searching information based my own interests(e.g. political issues, history, scientific knowledge)

3- Have you ever tried to add a new page or edit a page on Wikipedia? And why?

No. I don't feel like making contributions to Wikipedia directly because I might not have enough time and knowledge working on it.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No. I think it would be better if Wikipedia provide features such as saying thank you to contributors and liking certain materials.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No. I don't care much about it because personally i will not criticize others' opinion on social networks.

6- Do you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

No

7- How do you define good content on Wikipedia?

Provide unbiased arguments and detailed descriptions. Relevant photos/pictures are also provide

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

It's really hard to judge whether the original author is credible or not only based on the fact that there exist lots of following edits.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

It also depends on other factors such as the topic of the page. But I would tend to consider the original author as credible in this case.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

It's also hard to decide. I would consider that piece of information to be controversial, but tend not to judge on the original author.

11- Do you have any idea to improve the credibility of Wikipedia pages?

Invite some authorities in related fields to give credits and personal opinions on the contents, or involve them directly into the editing of Wikipages

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

Even though I like wikipedia and think it's really helpful, I would not consider Wikipedia page as a good source of reference especially in academia

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

I will have the same opinion that Wikipedia is not a credible reference

14- What's wrong with Wikipedia articles from your field of study point of view?

The information about HCI fields are not complete compared to what I have learnt in the course work. So I would not rely much on the Wikipedia Page in my field

of study. 15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Yes. I think it's helpful to see the similar content because it provides some links between different concepts. Eighth Interviewthe

Ninth Interview

Ninth Persona.   Ralph Henry was reading the news and came across a recently published dataset on the population and economic growth of cities around the world. He saw this as an opportunity to do some data analysis and write a blog entry commenting on his findings. One of the first things he did was to check whether a Wikipedia entry on the subject already existed. If he discovered that Wikipedia addressed the topic to the extent of his own intended post then he would forego even writing the particular post. To him his efforts online should add new insight to the Web's collective body of knowledge, improving understanding of current knowledge, or draw attention to particular concepts. He found that Wikipedia was not current to this recent dataset and did not account for the findings he wanted to write about. He had no intention of writing these ideas into Wikipedia. For one thing, he considered Wikipedia as intentionally anonymous in how entries were displayed but a blog provided him a platform to express a particular voice, viewpoint, and interests. Nonetheless, he found it helpful to keep Wikipedia on hand. As he blogged he decided to cluster cities by nation and Wikipedia proved helpful in confirming his geographic understanding, giving historical information on various nations and their major industries.

Ninth Scenario.   Ralph Henry was reading the news and came across a recently published dataset on the population and economic growth of cities around the world. He saw this as an opportunity to do some data analysis and write a blog entry commenting on his findings. One of the first things he did was to check whether a Wikipedia entry on the subject already existed. If he discovered that Wikipedia addressed the topic to the extent of his own intended post, then he would forego even writing the particular post. To him his efforts online should add new insight to the Web's collective body of knowledge, improving understanding of current knowledge, or draw attention to particular concepts. He found that Wikipedia was not current to this recent dataset and did not account for the findings he wanted to write about. He had no intention of writing these ideas into Wikipedia. For one thing, he considered Wikipedia as intentionally anonymous in how entries were displayed but a blog provided him a platform to express a particular voice, viewpoint, and interests. Nonetheless, he found it helpful to keep Wikipedia on hand. As he blogged he decided to cluster cities by nation and Wikipedia proved helpful in confirming his geographic understanding, giving historical information on various nations and their major industries.

Ninth Interview Script.

1- Do you remember the last time you used Wikipedia?

Yes, I lasted used Wikipedia yesterday. Can you explain your experience? My experience was equal to all my other experiences. What was your expectation and what happened? My expectation was to find an answer to a question and I did find the answer.

2- For what purpose do you usually use Wikipedia?

General inquiries.

3- Have you ever tried to add a new page or edit a page on Wikipedia? And why?

No, most subjects I am looking up I do not have enough personal knowledge to add to a page. Also, I don't view Wiki as a resource to find information on matters that I truly need reliable information (ie: research papers)

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I would say that the fact that I use Wiki is showing appreciation to others contribution to the site. I do feel it is a need for people to contribute to Wiki as most subjects are still in the process of changing throughout time.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

No, I have not criticized someone's contribution. I do feel that it is necessary to self-regulate information shared through Wiki.

