

## Wikipedia and social sciences: free access to knowledge in specialized fields

## Wikipedia y ciencias sociales: acceso libre al conocimiento en campos especializados

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### ABSTRACT

Wikipedia, the online free encyclopedia, is an example of massive collaboration among peers globally. It was created in 2001 and deployed to date incorporating many projects and idiomatic editions. This article focuses on the production of knowledge in social sciences, analyzing the case of the sociology area of the Spanish edition. From there, it delves into the evolution of its articles and some of its main community dynamics, including: creation of a portal and sociology wikiproject; volume, editors and editions growth; regional coverage and controversies regarding content. Methodologically, it is based on aggregate data analysis in a context of virtual ethnographic research. The inquiry takes up considerations about the principles and rules that guide the operation of the platform, as well as efforts of understanding from the social sciences, in connection with recent initiatives linked to academic communities. Results allow to weigh potentials of emerging models of production, dissemination and use of knowledge, as well as their contributions towards an expansion of audiences.

### Keywords

Access to knowledge; dissemination of knowledge; virtual platforms; sociology; information technology

### RESUMEN

Wikipedia, la enciclopedia libre en línea, es un ejemplo de colaboración masiva entre pares a nivel global. Fue creada en 2001 y se mantiene vigente hasta la actualidad. Esta enciclopedia incorpora numerosos proyectos y ediciones en diferentes idiomas. Este artículo se enfoca en señalar la producción de investigaciones en ciencias sociales, analiza el caso del área de sociología (en la edición en español). A partir de allí se profundiza en la evolución de los artículos y algunas de sus principales dinámicas comunitarias, incluida la conformación de un portal y wikiproyecto sociología; el crecimiento de volumen de los editores y las ediciones; la cobertura regional y las controversias respecto del contenido. El método empleado se basa en el análisis de los datos encontrados en el contexto de una investigación etnográfica virtual. La indagación retoma consideraciones sobre los principios y las reglas que orientan el funcionamiento de la plataforma, así como esfuerzos de comprensión desde las ciencias sociales, en vinculación con iniciativas recientes de comunidades académicas. Los resultados permiten ponderar potencialidades de modelos emergentes de producción, divulgación y uso del conocimiento, así como sus contribuciones hacia una ampliación de públicos.

### Palabras clave

Acceso al conocimiento; difusión del conocimiento; plataformas virtuales; sociología; tecnología de la información

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## Introduction

Wikipedia incorporates numerous projects and editions in different languages. This encyclopedia draws its inspiration from the principles of free culture –initiated by movements such as Free Software–, which has generated communities of librarians, publishers and readers. It contains articles on various topics; anyone can contribute to their writing or publishing provided the contributors comply with the set of norms and principles.

Wikipedia is the fifth most visited site on the Internet (Alexa, 2018). It is the only one among the first 50 sites that belongs to a non-profit organization (Van Dijck, 2016). In June 2017, the Spanish edition ranked ninth in the encyclopedia with 1.34 million articles and 4.67 million registered users (Wikipedia, 2017). Besides, the Spanish edition is the second most consulted source and the incorporation of new publishers continues growing (Wikimedia, 2017a). All of this makes it a primary source of access and support for the production and dissemination of knowledge.

In this paper, we will analyze social science research, more specifically, the sociology on the Spanish version of Wikipedia. Unlike other domains, it involves a specialized body of knowledge acquired mainly through higher education or university studies. Based on these considerations, we will delve into the evolution of articles of this area until now and some of its main dynamics, including the shaping of the portal, the sociology wiki project, the growth of publication volume, editions, regional coverage and controversies regarding content.

We present some general considerations on Wikipedia, the emergence of the platform, as well as some principles and rules that guide its operation. In addition, we will include some comprehension efforts from social sciences, as well as initiatives linked to academic communities. The results highlight new dynamics of production, dissemination and use of knowledge that enhance the audience expansion.

## Methodological considerations

This proposal feeds on recent developments of digital methods and their relevance in understanding contemporary cultural phenomena. It highlights the potential of new sources of information present on the Internet and the need to innovate from social sciences, in addition to go forward in trans-disciplinary perspectives (Snee *et al.*, 2016).

