



## Wikipedia at the spanish faculties of education. The vision of university students

*Wikipedia at the spanish faculties of education.  
The vision of university students*

**Dr. Ángel Obregón-Sierra** is a professor and researcher at Universidad Isabel I (Spain) ([angel.obregon@ui1.es](mailto:angel.obregon@ui1.es)) (<https://orcid.org/0000-0001-8801-317X>)

**Dra. Natalia González-Fernández** is a professor and researcher at Universidad de Cantabria (Spain) ([gonzalen@unican.es](mailto:gonzalen@unican.es)) (<https://orcid.org/0000-0001-6669-8446>)

**Received:** 2019-09-05 / **Revised:** 2020-06-02 / **Accepted:** 2020-06-05 / **Published:** 2020-07-01

### Abstract

Since the beginning of the 21st century, there has been a change in the way people connect to the Internet, interacting more with the creators of web sites and spending more time connecting to several tools that have been called Web 2.0, such as social networks, wikis and blogs. One of the best-known wikis is Wikipedia, free online encyclopedia collaboratively edited by users around the world. In this research we have applied an online questionnaire designed ad hoc to see if Spanish university students use this tool, if they know it and if they attach importance to their studies. The results have been obtained after the completion of 1173 questionnaires by university students of Education throughout Spain. Students say they use social networks, online documents and Wikipedia. Only 5.4% of respondents indicated that they do not use this tool. They make sure they know how it works, and only 1.74% admitted to not knowing it completely. However, they do not give it much importance to their studies, as the other Web 2.0 tools. In addition, most of them know that they can edit it, but they cannot provide information, so the number of editors is very low.

**Keywords:** Wikipedia, wikis, higher education, university students, collaborative writing, quantitative.

### Resumen

Desde los comienzos del siglo XXI se ha constatado un cambio en la forma que tienen las personas de conectarse a Internet, que interactúan más con los creadores de las páginas web y dedican más horas a conectarse a varias herramientas que se han denominado Web 2.0, como las redes sociales, los wikis y los blogs. Uno de los wikis más conocidos es la Wikipedia, enciclopedia en línea libre editada colaborativamente por usuarios de todo el mundo. En esta investigación hemos aplicado un cuestionario en línea diseñado ad hoc para constatar si los estudiantes universitarios españoles usan esta herramienta, si la conocen y si la conceden importancia de cara a sus estudios. Los resultados han sido obtenidos tras la cumplimentación de 1173 cuestionarios por parte de estudiantes universitarios de Educación en toda España. Los alumnos afirman usar mucho las redes sociales, los documentos en línea y la Wikipedia. Solo un 5,4% de los encuestados indicó que no utiliza esta herramienta. Aseguran conocer su funcionamiento, y tan solo un 1,74% admitió desconocerla totalmente. Sin embargo, no la dan mucha importancia para sus estudios, como al resto de herramientas de la Web 2.0. Además, la mayoría sabe que pueden editar en ella, pero no se ven capaces de aportar información, por lo que el número de editores es muy bajo.

**Descriptores:** Wikipedia, wikis, educación superior; estudiantes universitarios, trabajo colaborativo, cuantitativo.

## 1. Introducción

One of the most important tools on the Internet is Wikipedia, which is usually among the ten most consulted pages in the world (Alexa, 2020), and it is also among students and university professors (Brox, 2019; Wannemacher & Schulenburg, 2010). After introducing 26 random terms from different areas of knowledge in Google search, only one of these did not present in the first position the Wikipedia article regarding that term, demonstrating the ease of access that this virtual encyclopedia offers to Internet users.

The number of people accessing to consult information on the Internet on topics as relevant as health and education has increased considerably in just four years, according to surveys conducted between 2015 and 2019 by the National Statistical Institute (National Statistical Institute, 2019). Another survey, conducted among U.S. college students, showed that more than half frequently consulted Wikipedia, including its use in research papers, but mainly in the initial moments of these (Head & Eisenberg, 2010).

In France, the most confident users when consulting Wikipedia are students, while the least confident are workers in higher intellectual professions. In turn, young people between the ages of 18 and 24 were the most confident compared to the rest of the age ranges (Foglia, 2008). Both cases are similar to those exposed in research developed at other universities, which find a widespread use of Wikipedia in students (Margaryan et al., 2011; Pozzali & Ferri, 2010; Shen et al., 2013).

In Spain the data are similar. At the University of Oviedo Wikipedia is consulted as a first choice by 15% of students, as a second option for 35% and as a third option for 25% (Alonso & García, 2013), while at the University of Salamanca more than 75% uses it occasionally, and 53% claim to do so in their class work (Sánchez, 2014).

There are numerous authors and teachers who oppose to the use of Wikipedia in the class-

room, and in general for the search for information, negatively influencing their students (Garrison, 2018). Several schools have stated having problems with some Wikipedia content and the confusion of many teachers regarding its use must also be taken into account (Meishar-Tal, 2015).

