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Practices and Attitudes of the Research and Teaching Staff at the University of Split about the Online Encyclopedia Wikipedia

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Abstract: The goal of this study was to investigate the practices and attitudes of the research and teaching staff at the University of Split (Croatia) about the online encyclopedia Wikipedia. The method of a questionnaire-based survey was used to gain insights related to this topic. During February 2024, the survey was completed by 226 respondents. The results show that almost all respondents read Wikipedia articles and believe that the level of their accuracy is quite high. Almost half of the respondents strongly agree with the statement that it would be desirable for faculty staff to write Wikipedia articles with the aim of spreading knowledge about topics from their professional fields. However, a very small number of respondents participated in writing articles for Wikipedia. Also, the respondents answered that to them, the greatest motivations to write articles on Wikipedia would be if this activity were evaluated for the advancement to a higher work position and the correction of errors in Wikipedia articles. It was also found that most respondents are not very familiar with how Wikipedia works or how to add new content to it. These and other insights from this study can be used to conceive and initiate various activities that can contribute to greater participation of scientific and teaching staff of higher education institutions in writing quality content on Wikipedia, as well as activities that can contribute to a better familiarization with the principles and procedures to write and enhance its content. Other research methods, such as interviews with scientific and teaching staff of higher education institutions, could be used to acquire further, more detailed answers related to this topic.

Keywords: Wikipedia in the Croatian language; Wikipedia in national languages; higher education institutions; research and teaching staff; science communication and popularization; University of Split

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1. Introduction

The spread of scientific knowledge nowadays is made possible by various web platforms, among which Wikipedia has a prominent place. This online encyclopedia has been one of the most popular websites worldwide for years [1–4]. It is used by people of different ages, from different parts of the world, with different worldviews and interests. For many, it is the first place where they obtain information about a wide variety of topics. In addition to being a significant source of information on topics from the field of popular culture and entertainment, Wikipedia has today also become a significant platform for the diffusion of science to a broader audience [4]. Given that it is one of the most visited websites in the world, Jemielniak points out that Wikipedia can also be considered 'the most important channel for the public communication of science nowadays' [5] (p. 1774). Also, Aibar points out that Wikipedia became 'the most important source of scientific and technical information for most citizens—including students at all education levels' [6] (p. 17). The diffusion of science through Wikipedia takes many forms. Wikipedia articles contain research results that were published in scholarly articles in journals and databases that are only available for a large fee and, therefore, unaffordable and unavailable for many. But when important research results from these articles are transferred in a concise and comprehensible form to Wikipedia, they become available to everyone. Articles from Wikipedia also contain

numerous research results from articles that are available for free in open-access journals, and, in this way, Wikipedia, in addition to enabling its users to familiarize themselves with research results relevant to certain topics, also promotes and amplifies open-access science [4]. Also, the growing importance of Wikipedia in the scientific field is confirmed by the continuous increase in citations of Wikipedia in journal articles [7–9]. Bould cites a number of studies in which the topic of citations to Wikipedia within scholarly publishing has been investigated and points out that Wikipedia citations can also be found in journals with high impact factors [8].

Wikipedia, in addition to spreading scientific insights and strengthening the activity of science, can also influence the development of science. For example, in Wikipedia articles, scientists can find new ideas for scientific research, or they can find content that will allow them to take a new look at the ideas they already have. At the same time, scientists will sometimes come across content from scientific papers on Wikipedia that is otherwise unavailable to them because of the high subscription prices, which will enable them to better design and conduct their own research [3]. Thompson and Hanley conducted an experiment that determined the direct influence of Wikipedia on the development of science. Namely, the experiment established that scientific articles referenced in Wikipedia received more citations than scientific articles that were not referenced in Wikipedia [3]. Also, by contributing scientific and professional content to Wikipedia, scientists can improve the content of the Wikipedia articles, making them more accurate, relevant, and comprehensive. In this way, the contents of Wikipedia become better and more reliable, and the doubts about the appropriateness of using Wikipedia, which have been present since its inception until today, are reduced. Namely, given the specificity of the way articles are written on Wikipedia—where anyone can write or edit the text and add other types of content to this encyclopedia—it is not unusual that the quality of the contents on Wikipedia is often questioned, for example, their accuracy, objectivity, and comprehensibility. There are many studies related to these issues. Their findings depend on different elements, such as which language version of Wikipedia is involved or what type of Wikipedia articles are analyzed [10]. For example, Konieczny points out that according to the results of various studies, it can be determined that the quality of Wikipedia articles is slowly improving, especially for the most popular articles that are read and edited by a lot of people [10]. In this sense, versions of Wikipedia that are written in languages spoken by a large number of people are at an advantage, especially Wikipedia in English, which is read and edited by a very large number of native and non-native English speakers. On the other hand, the versions of Wikipedia that are in languages that have a significantly smaller number of speakers than the English language can have significantly fewer readers and editors, which is a factor that can contribute to the lower quality of these Wikipedia versions in terms of the number and scope of articles and their accuracy and comprehensiveness. Various aspects of Wikipedia in languages with a small number of speakers may also be considerably less researched. This is also the case with Wikipedia in the Croatian language, for which there is very little research [11]. A search of the Hrčak repository—the largest Croatian repository of scientific and professional papers, the majority of which is open-access—reveals that there are no more than 20 works related to Wikipedia, and only a few of them have this online encyclopedia as the focus of their research [12].

In this paper, this unexplored area is illuminated to some extent, considering that the goal of the paper is to investigate the practices and attitudes of the research and teaching staff at the University of Split (Croatia) related to Wikipedia.

2. Science Communication and Wikipedia

Wikipedia is an open encyclopedia, open in the sense that access to its content is free, but also open in the sense that anyone can change and edit its content. One of the main principles of Wikipedia is that its texts should be written from a neutral perspective. They should be written so that they 'document and explain major points of view' [13]. Special attention is paid to the principle of 'verifiability', which, in English Wikipedia, is defined in

the following way: '. . .verifiability means other people using the encyclopedia can check that the information comes from a reliable source.' [14]. Academic and peer-reviewed publications are recommended as 'usually the most reliable sources on topics such as history, medicine, and science' [14]. In the English Wikipedia essay 'Ten simple rules for editing Wikipedia', it is written that 'there is an increasing need for the scientific community to engage with Wikipedia to ensure that the information it contains is accurate and current' and that 'for scientists, contributing to Wikipedia is an excellent way of fulfilling public engagement responsibilities and sharing expertise' [15]. These important Wikipedia principles are a clear sign that this online encyclopedia is a suitable platform for the dissemination of knowledge that can be found in academic publications and that the rules and principles of Wikipedia have considerable similarities with rules and principles that guide the activities of scholars. Therefore, it is not surprising that Wikipedia articles often reference reputable sources, among which there are a lot of articles from high-impact journals [4,16,17]. Additionally, Wikipedia articles often reference a lot of papers from open-access journals, even more frequently than papers published in closed-access journals [4]. This indicates the importance of open-access policy and philosophy, as well as the importance of open-access journals and repositories for the diffusion and advancement of science [3]. In this context, Wikipedia could be seen as an effective intermediary between the results of scientific research and the broader public. Certainly, there is a considerable similarity between the philosophy of the open-access movement and the philosophy of the Wikipedia community, in terms of their acceptance and implementation of open policy with all its associated advantages and challenges. Some studies confirm that an important motivation for many who contribute to Wikipedia is an appreciation for sharing knowledge, appreciation for the education of others, and support for open access and similar concepts [10]. Wikipedia belongs to digital platforms that enable new ways of communicating science. It allows users to present scientific content that is available to the public in open access. Therefore, it can be considered an essential part of the Open Science movement [18]. Additionally, the Citizen Science movement has been very active in recent years, and it was also significantly influenced by the development of digital technologies. One of the different definitions of Citizen Science is that it is the science that 'entails the engagement of volunteers in science and research. Volunteers are commonly involved in data collection but can also be involved in initiating questions, designing projects, disseminating results, and interpreting data [19]. Among all these mentioned activities, Wikipedia is certainly the most suitable for disseminating the results of scientific activities. Paleco et al. believe that 'it can be argued that Wikipedia is the most diverse international citizen science project in terms of usage, participants, and languages' [20] (p. 270). They also point out that Wikipedia has an important role in formal and informal education, as well as in the global democratization of information. Annette Lesmollmann believes that Wikipedia is an important part of the science communication realm and a 'valuable knowledge source open to everyone' [21] (p. 676). She also indicates that Wikipedia is a more reliable and high-quality source of scientific information than other social media platforms. The advantages of Wikipedia, compared with other social networks, are its numerous rules and quality management, as well as the fact that it has transparent criteria for editing and publication [21].

Meseguer-Artola et al. investigated the main factors that influence the teaching uses of Wikipedia among university faculty at the Universitat Oberta de Catalunya [22]. Eight hundred professors from this university, which uses a full online learning approach, completed the survey in 2012. After data analysis, it was found that these faculty members had a strong positive perception of Wikipedia's quality. Also, Aibar et al. investigated the perceptions and attitudes of 913 faculty members at two Catalan universities towards Wikipedia [6]. By using a survey as a research method, they established that almost half of the respondents saw Wikipedia as a useful teaching resource and that a striking majority of respondents gave positive answers in relation to the quality and reliability of Wikipedia articles. More than half of the respondents regularly used Wikipedia for personal and academic matters (62.6% and 55.3%). Another interesting finding was that among faculty

