The need to contribute to Wikipedia. The improbability of an African Wikipedian
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Abstract
Wikipedia is an open collaborative resource anyone can edit, which is aimed at providing free access to the sum of all human knowledge. Despite its general quality, Wikipedia presents an imbalanced coverage of subjects and many articles do not represent a worldwide view; in particular Africa is most underrepresented. The demographic imbalance of the people who edit Wikipedia is considered the main reason of the encyclopedia' systemic bias. This text argues that aiming to increase the number of Wikipedians in Africa – or waiting for them to increase in Africa – is not the most effective strategy to ensure that the 500 million Wikipedia readers have access as quickly as possible to correct and complete content. Indirect contribution – tested in Africa within the projects WikiAfrica, Share Your Knowledge and Wikipedia Primary School – is a much more efficient approach based on the use of open licences compatible with Wikipedia, on the production of texts and reviews outside Wikipedia and on the identification of a list of entries to be improved.

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There are twenty youngsters in the room. Unless there is a power cut, there should be a computer available for him too. He has brought the file on a memory stick. After buying his bus ticket to the internet café there is still enough in his pocket for a sandwich, nevermind if he has to foot it all the way back. It's a boiling hot day and the room is like an oven. The aircon must have broken down and they have just switched on the fans to prevent the computers overheating. They are all old imported machines and while he's waiting his turn he wonders whether this time he'll get one with all the keys working properly. The last time you have no idea what he had to do to get Control-C to work. Time is ticking away, he listens to music on his mobile, sends one message of congratulations and another of condolences on Facebook and chats with his cousin who is now living in Bergamo. Finally it's his turn, he sits at the computer, his allotted time starts and he plugs in the memory stick. Scandisk and antivirus. It takes a quarter of an hour before he can open the file on the computer. Meanwhile, he has launched the browser and had a look at his e-mails. He goes onto Wikipedia: 3 messages. The first is a bot (robot) which has inserted a space between the three equal signs and the title in the formatting (== References ==). The second message is from a user who explains that the language that he calls English and that he has indeed spoken since he was born, is not real English. The third message informs him that the entry that he made last month has been deleted. He opens the file on his memory stick, copies the text, opens the Wikipedia page, pastes the text, saves, +2,654 bytes, 1 edit.

Wikipedia is the encyclopedia that anyone can edit, but despite being the most widely read and used encyclopedia, in actual fact it is written by just a few[1]. Most of those who write Wikipedia are thought to be white men in their twenties, living in the northern hemisphere and with a scientific background. They write about their cities, about what they have studied and about their hobbies[2]. They are usually

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[1] Graham Mark., Scott. A. Hale, and Monica. Stephens. 2011. *Geographies of the World's Knowledge*. London: Convoco! Edition.
[2] There are several surveys which have provided more information about the Wikipedia community, but the

at their computers in their own bedrooms but when Wikipedians – the people who contribute to building the encyclopedia[3] – get together, it is fascinating to see how deeply they are involved in the project, how passionate they are about the subjects they write on and how determined they are to protect the vision and the more noble aims of this encyclopedia. Of course, Wikipedia also hosts fascists, the obsessed, religious fundamentalists of all faiths, the evil-minded and people who get a kick out of generating conflicts. But what is surprising is that there are good people who really want to offer the world correct and complete knowledge, free of advertising, spam or personal interests.

Since 2001 Wikipedia has basically been available on line thanks to these young white men; the entire framework of the project was created and is flourishing thanks to this type of contributor. In addition to having electricity, flat-rate cable internet connection and a computer that can be used without any time limits and on your own, to become a Wikipedia volunteer you do need to have a certain cultural background, access to books and to internet, familiarity with computers, the ability to learn to use a wiki or any other type of editor and enough cheek to write entries in an encyclopedia that is read by millions of users. You have to have time on your hands; maybe time borrowed from your studies, spare time because you have moved to a new town and don't yet know anybody, time that you can find because you actually enjoy carrying out small repetitive operations – such as writing about all the Siberian rivers or about asteroids – or because you like hunting down the baddies and combating acts of vandalism, as you would with a video game. To take part in Wikipedia and survive, you need to learn how to find your way around an online community, to find and understand the guidelines and you have to know how to assert and negotiate your opinions[4].