Many students in their last high school year (18-19 years) admit that their teachers do not allow them to use it, but even at the risk of finding erroneous data they prefer to use it because they can find the information they need (Valverde-Crespo et al., 2019). High school students sometimes present papers copied literally or with very few modifications, in addition to not showing in them the references from where they obtained such information (Sormunen & Lehtiö, 2011).

Other reasons for not using it are the lack of reliability, that it is an unqualified source, it has abundant incomplete or inconsistent content, it generates intellectual laziness, it favors copy-paste, it has schematic articles and low narrative quality (García, 2010). Professor Pierre Assouline stated in the preface to the book *La Révolution Wikipédia* (Gourdain et al., 2007) that students do not know how documentary research was conducted before Wikipedia existed. However, this should not replace documentary research. Wikipedia is not a primary source, so any user should consult the primary sources that indicate the articles at the bottom (Los cinco pilares, 2020).

Doubts about its quality are one of the biggest limitations for teachers (Chen, 2010), although there are also other causes such as the social image of Wikipedia, the lack of acceptance in educational institutions and the little support received for training in the use of applications such as Wikipedia. It is also important to take into account the remarkable influence that an individual's opinion can have on the environment, since the opinion of teachers influences that of their students (Lim, 2013), and even other teachers often influence the opinion of their peers, because a positive opinion could lead to peers also using it (Eijkman, 2010; Lladós et al., 2013). Some authors have said that a group of people who work for free



hinders the prospects of work for scholars, and for this reason they are more critical of Wikipedia (Hastings-Ruiz, 2015).

As time goes on, the amount of research becomes more numerous (Park, 2011), activities with Wikipedia in the classroom are more common (Brailas et al., 2015; Brox, 2016; Christensen, 2015; Dawe & Robinson, 2017; Di Lauro & Johnke, 2016; Petrucco, 2019; Zou et al., 2020) and the opinions of the experts become more positive than the first studies (Barnhisel & Rapchak, 2014; Josefsson et al., 2014; Soler-Adillon et al., 2018). The latest studies even state that the active academic use of Wikipedia has a positive influence on the academic performance of students (Meseguer-Artola et al., 2019), recommending in any case being caution when consulting the sources (Eijkman, 2010).

University students admit that Wikipedia is reliable and useful, although what they value most is its topicality, as opposed to completeness (Meseguer-Artola, 2014). In Australia, 24% of college students find it very useful, and 87.5% use it for class work (Selwyn & Gorard, 2016). One of the most elaborate research on the use of Wikipedia by university students in the United States was the work done by Head and Eisenberg (2010), who found that 30% always consulted it, 22% frequently and 23% occasionally.

Regarding the percentage of publishers among students, they are at a very low level, 1% admit to editing frequently, 20% rarely do so, while 77% have never done so. 0.3% write articles frequently, while 83% never did (Kleimann et al., 2008). The students of agricultural studies had the highest percentage of reliability granted to Wikipedia, 69%, while the results among philosophy students granted 38% of reliability.

The reality is that only one-fifth of students from high school to university have received explanations of how Wikipedia works, and of these, more than 30% were assisted by friends or family (Sahut et al., 2015), which can cause problems if those people do not have in-depth knowledge in the subject. Additionally, it was

found on the research of Forte and Bruckman (2010), that the students have not been properly trained, and for that reason they see an added complexity to the fact of providing references to their work. Students consult sources they do not consider reliable, and do not even know how to use them (Judd & Kennedy, 2011), while the reaction of teachers is more passive than active in the process of teaching students how to use them (Meishar-Tal, 2015). Students will often consult Wikipedia even admitting that it is not reliable, but by the fact of being well positioned and possessing almost any article encourages them to continue using it (Valverde-Crespo & González-Sánchez, 2016).

Based on this reality, the aim of this work is to determine what perception the university students have about the knowledge, use and importance that it gives to Wikipedia in their academic training.

## 2. Methodology

### 2.1. Instrument and procedure

We design and validate a quantitative information collection tool, an *ad hoc* questionnaire (Obregón & González, 2016). Content validity studies were conducted through a pilot test, completed by 73 first-year students of the Master's Degree in primary and child education specialties, and a panel of experts, as proposed in the Delphi technique, composed of ten university researchers. In the calculation of reliability, a result of .878 was obtained in the Alpha of Cronbach. The questionnaire consisted of 93 items at the beginning of the design and validation, and 79 in the final version after taking into account the proposals suggested by the expert judges, based on criteria of clarity, relevance, order and effectiveness. This latest version was distributed in four dimensions: personal data, general part of the Internet and Web 2.0, specific part of the consultation and editing of Wikipedia. It was sent via email, with the con-



sent of the deans of the Faculties of Education involved, by linking it to the online application.

The quantitative information provided by the questionnaire items was analyzed with the SPSS 19 program for reliability, descriptive, inferential statistics (Kruskal-Wallis, Wilcoxon and Mann-Whitney U tests) and relational (Kendall's Tau and Spearman's coefficients), exploring the use of Wikipedia by the students, the knowledge they have of it and the importance they give it.