members from these Catalan universities, 13.5% were registered users of Wikipedia, which is a considerably higher percentage in comparison with the 0.4% of registered Wikipedia users in the general population of Catalonia [6]. This finding indicates that faculty members recognize the educational value of Wikipedia and that many also contribute to it by registering as members so that they can have more convenient conditions for editing its articles. This is in strong contrast with previous negative attitudes and practices of faculty members in relation to Wikipedia. Another study that indicates a somewhat different attitude in academic circles towards Wikipedia is the study about attitudes and experiences of faculty members and students at Josip Juraj Strossmayer University in Osijek (Croatia). In that study, which is one of the very rare studies of Wikipedia by scholars from Croatia, it was established that students had a more positive opinion about Wikipedia than faculty members and that 6.6% of faculty members used Wikipedia frequently for their teaching activities, while 39.6% of them used it occasionally [11]. Also, only 2.2% of faculty members used Wikipedia frequently related to their scientific activities, and 22% of them used it occasionally. The majority of faculty members had a high level of agreement with the statement 'Accuracy and objectivity of data in articles on Wikipedia is questionable because anyone can edit and change them.' [11]. Wikipedia in the Croatian language was created in 2003 [23]. On 24 May 2024, it had 220,619 articles, 13 admins, 512 active users, and 313,467 users [24]. Wikipedia admins or administrators are Wikipedia editors who have the technical ability to perform certain actions on Wikipedia including the ability to block user accounts and IP addresses from editing, protect pages from editing, edit fully protected pages, delete and rename pages, etc. [25,26]. Active users are registered Wikipedia users who have performed an action, such as adding text to Wikipedia articles, in the last 30 days [27]. Wikipedia users are people who have registered a username on Wikipedia. The majority of users do not contribute regularly to Wikipedia [28]. We can compare the stated statistical data for Wikipedia in the Croatian language with the same type of statistical data for several Wikipedias in languages used in Eastern Europe. The following statistical data were found on Wikipedia on 24 May 2024 [24]. Wikipedia in the Slovenian language was created in 2002 [29]. It has 185,282 articles, 22 admins, 315 active users, and 232,653 users. Wikipedia in the Bosnian language was created in 2002 [30]. It has 93,486 articles, 9 admins, 126 active users, and 161,395 users. Wikipedia in the Serbian language was created in 2003 [31]. It has 689,506 articles, 15 admins, 1417 active users, and 370,844 users. Also, in 2002, Wikipedia in the Serbo-Croatian language was created [32]. It has 459,534 articles, 9 admins, 190 active users, and 213,765 users. The Hungarian-language Wikipedia was created in 2003 [33]. It has 542,252 articles, 25 admins, 1536 active users, and 562,590 users. Wikipedia in the Czech language was created in 2002 [34]. It has 546,839 articles, 32 admins, 2033 active users, and 661,559 users. Finally, the Polish-language Wikipedia was created in 2001, that is, in the same year during which the first Wikipedia was created on the web [35,36]. Wikipedia in the Polish language has 1,616,280 articles, 98 admins, 4454 active users, and 1,309,086 users. Various language versions of Wikipedia have different numbers of speakers of that language. The indicator for the activity level of speakers of a particular language in editing Wikipedia is the number of Wikipedia articles per 1000 speakers of a particular language. If we rank the previously mentioned language editions of Wikipedia according to this indicator, we can see that the most active editors of Wikipedia are Slovenian language speakers because there are 88.82 articles per 1000 speakers of Slovenian language. The Slovenian-language Wikipedia is followed by Wikipedia in the Serbian language with 76.95 articles per 1000 speakers, Wikipedia in the Hungarian language (43 articles per 1000 speakers), Wiki. in the Polish lang. (41.78), Wiki. in the Czech lang. (40.87), Wiki. in the Bosnian lang. (42.01), Wiki. in the Croatian lang. (38.33), and Wiki. in the Serbo-Croatian lang. (26.94) [37]. From these data, we can see that Wikipedia in the Croatian language, compared with almost all other listed Wikipedia editions, has the lowest number of articles per 1000 speakers. However, it should be noted that this value is similar to Wikipedia in the following languages: Hungarian, Polish, Czech, and Bosnian. Wikipedias in the Slovenian and Serbian languages have approximately twice

as many articles per 1000 speakers as compared with the other listed Eastern European language Wikipedias. 'Depth' is another important indicator of individual language editions of Wikipedia. This indicator tells us about how frequently Wikipedia articles are updated [38]. If we rank the previously mentioned Eastern European language editions of Wikipedia according to the 'depth' indicator, we can see that articles on Wikipedia in the Serbo-Croatian language were most frequently updated—on 24 May 2024, the recorded value of the 'depth' indicator was 749. This Wikipedia was followed by Wikipedia in the Serbian language with a value of 167, Wikipedia in the Bosnian language (86), Wiki. in the Hungarian lang. (60), Wiki. in the Czech lang. (50), Wiki. in the Polish lang. (33), Wiki. in the Slovenian lang. (31), and Wiki. in the Croatian lang. (18). From these data, we can see that articles on Wikipedia in the Croatian language are the least frequently updated because the depth value of this Wikipedia is 18. One important element that should be noted is that the Croatian Wikipedia in the period from 2011 to 2020 'was taken over by a small group of administrators who introduced far-right bias and outright disinformation. Dissenting editorial voices were reverted, banned, and blocked' [39] (p. 612). In this situation, many of Wikipedia's principles related to neutrality, verifiability, and reliability were violated, which reduced the confidence of the readers of this Wikipedia in the accuracy of its contents. However, by 2020, through efforts of the volunteer editor community, many biased administrators had been removed or banned from their positions, which has enabled the creation of a less biased contributing environment for other editors and less biased articles for readers [39]. Nemanja Rajcic explored the differences among Wikipedia editions in the following languages: Serbian, Croatian, Bosnian, Slovenian, and Serbo-Croatian [40]. By analyzing articles about famous persons from Serbia, Croatia, Bosnia and Herzegovina, and Slovenia, he determined that 'the collaborative principle, which is one of the five pillars of Wikipedia, is rarely enforced and weakly utilized in the context of Wikipedia's from the Balkan region' [40] (p. 78). For example, many articles were written by only one editor and did not have much editing activity by editors. There are only a couple of articles with more than 10 edits. Also, the verifiability of information in articles about famous persons from other countries is not high. There is not much referencing or external linking to these articles. For example, Wikipedia in the Croatian language has many more references in articles about famous persons from Croatia than in articles about famous persons from neighboring countries. A similar situation related to the inadequate verifiability of articles about famous persons from other countries is also present in other language editions of Wikipedia explored in the research [40]. Manca Noč and Maja Zumer examined the quality of 122 featured articles from Slovene Wikipedia from 2009, 2010, and 2011. Featured articles are the best articles on Wikipedia, according to Wikipedia editors. They found that most of these 122 articles, about 75%, were adapted from the English Wikipedia [41]. Also, these adapted featured articles were problematic with regard to verifiability because they 'cite far too many sources that are definitely not available in the Slovene language and are less available in Slovenia' [41] (pp. 69–70). To alleviate this situation in the future, the authors suggested a change to Wikipedia's 'Manual of style for featured articles', where the recommendation is added that each candidate for a featured article should have 25% or more Slovene sources and articles about local topics should have 50% or more Slovene sources [41].

Wikipedia can also be used as a valuable digital pedagogy tool. It can be used by students and other users as a platform for active learning and the acquisition of knowledge and skills through various activities in the evaluation and improvement of its contents. A lot of the literature confirms and describes the value of Wikipedia as a learning tool. For example, Soler-Adillon, Pavlovic, and Freixa indicate that previous research has identified two reasons for introducing Wikipedia in the classroom. Firstly, the use of Wikipedia in the classroom can enhance students' literacy skills. Secondly, the content that students add to and enhance on Wikipedia instantly becomes visible to Wikipedia users around the world [42]. This is an additional motivation for students to engage in activities on Wikipedia as efficiently as possible. One of the issues of the scientific magazine '*Studies in Higher Educa-*

tion' from 2020 was entirely dedicated to the following topic 'Wikipedia in higher education: practice what you teach'. This special issue of the magazine presents a series of studies demonstrating that higher education students who use Wikipedia are 'able to better understand the mechanisms of collaborative research and writing; practice participatory writing skills; understand the gender dynamics of Wikipedia and address these problems in practical ways' [43] (p. 947). Martín-García, Almaraz-Menéndez, and López-Esteban write that 'Wikipedia has gone from being one of the great enemies of education to becoming a great ally, especially thanks to the degree of rigor and organization it has achieved' [44] (p. 45). At the same time, they draw attention to the fact that today, Wikipedia is much more present at universities, providing teachers with numerous opportunities for educational innovation. They also describe a project started in 2013 at the University of Salamanca in which 100 professors and 584 students created 1752 Wikipedia articles. The important motivation for students participating in this project was that by publishing articles on Wikipedia, they could present their academic activities to a global audience. At the same time, a large university community was created whose members became familiar with the procedures and rules of Wikipedia editing, as well as with teaching and learning methodologies that can be used in future, similar projects [44]. Many other Wikipedia improvement projects by students have been carried out as part of university courses around the world. Information on over 500 of such projects and advice for professors and students who plan to participate in similar projects are available on the websites of Wikipedia and the organization Wiki Education [45–47]. There, information is available on more than 500 of such projects that were implemented since 2002, which, to date, have been carried out in more than 30 countries around the world and have involved several hundred professors and over 4500 students who, through these projects, have expanded and improved the contents of more than 6000 Wikipedia articles [48]. On the websites of organizations, such as Wiki Education, teachers and students involved in such projects or interested in starting them are provided with various instructions and ideas for their implementation [49–53]. Carmichael and Klock describe various Wikimedia assignments that students had to make during the course 'Natural Disturbances and Society' held at Louisiana State University (USA). It should be noted that more than 600 students from Louisiana State University had various Wikimedia assignments in 32 courses since 2014 [54]. Editing Wikipedia articles can help students and other contributors develop various skills, such as 'assessing accuracy of content; identifying needs of a target audience; using online technology and netiquette; applying and developing information literacy in the sciences; understanding scientific concepts' [54] (p. 282). Apart from these, there are other benefits of Wikipedia editing. For example, in 2018, students from a university in the Midwest USA participated in a Wikipedia edit-a-thon in order to write content about Haitian art, 19th-century women artists, and art educators. Their professors indicated that during this process, the students 'learned that authentic scholarship is collaborative, and that Wikipedia—and peer teaching and editing—are as significant sources of knowledge as a teacher or text' [55] (p. 23).