We like to define them as "anonymous" and associate them with the so-called 'wisdom of the crowd'[5], but in reality Wikipedia's volunteers are anything but anonymous, because everything they do online is recorded and monitorable. Wikipedia is a giant database that records any modification and stores it, allowing previous versions to be reinstated and the history of every single article, user and discussion to be analyzed in detail. By its very nature as a database, Wikipedia is an encyclopedia that anyone

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simple description used here is the most popular image, used in several occasions by Jimmy Wales, i.e. Kevin Rawlinson (August 8, 2011). "Wikipedia seeks women to balance its 'geeky' editors". *The Independent*. Retrieved April 5, 2012. Related to the links between gender and topics please refer to Shyong Lam; Anuradha Uduwage; Zhenhua Dong; Shilad Sen; David R. Musicant; Loren Terveen; John Riedl (October 3–5, 2011). "WP: Clubhouse? An Exploration of Wikipedia's Gender Imbalance". *WikiSym 2011*: 4.

[3] The term has been added to the Oxford English Dictionary in 2012. https://en.oxforddictionaries.com/definition/Wikipedian

[4] Bryant, S.L., Forte, A. & Bruckman, A., 2005. Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia. In *2005 International ACM SIGGROUP Conference on Supporting Group Work, GROUP'05, November 6, 2005 - November 9, 2005*. Proceedings of the International ACM SIGGROUP Conference on Supporting Group Work. Sanibel Island, FL, United states: Association for Computing Machinery, pp. 1- 10.

[5] Terms such as wisdom of the crowd (Surowiecki, J., 2004. *The Wisdom of Crowds: Why the Many are Smarter than the Few and How Collective Wisdom Shapes Business, Societies and Nations*. New York: Doubleday; Kittur, A. and R. E. Kraut, 2008. 'Harnessing the Wisdom of Crowds in Wikipedia: Quality through Coordination', *Proceedings of the ACM 2008 Conference on Computer Supported Cooperative Work*, pp. 37-46. New York: ACM), "many minds" (Sunstein, C. R., 2006. Infotopia: How Many Minds Produce Knowledge. Oxford: Oxford University Press), "distributed collaboration" (Shirky, C., 2008. *Here Comes Everybody: The Power of Organizing without Organizations*. New York: Penguin Press), "mass collaboration" (Tapscott, D. and A.D. Williams, 2006. *Wikinomics. How Mass Collaboration Changes Everything*. New York: Penguin), "produsage" (Bruns, A. (2008) *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage*. New York: Peter Lang), "crowdsourcing" (Howe, J., 2006. 'The Rise of Crowdsourcing', *Wired* 14(06)) and "collaborative knowledge" (Poe, M., 2006. 'The Hive', *The Atlantic Online* September) tend to distort the visibility of "a dedicated group of few hundred volunteers" – as Jimmy Wales described it in a talk (Wales in Swarz, A., 2006. 'Who writes Wikipedia?', Raw Thought Blog).

can edit, because any edit can be kept, modified or deleted, just as any user can be checked, praised, reprimanded or blocked. Legions of people take part in integrating content[6], cohorts of programs (known as "bots" – from robots) carry out the most repetitive operations, but then small units of users, present more continuously, effectively manage, orientate and shape various areas of the encyclopedia [7]. It is precisely the history of their own active presence that determines the reputation of such users. And it is this same presence, along with a firm commitment, that usually enables some people to become administrators; known as "admins", these users enjoy a few extra prerogatives – in particular they can delete pages and block users – but above all, they are users who are given access to the confidential mailing list, thereby reinforcing their position and their social network. It's a bit like a geriatric hierarchy; on Wikipedia it's as if your reputation were based on the year in which you created your own username and started editing the encyclopedia, but it is especially based on your "edit count", the counter that records the number of times you have pressed "save" on Wikipedia or on a Wikimedia project.

Being a Wikipedian means being someone who, almost on a daily basis, adds text to the encyclopedia, inserts images, corrects errors, creates new entries, checks acts of vandalism, takes part in debates, flags up entry problems or deletes spam. For Wikipedians, contributing to Wikipedia means participating in writing or managing the encyclopedia. Donating money to Wikipedia – and thereby effectively helping the Wikimedia Foundation receive approximately 60 million dollars a year – is not what Wikipedians consider the key contribution. Many active editors consider those who just read Wikipedia – some 500 million people – as they do not belong to the community. The community consists exclusively of the so-called active contributors, volunteers who qualify by having recorded a user account and having made at least 5 edits a month.

There is a direct correlation between how Wikipedia works and its community. To make a real contribution to editing and managing the encyclopedia, the most effective thing to do is to do things the way the community does them. You do not necessarily have to be a twenty-something white male living in the northern hemisphere and with a scientific background, but tendentially it's easier if you are or if you love and do things more or less like the typical Wikipedian.