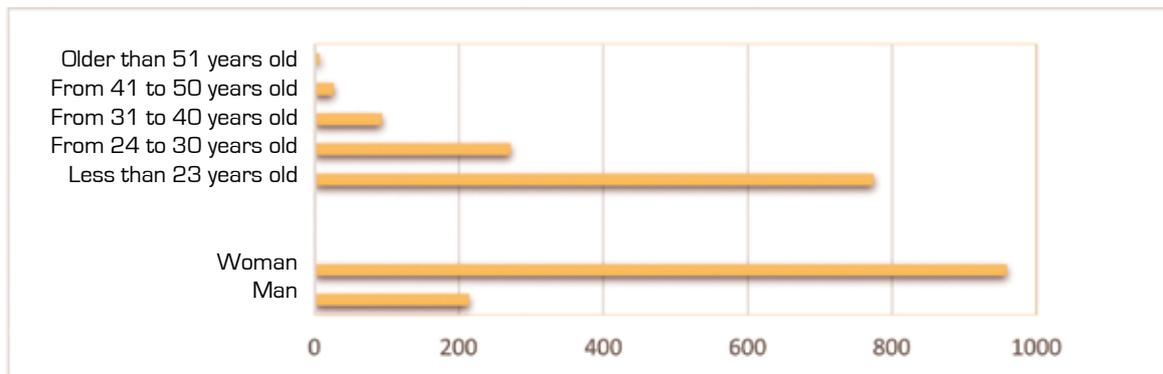
## 2.2. Participants

The number of students in undergraduate, first and second cycle studies enrolled in all public and private universities in Spain in the area of Education was 156,986 students. With this data, the minimum number of questionnaires

to be completed was 1060, with 1415 responses obtained after the due time. After eliminating the invalidated responses, this research analyses the data provided by 1173 university students of Education in Spain.

As can be seen in Figure 1, 959 women and 214 men participated, mostly (66%) under the age of 23. All courses in university education were represented, in the degrees in Teaching in Primary Education (36.4%), Children (23.4%), Pedagogy (13.2%), Social Education (11.2%), Children and Primary (3.8%) and also in various types of master's degree (11.9%). More than half of the Spanish universities responded to the questionnaire, highlighting the answers of the universities of the east peninsular, since the universities of the Valencian Community and Catalonia represented 40% of the total.

Figure 1. University students who took part in the questionnaire



Source: Own elaboration (2020)

## 3. Results

The questionnaire was used as an information collection tool to understand the current reality about the use, importance and knowledge of web 2.0 tools, and specifically Wikipedia, by Spanish university students in Education studies. Students were asked about social media, video-based social media, microblogging, blogs, wikis, Wikipedia, storage platforms, online documents and forums.

From the answers obtained, it was observed that university students in Spain very often use social networks such as Facebook or Instagram, specifically 96.3% admitted to using it little, a lot or too much. Video-based social networks such as YouTube, online documents and Wikipedia are also widely used, but not so blogs, wikis and forums. This may be because forums and blogs have been replaced by social media, where it is possible to review, comment and follow others in a simpler way.