3. Participation of Academics in Writing Wikipedia Articles

Certainly, there are members of faculty staff at higher education institutions who edit Wikipedia articles. However, it is unclear what percentage of faculty staff in different countries have participated in editing Wikipedia articles. As we already mentioned, Aibar et al. investigated the perceptions and attitudes of 913 faculty members at two Catalan universities towards Wikipedia. They found that 13.5% of respondents were registered users of Wikipedia. It can be assumed that many of them edited Wikipedia articles. Namely, the main reason for someone to register as a member of Wikipedia is to have more convenient conditions for editing its articles [6]. However, in countries such as Croatia, there are no studies that explore this issue. Therefore, the percentage of Croatian academics who edit Wikipedia is unknown. Konieczny wrote that relatively few academics participate in Wikipedia editing. There are many reasons for that including a lack of career or financial incentives; unfamiliarity with Wikipedia procedures, rules, and norms; a controversial model

of knowledge creation, where anyone can edit Wikipedia; negative experiences during the Wikipedia editing (i.e., declined submissions by anonymous Wikipedia reviewers); editors' contributions are frequently anonymous, without a need for the editor to have credentials related to the edited topic; and a negative attitude toward knowledge produced outside academia [10]. For example, sometimes people will try to edit some contents of Wikipedia with the claim that they are experts with academic status. However, the problem with this approach is that at Wikipedia, it is difficult to verify one's status, be it academic or otherwise. In addition, Wikipedia norms and rules are more important than the status of the editor. Therefore, anyone who wants to edit some part of Wikipedia needs to know these rules and norms very well and adhere to them [10]. Eijkman conducted a study about the attitudes of academics to Wikipedia. Ninety-nine academics from universities in Australia, Canada, the U.K., and South Africa completed the full survey. It was found that 'Wikipedia continues to be a divisive issue among academics, particularly within the soft sciences' [56] (p. 173). An important factor that can demotivate academics from participating in Wikipedia editing is that contributing to Wikipedia will not boost an academic's career. Konieczny suggested that not recognizing the advantages that Wikipedia editing can bring to academics and their institutions, advantages such as their better visibility and impact in public and academic circles, is a major failure on academia's administrative side: '. . .contributing to Wikipedia is one of the most efficient ways for scholars to have their research noticed by the general public. (. . .) The public reads Wikipedia, Wikipedia encourages its writers to cite reliable, scholarly research, and experts want to be impactful—as do the institutions that employ them. But few scholars, and even fewer university administrators, seem to follow this line of thinking to its logical conclusion.' [10] (p. 163). Various factors could motivate academics to become Wikipedia editors. We already mentioned that an important motivation for many who contribute to Wikipedia is an appreciation for sharing knowledge, an appreciation for the education of others, and support for open access and similar concepts [10]. Sharing knowledge and appreciation for the education of others are the foundational characteristics of all research and teaching institutions. Also, open-access principles, policies, and practices are today accepted by many of these institutions and their employees. Therefore, it could be concluded that many academics will be motivated to edit Wikipedia because they share these values and consider Wikipedia as a platform that can be very helpful for the advancement of knowledge sharing, education, and the Open Access movement. In addition, it is worth noting that important Wikipedia policies and principles are very similar to those in the academic field. For example, the importance attached to the verifiability policy on Wikipedia and the need to add references to quality, reliable sources of information based on which Wikipedia articles are edited [14]. Another reason for participation in Wikipedia editing is that this activity will not only improve this online encyclopedia, but the person will also improve their own skills and fund of knowledge, skills such as assessing the accuracy of content, using online technology and netiquette, integrating information from various courses and sources, and collaborating effectively with peers and editors [54].

Finally, to conclude the literature review part of this paper, there is one more aspect that is worth mentioning, which is the responsibility of academics for public interests. In an age when we are surrounded by fake news, in an age when the intentional, massive sharing of wrong information by various organizations leads to deception and manipulation of the public with the aim of achieving various interests, academics are the ones who can contribute to the accurate, impartial, and multidimensional presentation of various phenomena. Their traditional ways of working—holding lectures and publishing books and peer-reviewed papers—are still very important for spreading knowledge and skills to students and the general public. However, they now have at their disposal platforms such as Wikipedia, through which they can significantly increase the reach of their academic activities to the public. In this sense, greater participation and sharing of knowledge by academics on popular web platforms such as Wikipedia can certainly contribute to the creation of a healthier, more informed public sphere.

Each language version of Wikipedia has many articles that are comprehensive and of high quality, but there are also many articles that are poorly written in various aspects or do not contain enough content. This is indicated by various studies that investigated the quality of Wikipedia articles. One of these studies is related to the research on the quality of citations in articles about the national history of 50 countries. The research results led to the conclusion that the quality is much lower than in peer-reviewed articles from scientific journals in the field of history. The authors of that study remind us of Roy Rosenzweig's words: '. . .if Wikipedia is becoming the family encyclopedia for the twenty-first century, historians probably have a professional obligation to make it as good as possible' [57] (p. 720). Regarding the topic of the relationship between Wikipedia and academics, whether historians, academics from some other field of science, or even librarians, it is worth mentioning the opinion of Luyt and Tan that 'instead of disparaging Wikipedia, we should be probing its weaknesses to find ways to improve it. And if historians have a special responsibility to improve history writing on Wikipedia, there is also room for librarians as well, and not just in the field of history, but other subjects too.' [57] (p. 719). These thoughts and recommendations certainly encourage a positive answer to the question of whether academics should be more actively involved in the editing of Wikipedia articles in order to improve the contents of this popular online encyclopedia.

4. Materials and Methods

The goal of this study was to investigate the practices and attitudes of the research and teaching staff at the University of Split about the online encyclopedia Wikipedia, including its use in teaching and research, as well as the possibilities of supplementing it with content by the research and teaching staff. To acquire insights, data were gathered through a survey by questionnaire administered to the teaching and research staff at the following faculties of the University of Split:

Faculty of Humanities and Social Sciences; Faculty of Electrical Engineering, Mechanical Engineering, and Naval Architecture; Faculty of Law; Faculty of Civil Engineering, Architecture, and Geodesy; Faculty of Science; Faculty of Maritime Studies; University Department of Health Studies; Faculty of Economics, Business and Tourism; Faculty of Chemistry and Technology; Faculty of Kinesiology; and University Department of Marine Studies [58–69].

The questionnaire was made available on the web on 15 February 2024. E-mails with a request to participate in the survey were sent to 953 faculty employees with teaching and research responsibilities. These e-mails were sent twice, several days apart, to encourage the faculty employees who did not complete the survey after receiving the first e-mail to complete the survey. The questionnaire was filled out in full by 226 faculty members in the period from 15 February to 23 February 2024. A response rate of about 23.72% was achieved. According to the data found on the University of Split website, there are 1292 faculty employees with teaching and research responsibilities [70]. This means that 17.49% of the total number of faculty employees with teaching and research responsibilities filled out the survey.

The survey questionnaire had 31 open and closed questions. Some of the questions contained additional questions; therefore, the total number of questions was 57. Among these 57 questions, there were 32 questions in which respondents were asked to choose a grade that most precisely indicated their level of support for a specific statement. Participants had to choose one grade from the following range: one, two, three, four, and five. The grade 'one' indicated that the respondent completely disagreed with the specific statement, while the grade 'five' indicated that the respondent completely agreed with the specific statement.

The questions were based on the literature review, as well as on the personal insights and experiences of the author of this paper, who works at a Croatian university as a lecturer and researcher. The survey questions were related to the following: (a) demographic data of respondents; (b) practices and attitudes of respondents related to the use of web

sources of literature; (c) respondents' practices and attitudes about Wikipedia in general; and (d) practices and attitudes of respondents related to the use and writing of Wikipedia articles. The survey was anonymous, which aimed to encourage respondents to be more open in their answers.

The University of Split was founded in 1974 [71]. Today, about 20,000 students study at the University of Split in 11 faculties, one art academy, and four university departments. Also, the University of Split has over 180 study programs in various fields of science and the field of art [72]. Among the universities in Croatia, the University of Split ranks second in terms of number of students, right after the University of Zagreb, which has around 65,000 students [73].

5. Results

5.1. Demographic Data

Out of 226 respondents, most of them are from the field of technical sciences (77 or 34.07%), followed by the field of social sciences (44 or 19.47%), humanities (41 or 18.4%), natural sciences (32 or 14.16%), biomedicine and healthcare (16 or 7.08%), and biotechnological sciences (8 or 3.54%). The least number of respondents is from the interdisciplinary field (7 or 3.1%).

Most respondents are employed as assistant professors (59 or 26.11%), followed by associate professors (39 or 17.26%), assistants (34 or 15.04%), teaching positions (29 or 12.83%), full professors in permanent titles (26 or 11.5%), and full professors (22 or 9.73%). The lowest number of respondents are employed as senior assistants, i.e., postdoctoral fellows (13 or 5.75%). Most respondents are aged 40 to 49 (78 or 34.51%), followed by respondents aged 30 to 39 (59 or 26.11%), respondents aged 50 to 59 (55 or 24.34%), and respondents aged 60 years and older (23 or 10.18%). The lowest number of respondents is between the ages of 20 and 29 (11 or 4.87%). Among the respondents, there is a noticeably higher number of women (141 or 62.39%) compared with the number of men (85 or 37.61%).

5.2. Web Sources of Literature

The majority of respondents very often read and download scientific works via the Internet (Figure 1). Overall, 32.74% of respondents download scientific works every day, and 38.94% download works several times a week. Only 1.77% of respondents never use the Internet to read or download scientific papers. These data tell us that among the respondents, the Internet is widely used for reading and downloading scientific papers.

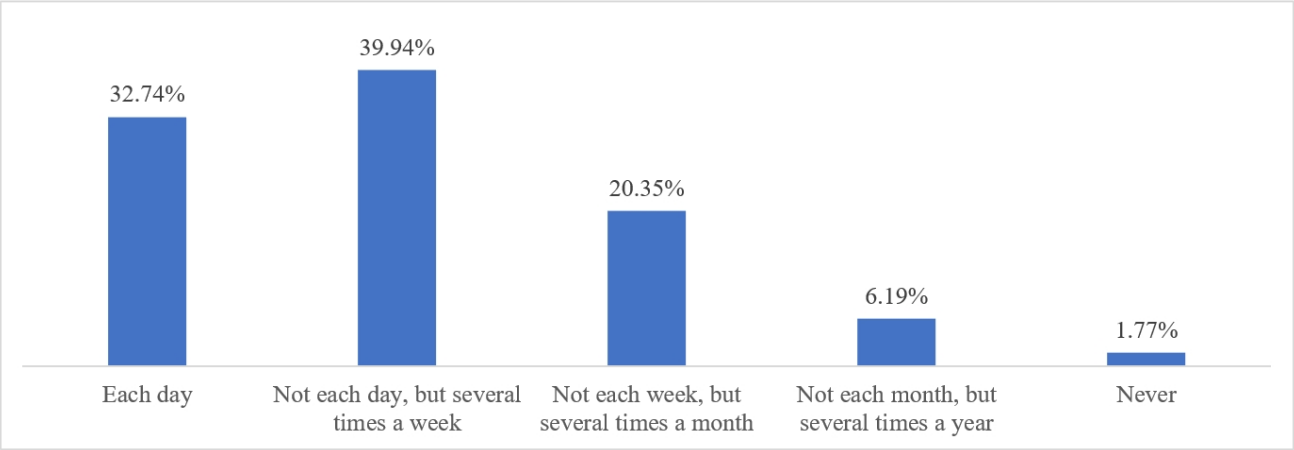

Figure 1. Frequency of using the Internet to read and download scientific papers.