The analysis of large data (Manovich, 2011), and the ethnography and its variants (Hine, 2008) are some of the most outstanding approaches. In parallel, new possibilities of aggregated data and deep data triangulation are presented, which allows

a better understanding of the operation of social software platforms and the day-to-day users' interactions (Ardévol, 2016).

This paper is based on a quantitative and qualitative analysis of data available on the platform. The contributions presented are based on an ongoing virtual ethnographic research that implies the follow up of online connections through the participation and commitment of the field researcher (Hine, 2015). Pérez Salazar (2010), Jemielniak (2014), Corona Reyes and Muñoz Yáñez (2015) and Lund (2017) are among the leading contributors to the study of collaborative processes in Wikipedia.

This research includes an exploratory stage of field immersion. During twelve months, we participated actively as collaborators of the encyclopedia. Around 2,000 editions which included content improvement, translations, creation of new papers, updating of main topics and discussion about wikiprojects were published.

Wikipedia is an open platform that provides free access to the data published in order to ensure their transparency and auditability. To do so, analytical information processing tools were developed to monitor the articles, publishers' contributions and users' visualization. We used *Wikimedia Statistics* (versions 1 and 2) and *Wikimedia Toolforge*, which allowed visualizing the monthly statistics of the access and use of the publications in different languages; the general tendencies in real time; the users' activity in real time and individual articles (from July 2015). It was also possible to access sets of raw data on visits, editions and number of articles published on the page (at [dumps.wikimedia.org](https://dumps.wikimedia.org)).

Likewise, a set of community tools were developed to facilitate research tasks or specific requirements, as is the case of PetScan that filters articles that meet the criteria as categories, properties, templates and links. In addition, it limits the results by names, robot/human editions, recent editions and the creation of pages, among other functions (PetScan, n.d.).

## On Wikipedia

Wikipedia is a complex socio-technical assembly based on wiki technology. This collaborative software format facilitates reading, editing and creating pages that will be displayed in HTML format. Ward Cunningham conceived this tool in 1995. The encyclopedia uses its own development called *mediawiki*, programmed in PHP language and under the General Public License (Mediawiki, n.d). The pages are stored in a database which includes dynamically generated hyperlinks. All the activity is registered and, eventually, it can be reversed which enables the analysis of its history, recent changes and debates raised.

Wikipedia is a project whose mission is to offer open and free knowledge. It is an organized community based on five pillars: 1) it is an encyclopedia; 2) seeking a “neutral standpoint”; 3) of free content; 4) that follows the rules of etiquette (referring to cordial behavior guidelines); and 5) that does not have any strict rules (Wikipedia, n. d).

In Wikipedia, the neutral standpoint criterion is supplemented with two additional content policies:

- 1) **Verifiability:** the information added must be verified if it has been published by other authorized sources.
- 2) **Absence of unpublished works:** Wikipedia does not publish original information or unpublished works (unpublished material, essays, partial ongoing research results) (Lerga and Aibar, 2015, p. 2).

The project is being managed since 2003 at the Wikimedia Foundation. This organization receives donations from corporations, governments and users themselves (Wikimedia Foundation, n.d.). Even though Wikipedia is its primary project, there are multiple ongoing initiatives of different scopes.<sup>1</sup> Furthermore, the foundation has a network of local chapters, which are organizations nationally or regionally based that promote the development of projects and communities in their area of interest (Wikimedia Foundation, n.d.)

The platform has four main coordination mechanisms: intra-article communication (discussion pages); communication between users (users’ discussion pages); projects and group work formation; policies and procedure discussion. In parallel, there is a series of mechanisms to settle disputes and reach consensus such as mediation, arbitrage and appeal policies. Some procedures become bureaucratic, such as similar exposure or evidentiary processes in legal environments (Van Dijck, 2016). Mutual trust is fundamental to maintain community equilibrium (Jemielniak, 2014).