The problem is that Wikipedia is *unbalanced*[8]. Its content can hardly be said to represent the world and the lack of diversity in its community explains the output of insufficiently diverse content. The Wikipedia community believes that this problem is systemic bias and that it can be solved by broadening the community[9]. To this end, outreach initiatives have been launched to balance the gender issue, to reach more countries and to encourage people to join and to take part in creating a wider and more varied community. School teachers and classes are being encouraged to lend their voice and to write new entries, meetings are being organized to teach museum, library and archive managers to write on Wikipedia; edit-a-thons (writing marathons on Wikipedia) are being held live in order to encourage new and diverse people to join Wikipedia and start participating in the project[10].

Compared to the rest of the world, Africa is the continent least represented online[11] and in which there

[6] Swarz, A., 2006. 'Who writes Wikipedia?', Raw Thought Blog.
[7] Niederer, S. & Dijck, J. van, 2010. Wisdom of the crowd or technicity of content? Wikipedia as a sociotechnical system. *New Media & Society*, 12(8), pp.1368- 1387.
[8] Quilter, Laura (October 24, 2012). "Systemic Bias in Wikipedia: What It Looks Like, and How to Deal with It". University of Massachusetts – Amherst. Retrieved November 26, 2012.
[9] WikiProject Countering Systemic Bias
https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Countering_systemic_bias
Racial bias on Wikipedia https://en.wikipedia.org/wiki/Racial_bias_on_Wikipedia
[10] http://outreach.wikimedia.org
[11] Mark Graham, Mapping the Geographies of Wikipedia Content, *Zerogeography.net* (November 12, 2009).

are fewer usergroups and chapters, i.e. informal groups and non profit associations acknowledged and supported by the Wikimedia Foundation[12]. There is no doubt that the diversity problem is a broad one, but the case of Africa is still the most emblematic, in terms of the small number of contributors and of the limited availability of broadband, which is the main obstacle to participation[13].

What emerges from the attempt to involve new African users in contributing to Wikipedia is that in Africa too to become Wikipedians you basically have to lead a life similar to that of the current community. As well as having electricity, flat rate cable internet connection and a computer that you can use without time limits and on your own, you need to have a certain cultural background, access to books and to internet, familiarity with computers, the ability to learn to use a wiki or another type of editor and enough self-confidence to become the author of encyclopediac entries read by millions of users. You need to have time on your hands and, exactly like in other countries, time borrowed from your studies while you are still being supported by your parents, spare time that you have because you have moved to a new country and have still not made friends, time off that you are prepared to spend doing short repetitive operations such as writing about asteroids and about South African rivers or because you use Wikipedia as a video game. Paradoxically what emerges is not so much the diversity, but rather the similarity with users already present in the encyclopedia. The Wikimedia Foundation has established that for projects to be funded in a country, there must already be a community of at least five active volunteers contributing to the encyclopedia (WikiIndaba 2014). In practice, the Wikimedia Foundation – the body that recognizes the associated organizations and manages the funds raised via campaigns on Wikipedia – supports the distribution of the encyclopedia in the countries of the so-called south of the world (especially via Wikipedia Zero, with the free distribution of Wikipedia on mobile telephones via agreements reached with telephone companies), but does not support structured content production projects unless there is already a community of Wikipedians that operates like the others.

Having Wikipedians in Africa who contribute to Wikipedia like the other Wikipedians is possible but this approach produces edits to the encyclopedia at a much more disproportionate rate compared to the penetration of Wikipedia. In other words, Wikipedia is widespread as a source of information but the number of its contributors in most of the African countries in which it is read does not exceed 5 people[14].

The rationale behind the desire to increase the number of contributors in Africa is to be found in the need to counterbalance the decline in the number of contributors and in the determination to face the community's diversity problem. This rationale, however, deals only indirectly with what, from the numerical and impact points of view, should be the priority: ensuring that the 500 million Wikipedia readers have access as quickly as possible to correct and complete content. Offering correct and complete content is key if Wikipedia is to be a serious educational resource. Making the best possible content available is especially important if such content is made accessible in a way that prevents it

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[12] Please refer to https://meta.wikimedia.org/wiki/Chapters for the full list of chapters and other informal groups and no profit associations acknowledged and supported by the Wikimedia Foundation.

[13] Graham, Mark. "Time machines and virtual portals The spatialities of the digital divide." *Progress in Development Studies* 11.3 (2011): 211-227.