On the Internet, respondents mostly use foreign web portals to access scientific and professional papers. We can see this from the grades they gave regarding claims about the use of different types of web portals (Table 1). A large share, amounting to 61.06% of respondents, gave a grade of 5 to the statement that they use foreign web portals

to access scientific and professional papers. A grade of 5 indicates the highest level of agreement with the statement, and a grade of 1 indicates the lowest level of agreement with the statement. Also, 22.57% of respondents gave this statement a grade of 4, which also indicates a strong agreement with this statement. If the percentages of respondents who graded their agreement with statement 1 as grades 4 and 5 are added up, the total percentage of those respondents is as high as 83.63%—therefore, it can be concluded that a vast majority of respondents completely or almost completely agree with statement 1, indicating that foreign web portals are very important for respondents to access scientific and professional papers.

Table 1. The frequency of using different web portals for accessing scientific and professional papers.

To what extent do you access scientific and professional papers through the following types of web portals?					
1. Croatian web portals (e.g., Hrčak portal, Croatian library portals…)					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
12.83%	19.47%	15.93%	14.16%	36.73%	0.88%
2. Foreign web portals (e.g., Scopus, Web of Science, Google Scholar…)					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
2.21%	3.98%	9.29%	22.57%	61.06%	0.88%

In second place in terms of frequency of use, are Croatian web portals—36.73% of respondents gave a grade of 5 to statement 2 about their use of Croatian web portals to access scientific and professional papers. Also, 14.16% of respondents gave this statement a grade of 4. It can be concluded that the majority of respondents completely or almost completely agree with statement 2 that they use Croatian web portals to access scientific and professional papers. This means that Croatian web portals are very important for respondents to access scientific and professional papers; but still, on average, they are less frequently used by respondents than foreign web portals.

As for the individual web portals through which the respondents access scientific papers, the most popular are Google Scholar and Scopus (Table 2). Approximately 63% of the respondents gave grades of 4 and 5 to the statements that they use these portals. Hrčak—the portal of Croatian scientific and professional journals—is also a very popular source for respondents, for which 50% of respondents gave grades of 4 and 5 to the statement that they use this portal [74]. This means that the Croatian portal Hrčak is not far behind in usage compared with the globally popular Google Scholar portal. A smaller share of respondents uses the portals 'DOAJ—Directory of Open Access Journals', and 'Portal of electronic resources' at the National and University Library in Zagreb (Croatia).

Respondents also had the option to name some other web portals that they often use to access scientific papers, and 18.58% of respondents used this option. Most respondents stated that they use Research Gate (seven respondents), followed by Web of Science (six), Google (four), Pubmed (three), IEEE Xplore (two), Archive.org (two), Google Books (two), and ScienceDirect (two).

As we can see in Table 3, almost all respondents strongly support the statement that all scientific works should be freely available on the Internet to all interested parties without the need to pay subscriptions for databases—74.34% of respondents completely agree with this statement (grade 5), while 12.39% of respondents almost completely agree with this statement (grade 4). Additionally, almost all respondents strongly support the statement that they are acquainted with the existence of the 'Open Access' movement. These data indicate that the vast majority of respondents are acquainted with the existence of the 'Open Access' movement and that the vast majority of respondents support one of its fundamental postulates that all scientific works should be freely available on the Internet without the need to pay for access.

Table 2. The frequency of using specific web portals to access scientific papers.

To what extent do you access scientific papers through the following web portals?					
1. Google Scholar					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
4.42%	7.52%	21.68%	25.66%	37.61%	3.10%
2. Scopus					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
7.08%	7.08%	20.35%	30.97%	31.86%	2.65%
3. Hrčak—portal of Croatian scientific and professional journals					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
12.39%	11.50%	23.89%	15.04%	34.96%	2.21%
4. 'Portal of electronic resources' within the National and University Library in Zagreb (Croatia)					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
21.24%	19.47%	24.78%	15.04%	16.81%	2.65%
5. DOAJ—Directory of Open Access Journals					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
21.24%	15.93%	25.66%	18.14%	14.16%	4.87%

Table 3. Statements related to open access.

1. All scientific works should be freely available on the Internet to all interested parties without the need to pay subscriptions for databases					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
1.77%	2.21%	7.08%	12.39%	74.34%	2.21%
2. Most of the scientific and professional works of which I am (co)author are freely available on the Internet					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
3.54%	11.95%	17.26%	21.68%	42.48%	3.10%
3. I am acquinted with the existence of the 'Open Access' movement, which aims to achieve free access to scientific and professional works					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
3.54%	1.77%	5.75%	7.52%	79.65%	1.77%

Also, 42.48% of respondents completely agree with the statement that most of the scientific and professional works of which they are (co)authors are freely available on the Internet, while 21.68% of respondents almost completely agree with this statement (grade 4).

5.3. Respondents' Practices and Attitudes about Wikipedia

The majority of the respondents do not use Wikipedia every day, nor several times a week, but about a third of the respondents use it several times a month, and about a third of the respondents use it only a few times a year (Figure 2). However, only 6.19% of respondents never use Wikipedia.

One of the research findings is that the largest number of respondents uses the English version of Wikipedia—85.84% or 194 respondents—while the Croatian version of Wikipedia is used by a much smaller percentage of respondents—65.93% or 149 respondents. These data also tell us that the large majority of respondents understand the English language. These data also indicate that the English-language Wikipedia has certain qualities that attract a larger share of respondents compared with the Croatian-language Wikipedia.

Versions of Wikipedia in other languages are used by significantly fewer respondents as follows: Italian-language Wikipedia—10 respondents, German-language Wikipedia—10 respondents, Spanish-language Wikipedia—5 respondents, French-language Wikipedia—5 respondents, Serbian-language Wikipedia—2 respondents, Portuguese-language Wikipedia—1 respondent, and Slovenian-language Wikipedia—1 respondent.

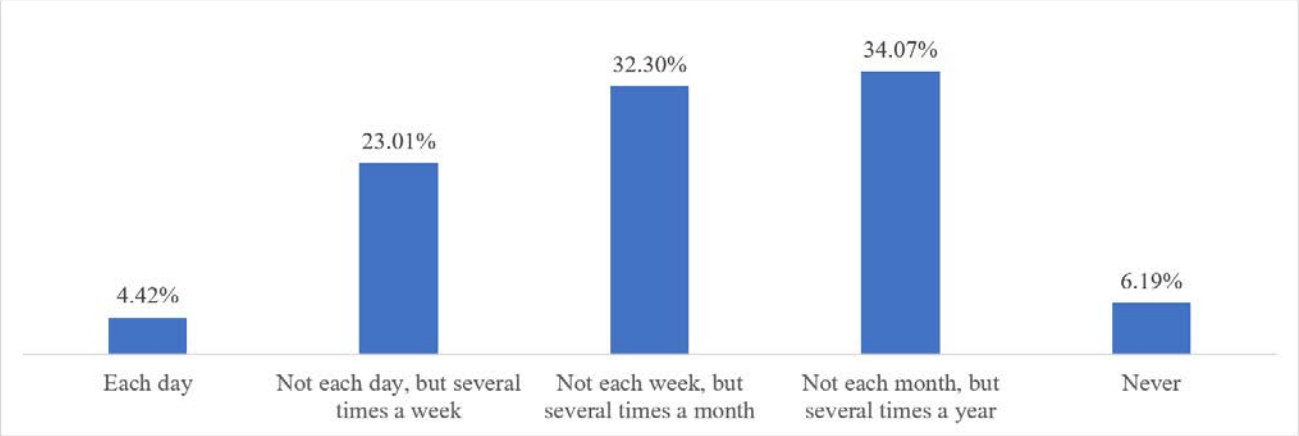

Figure 2. Frequency of reading Wikipedia articles.

As we can see in Table 4, more than half of the respondents strongly or completely agree with statement 1 that while they are reading articles on Wikipedia, sometimes they study the references based on which the articles were written. Only 13.72% of respondents completely or strongly disagree with statement 1 (grades 1 and 2). In addition, more than half of the respondents strongly or completely agree with statement 2 that while reading articles on Wikipedia, sometimes, following the references, they also read some texts based on which the articles were written. Only 17.7% of respondents completely or strongly disagree with statement 2 (grades 1 and 2).

Table 4. Exploration of Wikipedia references.

1. While reading the articles on Wikipedia, sometimes I study references on the basis of which the articles were written					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
5.75%	7.96%	13.72%	22.57%	38.05%	11.95%
2. While reading the articles on Wikipedia, sometimes, following the references, I also read some texts on the basis of which the articles were written					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
7.08%	10.62%	13.72%	23.89%	30.97%	13.72%

Respondents who read Wikipedia had the opportunity to state the main reasons why they do so. This question was answered by 80.53% of the respondents, and the most common reasons they cited for reading are that Wikipedia serves to inform them, that it provides quick and easy access to information, and that it helps them find basic information about the topic they are interested in. In today's world where we are bombarded with information and topics from various sides, many of which we have not had the opportunity or time to encounter before, these research findings indicate that Wikipedia is used by many respondents as the accessible starting information point for basic, orientational information gathering. The following respondents' statements confirm that Wikipedia is used because of its speed, simplicity, and general insight into many topics:

- A good general source of information provided that this information is not accepted as absolute facts.
- Considering its easy accessibility, coverage of a wide area, and almost always being among the first results of web search engines, I consider it good for getting to know a certain topic.