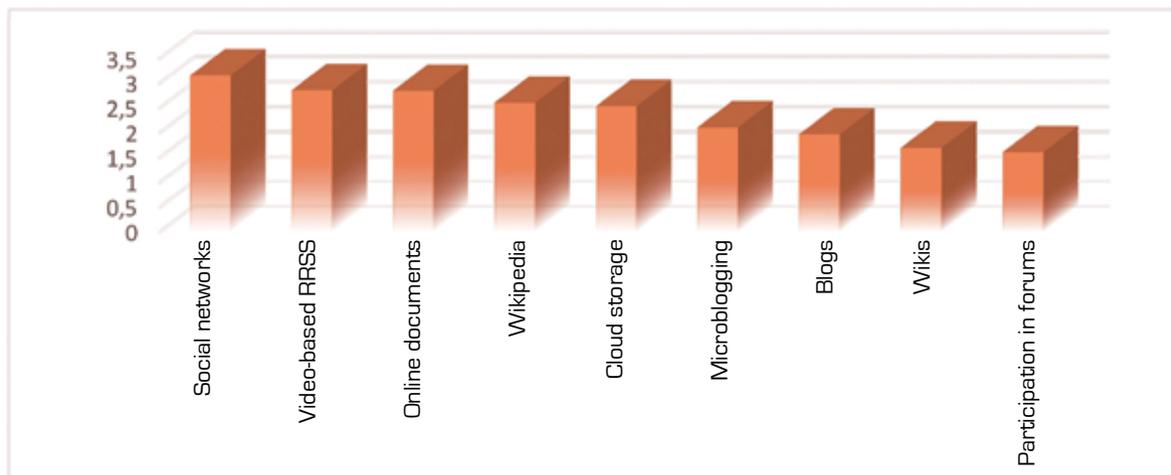


After conducting Kruskal-Wallis and U Mann-Whitney tests applied to the “Use\_Social\_Networks” dimension, it was observed that younger students and lower courses use social media more ( $p < ,003$  among those under the age of 23 and other age groups and  $p < ,008$  between the 24 to 30 age group and older). As they increase in course ( $p = ,012$  between first and fourth and  $p$  students  $p = ,040$  between second and fourth students) or acquire a degree they stop using them as often ( $p < ,036$  in all cases comparing students without a degree and those with C.F.G.S., diploma or bachelor’s degree). The more time university students browse the Internet ( $p = ,000$  in all cases where dedicated hours are compared) and as their computer knowledge increases ( $p = ,002$  between the basic and advanced level and the  $p = ,005$  between the middle and advanced levels), the more they use the web 2.0 tools. As for the tools for file transfer, online documents and forums, students under the age of 23 are those who use this type of tools the least ( $p = ,000$  among those under 23 years of age and among those who are between 24 and 30 years of age and  $p = ,001$  among those under 23 and those between 31 and 40 years old), and their use increases as age increases. Students who

are in master’s degrees, and those who already have a higher degree, also use this type of tools more frequently compared to students who only have a bachelor’s degree ( $p < ,008$  among students without a degree and graduates or graduates,  $p = ,006$  among students with C.F.G.S. and those with postgraduate degrees).

The use of Wikipedia is intermediate, being 2.61 its average, slightly higher than that of the scale (2.5). Students who use Wikipedia the least are those who already have a training cycle, compared to students who have another type of degree (high school, bachelor’s degree and postgraduate degree). Additionally, students with basic computer level consult Wikipedia less (average of 2.49), and as their level of knowledge increases their use also increases (3.11 experts). Finally, users who spend more than four hours on the Internet use Wikipedia more than other users who browse for less time ( $p < ,025$  in all cases compared to the other options). In addition, there were differences between students with a basic level of computer knowledge with respect to those who claimed to have an advanced level ( $p = ,012$ ) and expert ( $p = ,004$ ), mid-level students with the experts ( $p = ,008$ ) and the advanced with respect to the experts ( $p = ,034$ ).

Figure 2. Use of nine tools by university students



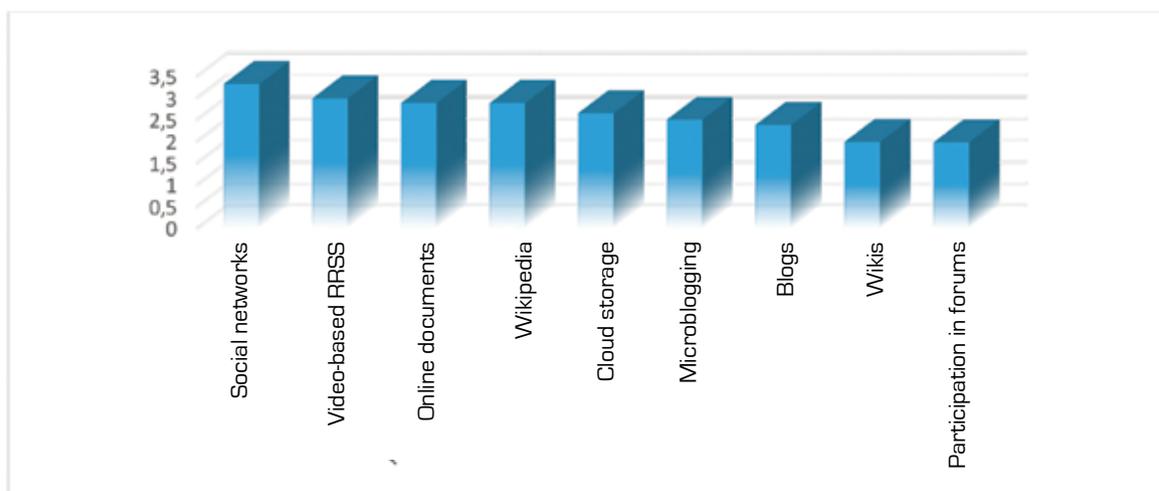
Source: Own elaboration(2020)



The knowledge of Web 2.0 tools by university students in Spain is medium, maybe due to the ignorance of two of its main tools: forums and wikis. The knowledge of the other tools is intermediate, except for social networks such as Facebook or Instagram, in which they admit to possessing high knowledge. It is also observed that the knowledge of the students in the tools of the Web 2.0 is high and increases the more time they spend on the Internet ( $p < .000$  in all cases of comparison between dedicated hours) and greater computer knowledge they possess ( $p = .000$  in all cases compared to computer levels). In addition, the youngest claim to have greater knowledge of Web 2.0 tools compared to older students ( $p = .010$  among those under the age of 23 and those from 31-40,  $p = .012$  between those under the age of 23 and those from 41-50,  $p = .034$  between students from 24-30 and 31-40, and  $p = .024$  between students from 24-30 and 41-50 years old), while as they course other levels their knowledge increases ( $p = .008$  between first and second and  $p = .014$  between first and fourth grades).