Graham, Mark. 2011. Wiki Space: Palimpsests and the Politics of Exclusion. In *Critical Point of View: A Wikipedia Reader.* Eds. Lovink, G. and Tkacz, N. Amsterdam: Institute of Network Cultures, 269-282.

Graham, Mark. 2014. The Knowledge Based Economy and Digital Divisions of Labour. In *Companion to Development Studies, 3rd edition*, eds v. Desai, and R. Potter. Hodder. 189-195.

[14] Asaf Bartov, WikiIndaba, Johannesburg, 2014.
https://meta.wikimedia.org/wiki/WikiIndaba_conference_2014

from being modified easily. People are increasingly looking things up on Wikipedia on their mobile phones (also via Wikipedia Zero) and it is distributed offline; providing access to Wikipedia in ways like these, which make it difficult to edit, effectively means turning it into a broader source of information, but no longer the encyclopedia that anyone can edit. The chance to edit and correct Wikipedia justifies the errors, but when errors are hard to change then you need to accept the responsibility for correcting them upstream.

To enable Wikipedia to be correct and complete in a short space of time, aiming to increase the number of Wikipedians in Africa – or waiting for them to increase in Africa – is not the most effective strategy. We need to intervene in a different way compared to the one the community normally works in to ensure Wikipedia's content is balanced. Wikipedia should be considered as a *boundary object*, i.e. a site that can be used differently by different communities[15]. Existing documentation should be issued with an open licence compatible with Wikipedia so that it can be effectively integrated into the encyclopedia. New contributors should be involved in producing texts and in editing the entries, without necessarily having to become Wikipedians. A series of entries need to be identified[16] and improved so that Wikipedia is effectively a tool at the service of education for everyone[17].

Intervening on Wikipedia is not an "option". We are talking about one of the most powerful websites in the world and practically the main source of information used anywhere. Ensuring that contributions to Wikipedia are complete and correct is the responsibility of everyone. With such vast dissemination, Wikipedia is, in fact, replacing text books and redefining standards used everywhere, both on content and on linguistic standards[18]. Its open licence enables its documentation to be used, re-used and distributed everywhere with an impact that goes far beyond Wikipedia (Google and thousands of other sites exploit Wikipedia data), influencing the internet and knowledge in general. This same licence, however, also represents a basic freedom: contributing to Wikipedia means contributing to content that is here to stay and that can always be used and edited by anyone and everyone, even to invent new projects outside and beyond Wikipedia, even to produce things that will be non-Wikipedian: school texts, art and theatrical works, webseries, information that pops up on social networks and on blogs, or on our phone apps. All things much more pervasive than we might imagine.

References
Bruns, A. (2008) *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage*. New York: Peter Lang.
Bryant, S.L., Forte, A. & Bruckman, A., 2005. Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia. In *2005 International ACM SIGGROUP Conference on*

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[15] Heather Ford has suggested the theory of the boundary object to analyse the results of the project Wikipedia Primary School. Ford, H., Pensa, I., Devouard, F., Pucciarelli, M., & Botturi, L. (2018). Beyond notification: Filling gaps in peer production projects. *New Media & Society*, *20*(10), 3799–3817. https://doi.org/10.1177/1461444818760870

[16] The problem of notability is well described in Ford, Heather, 2011. The Missing Wikipedians. In *Critical Point of View: A Wikipedia Reader*, ed. G. Lovink and N. Tkacz, 258-268. Amsterdam: Institute of Network Cultures.

[17] Indirect contribution appears to be an efficient approach to bridge Africa on Wikipedia as it has been tested on the research project Wikipedia Primary School (since 2012 https://meta.wikimedia.org/wiki/Wikipedia_Primary_School and implemented within a Swiss South African research lead by SUPSI and financed by the FNS and the South African research agency), conceived in the frame of WikiAfrica (since 2006 https://meta.wikimedia.org/wiki/WikiAfrica) and based on the experience of the project Share Your Knowledge (2011-2012 https://meta.wikimedia.org/wiki/Share_Your_Knowledge).

[18] Pensa, Iolanda, 2012. The Power of Wikipedia: Legitimacy and Territorial Control, Conference proceedings. Wikipedia Academy, Berlin.

Supporting Group Work, GROUP'05, November 6, 2005 - November 9, 2005. Proceedings of the International ACM SIGGROUP Conference on Supporting Group Work. Sanibel Island, FL, United states: Association for Computing Machinery, pp. 1- 10.