- I use it when I want to find an explanation of an insufficiently clear term or when I want to get to know the facts about what the person I'm interested in has been dealing with professionally.
- It is the shortest way to obtain basic information about an unknown term. According to personal experience, the information is 90% accurate.

Also, respondents often stated that their reason for reading Wikipedia is that links to articles on Wikipedia often appear in search results when using web search engines.

One of the frequently cited reasons for reading Wikipedia is that references in Wikipedia articles help respondents find additional sources of information related to topics of interest. The following statement from one respondent speaks about the use of Wikipedia because of the possibility of finding further research on the topic by following the references in Wikipedia articles:

- Well-written texts on Wikipedia (you can find everything from very bad to very good on this portal) always end by citing the sources from where what is written was taken, and then I go to those sources and use them exclusively.

Also, respondents use Wikipedia both in their work and private life. The following respondents' statements refer to the use of Wikipedia for work purposes:

- Sometimes I check some information, and it serves as a landmark for a historical and cultural course.
- As a rule, I read texts on Wikipedia when students' written term papers refer me to it, because students often use Wikipedia as a source in their term papers, even though they are advised not to do so as a rule.
- I use Wikipedia to find simpler concepts and references for explaining more complex physical systems to students.
- As a main source of information, I use published scientific articles, but if I need to find a term quickly and in Croatian, I enter it in the search engine and the first link is usually Wikipedia. I mostly use it for certain biochemical terms, medical conditions, or diseases that I would like to know more about.
- Scientific—help in preparing lectures, checking the data of final and graduate theses, and writing your own papers.

The following respondents' statements refer to the use of Wikipedia for private purposes:

- I can quickly obtain information that is often of sufficient quality; I mainly use it for information that is not from my profession.
- Gives great insight into certain areas where I am not an expert.
- I do not read it for the purposes of scientific and teaching work, except in the case of obtaining faster information about the year of birth and death of a certain person. I use it most often for information about things that interest me in my free time, for example, for information about music albums and the like.

The following respondents' statements refer to the use of Wikipedia for private and work purposes:

- Mainly for expanding general knowledge, but relatively often also due to workplace needs.
- I read it because I believe that the information I come across is correct, because I check it from several sources. Also, Wikipedia usually lists the source in small letters below the main text. My use is not directly related only to work, but also hobbies (computers, game consoles, the car industry, music, history, art, etc.).

Less often, respondents cited the following reasons for using Wikipedia:

- Credible source of information; verification of data and opinions; defining unknown terms; informing about less important topics; the comprehensiveness and variety of topics it contains; finding information that is then passed on to children in the family or at work; useful, comprehensive, and detailed information; and learning.

Respondents who do not read Wikipedia had the opportunity to state the main reasons why they do not read it. Only 27.88% of respondents answered this question, and the explanation for the relatively small percentage of respondents who answered is that, as we could see in the answers to the previous questions, most of the respondents read Wikipedia. Among those who do not read Wikipedia and who answered about the reasons for not reading it, most of them stated that the main reason for not reading it is that they consider it unreliable or inaccurate and therefore use other more reliable sources. The following respondents' statements refer to the non-use of Wikipedia because of its unreliability or inaccuracy:

- I do not use it because I am not sure of the accuracy of the data, and I have the possibility of using verified literature.
- Depending on the field under consideration, Wikipedia is an unreliable source, so it is better to avoid it.
- I read it very selectively because I know it does not always offer valid information.
- I do not use Wikipedia texts related to scientific and teaching work, given that I make sure that the information is verified (despite the fact that many articles on Wikipedia, especially in English, are well-founded and extensive). Even for the purpose of entertainment, I do not rely on articles on Croatian Wikipedia that deal with national history.

Less often, respondents gave the following reasons for not reading Wikipedia:

- Contains superficial, trivial, biased information and unverified content; not relevant and updated; anyone can write articles; does not contain enough information; and the texts are not peer-reviewed and contain wrong references.

We also asked respondents if they use Wikipedia to prepare their lessons and writing their scientific articles. As we can see in Table 5, the vast majority of respondents 'never' or 'rarely' use Wikipedia to prepare their lessons—82.3%. In contrast to that, a very small percentage of respondents 'always' and 'often' use Wikipedia to prepare their lessons—2.21%. In correspondence to these findings, it was also found that almost all respondents 'never' or 'rarely' use Wikipedia to write scientific papers—91.59%.

Table 5. Using Wikipedia in teaching and research.

1. How often do you use Wikipedia to prepare your lessons?				
Never	Rarely	Periodically	Often	Always
38.50%	43.81%	15.49%	2.21%	0%
2. How often do you use Wikipedia to write scientific papers?				
Never	Rarely	Periodically	Often	Always
68.58%	23.01%	7.52%	0.88%	0%

It is clear from these data that the vast majority of respondents do not use Wikipedia to prepare their lessons or write their scientific articles. It can be observed that the non-use of Wikipedia is somewhat more pronounced for writing scientific articles compared with the non-use of Wikipedia for preparing lessons.

As we can see in Table 6, almost half of the respondents strongly or completely agree with statement 1 that the level of accuracy of the information available on Wikipedia is quite high (grades 4 and 5). It can be concluded that there are considerably more respondents who think that the level of accuracy of the information available on Wikipedia is quite high than there are respondents with the opposite opinion.

From the answers related to statements 2 and 3, it can be seen that many more respondents consider Wikipedia useful for students' learning and writing undergraduate and master's theses than respondents who consider it useful for professors' learning and writing scientific and professional papers.

Table 6. Different statements related to the following topics and Wikipedia: accuracy of information; usefulness for learning and writing of students and professors; use for private purposes; and familiarity with the functioning of Wikipedia and with adding content.

1. The level of accuracy of the information available on Wikipedia is quite high					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
3.54%	13.27%	37.61%	33.19%	8.41%	3.98%
2. Wikipedia can be useful for students' learning and writing undergraduate and master's theses					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
9.37%	26.99%	30.09%	22.12%	9.29%	1.77%
3. Wikipedia can be useful for professors' learning and writing scientific and professional papers					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
27.88%	37.61%	21.24%	9.73%	2.65%	0.88%
4. I use Wikipedia primarily for private purposes and not for work-related purposes					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
8.41%	10.18%	18.58%	26.11%	32.74%	3.98%
5. I am very familiar with how Wikipedia works and how to add new content to it					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
21.68%	19.91%	28.32%	12.39%	12.39%	5.31%

With regard to statement 4, the majority of respondents strongly or completely agree with the statement that they use Wikipedia primarily for private purposes but not for work purposes (grades 4 and 5). It can be concluded that the majority of respondents primarily use Wikipedia for private purposes, but also approximately a fifth of respondents disagree with this statement, i.e., it can be assumed that they primarily use Wikipedia for work purposes or use it equally for private and work purposes.

With regard to statement 5, it was found that a significant number of respondents are not very familiar with how Wikipedia works or how to add new content to it.

Table 7 contains data about writing for Wikipedia and learning from Wikipedia. We can see that 8.41% of respondents strongly or completely agree with statement 1 that they would like to write Wikipedia articles on topics from their professional fields (grades 4 and 5). The majority of respondents completely or strongly disagree with this statement (grades 1 and 2). In addition to that, 4.42% of respondents strongly or completely agree with statement 2 that they would like to write Wikipedia articles on topics that are not in their professional fields (grades 4 and 5). The majority of respondents completely or strongly disagree with this statement (grades 1 and 2).

Table 7. Writing for Wikipedia and learning from Wikipedia.

1. I would like to write Wikipedia articles on topics from my professional field					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
43.36%	24.78%	18.14%	4.42%	3.98%	5.31%
2. I would like to write Wikipedia articles on topics outside my professional field					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
61.06%	21.68%	8.41%	2.65%	1.77%	4.42%
3. The texts I read on Wikipedia are often very useful for acquiring new knowledge about topics from my professional field					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
11.50%	29.65%	29.65%	16.37%	4.42%	8.41%
4. The texts I read on Wikipedia are often very useful for acquiring new knowledge about topics outside my professional field					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
2.65%	10.62%	26.11%	35.84%	15.93%	8.85%

These data indicate that the vast majority of respondents would not want to write articles on Wikipedia, whether they are articles on topics from their professional field or articles on topics that are not in their professional fields. But it can be noticed that the respondents are even less likely to write articles on topics that are not in their professional fields.

Regarding the educational activities about the way Wikipedia works and the process of writing texts and developing articles on Wikipedia, it is worth noting that among the questions in the survey, there was a question about the respondents' participation in educational programs whose goals are to familiarize them with the possibilities, procedures, or principles of writing texts for Wikipedia. Only 5 respondents out of 226 participated in educational programs of this type. Thus, there is a large, currently unused space for familiarizing teaching and research staff with the way Wikipedia works and methods of writing texts and adding other content to this online encyclopedia.

As for statement 3 in Table 7, only 20.08% of respondents strongly or completely agree with this statement that the texts they read on Wikipedia are often very useful for acquiring new knowledge about topics from their professional fields (grades 4 and 5). In contrast to that, a significant share of respondents completely or strongly disagree with this statement (grades 1 and 2). In addition to that, with regard to statement 4, the majority of respondents strongly or completely agree with the statement that the texts they read on Wikipedia are often very useful for acquiring new knowledge about topics that are not in their professional fields (grades 4 and 5).

As we can see in Table 8, respondents had an opportunity to express their level of agreement with statements related to the following topics and Wikipedia: educational programs, promotion of knowledge and repositories, and participation of faculty staff.

Table 8. Educational programs for learning to write articles for Wikipedia.

1. I would be interested in participating in educational programs for learning about different aspects of writing articles for Wikipedia					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
30.53%	18.14%	26.55%	15.93%	4.42%	4.42%
2. I would be interested in organizing and conducting educational programs about different aspects of writing articles for Wikipedia, aimed at scientists or students					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
42.48%	20.35%	20.35%	8.41%	3.54%	4.87%

Overall, 20.35% of respondents strongly or completely agree with statement 1 that they would be interested in participating in educational programs for learning about different aspects of writing articles for Wikipedia (grades 4 and 5). In addition to that 11.95% of respondents strongly or completely agree with statement 2 that they would be interested in organizing and conducting educational programs about different aspects of writing articles for Wikipedia aimed at scientists or students (grades 4 and 5).