6- Have you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

No.

7- How do you define good content on Wikipedia?

Good content would have to be defined in Wiki as content that can be supported by other sources besides itself.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

That would depend on why people are continuously editing the piece. If the piece is still unfolding it would explain the continuous editing. If the piece, however, is not changing I would wonder the accuracy of the original poster.

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Only if other sources of information can support the claims made on the piece. It could be that the piece is not a prevalent issue or topic and has not been viewed by other yet.

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

If other resources support the claims I would say it is credible.

11- Do you have any idea to improve the credibility of Wikipedia pages?

No.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

I have been taught by a number of professors not to use Wiki, but I believe that it does not mean all pieces are wrong. I think if a professor has a student read a wiki page as a reference the page would be verifiable through other sources as well.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

Since I believe that information on Wiki should be able to be verified through other sources I don't see why you would need to use a wiki piece in a journal. On the other side, why not use the wiki page if there are other sources that prove the page is correct.

14- What's wrong with Wikipedia articles from your field of study point of view?

Some articles have more personal opinion on the matter of research than facts on the matter. Or articles do not go far enough in depth to give someone a proper understanding of the matter.

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

Yes, I have read repeated information. I feel in certain articles it may be necessary to repeat information, instead of hyper-links to the repeated information.

16- Please describe two instances when you interacted with Wikipedia and your thought going through the process. (These include but are not limited to personal, social, academic, or occupational circumstances that led you to make use of, contributed to, or interacted within Wikipedia or Wikipedians.)

First, I have used Wiki to check the validity of information on my uncle who is [information de-identified]. Second, I have used Wiki to verify information in casual conversations. Both times information found was accurate.

Tenth Interview

1- Do you remember the last time you used Wikipedia? Can you explain your experience? What was your expectation and what happened?

I believe it was last night when I wanted to know more about a particular rule in the game of basketball. I simply googled "basketball bonus rule" and the first link was Wikipedia. I expected to learn about the rule in simple and straightforward terms and found that was exactly what I got when I visited the webpage.

2- For what purpose do you usually use Wikipedia?

I usually use the site when I want to learn more about the history of a particular event. I know that if I don't understand things in the explanation that is provided, I can just click on the links to different articles and fill in the gaps in my knowledge if it's necessary for broader understanding.

3- Have you ever tried to add a new page or edit a page on Wikipedia? And why?

I have not. It has nothing to do with the mark-up or anything technical. It's primarily because there aren't missing articles that I think I know a lot about, and also because all of the article guidelines seem a little bit difficult to read and fully understand.

4- Have you ever appreciated someone's contribution on Wikipedia? Or have you ever encouraged them to write more? How did you do that? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I always appreciate peoples' contributions to Wikipedia, but there isn't much of a way to share my appreciation. That said, I'm not sure that such a rating system or feedback system would be in the best interest of Wikipedia, as the site is really a huge, crowd-sourced encyclopedia, and less a blog or community site where ratings would be more appropriate.

5- Have you ever criticized someone's contribution on Wikipedia? Do you think it's necessary for Wikipedia to provide such a capability for its users? Why?

I have not criticized a contribution. I've always thought that if you did disagree, then you would flag the content and then discuss it on a forum with the author and other stakeholders.

6- Do you ever communicated with a Wikipedian through Wikipedia? Do you like to contact them, or collaborate with them?

Haha, I've not. It would be cool, though! I guess I've talked with (fellow MSI student) Michael Barera - not sure if that counts.

7- How do you define good content on Wikipedia?

It's all about the objectivity. If I cannot tell the opinions of the author, I consider it pretty solid content.

8- If one adds a piece of information on Wikipedia and others edit it continuously, do you think we should regard the original author as credible?

Edits are not a good reason to question the credibility of the author. I think things like this need to be taken on a case-by-case basis and understand the reasons that edits were made (is it a controversial topic? or was the author just totally wrong?)

9- If one adds a piece of information on Wikipedia, it remains unchanged for a long time, and others don't edit it, do you think we should regard the original author as credible?

Kind of my same answer here as for number 9. It may just be the case that this is some page no one cares about the topic covered in the article, or there aren't enough people that know enough about the topic to question the content. Again, it's definitely possible that the author is credible though (and probably more likely)

10- What about having a piece of information as mentioned in question 8 in a page which has been edited many times, by many people. Do you think we should regard the original author as credible?