Graham, Mark. "Time machines and virtual portals The spatialities of the digital divide." *Progress in Development Studies* 11.3 (2011): 211-227.

Graham Mark., Scott. A. Hale, and Monica. Stephens. 2011. *Geographies of the World's Knowledge*. London: Convoco! Edition.

Graham, Mark. 2011. Wiki Space: Palimpsests and the Politics of Exclusion. In *Critical Point of View: A Wikipedia Reader.* Eds. Lovink, G. and Tkacz, N. Amsterdam: Institute of Network Cultures, 269-282.

Graham, Mark. 2014. The Knowledge Based Economy and Digital Divisions of Labour. In *Companion to Development Studies, 3rd edition*, eds v. Desai, and R. Potter. Hodder. 189-195.

Graham, Mark. Mapping the Geographies of Wikipedia Content, *Zerogeography.net* (November 12, 2009).

Howe, J., 2006. 'The Rise of Crowdsourcing', *Wired* 14(06).

Kittur, A. and R. E. Kraut, 2008. 'Harnessing the Wisdom of Crowds in Wikipedia: Quality through Coordination', *Proceedings of the ACM 2008 Conference on Computer Supported Cooperative Work*, pp. 37-46. New York: ACM.

Lam, Shyong; Anuradha Uduwage; Zhenhua Dong; Shilad Sen; David R. Musicant; Loren Terveen; John Riedl (October 3–5, 2011). "WP: Clubhouse? An Exploration of Wikipedia's Gender Imblance" (PDF). *WikiSym 2011*: 4.

Niederer, S. & Dijck, J. van, 2010. Wisdom of the crowd or technicity of content? Wikipedia as a sociotechnical system. *New Media & Society*, 12(8), pp.1368- 1387.

Pensa, Iolanda and Sandra Federici, 2006. *Sulla storia dell'arte contemporanea africana* in "Africa e Mediterraneo", n. 55, 2006.

Pensa, Iolanda, 2012. The Power of Wikipedia: Legitimacy and Territorial Control, Conference proceedings. Wikipedia Academy, Berlin.

Poe, M., 2006. 'The Hive', *The Atlantic Online* September.

Shirky, C., 2008. *Here Comes Everybody: The Power of Organizing without Organizations*. New York: Penguin Press.

Sunstein, C. R., 2006. Infotopia: How Many Minds Produce Knowledge. Oxford: Oxford University Press.

Surowiecki, J., 2004. *The Wisdom of Crowds: Why the Many are Smarter than the Few and How Collective Wisdom Shapes Business, Societies and Nations*. New York: Doubleday.

Swarz, A., 2006. 'Who writes Wikipedia?', Raw Thought Blog.

Tapscott, D. and A.D. Williams, 2006. *Wikinomics. How Mass Collaboration Changes Everything*. New York: Penguin.

Related projects
Africa Portal on meta https://meta.wikimedia.org/wiki/Africa_Portal
WikiAfrica (2006-) https://meta.wikimedia.org/wiki/WikiAfrica
Share Your Knowledge 2011-2012 https://meta.wikimedia.org/wiki/Share_Your_Knowledge
Wikipedia Primary School 2012-2017 https://meta.wikimedia.org/wiki/Wikipedia_Primary_School

Ayers, P., 2006. Researching wikipedia - current approaches and new directions. Proceedings of the American

Carillo, K. & Okoli, C., 2011. Generating quality open content: A functional group perspective based on the time, interaction, and performance theory. *Information & Management*, 48(6), pp.208- 219.

Castells, Manuel. *The Internet galaxy: Reflections on the Internet, business, and society*. Oxford University Press, 2002.

Duguid, P., 2006. Limits of self-organization: Peer production and "laws of quality. *First Monday*, 11(10).

Elwood Sarah. 2010. Geographic information science: emerging research on the societal implications of the geospatial web. *Progress in Human Geography* 34(3): 349- 357.

Foucault, Michel, and James D. Faubion. "Power. Essential Works of Foucault, Vol. 3." *New York* (2000).

Foucault, Michel. 1980. *Power/knowledge: Selected interviews and other writings, 1972-1977*. Random House LLC.

Fuchs, Christian, 2009. "The role of income inequality in a multivariate cross-national analysis of the digital divide." Social Science Computer Review 27.1 (2009): 41-58.

Garber, M., 2011. *The contribution conundrum: Why did Wikipedia succeed while other encyclopedias failed?*

Giles, J. 2005. Internet encyclopaedias go head to head. *Nature*, *438*(7070), 900-901.