Out of the total 226 respondents, 14 or 6.19% of them have participated in writing articles for Wikipedia. Some of these respondents answered the question about what types of articles they wrote and what were their reasons for writing those articles. Five respondents wrote texts related to a topic in their field of science (theoretical physics, mathematics...). These respondents mentioned the activities of supplementing Wikipedia articles and writing introductory texts and key concepts from the scientific field they deal with, as well as writing Wikipedia articles for the purpose of researching how Wikipedia works. In addition to these five respondents, one respondent wrote a text about a mathematical method for the purpose of promoting the work of his/her colleagues. Two respondents wrote articles on Wikipedia related to the study program they attended—one respondent wrote an article for Wikipedia in the German language as an assignment during his/her studies, and the other respondent wrote an article on Wikipedia using parts of his/her thesis. Also, two

respondents stated that they corrected errors on Wikipedia, and one respondent stated that he/she wrote texts about key terms related to his/her field of interest in his/her free time (linguistics, history, local history, and geography…).

Four respondents stated that they wrote articles on Wikipedia, but it was not clear from their answers whether they wrote articles about the topics related to the field they deal with at work or some other topics related to interests outside their work. One of the respondents gave the following answer:

- I decided to write or supplement Wikipedia content because, in Croatian, there was either no entry for a certain term or the existing one was outdated or incorrect in part, and I thought it was important for the wider social community so much so that I introduced or corrected it.

One respondent wrote about 'sports facts' on Wikipedia, and the other wrote the 'description of Prosecco' (a type of wine from Dalmatin Croatia). Finally, one respondent wrote a large number of articles in various fields.

Some of the respondents who wrote articles on Wikipedia answered the question about what were their biggest content or technical challenges or problems when writing these articles and how they solved them. Seven respondents answered that they had no challenges or problems when writing articles. This is one of their answers:

- There were no challenges, but I did not continue writing because Croatian Wikipedia was not developing at the expected speed and I lost interest.

Three respondents had certain challenges or problems while writing Wikipedia articles including the following:

- The biggest challenge was to find relevant sources for the topic (a small sports club) because the information available online was limited. I solved that problem by contacting people from the club who gave me the necessary literature.
- There are a lot of problems, from the editorial war of several authors to the large number of unverified data found there, as well as the deliberate distortion of data.
- The creation of graphic representations and use (i.e., the impossibility of using existing ones) due to copyright.

Also, some of the respondents who wrote articles on Wikipedia answered the question of whether they used scientific and professional works to support them in writing these articles. Nine respondents answered affirmatively to this question. This is one of their answers:

- Every real article on Wikipedia should be adequately referenced; unfortunately, in most cases, this is not the case. My works were always adequately accompanied by references.

Only one respondent did not answer this question affirmatively:

- Because of the topic, there was no need to use scientific or professional works, but if the topic had been different, I would definitely have used the sources mentioned.

As previously stated, out of the 226 respondents, most of them have not written articles on Wikipedia—212 respondents or 93.81%. Overall, 141 respondents answered the question asking them to state the main reasons why they did not decide to get involved in that activity. The most frequent reason given by the respondents for not participating in the activity of writing articles on Wikipedia was that they did not have time. After that, a lot of respondents also stated the following reasons:

- I am not interested; I did not think about it; and I had no reason to write Wikipedia articles.

Some respondents also stated the following reasons:

- I do not know how to do it; I did not have the opportunity; Wikipedia is not relevant; it would be too demanding; it is not my priority; no valorization for advancement in the profession; I write in other sources of information; the text would be unclear; I do

not feel like it; there are more competent people for that; I doubt the validity of the whole concept; I am focused on writing scientific and professional papers; it is not my job; I have other jobs; I do not write anything on the Internet either; I do not consider the Wikipedia reliable enough; and superficial approach to the topic.

The reasons for not writing articles for Wikipedia are also explained by the following respondents' statements:

- I think that with my background in mostly writing scientific papers, writing texts on Wikipedia would be very demanding and would be too burdensome with referencing, and the text would probably be unclear to the average reader who does not deal with my topics.
- I think there are more competent people, sub-specialist oriented in the areas that are being written about.
- I never thought at all that I could write for Wikipedia, and in the academic community, Wikipedia is generally perceived as an undesirable source of information.
- I believe that it is work and that it should be approached in detail and responsibly, which I did not have time for, nor did I ever include in my plans.
- I do not know how to publish a text on Wikipedia, and I am not too interested in writing such content.
- I have not had such an idea yet because it seems to me that the site is already full of most of the information
- I often write scientific and professional papers, so, in this way, I satisfy such a need, passion, and interest.
- I still do not consider Wikipedia to be reliable enough to submit or correct texts.

In one of the survey questions, respondents were asked to indicate their levels of agreement with statements about the reasons that motivate them to write articles for Wikipedia. Among the six reasons presented in Table 9, most respondents completely or strongly agree with the following two statements—they agree that they would have the motivation to write articles for Wikipedia if it would be valued for the advancement to a higher work position, and they agree with the statement that they would have the motivation to write articles for Wikipedia if they could correct errors in its articles. After that, most respondents completely or strongly agree with statement 1 that they would be motivated if their writing on Wikipedia would contribute to the dissemination of knowledge in the community and to the popularization of science and the profession in which they work. The next most frequent motive for writing articles is when their writing on Wikipedia would contribute to the presentation of topics on Wikipedia that are not sufficiently represented.

Also, respondents had the opportunity to state some additional reasons that could motivate them to write articles for Wikipedia or to write something additional about that topic. Fifteen respondents responded to this option. Of these, five respondents stated that they would be motivated by some benefit they would gain from writing articles, for example, a financial benefit or a professional benefit, in the sense that this activity is valued during the process of advancement to higher positions. In this regard, we cite the answer of one respondent:

- Given the opportunity cost, i.e., limited time to meet the conditions for promotion, the best motive would be to value this activity for promotion. I am familiar with the way of creating text on Wikipedia, and, considering the influence of Wikipedia, it would be very important for academic institutions with their academic standards to get involved in content creation as much as possible. However, if it is not valued, then academic institutions cannot spend their limited resources on such an activity.

Table 9. Motivation to write articles for Wikipedia.

To what extent could some of these reasons motivate you to write articles for Wikipedia?					
1. Disseminating knowledge in the community and popularizing science and the profession in which I work					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
11.06%	6.64%	23.01%	22.57%	18.58%	18.14%
2. Upgrading my own knowledge					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
13.27%	13.27%	24.34%	15.93%	13.27%	19.91%
3. Correcting errors on Wikipedia					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
11.50%	7.08%	18.14%	25.22%	22.12%	15.93%
4. Presentation of topics on Wikipedia that are not sufficiently represented					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
10.62%	9.73%	24.34%	21.24%	15.93%	18.14%
5. I am motivated to contribute to Wikipedia by the possibility of participating in a useful and interesting activity					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
14.16%	17.26%	23.01%	15.04%	7.96%	22.57%
6. I would have the motivation to write articles for Wikipedia if it would be valued for the advancement to a higher work-position					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
12.83%	7.52%	11.95%	14.16%	33.19%	20.35%
7. There is no reason that can motivate me to write articles for Wikipedia					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
30.97%	15.04%	15.04%	2.65%	10.62%	25.66%

Two respondents answered that their motivation for writing articles on Wikipedia would be if they had more free time at their disposal. One respondent saw the expansion of his/her knowledge and contribution to the general culture as a motivation for writing. One respondent stated that he/she would participate in writing articles on Wikipedia if it was performed as part of a project and if several other colleagues participated in it. Another respondent stated that he/she has not yet thought about writing articles on Wikipedia, while five respondents answered that they would not write articles on Wikipedia for various reasons. For example, one respondent had the following opinion about writing articles on Wikipedia:

- After getting to know Wikipedia and how to work on it, there is no way I can contribute anymore.

Among this group, two respondents preferred to write texts elsewhere, not on Wikipedia:

- I prefer to publish original scientific texts and books that occupy and fulfill me.
- If it is about the popularization of science, I write biographical lexicographical units, for example, in the Croatian Biographical Lexicon.

Table 10 contains data about the role of Wikipedia in the promotion of scientific and professional knowledge and repositories, as well as the participation of university researchers and teaching staff in writing articles on Wikipedia. With regard to statement 1, 32.74% of respondents almost completely or completely agree with the statement that Wikipedia is a very suitable platform for the promotion of scientific and professional

knowledge (grades 4 and 5). In addition to that, 29.65% of respondents almost completely or completely agree with statement 2 that Wikipedia is a very suitable platform for the promotion of scientific and professional repositories, such as the Hrčak portal with articles from Croatian scientific and professional journals (grades 4 and 5).

Table 10. Different statements related to Wikipedia and the following topics: promotion of knowledge and repositories and participation of faculty staff.

1. Wikipedia is a very suitable platform for the promotion of scientific and professional knowledge					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
10.18%	16.37%	36.73%	23.01%	9.73%	3.98%
2. Wikipedia is a very suitable platform for the promotion of scientific and professional repositories, such as the Hrčak portal with articles from Croatian scientific and professional journals					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
12.83%	18.58%	33.19%	20.35%	9.29%	5.75%
3. It would be desirable for university researchers and teaching staff to write articles on Wikipedia with the aim of spreading knowledge about topics from their professional field					
1—Completely disagree	2	3	4	5—Completely agree	Without answer
11.06%	9.29%	30.97%	25.22%	19.91%	3.54%

Based on the respondents' answers related to statements 1 and 2, we can see that there is a significant share of respondents who almost completely or completely agree with these two statements (grades 4 and 5), but also, there is a significant share of respondents who completely or almost completely disagree with these statements (grades 1 and 2).

With regard to statement 3, it is an interesting finding that 45.13% of respondents almost completely or completely agree with the statement that it would be desirable for university researchers and teaching staff to write articles on Wikipedia with the aim of spreading knowledge about topics from their professional fields (grades 4 and 5).