Unlike previous and contemporary encyclopedic projects, Wikipedia is based on a development and self-correction process that increases gradually, based largely on amateur edition (Benkler, Shaw & Hill, 2015). Hence, the encyclopedia maintains a characteristic disorder of collective creation, i.e., edition wars, mistakes, vandalism, self-promotion, gaps and overabundance of information. Versions in other languages maintain relative autonomy and can develop their own rules and procedures, such as criteria to solve vandalism, sensitive topics, commercial or propaganda use (Lerga and Aibar, 2015, p. 2).

Most edition tasks –generally routine or maintenance, although also article creation– are automated. Every edition in another language has its own bots<sup>2</sup>, which are created and discussed by the community. This transforms it into a paradigmatic case of coexistence between humans and non-humans where both assume the figure of agents

(Latour, 2008). The percentage of editions carried out by bots reaches 18% in the Spanish edition (Wikipedia statistics, 2017). Wikipedia in Spanish is a:

Reflection of the intensity of the digital activity in a Spanish and Latin American cultural environment. The relation between the speaking population and the quantity and quality of contents in Wikipedia is an indicator derived from the educational level, access to the networks or digital participation of a cultural community (Saorín *et al.*, 2011, p. 90).

The Spanish edition has editors in all Latin American countries with a larger number in Spain, Argentina, Chile and Uruguay (Wikipedians by country, n.d.).

### **Collaborative culture and university**

Bauwens (2012) considers that the informational development strengthens a mass production model between peers based on horizontal spaces on the Internet, voluntarily articulated; thus generating forms of common property over informational assets (Hess, 2008). Within this framework, Wikipedia can be considered a community of online collaborative production in which already documented dynamics are applied in virtual spaces.<sup>3</sup>

While anyone can contribute as editor, this does not eliminate some gaps, among which the gender gap stands out (Forte *et al.*, 2012; Pagola, 2013). Moreover, there is an uneven coverage between topics and editions in other languages (Benkler, Shaw & Hill, 2015). However, there are projects and initiatives aiming at reversing these participation inequalities.

Jenkins, Clinton, Purushotma and Weigel (2006) have identified different forms of collaborative culture: the association, based on the participation in virtual communities; the expression as production of new creative forms; the circulation and collaborative solution of problems. These ways of collaboration can be associated to Wikipedia. According to Scolari (2016), these digital competencies can enter the radar of transmedia literacy which bridges collaborative cultures and educational institutions.

Therefore, it can be understood that Wikipedia is part of a techno-cultural ecosystem of connective means (Van Dijck, 2016). In this context, the encyclopedia represents the confluence of movements of open educational resources and Web 2.0: “It is a gigantic open repository of knowledge and information with a great potential of use in learning processes at all educational levels” (Lerga and Aibar, 2015, p. 6).

At the higher education setting, the use of wiki tools has generated several initiatives. Some of them propose the use of wikis within the university community,

whether as course management platforms (Del Moral and Villalustre, 2008) or cross-cutting projects such as *Wikisociales* (Wikisocials) at the Buenos Aires University (Wiszniacki, 2016).

Other experiences propose a direct collaboration with the encyclopedia. The Wikipedia foundation has generated promotion strategies in the academic arena to improve the quantity and quality of its contents. *The Public Policy Initiative* and *Wikipedia School and University Projects* are pilot tests destined to implement didactic activities linked to Wikipedia (Saorín *et al.*, 2011). Hence, Wikipedia educational programs began operating and a set of specific participants was established, the ambassadors of these programs play a bridging role among institutions to implement projects in every country (Saorín *et al.*, 2011).

The Universitat Oberta de Catalunya (The Open University of Catalonia) is one of the major driving forces of these programs; it has developed a good practice guide for teacher's use and has incorporated the figure of resident wikipedian, an editor in charge of adapting contents for the encyclopedia (Lerga and Aibar, 2015). Along these lines, the Wiki Learning Project in a Mexican university included editathons and institutional links (Quijano and Álvarez, 2016). Many initiatives of this type have been carried out in recent years; even though it is impossible to submit a complete list, several have been systematized by Wikimedia (2016).

In the area of sociology, more specifically the *American Sociological Association*, through its project *A Call to Duty*, sought fostering the creation and expansion of articles in the English edition (Wright, 2011). Part of these contents was translated into other editions, such as Spanish. This initiative represents an effort to expand social disciplines, such as sociology, to wider audiences from differentiated registries (Burawoy, 2005).