Geiger, R. Stuart, and Aaron Halfaker, 2013. "Using edit sessions to measure participation in wikipedia." *Proceedings of the 2013 conference on Computer supported cooperative work*. ACM.

Haklay, M., A. Singleton, C. Parker. 2008. Web mapping 2.0: The neogeography of the GeoWeb. *Geography Compass*, Vol. 2, n° 6, pp. 2011-2039.

Haklay Muki. 2013a. Neogeography and the delusion of democratisation. *Environment and Planning A*, 45, 55-69

Hargittai, Eszter. "The digital reproduction of inequality." Social stratification(2008): 936-944.

Jullien, N., 2012. What we know about Wikipedia. A review of the literature analyzing the project(s). *Available at SSRN 2053597*.

Lih, Andrew Lih, 2009. The Wikipedia Revolution: How a Bunch of Nobodies Created the World's Greatest Encyclopedia, Hyperion.

Livingstone, Sonia, and Ellen Helsper, 2007. "Gradations in digital inclusion: children, young people and the digital divide." New media & society 9.4, p. 671-696.

Logan, D.W. et al., 2010. Ten simple rules for editing Wikipedia. *PLoS Computational Biology*, 6(9), p.e1000941.

Marwell, Gerald and Pamela Oliver, 1993. The Critical Mass in Collective Action: A Micro-social Theory. Cambridge; New York, Cambridge University Press.

Medelyan, O. et al., 2009. Mining meaning from Wikipedia. International Journal of Human Computer Studies, 67(9), pp.716- 754.

Morse, G., 2008. A conversation with Jimmy Wales. *Harvard Business Review*, 86(4).

Norris, Pippa, 2001. *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. Cambridge University Press.

Nye, Joseph S., 1990. "Soft power." *Foreign policy*, p. 153-171.

Okoli, Chitu, Mohamad Mehdi, Mostafa Mesgari, Finn Årup Nielsen, Arto Lanamäki, 2012. The People's Encyclopedia Under the Gaze of the Sages: A Systematic Review of Scholarly Research on Wikipedia (October 24, 2012).

O'Really, T., 2005. What is Web 2.0: Design patterns and business models for the next generation of software. http://oreilly.com.

Purdy, J.P., 2009. When the Tenets of Composition Go Public: A Study of Writing in Wikipedia. *College Composition and Communication*, 61.

Rahman, M.M., 2006. *Essays analyzing blogs and Wikipedia*. United States -- Kansas: The University of Kansas.

Rahman, M.M., 2007. An Analysis of Wikipedia. *Journal of Information Technology Theory and Application (JITTA)*, 9(3), p.81.

Sassi, Sinikka, 2005. "Cultural differentiation or social segregation? Four approaches to the digital

divide." *New Media & Society* 7.5, p. 684-700.

Stalder, F. and J. Hirsch, 2002. 'Open Source Intelligence', *First Monday* 7(6-3).

Sunstein, C. R., 2006. Infotopia: How Many Minds Produce Knowledge. Oxford: Oxford University Press.

Thom-Santelli, J., 2010. *Expressing territoriality in online collaborative environments*. United States, New York: Cornell University.

Van Deursen, Alexander, and Jan Van Dijk, 2011. "Internet skills and the digital divide." new media & society 13.6, p. 893-911.

Voss, J., 2005. Measuring Wikipedia. In *Proceedings of the 10th International Conference of the International Society for Scientometrics and Informetrics*. International Conference of the International Society for Scientometrics and Informetrics. Stockholm.

Warf, Barney, 2001. "Segueways into cyberspace: multiple geographies of the digital divide." Environment and Planning B 28.1, p. 3-20.

Wodak SJ, Mietchen D, Collings AM, Russell RB, Bourne PE, 2012. Topic Pages: PLoS Computational Biology Meets Wikipedia. PLoS Comput Biol 8(3).

Zittrain, Jonathan, 2008. *The Future of the Internet*. New York: Penguin.

Zlatic, V. et al., 2006. Wikipedias: Collaborative web-based encyclopedias as complex networks. *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 74(1).

Wikipedia Policies

Wikipedia Five Pillars https://en.wikipedia.org/wiki/Wikipedia:Five_pillars

Criticism of Wikipedia https://en.wikipedia.org/wiki/Criticism_of_Wikipedia

Notability in the English Wikipedia https://en.wikipedia.org/wiki/Notability_in_the_English_Wikipedia