Respondents also had the option to write comments related to the topics covered in the survey or to highlight something that was not covered by the questions in the survey. Thirteen respondents responded to this option. These are several respondents' comments:

- I believe that the survey should have included—in my opinion—the main problem of Wikipedia, which is also the main source of its unreliability, which is the freedom to self-assess the author's competence because people simply immodestly self-assess themselves, that is, they consider themselves competent enough to open a profile and write; this applies especially to Croatian Wikipedia.
- I think that such a simple and freely available open (both in terms of access to readers and in terms of access to authors) encyclopedia is a very good idea and that everyone should have the *opportunity* to write, but I also think that not everyone should get the opportunity to realize that opportunity, and some kind of screening that guarantees the author's competence must exist. Self-correction of the system from other authors apparently does not work.
- I must clarify that Wiki is unfortunately not considered a reliable source, that is why I said that I do not use that source when writing, but I also think that if the academic community were to get involved in the formatting of the texts, it could be a great way to obtain reliable information easy and efficient.
- I am currently at a stage in my life where I do not have time to write on Wikipedia (two small children). But in about 10 years, it would be interesting to me.
- Political and social topics are often quite distorted. The references are, to put it mildly, funny, and the truth of the content is often questionable.

- The English version has some quality, while the Croatian version is at the level of the yellow press (often, the references are articles from the yellow press).
- Wikipedia is a project I grew up with since my student days. At first, it seemed a bit hippie. And now it is one of the main sources of information for smart and AI internet searchers, such as ChatGPT, Bing AI, Bard, etc. I do not like that because Wikipedia has a concept that I never liked: the truth is what the majority say! That is how writing Wikipedia articles works, especially if they turn into a discussion. The majority wins. This means, for example, from the aspect of history, that the history of small nations can always be overcome and written by historians of larger nations because there are more of them. One should search for the objective truth, and not agree on the truth. For me personally, Wikipedia is a potentially very dangerous project!

6. Discussion

In this study, numerous insights were gained about the practices and attitudes of the research and teaching staff at the University of Split, Croatia, regarding the online encyclopedia Wikipedia. This section presents and discusses the implications of the results.

It was found that almost all respondents read articles on Wikipedia. The most common reasons they cited for reading Wikipedia are that it serves to inform them, that it provides quick and easy access to information, and that it helps them find basic information about the topic they are interested in.

Respondents often stated that their reason for reading Wikipedia is that links to articles on Wikipedia often appear in search results when using web search engines. This aspect is closely related to the previously mentioned positive aspect of Wikipedia, namely, that by using this online encyclopedia, information can be found quickly and easily. If the user searches for a topic through a web search engine, such as the Google search engine, and if the user is offered links to Wikipedia articles among the first-listed search results related to that topic, then the user can quickly and easily find relevant content, even when not specifically searching for articles on Wikipedia. The high ranking of links leading to Wikipedia in the search results of web search engines can be influenced by a number of factors, among which are the number of users, the amount of content on Wikipedia, and the representation and visibility of the topic that the user is searching for on Wikipedia. Many language versions of Wikipedia have a lot of users, a lot of content, and the representation of a large number of topics that may be interesting for users to research, so it is not surprising that Wikipedia articles are frequently highly positioned in web search engine results.

It was also confirmed that respondents use Wikipedia both in their work and private life. This finding indicates that Wikipedia can be a useful source of information in different spheres of life. Many general classic, printed encyclopedias certainly have this dual function, but Wikipedia may have a certain advantage over them, in that it is quickly and easily accessible via the Internet, as well as the advantage that, because of the way it was created and its availability on the web, it can present many diverse topics that cover a wide range of work and private interests. Another frequently cited reason for reading Wikipedia is that references in Wikipedia articles help respondents find additional sources of information related to topics of interest. This finding confirms the previously mentioned considerations about the importance of using quality sources based on which Wikipedia is written, as well as placing as many references as possible within Wikipedia text [3,14,16–18,41,54]. In addition, it was found that more than half of the respondents strongly or completely agree with the statement that while they are reading the articles on Wikipedia, sometimes they study references based on which the articles were written. These findings confirm that it is important to use quality sources based on which Wikipedia is written, as well as to place as many references as possible within Wikipedia text. This is also emphasized by the Wikipedia editing rules, in which special attention is paid to the principle of 'verifiability' so that 'other people using the encyclopedia can check that the information comes from a reliable source' [14]. Not only do the quality sources based on which Wikipedia was written enhance the quality of content on this online encyclopedia,

but they also enable users to find and study these sources more easily through Wikipedia articles. However, findings from the study about differences between Wikipedia editions in the Serbian, Croatian, Bosnian, Slovenian, and Serbo-Croatian languages indicate that in these editions of Wikipedia, the verifiability of information in certain types of articles is not high because there is not much referencing of sources used to write these articles [40]. The quantity and quality of references in articles of Wikipedia in the Croatian language is an important issue that should be explored in more detail in future studies. Adding more references to Wikipedia articles and finding quality sources to develop Wikipedia articles could be a valuable contribution of Croatian faculty members to Wikipedia. Their working positions have made them skilled in these activities and aware of their values.

One of the important results of this study is that almost half of the respondents strongly or completely agree with the statement that the level of accuracy of the information available on Wikipedia is quite high. This is an interesting finding, which indicates that Wikipedia has gained the trust of a significant number of respondents for its accuracy. The results of some previous studies conducted outside Croatia are similar to the results of this study with regard to the positive attitudes of faculty members towards the accuracy of Wikipedia. For example, the faculty members at the Universitat Oberta de Catalunya in Spain also have a strong positive perception of Wikipedia's quality [44]. In another study about the attitudes of faculty members of two Catalan universities towards Wikipedia, it was found that a striking majority of respondents gave positive answers in relation to the quality and reliability of Wikipedia articles [6]. It would be valuable to explore the attitudes of Croatian faculty about Wikipedia accuracy by conducting further studies with faculty members of other Croatian higher education institutions. In that way, we could determine whether the results of this study are representative of other Croatian higher education institutions, not only the University of Split. It is worth mentioning that a partly similar study was conducted in Croatia among students and teachers at J. J. Strossmayer University in Osijek. It was found that students at that university had a more positive opinion of Wikipedia than teachers. It was established that the majority of faculty members at Osijek have a high level of agreement with the statement that the accuracy and objectivity of data in articles on Wikipedia are questionable because anyone can edit and change them [11]. However, it needs to be said that the study was conducted in 2016 and, therefore, it is possible that the attitudes of a considerable number of faculty members about this issue could have changed.

In this study about practices and attitudes of the research and teaching staff of the University of Split, it was also established that respondents strongly or completely support the statement that all scientific works should be freely available on the Internet to all interested parties without the need to pay subscriptions for databases. Also, the majority of respondents strongly or completely agree with the statement that most of the scientific and professional works of which they are (co)authors are freely available on the Internet. These findings were seen in the context of many other studies, some of which established that people who support collaborative and open knowledge-creation models have more positive attitudes towards Wikipedia and others that confirmed that an important motivation for many who contribute to Wikipedia is an appreciation for sharing knowledge, appreciation for the education of others, and support for open access and similar concepts [10]. Therefore, it is not surprising that another finding of our study was that almost half of the respondents strongly or completely agree with the statement that it would be desirable for university researchers and teaching staff to write articles on Wikipedia with the aim of spreading knowledge about topics from their professional fields. It could be said that Wikipedia is seen by many respondents as an effective intermediary between the results of scientific research and the broader public—the people who do not read scientific journals in their everyday lives but who frequently browse articles on Wikipedia looking for answers to various questions. Faculty members who share this view could initiate, organize, and conduct Citizen Science projects in which they could cooperate with volunteers from the

general public in the creation and dissemination of new knowledge through Wikipedia and other open, crowdsourcing platforms.

From the survey answers, it could also be seen that a lot more respondents consider Wikipedia useful for students' learning and writing undergraduate and master's theses than respondents who consider it useful for professors' learning and writing scientific and professional papers. A possible explanation for this difference is that more respondents believe that professors' learning and writing scientific and professional papers are activities that, to a greater extent, require the use of more reliable and high-quality sources of information than Wikipedia, compared with the activities of students' learning and writing of undergraduate and master's theses. A lot of the literature, in accordance with these findings, confirms and describes the value of Wikipedia as a learning tool for students. For example, Soler-Adillon, Pavlovic, and Freixa indicated that previous research confirmed that the use of Wikipedia in the classroom can enhance students' literacy skills and that adding and enhancing Wikipedia's content could be a motivating activity for students [42]. Also, Martín-García, Almaraz-Menéndez, and López-Esteban wrote that today, Wikipedia is much more present at universities and that it provides teachers with numerous opportunities for educational innovation [44].

Next, our study showed that significantly more respondents consider Wikipedia very useful for acquiring new knowledge about topics that are not in their professional fields, compared with respondents who consider it very useful for acquiring new knowledge about topics from their professional fields. From this, it can be concluded that it is possible that Wikipedia contains more instructive information about topics that are not in respondents' professional fields or that perhaps Wikipedia also contains instructive information about topics that are in their professional fields but only basic information about which respondents are already familiar. Both of these cases indicate information gaps on Wikipedia that can be filled by having experts write articles that are currently incomplete or non-existent. The teaching and research staff at higher education institutions are experts on various topics, and they could make valuable contributions to the content of Wikipedia. In that way, they could contribute to the dissemination of knowledge in the community and to the popularization of science and the profession in which they work. Also, they could contribute to the presentation of topics on Wikipedia that are not sufficiently represented. Finally, by writing Wikipedia articles, they could upgrade their own knowledge. Although the activity of writing articles on Wikipedia is simple in technical terms, it is much more complex with regard to its intellectual challenges, and, therefore, it can be valuable for the advancement of editors' knowledge. Finally, it is also an activity that could advance editors' skills of clear and meaningful knowledge communication.

It was also found that 8.41% of respondents have high motivation to write Wikipedia articles on topics from their professional fields, and 4.42% of respondents have high motivation to write Wikipedia articles on topics that are not in their professional fields. Although at first glance it may seem that these are not large percentages of respondents, they are nevertheless significant. Namely, previous research about Wikipedia editors indicates that a very small number of Wikipedia editors create a very large amount of content on Wikipedia [75]. Therefore, if the majority of faculty members at the University of Split who have a great motivation for writing articles on Wikipedia were to participate in this activity, it could significantly contribute to the increase in the quantity and quality of the content of this encyclopedia. These highly motivated members could also be initiators and leaders of educational initiatives that could encourage students and members of the wider community to get involved in editing Wikipedia. Also, activities and contributions of highly motivated faculty members could serve as examples and incentives for other faculty members to consider becoming involved in contributing to Wikipedia development.