As for the knowledge that Spanish university students have of Wikipedia, it can be said that it is medium-high, as indicated by the average of this item (2.88) and the fact that only 1.74% claims to have zero knowledge of Wikipedia. It has been found that the higher the level of computing that students have, the more knowledge they have about Wikipedia, reaching a very high knowledge of computer experts ( $p = .000$  in all compared cases except  $p = .006$  among the advanced and the experts). In addition, it is observed the same effect in students who spend more hours on the Internet, the more hours spent the more knowledge they claim to possess ( $p < .020$  in comparisons between students who spend less than an hour and the rest,  $p = .002$  between those who spend 1-2 hours and those who spend more than 4 hours and  $p = .010$  between those who spend between 2 and 4 hours and those who spend more than 4 hours). As for the correlation between the use of Wikipedia and their knowledge of it, there is a moderate correlation ( $\rho = .479$  was the result of Spearman's Rho correlation coefficient).

Figure 3. Knowledge of university students of nine tools



Source: Own elaboration (2020)

Spanish university students provide little importance to forums, social media or blogs

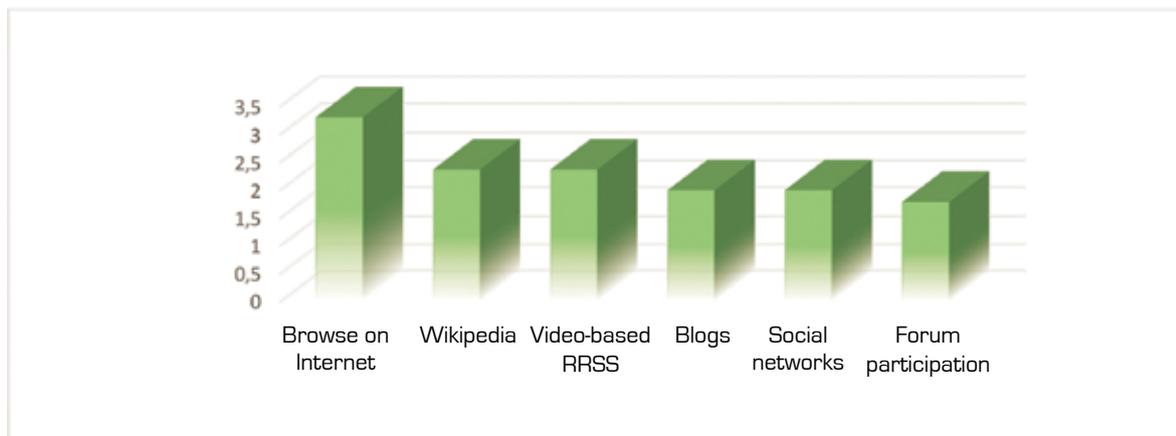
for their studies. However, Internet browsing is very important to them. If taking into account



that this is not a tool of the Web 2.0, then it is concluded that the students give little importance to this type of tools for their studies (the average, without including Internet browsing, is 2.10). Some students consider Web 2.0 tools more important than others, as is the case of those older than 23 years ( $p < .033$  compared to the rest of age groups), students studying at the universities of the south of the country ( $p < .035$  compared to the rest of the universities of the country), those who study master's degrees ( $p < .037$  compared to the rest of the specialties), who spend the most hours to browse ( $p < .016$  in all comparisons made except among students who connect between 1-2 hours and between 2-4 hours with a  $p = .215$ ), those who have the greatest knowledge in computing ( $p < .008$  in all cases except among those who have advanced level and expert who with  $p = .057$ ) and those who already have a bachelor's degree ( $p < .033$  in all compared cases).

The result of the analysis of the importance that University students of Education give to Wikipedia in their studies allows to affirm that Spanish university students give an intermediate-low importance to Wikipedia. The mean is 2.37, the median values are typically 2.00, and only in six cases the category values of each item exceed the scale mean (2.5). Men ( $p = .010$ ), students between 31 and 40 years old compared to those under 31 ( $p = .002$  in both cases), those who study at a university in southern Spain ( $p < .043$  in all cases), those who have a bachelor's degree, compared to those with a high school degree ( $p = .002$ ) or a C.F.G.S ( $p = .006$ ), those who have a level of expert computer knowledge regarding intermediate ( $p = .032$ ) and basic ( $p = .014$ ), and those who spend more than 4 hours browsing the Internet, compared to those who spend between 1-2 hours ( $p = .022$ ) and between 2-4 hours ( $p = .032$ ) give more importance to Wikipedia for their studies than the other categories.

Figure 4. Importance given by college students to six tools



Source: Own elaboration(2020)

In addition to this data, 92.2% of college students knew that anyone could edit on Wikipedia, but 5% did not know it and use it quite or much. Regarding the number of students who have ever edited on Wikipedia, it was only 12% of the total, while 0.38% have done so frequently or very often.

#### 4. Discussion and conclusions

The objective of this research focused on knowing the current reality about the use, importance and knowledge of the tools of the Web 2.0, and specifically Wikipedia, by the students studying



at the Spanish Faculties of Education. From the results of the questionnaire, it is possible to see that a high percentage of students use social networks (96.3%), data similar to those presented by the National Statistical Institute (2019), which indicates 91.1%. Also noteworthy is the high number of students who use social media, online documents and Wikipedia, contrary to the low use they give to blogs, wikis and forums.