Even though Wikipedia is still unpopular in some sectors of the academia, it seems that the gap between both instances has narrowed (Jemielniak and Aibar, 2016). Research studies show that a great number of professors are still reluctant in participating actively because their work could be manipulated by low-skilled editors or may could not receive an explicit recognition (Jemielniak, 2014). Other reasons are related to misconceptions about the encyclopedia, doubts about its quality and the lack of other specific stimuli (Aibar, 2013; Konieczny, 2016).

However, professors that have participated in the edition of the encyclopedia show a significant change in their perception of the reliability and use of Wikipedia (Soler-Adillon, Pavlovic & Freixa, 2017). Likewise, recent studies show an increase in references to academic publications in articles, with special attention to open-access journals (Teplitskiy, Lu & Duede, 2016).

## Sociology in the spanish edition

While Wikipedia contains articles of different topics, there are categories that stand out because they are accessible from their main domain and are organized into portals, such as Human and Social Sciences. This domain includes academic portals among is sociology. Once inside, promotional contents, category indexes per levels, areas and main authors, as well as community-based activities can be accessed.

### General trends

In order to reconstruct the evolution of the articles in the area of sociology, we addressed them through data generated by the platform. This gave us the possibility to establish comparisons between editions in other languages by considering those with disciplinary tradition. According to Table 1, the area of sociology in Spanish ranks fourth in quantity of categorized articles preceded by the English, German and French editions. The same goes for the number of bibliographical articles on sociologists.

**Table 1.** Sociology editions in other languages in Wikipedia

Language	Categories		WikiProject	
	Sociology	Sociologist	Members	Creation
English	4 639	3 832	168	2004
German	4 643	2 216	50	2006
French	5 052	1 649	20**	2007
Spanish	4 184	1 031	28	2006

\*\*Human and social sciences unified project.

Source: compiled by the author based on PetScan, 2017.

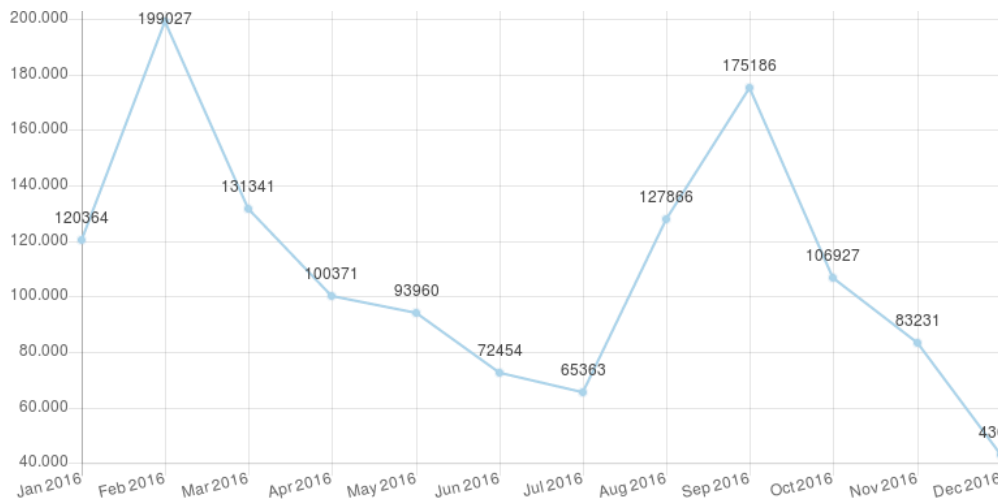
The Petscan tool casted results of articles belonging to the area of sociology; results up to two sub-levels (depth=2) were entered. These data show that there are no substantial differences in the number of central articles of the discipline, while these are more numerous in terms of bibliographies. The main categories that organize the area are as follows:

<ul style="list-style-type: none"> <li>• Sociology per country</li> <li>• Areas of sociology</li> <li>• Sociology auxiliary sciences</li> </ul>	<ul style="list-style-type: none"> <li>• Sociology organizations</li> <li>• Social issues</li> <li>• Sociology journals</li> </ul>
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<ul style="list-style-type: none"> <li>• Human behavior</li> <li>• Social Concepts</li> <li>• Sociological Phenomena</li> <li>• Social indicators</li> <li>• Sociology books</li> <li>• Social sciences methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Female sociologists <sup>4</sup></li> <li>• Sociologists</li> <li>• Sociology interdisciplinary sub-fields</li> <li>• Sociological Theories</li> <li>• Types of society</li> </ul>
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Another significant datum is the number of visualizations the articles of this discipline have. Sociology, the main article was the most visited among editions in other languages, more than its English version (Langviews Analysis, 2017). It was visualized 1.31 million times in 2016 (Pageviews Analysis, 2017). Graph 1 shows the monthly visualizations distribution:

**Graph 1.** Number of visualizations of Sociology (2016)



Source: tools.wmflabs.org (20 de julio de 2017).

July and December are months with a lesser number of registries and there are also periods with significant increases in the number of visits. The analysis of the most visualized study sub-fields of the area reveals the interests of the Hispanic community. Among the most visited are the following:



**Table 2.** Most visited areas (last 20 days)

Education Sociology	347 per day
Marxist Sociology	74 per day
Organization Sociology	59 per day
Economy Sociology	52 per day
Urban Sociology	42 per day
Literature Sociology	35 per day
Science Sociology	31 per day
Microsociology	30 per day
Gender Sociology	30 per day
Polemology	20 per day

Source: tools.wmflabs.org (20 de julio de 2017).

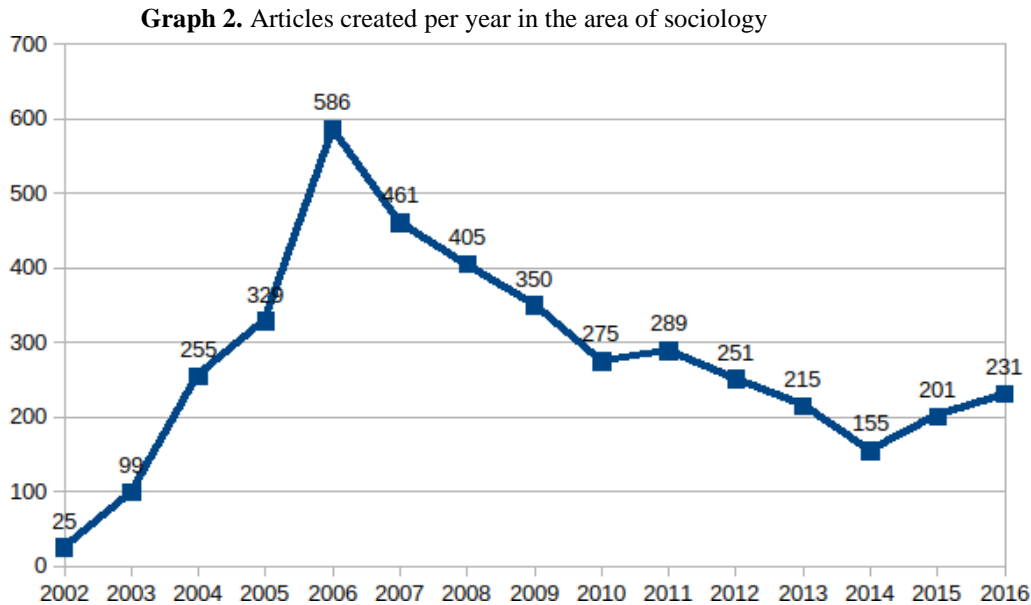
### *Evolution and collaborative dynamics*

The level of activity of the platforms has been associated to the definition of the life cycle of their communities (El Morr, Maret, Rioux, Dinca-Panaitescu & Subercaze, 2011). In Wikipedia, wikiprojects are some of the spaces that foster exchange and collaborative work in different areas or specific topics. These are special pages in which tasks to be developed are discussed and proposed, together with priorities or lists of articles requiring some intervention. Those interested subscribe voluntarily; templates can also be used to identify articles of interest from the wikiproject and attract new participants. The creation of these sub-communities develops coordination dynamics that improve the coverage and the quality of the contents created (Benkler, Shaw & Hill, 2015).