Most respondents completely or strongly agree with the following two statements—they agree that they would have the motivation to write articles for Wikipedia if it would be valued for the advancement to a higher work position, and they agree with the statement that they would have the motivation to write articles for Wikipedia if they could correct

errors in its articles. Based on these responses, it can be concluded that many respondents, with adequate motivation, could start to write articles on Wikipedia or that they at least could further consider the decision whether to get involved in writing articles on Wikipedia. It should be emphasized that many respondents indicated that they would be particularly motivated to write articles on Wikipedia if this activity would be valued for their advancement to a higher work position. Currently, in Croatia, there is no incentive of this type. The decision to acknowledge the activity of writing articles on Wikipedia as an activity that can support the advancement to a higher work position of university employees could be considered by governing bodies of a specific university, the alliance of universities, the ministry in charge of the field of science and teaching at higher education institutions, or/and some other relevant institutions. This is not an easy decision to make because there are many aspects related to this topic and there are arguments for and against that kind of approach. But one thing is quite certain—if decisions regarding this were to be confirmed, then, at least judging by the responses of the respondents from this survey, many more employees of higher education institutions would be willing to write articles on Wikipedia. Also, if writing articles on Wikipedia is officially recognized in the future by educational authorities, then it will be necessary to have a reliable method for proving of their authorship. Although Wikipedia is an information system on which anyone can write articles anonymously, it is also possible to write articles under one's own name and surname, if the user creates a user account. Given that each Wikipedia article contains a 'view history' link that allows viewing past revisions of that article, anybody can see which specific users have edited a specific article and when these edits were made. In this way, it is possible to prove the authorship of Wikipedia articles.

As it was already said, an equally strong motive for respondents' editing of Wikipedia is to correct errors in its articles. This motivation can be used to encourage the writing of articles on Wikipedia by employees of higher education institutions, by organizing various activities such as workshops or edit-a-thons in which one of the main goals is to search for and correct errors on Wikipedia in the thematic field in which the participants are experts [76]. This can also be performed in the form of a competition to correct errors, which can be an additional incentive to participate in this type of activity. When attracting participants to edit-a-thons or other similar activities, the fact that many respondents have high levels of motivation for writing articles on Wikipedia related to the following aspects of their contribution can also have an impact: contribution to the dissemination of knowledge in the community and to the popularization of science and the profession in which they work and presentation of the topics on Wikipedia that are not sufficiently represented on it. Therefore, these motivations should also be considered when designing the content of activities to encourage and implement the writing of articles on Wikipedia, as well as when describing and promoting these activities. Among the rules for editing Wikipedia, it is written that 'there is an increasing need for the scientific community to engage with Wikipedia to ensure that the information it contains is accurate and current' and that 'for scientists, contributing to Wikipedia is an excellent way of fulfilling public engagement responsibilities and sharing expertise' [15]. This is especially important for editions of Wikipedia that do not have as many editors, articles, and references in articles, as some other more popular and developed editions of Wikipedia. As we saw in one of the previous sections of this article, Croatian-language Wikipedia does not have a very high number of articles per 1000 speakers of Croatian language.

In comparison with Wikipedia editions in the Hungarian, Polish, Czech, and Bosnian languages, and especially in comparison with Wikipedia editions in the Slovenian and Serbian languages, Croatian-language Wikipedia has the lowest number of articles per 1000 speakers [37]. Also, among these Wikipedia editions, articles on Croatian-language Wikipedia are the least frequently updated [38]. Both of these factors could be an additional motivation for some members of the Croatian higher education community to begin to write and enhance articles on Croatian-language Wikipedia.

In this study, it was also found that a significant part of respondents are not very familiar with how Wikipedia works or how to add new content to it. Knowledge about this could help them to better understand various aspects of Wikipedia, to be in a better position to evaluate various phenomena on Wikipedia, to contribute to its development and quality, and to be able to use Wikipedia to share their professional and other knowledge with the wider community. From the respondents' answers, we can see that some respondents would be very willing to participate in educational programs to learn about different aspects of writing articles for Wikipedia, as well as to organize and conduct these types of educational programs. It is not necessary to involve a large number of faculty staff in this type of educational program. In contrast, even a small number of participants who are sufficiently motivated and willing to participate in educational activities of this type can strongly contribute to the development of Wikipedia's content and the creation and encouragement of the creation of new communities of its editors. It should be mentioned that Wikipedia has a sandbox page, where users can experiment with editing. Anything they write will not remain indefinitely on that page, but it will be automatically deleted in regular periods. This is one of the ways to practice various aspects of writing Wikipedia articles. However, the activity of writing Wikipedia articles contains many important aspects that cannot be learned by only using the sandbox page. For example, Wikipedia editors should learn about the guidelines, principles, procedures, and rules for adding various types of content to Wikipedia. They should have a good understanding of the criteria and procedures for including some parts of the content in Wikipedia articles and they should have to learn about Wikipedia's style of writing, the methods and principles of making references in articles, adding images and audiovisual material to Wikipedia articles, logical and successful integration of newly added content with existing content, and so on. Therefore, comprehensive and inspirational educational programs for learning about different aspects of writing and enhancing the quality of Wikipedia articles are required.

7. Conclusions

Wikipedia is one of the most popular websites on the web. Among its authors, there are certainly a lot of employees of higher education institutions who, using their expert knowledge, improve and expand the articles of this online encyclopedia. In this research, the practices and attitudes of the research and teaching staff at the University of Split about the online encyclopedia Wikipedia were investigated.

The results showed that almost all respondents read Wikipedia articles. Also, the results showed that there are respondents who would like to write Wikipedia articles on topics from their professional fields and articles on topics that are not in their professional fields. As already mentioned in a previous part of this paper, a large amount of content on Wikipedia is created by a very small number of editors. Therefore, a small number of faculty staff involved in Wikipedia editing could achieve a great impact regarding the development and improvement of Wikipedia's content. They could make a significant and valuable change to Wikipedia's content with their own editing, and also by encouraging, promoting, and organizing participation in Wikipedia editing by their students and other members of the faculty staff. Additionally, some of the respondents who answered that they would not want to write articles on Wikipedia themselves might change their opinion if they participate in educational programs related to Wikipedia. There was also a finding that a relatively small number of respondents have participated in writing articles for Wikipedia. At the same time, it should be taken into account that compared with employees from other professions in Croatia or compared with the faculty staff of other higher education institutions in Croatia, it is possible that the faculty staff from the University of Split participate significantly more in editing Wikipedia articles. Unfortunately, there are no studies that would allow these comparisons. Respondents stated that in terms of writing articles on Wikipedia, they would be motivated the most if this activity would be valued for the advancement to a higher work position. Currently, in Croatia, there is no incitement of this type. The decision to acknowledge and reward this activity could be considered

and accepted by governing bodies of a specific university or other relevant institutions related to higher education. There are arguments for and against this kind of approach. Judging by the responses of the respondents, if such a decision were to be adopted, it could have a significant impact on increasing the interest of research and teaching staff in higher education institutions to get involved in writing and improving the quality of Wikipedia content. A large number of respondents also stated other strong motivations for getting involved in writing articles on Wikipedia including, first of all, correcting observed mistakes in articles, and then contributing to the spread of knowledge in the community and the popularization of science and their professions. Also, some of them stated that their motive for writing or improving articles on Wikipedia may be to present topics that are not sufficiently represented in this online encyclopedia.

All these motivations for writing articles on Wikipedia should therefore be considered when designing activities to encourage and initiate the writing of articles on Wikipedia, as well as when describing and promoting these activities. The high levels of various types of respondents' motivations are not surprising given that the mission and goals of higher education institutions coincide well with the mission and goals of Wikipedia—members of both communities value the dissemination of knowledge and the popularization of science, the accuracy of information, and the representation of different perspectives and topics. Therefore, it is not surprising to find that almost half of the respondents strongly agree with the statement that it would be desirable for university scientists and teaching staff to write articles on Wikipedia with the aim of spreading knowledge about topics in their professional fields.

The majority of respondents are currently not very familiar with how Wikipedia works or how to add new content to it. Less than 3% of respondents participated in educational programs whose goal was to familiarize them with the possibilities, procedures, or principles of writing texts for Wikipedia.

In such a situation, the following question arises: in which ways could one try to encourage a change in attitude among a larger number of employees of higher education institutions about their own participation in writing articles on Wikipedia? The insights gained through this study can help to illuminate different inter-related aspects of this situation, can be a starting point for more grounded thinking about it, and can support the consideration and initiation of various activities that could help change the attitudes of the faculty staff about their own participation in writing articles on Wikipedia. Also, the insights gained through this study could help to launch activities such as the following: educational workshops about Wikipedia and the creation of its content; educational workshops on the benefits that the incorporation of Wikipedia's content from scientific and professional journals can have on the journals and repositories where these contents are located; edit-a-thons in which a specific thematic group of Wikipedia articles is expanded and qualitatively improved; and initiatives for recognition and formal evaluation of quality contributions to Wikipedia by faculty staff with teaching and research responsibilities.

Finally, it needs to be said that this study has some limitations that should be considered. The first limitation is the survey method used to gather data. When survey respondents answer certain questions, some of them may answer in such a way that presents some of their attitudes or practices in a different way than they really are. Sometimes the individual practices or certain attitudes of respondents could be determined in more detail and more reliably if other research methods are used, such as observing the practices of respondents while using Wikipedia. Another limitation of this research is that the research sample consisted only of respondents from the University of Split. In order to obtain a more representative picture of the practices and attitudes of the research and teaching staff in Croatia about Wikipedia, it is necessary to conduct research with respondents from other Croatian higher education institutions.

Therefore, in future research on Wikipedia, the practices and attitudes of the research and teaching staff of higher education institutions in Croatia, as well as outside Croatia, can be investigated if one wants to determine and compare the situation related to this

topic in several countries. In addition, other research methods can be used in future research in order to determine practices and attitudes about Wikipedia in more detail and more comprehensively. For example, the interview method can be used. When selecting respondents for interviews, one can focus on specific groups of research and teaching employees, for example, on those employees who have already edited Wikipedia or on those who have a high motivation to edit Wikipedia. Also, the quality of articles on Wikipedia in the Croatian language can be analyzed and evaluated, given that there is almost no research of this type.

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