Several research has noted that more than 80% of students use Wikipedia (Gilles, 2015; Sánchez, 2014). The average obtained by the research carried out at the University of Salamanca was 2.81 (Sánchez, 2014), while in our case it was 2.61, slightly lower, but above the scale average. There is a greater coincidence with Gilles' research (2015), which states that 5.7% of its respondents did not use Wikipedia, compared to the 5.4% we have obtained in this case, demonstrating a regular use of it.

Regarding the knowledge and importance of Web 2.0 and Wikipedia, we observe that Spanish university students have an average knowledge in most of the tools of the Web 2.0, except on social networks, of which they claim to have a high knowledge. Regarding Wikipedia, their knowledge is medium-high and only 1.74% claim to have zero knowledge about it. Their use of the encyclopedia gives them, according to them, knowledge of the tool and of its inner working.

They hardly give importance to Web 2.0 tools, highlighting the low importance they provide to forums, social media and blogs. Mainly, for their studies they use other resources such as classroom books, questions to the teacher and their classmates, or internet browsing, as Gilles mentioned (2015). Wikipedia is mainly used for leisure topics, but they give it intermediate-low importance for its use in their studies.

Flanagin and Metzger (2011) found that although most of the students surveyed knew Wikipedia, 22% did not know that everyone could participate. This percentage has reduced due to the increased knowledge that university students have of the functioning of Wikipedia,

since this research has found that only 7.8% did not know that they could edit.

As for the participation percentage, Kleimann et al. (2008) obtained that only 0.3% of students created articles frequently, while 83% had never done so. Cuquet and García-San Pedro (2019) claimed that 7% of ESO students and 14% of Baccalaureate had edited once, while in our case, only 12% had done it once, being only 0.38% who have done it frequently or very often. The main reason they set out not to do so is that they do not think they can give a significant contribution.

In short, this article contributes to a better understanding of students' knowledge of the technological tools they use on a daily basis. Wikipedia offers a wide variety of possibilities, enabling collaborative learning, and encouraging active learning.

As limitations of this study we can indicate the fact that the data collection focused solely on Bachelor's degrees from the field of Education and from a quantitative approach.

## References

- Alexa (2020). *wikipedia.org Competitive Analysis, Marketing Mix and Traffic*.  
<https://bit.ly/3h2zsuX>
- Alonso, M.I., & García, J. (2013). Colaboración activa en Wikipedia como método de aprendizaje. *RIED*, 16(1), 13-26.  
<https://doi.org/10.5944/ried.16.1.2056>
- Barnhisel, G., & Rapchak, M. (2014). Wikipedia and the Wisdom of Crowds: A Student Project. *Communications in Information Literacy*, 8(1), 145-159.  
<https://doi.org/10.15760/comminfolit.2014.8.1.158>
- Brailas, A., Koskinas, K., Dafermos, M., & Alexias, G. (2015). Wikipedia in Education: Acculturation and learning in virtual communities. *Learning, Culture and Social Interaction*, 7, 59-70.  
<http://dx.doi.org/10.1016/j.lcsi.2015.07.002>
- Brox, H. (2016). Troublesome tools: How can Wikipedia editing enhance student teachers' digital skills? *Acta Didactica Norge*, 10(2), 329-346. <https://doi.org/10.5617/adno.2493>