I'm not sure I entirely understand how this question differs from question 8. My guess is that I would probably respond in similar (perhaps frustrating) manner: that the number of edits something receives shouldn't be a black/white way to distinguish credibility.

11- Do you have any idea to improve the credibility of Wikipedia pages?

If the community expands (which may be difficult these days) and there are, thus, more eyes on more pages, I think that credibility will improve. Simply having more input and more input questioned will improve credibility, in my opinion.

12- What do you think if a professor asks his/her students to read a Wikipedia page as a reference?

That's tough. An encyclopedia (even before Wiki) has never been considered a legitimate source to cite in an academic paper. However, if the page referenced by the professor does not appear controversial (where there is an editing war), then it should be fine as a first step to understanding the broad concept of a topic. But I believe it should be followed up with additional sources to compare it against and to supplement it.

13- A number of scientific journals don't accept Wikipedia as a credible reference in research papers. What would you do if you were an administrator of a scientific journal?

As I said before, encyclopedias have never really been credible references (especially not in a scientific journal). So I'd say it's necessary to do actual research.

14- What's wrong with Wikipedia articles from your field of study point of view?

Do you mean, through my IAR lens, what's wrong with Wikipedia? Haha, I wish I had a good 'big data' answer for you here... Gosh. Perhaps the fact that they (to my knowledge) don't actually employ any text/data mining techniques to improve content?

15- Have you ever read similar content on different Wikipedia pages repeatedly? Do you think having repeated information on Wikipedia is helpful or not?

I have not run into this problem, as far as I can remember. This is kind of a difficult one, because I would think that there are certainly exceptions, but my opinion

is that it is necessary to consolidate repeat or nearly repeat content so as to limit ambiguity across articles. Low ambiguity on an objective source like Wikipedia is ultimately better for the user.

Appendix B
Coding Interviews at the Question Level

Last Experience

1. 1 person had an experience in which he could not find what he was trying to find.

2. 3 people had an experience in which they did receive what they were trying to find.

Main Purpose of Using Wikipedia

3. 5 people are using Wikipedia to look up unfamiliar terms and topics, before using other sources to dig deeper into the subject.

To Edit or Not to Edit? Why?

4. 1 person usually edits Wikipedia pages because he found spam on it.

5. 1 person usually edits Wikipedia pages because of altruism, ethics, and a motivation for open source and open content projects.

6. 1 person usually makes edits when he sees a small grammar error or mistake, or if he has known about a subject and can improve the article even in the smallest bit.

7. The reasons why two people do not contribute: 1) He is "free-riding off of other people's answers. There is no incentive for [him] to contribute." 2) He doesn't feel like he has the expertise to adequately contribute.

Do you appreciate others' Contribution?

8. 1 person mentioned: If there was a way to work collaboratively and simultaneously with generating the content, a communication function can be useful. The catch with this is that it would be even harder for Wikipedia to track who did what in terms of edits if there was such collaboration.

9. 3 people expressed that they have never actually "liked" or sent a message to contributors. They are generally impressed with people's work (like pictures in Wikimedia Commons), but they have never expressed it to them. It could be a good idea to provide that system and they don't think it would hurt user contributions.

10. The most interesting answer that I received over my interviews was one of the answers to this question that if they appreciate someone's contribution on Wikipedia, or encourage them to write more. The answer was: "Yes, all the time. I've done it both with Simple Talk messages (old school) and WikiLove (new school): in spirit, they are essentially the same (at least how I generally use them). Yes, I think it is absolutely necessary for Wikipedia to provide such a capability because it is important for contributors to know that their contributions really are valid. Knowing that even one person really appreciates your efforts is a very positive experience on Wikipedia, and I can speak to that