In the case of sociology, the Spanish wikiproject was created in 2006. At the beginning, as documented in its history and users registry, there was a period of strong activity. However, in April 2013, it decreased and the encyclopedia declared the wikiproject inactive. It currently has 28 registered participants.

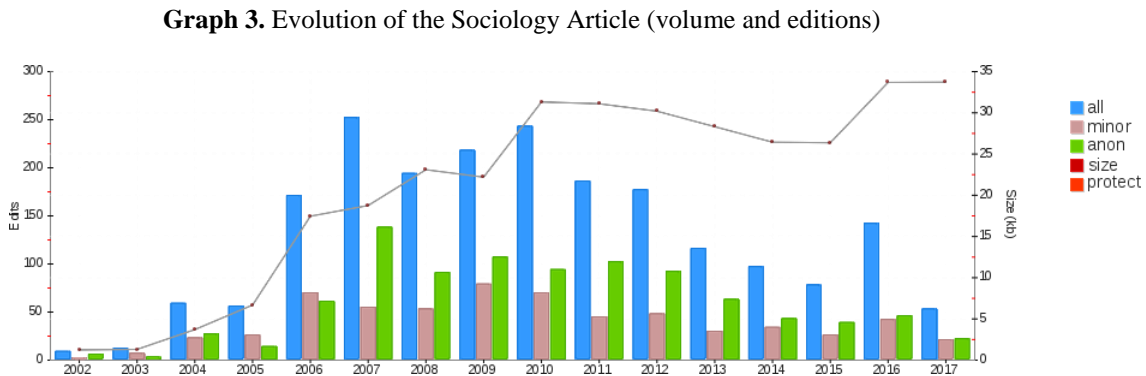
By using the analytical tools provided by the encyclopedia, we note a correlation between the life cycle of wikiproject and the evolution of the main articles of the area. As shown in Graph 2, there is a strong initial momentum and a gradual deceleration as

of 2016. In 2010, there was a period of stabilization with another decrease in 2014, and a gradual revival until now. This tendency coincides with the wikiproject life cycle.



Source: compiled by the author based on Petscan (July 20<sup>th</sup>, 2017).

In order to have a balanced view of the level of activity, both the number of articles created and its increase in volume throughout the period must be taken into account. By taking into consideration the main article, Sociology, Graph 3 shows the number of editions over the years; there is a difference between lesser editions an unregistered users.<sup>5</sup>



Source: tools.wmflabs.org (July 20<sup>th</sup>, 2017).

In this case, the lifecycle of Sociology has grown since its inception in 2002. From 2006 to 2010, its development increased in concurrence with the period of greater activity of the wiki project; then came a period of stabilization which continues to the present but with a gradual decrease in volume and number of editions.

In addition, it is worth noting the relevance of anonymous editions that, in some periods, can surpass 50% of the total. Lesser editions, i.e., less than 50 characters, represent one third of the total editions. The latter usually consist of small content editing, drafting or improvements made to the structure of the article.

#### *Quality and regional content*

Template filtering was another of the possibilities we explored and analyzed. Among other purposes, they are used to indicate content problems in articles and to direct future contributions. Some of the most recurrent issues are poor quality articles (without references, with problems of adequacy to the encyclopedia), vandalized articles, incomplete topics, not updated or not given maintenance.

The analysis indicates that articles with incidences represent 18% of the total. This percentage is only an approximation since tagging is a process users do manually, and articles may be unclassified. In this sense, the main issue we have identified is the lack of references and reliable sources of information that give credit and support the content (See Table 3).

Similarly, the low level of controversy regarding the content neutrality draws attention, since these are polemic topics referring to social issues. Other problems include the lack of coverage of different topics or the link between related topics.

**Table 3.** Articles in the area of Sociology according to main incidences

<b>Template</b>	<b>Number</b>	<b>Total percentage</b>
Unreferenced	508	12.1
Non-wikified	81	1.9
Diverse problems	77	1.8
Merged	39	0.9
Biased	28	0.7
Non current	10	0.2
Discussed	9	0.2

Source: compiled by the author based on Petscan (July 10<sup>th</sup>, 2017).