- Brox, H. (2019). Why won't they take them on? A study on student teachers' first-time engagement with wiki technology. [Tesis doctoral, UiT The Arctic University of Norway]. Repositorio Institucional UiT. <https://bit.ly/2VIRQ8I>
- Chen, H.L. (2010). The perspectives of higher education faculty on Wikipedia. *The Electronic Library*, 28(3), 361-373. <https://doi.org/10.1108/02640471011051954>
- Christensen, T.B. (2015). Wikipedia as a Tool for 21st Century Teaching and Learning. *International Journal for Digital Society*, 6(2), 1042-1047. <https://doi.org/10.20533/ijds.2040.2570.2015.0128>
- Cuquet, M., & García-San Pedro, M.J. (2019). Percepciones y uso de la Wikipedia en alumnos de educación secundaria. *Education in the knowledge society (EKS)*, 20. [https://doi.org/10.14201/eks2019\\_20\\_a8](https://doi.org/10.14201/eks2019_20_a8)
- Dawe, L., & Robinson, A. (2017). Wikipedia editing and information literacy: A case study. *Information and Learning Science*, 118(1/2), 5-16. <https://doi.org/10.1108/ILS-09-2016-0067>
- Di Lauro, E., (2016). Employing Wikipedia for good not evil: Innovative approaches to collaborative writing assessment. *Assessment & Evaluation in Higher Education*, 42(3), 478-491. <http://dx.doi.org/10.1080/02602938.2015.1127322>
- Eijkman, H. (2010). Academics and Wikipedia: Reframing Web 2.0+ as a disruptor of traditional academic power-knowledge arrangements. *Campus-Wide Information Systems*, 27(3), 173-185. <https://doi.org/10.1108/10650741080000448>
- Flanagin, A.J., & Metzger, M.J. (2011). From Encycopaedia Britannica to Wikipedia. Generational differences in the perceived credibility of online encyclopedia information. *Information, Communication & Society*, 14(3), 355-374. <https://doi.org/10.1080/1369118X.2010.542823>
- Foglia, M. (2008). *Wikipédia : Média de la connaissance démocratique ? Quand le citoyen lambda devient encyclopédiste books*. FYP
- Forte, A., & Bruckman, A. (2010). Writing, citing, and participatory media: Wikis as learning environments in the high school classroom. *International Journal of Learning and Media*, 1(4), 23-44. [https://doi.org/10.1162/ijlm\\_a\\_00033](https://doi.org/10.1162/ijlm_a_00033)
- García, A.A. (2010). Wikis en tareas educativas: Aplicaciones de la Web 2.0 en Secundaria y Bachillerato [Tesis doctoral, Universidad de Salamanca] Repositorio Institucional US. <https://doi.org/10.14201/gredos.83223>
- Garrison, J.C. (2018). Instructor and peer influence on college student use and perceptions of Wikipedia. *The Electronic Library*, 36(2), 237-257. <https://doi.org/10.1108/EL-02-2017-0034>
- Gilles, M. (2015). Wikipédia, une encyclopédie collaborative en quête de crédibilité: Le référencement en questions [Tesis doctoral, Universidad de Toulouse]. <https://bit.ly/3cGZ2IO>
- Gourdain, P., O'Kelly, F., Roman-Arnat, B., Soulas, D., & Von-Droste, T. (2007). La Révolution Wikipédia. Les Mille et Une Nuits
- Hastings-Ruiz, D. (2015) Wikipedia and theories of knowledge in encyclopaedism. [Tesis doctoral, Universidad de Valladolid]. Repositorio Institucional UV. <https://doi.org/10.35376/10324/16184>
- Head, A.J., & Eisenberg, M.B. (2010a). How today's college students use Wikipedia for course-related research. *First Monday*, 15(3). <https://doi.org/10.5210/fm.v15i3.2830>
- Instituto Nacional de Estadística (16 de octubre de 2019). *Encuesta sobre equipamiento y uso de tecnologías de información y comunicación en los hogares*. <https://bit.ly/30nVke6>
- Josefsson, P., Bälter, O., Bälter, K., & Bonn, S. (2014). Attitude Changes When Using Wikipedia in Higher Education. En J. Viteli & M. Leikomaa (Eds.), *EdMedia: World Conference on Educational Media and Technology* (pp. 2024-2032). Association for the Advancement of Computing in Education (AACE).
- Judd, T., & Kennedy, G. (2011). Expediency-based practice? Medical students' reliance on Google and Wikipedia for biomedical inquiries. *British Journal of Educational Technology*, 42(2), 351-360. <https://doi.org/10.1111/j.1467-8535.2009.01019.x>
- Kleimann, B., Özkilic, M., & Göcks, M. (2008). Studieren im Web 2.0. Studienbezogene Web- und E-Learning-Dienste. *HISBUS-Kurzinformation*, 21. Hanover. <https://bit.ly/2MJ95w9>
- Lim, S. (2013). Does formal authority still matter in the age of wisdom of crowds?: Perceived