from personal experience." For me, the most interesting point about this answer is that Wikipedians really like to be appreciated for their good contribution. That's why Wikipedia has provided different facilities for their users for this purpose, but unfortunately they are very difficult to use. From all the people that I interviewed, only one of them, who is a professional Wikipedian knew how to use these functionalities of Wikipedia. When I searched more about the reason why people don't know how to use them, I realized that they are very difficult to be found and used. Now the question is why Wikipedia does not provide a more easy-to-use tool for its users to rank its editors and their contribution. Unlike many reputation-based websites (like Reddit, SlashDot, Quora, StackOverflow, Yahoo Answers), the infrastructure of Wikipedia does not provide an easy-to-use reputation system for their users. When you rank a post on Reddit or any other reputation system, there is a direct relation between that post and the individual who has posted it, so your ranking will have a direct effect on the contributor. In contrast, when you rank a Wikipedia page, the ranking of a page is disconnected from the reputation of contributors whom have edited a page. As per usual there are many contributors and it is not possible to identify the main contributor. That is why Wikipedia has added a "thank" button to "Send a thank you notification to . . . " the editors of each individual edit in the history page, which is so difficult for users to use it, because actually among all the individuals whom I talked with, only one of them who is a professional Wikipedian uses the History page, and others even are not aware of it. "We focus on our goals and pay little attention to our tools." (J. Johnson, "Chapter 8: Limits on Attention Shape Thought and Action," in Johnson (2013)).

Do you criticize others' Contribution?

11. 3 people do not think criticizing others' work on Wikipedia is necessary, because instead of criticizing, one can just go in and change the text.

12. 1 person thinks it is important to be able to criticize a number of contributors, but he does not know any way to do that.

13. 1 Wikipedian thinks: The talk pages are the right place to criticize other users, so this capability already exists: a "WikiCriticize" feature would not be helpful, however, as it would concentrate too much on the negative. Criticism is important for learning and growing as a beginning editor, but it must be kept constructive and positive: it should never be hostile. Do you communicate with others on Wikipedia?

14. 4 people have never communicated with Wikipedians.

15. 1 person enjoys communicating with Wikipedians, and collaborations are even more enjoyable because they are more substantive: you are sharing ideas and work, not just a conversation.

Attributes of a Good Wikipedia Article?

16. 3 people defines good content on Wikipedia as: well-sourced material

17. 2 people define good content on Wikipedia as: succinct

18. 3 people defines good content on Wikipedia as: understandable

19. 1 person defines good content on Wikipedia as: factual

20. 1 person defines good content on Wikipedia as: Neutral point-of-view

21. 1 person defines good content on Wikipedia as: consistent with his existing knowledge

22. 1 person defines good content on Wikipedia as: has good images

23. 1 person defines good content on Wikipedia as: linked to all necessary related materials

24. 1 person defines good content on Wikipedia as: has (ideally) been peer reviewed through a process such as Featured Articles, Good Articles, or "B" class reviews from one of various WikiProjects.

Ideas to improve Wikipedia articles' credibility

25. Person 1: A rating system, checking the validity of the references.

26. Person 2: Allow voting for useful/useless [value added or not added] contributions, similar to Quora or Reddit.

Is Wikipedia a good reference?

27. It is a good source to start research, but not reliable as the only reference, because it is not peer reviewed by experts. Many fields of study rely upon levels of expertise that cannot be guaranteed in the democratic crowdsourced culture.

28. Topics do not contain depth. People that are experts in topics write in places where their work is compensated ie. journals, textbooks, etc. Their time is valuable; they are not going to sit around and write a Wiki entry.

29. 1 person thinks: Wikipedia is a credible source of information, but it is too complicated; people look to Wikipedia in chemistry for easy to understand explanations, not references to why it works.

30. 2 People think: Wikipedia is not (and will never be) an authoritative source, however, so it is not an apples-to-apples comparison to compare Wikipedia to, say, a scientific paper. Wikipedia isn't a credible reference in research, as it is both a tertiary source (and tertiary sources, including other encyclopedias, should never be cited in research) and it is essentially a "perpetual-beta," work in progress, user-created project, which means that it's content can be (and in some cases already is) an exception, but there is no guarantee of this and thus this can never be taken for granted. It can be a great source, but it should never be cited in research for these two reasons.

Repetition on Wikipedia?

31. 1 person said that he has read similar content on different Wikipedia pages repeatedly. He has also seen entire duplicates of paragraphs between Wikipedia entries and other websites.

32. 2 people have never seen any similar content on different Wikipedia pages repeatedly.

33. 1 person thinks similar content can be a great thing on Wikipedia. In the cases where there are two articles that are clearly about the same subject or closely related, this is a problem, but it can often be quickly and easily remedied by merging the articles together.

34. 1 person thinks: in case of repeated information, he knows what he is reading has supporting information.