We also found articles labeled as good or outstanding, compliance certified given their high quality standards. Sociology has only 25 of these articles, which is the equivalent to 0.6% of the total. It is worth mentioning that for an encyclopedia entry to reach this ranking, it must comply with a series of requirements and be submitted to review by the community.<sup>6</sup>

The last part of the analysis refers to articles on authors within the Sociologists category. The Spanish edition shows a high percentage of biographies of the Latin American region, such as shown in Table 4.

**Table 4.** Sociologist per Country Category (first 10)

Nationality	Quantity
United States sociologists	124
Spain sociologists	123
France sociologists	85

Source: compiled by the author based on Wikipedia (July 10<sup>th</sup>, 2017).

The trajectories of Latin American sociologists account for 55% of the articles available on Wikipedia, which means they are in the top ten countries; this explains their appropriation by the local community. It is necessary to analyze if this trend extends to the contents of sociology. Recent research studies have examined the possibilities for open projects to generate visibility on the local production of knowledge, which would reverse certain difficulties in participating in the dominant circuits of publication and science popularization (Aguado-López and Vargas, 2016).

## Conclusions

We analyzed some dimensions of Wikipedia such as examples of the collaborative culture associated to the creation of knowledge. The encyclopedia is developed and enriched in an open platform in continuous expansion and it is highlighted by its socio-technical dimension, its principles of mass production between peers, as well as its linking and possible articulations with the academic production and education.

We started with an approach based on digital methods that combined exploration and active participation in the project with the use of analytical tools to quantify large-scale trends. Advances in research highlight the challenges and possibilities of emerging

methodologies; highlighting the articulations between in-depth and aggregated data which allows a better understanding of socio-technical dynamics present in the daily development of the encyclopedia.

We are interested in the position social sciences occupy in Wikipedia by taking as case study one of its disciplines in particular. The results show that the Spanish edition of the area of sociology is one of the most important editions in comparison to that of other languages, both in number of articles and visits. The coverage of central topics, the number of incidences and the presence of regional relevance contents were registered.

The analysis shows a fluctuation of consultations according to the academic calendars which could suggest a link between its main uses and education. The creation of initiatives such as the wikiproject is associated with an increase in the coverage of related topics. Its life cycle underlines a rise and a subsequent decrease in recent years.

In an ecosystem of connective means, Wikipedia constitutes a primary source of knowledge and a resource increasingly explored to obtain references and to disseminate information. Its use by local academic communities could contribute to the positioning of topics and specialists in the region. However, there is tension given certain production rationales where the field boundaries, the individual recognition, the accreditation mechanism, as well as the lack of technical skills could undermine participation. Its use in education is still questioned for its lack of rigorousness, a certain students' laziness.

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<sup>1</sup> Among them are: Wikinews, Wiktionary, Wikibooks, Wikiquote, Wikisource, Commons, Wikispecies, Wikiversity, Wikidata, Wikivoyages, Meta-Wiki and Outreach.

<sup>2</sup> A *bot* (apherisis of robot) is a computer program that carries out repetitive tasks automatically through the Internet. These tasks performed if by an individual would be impossible or very tedious. (Bot, n.d).

<sup>3</sup> Here we can mention the creation of hierarchies about meritocratic principles (Jemielniak, 2014). It is also a pyramidal structure referred to as rule 90-9-1 of participative inequality in which active users (9%) and very active (1%) constitute the lesser part while the majority only observe or consume information (Nielsen, 2006).

<sup>4</sup> This category was created in some editions in other languages to promote the recognition of women and their presence in the encyclopedia.

<sup>5</sup> Even though the latter are significant in number in regard to the total editions, our ethnographic research allows us to observe that the editions of registered users are more relevant in regard to the addition of new content.

<sup>6</sup> For an article to be approved it must meet the following criteria: 1) be well written; 2) be accurate with facts and be verifiable; 3) must have extent coverage; 4) follow the neutral view policy; 5) be stable; 6) should not contain any links to disambiguation pages or misspellings; 7) no frequent mistakes; 8) if possible, it should contain images to illustrate the topic.