- credibility, peer and professor endorsement in relation to college students'. Wikipedia use for academic purposes. *American Society for Information Science and Technology*, 50(1), 1-4.  
<https://doi.org/10.1002/meet.14505001118>
- Lladós, J., Aibar, E., Lerga, M., Meseguer-Artola, A., & Minguillón, J. (2013). An Empirical Study on Faculty Perceptions and Teaching Practices of Wikipedia. In M. Augier & M. Ciussi (Eds.), *12th European Conference on e-Learning. Academic Conferences and Publishing International Limited* (pp. 258-265).  
<https://bit.ly/3eX3RZH>
- Los cinco pilares (3 de mayo de 2020). In *Wikipedia*.  
<https://bit.ly/3dCeWPk>
- Margaryan, A., Litlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students use of digital technologies. *Computers & Education*, 56(2), 429-440.  
<https://doi.org/10.1016/j.compedu.2010.09.004>
- Meishar-Tal, H. (2015). Teachers' use of Wikipedia with their Students. *Australian Journal of Teacher Education*, 40(12).  
<https://doi.org/10.14221/ajte.2015v40n12.9>
- Meseguer-Artola, A. (2014). Aprendiendo mediante la comparación con Wikipedia: Su importancia en el aprendizaje de los estudiantes. *RUSC. Universities and Knowledge Society Journal*, 11(2), 57-69.  
<http://dx.doi.org/10.7238/rusc.v11i2.2042>
- Meseguer-Artola, A., Rodríguez-Ardura, I., Ammetler, G., & Rimbau-Gilabert, E. (2019). Learning with Wikipedia in Higher Education: Academic Performance and Students' Quality Perception. In A. Visvizi & M. Lytras (Eds.), *Research & Innovation Forum 2019. RIIFORUM 2019. Springer Proceedings in Complexity*. Springer, Cham.  
[https://doi.org/10.1007/978-3-030-30809-4\\_12](https://doi.org/10.1007/978-3-030-30809-4_12)
- Obregón, A., & González, N. (2016). Validación de un cuestionario piloto para evaluar el conocimiento de la Wikipedia en estudiantes de Educación Superior. *Revista del Congrés Internacional de Docència Universitària i Innovació (CIDUI)*. <https://bit.ly/307DRqh>
- Park, T.K. (2011). The visibility of Wikipedia in scholarly publications. *First Monday. Peer Reviewed Journal on the Internet*, 16(8).  
<https://doi.org/10.5210/fm.v16i8.3492>
- Petrucco, C. (2019). Wikipedia as complementary formative assessment method in University Courses. In J. Theo Bastiaens (Ed.), *Actas del EdMedia + Innovate Learning* (pp. 335-338). Association for the Advancement of Computing in Education (AACE).  
<https://bit.ly/2AM4BSH>
- Pozzali, A., & Ferri, P. (2010). Old and new media in the everyday life in University students in Italy. *Revista de Informatica Sociala*, 14, 9-20.  
<https://bit.ly/2UeXyBR>
- Sahut, G., Jeunier, B., Mothe, J., & Tricot, A. (2015). Qu'apprennent les jeunes usagers á propos de Wikipédia? In L. Barbe, L. Merzeau & V. Schafer, *Wikipédia objet scientifique non identifié. Presses universitaires de Paris Ouest* (pp. 149-161). <https://bit.ly/373ewPz>
- Sánchez, L. (2014). Utilización de Wikipedia como recurso docente en la enseñanza superior [Tesis doctoral, Universidad de Salamanca]. Repositorio institucional US.  
<https://doi.org/10.14201/gredos.125932>
- Selwyn, N., & Gorard, S. (2016). Students' use of Wikipedia as an academic resource - Patterns of use and perceptions of usefulness. *The Internet and Higher Education*, 28, 28-34.  
<http://dx.doi.org/10.1016/j.iheduc.2015.08.004>
- Shen, X.L, Cheung, C.M.K., & Lee, M.K.O. (2013). What leads students to adopt information from Wikipedia? An empirical investigation into the role of trust and information usefulness. *British Journal of Educational Technology*, 44(3), 502-517.  
<https://doi.org/10.1111/j.1467-8535.2012.01335.x>
- Soler-Adillon, J., Pavlovic, D., & Freixa, P. (2018). Wikipedia en la Universidad: Cambios en la percepción de valor con la creación de contenidos. *Comunicar*, 54, 39-48.  
<https://doi.org/10.3916/C54-2018-04>
- Sormunen, E., & Lehtiö, L. (2011). Authoring Wikipedia articles as an information literacy assignment: Copy-pasting or expressing new understanding in one's Own words? *Information Research*, 16.  
<https://bit.ly/2MsLxLM>
- Valverde-Crespo, D., & González-Sánchez, J. (2016). Búsqueda y selección de información en recursos digitales: Percepciones de alumnos



- de Física y Química de Educación Secundaria Obligatoria y Bachillerato sobre Wikipedia. *Revista Eureka sobre enseñanza y divulgación de las ciencias*, 13(1), 67-83.  
[https://doi.org/10.25267/rev\\_eureka\\_ensen\\_divulg\\_cienc.2016.v13.i1.06](https://doi.org/10.25267/rev_eureka_ensen_divulg_cienc.2016.v13.i1.06)
- Valverde-Crespo, D., González-Sánchez, J., & Pro-Bueno, A. (2019). Wikipedia en la Universidad: ¿Cómo la utilizan los estudiantes de 1º curso de Grado de titulaciones del área de Ciencias Experimentales? Un estudio sobre sus percepciones. *Revista Eureka sobre enseñanza y divulgación de las ciencias*, 16(3), 1-18.  
[https://doi.org/10.25267/Rev\\_Eureka\\_ensen\\_divulg\\_cienc.2019.v16.i3.3101](https://doi.org/10.25267/Rev_Eureka_ensen_divulg_cienc.2019.v16.i3.3101)
- Wannemacher, K., & Schulenburg, F. (2010). Wikipedia in Academic Studies: Corrupting or Improving the Quality of Teaching and Learning? In M. Ebner & M. Schiefner (Eds.), *Looking Toward the Future of Technology-Enhanced Education: Ubiquitous Learning and the Digital Native* (pp. 295-310). IGI Global.  
<https://doi.org/10.4018/978-1-61520-678-0.ch017>
- Zou, D., Xie, H., Wang, F.L., & Kwan, R. (2020). Flipped learning with Wikipedia in higher education, *Studies in Higher Education*, 45(5), 1026-1045.  
<https://doi.org/10.1080/03075079.2020.1750195>

