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Wikipedia in the classroom: use case from secondary and higher education in Serbia

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Abstract:

Serbian Wikipedia is the 22nd largest Wikipedia in the world with 365,959 registered users and more than 688,000 articles which makes it suitable to become a common practice in a wide variety of educational domains. In this paper we present the preliminary results of the pilot cooperation between the Faculty of Computer Science, Šabac grammar school and Wikimedia Serbia. We used structured questionnaires to determine current state, and to evaluate after lectures state of the student awareness and involvement in the Wikipedia editing process. Results of the first questionnaire revealed the main bottlenecks of involving Wikipedia in the educational process. Based on this information, we organized adequate lectures about Wikipedia in general and about editing the Wikipedia, after which students chose the Wikipedia assignments in the scope of the courses taken, but based on their interests. Currently, students are finishing their assignments and we have promising preliminary results.

Keywords: e-learning, higher education, secondary education, Wikipedia, Serbian language.

1. Introduction

Wikipedia is a multilingual open web-based encyclopedia hosted by the Wikimedia Foundation and it is collaboratively edited by volunteers around the world [1]. It started with the English version of Wikipedia 23 years ago, and now it covers 342 languages. Two years after the release of the first Wikipedia version, Serbian Wikipedia was created.

According to latest Wikipedia statistics [2], Serbian Wikipedia has 365,959 registered users and 688.773 articles which makes it the 22nd largest Wikipedia in the world. These facts are impressive, but still, most of the teachers mistrust Wikipedia as a reliable source of information because of its openness and accessibility [3]. These two characteristics of Wikipedia can be seen as a drawback due to incompleteness and obsolescence of some articles [4], but also can be seen as an advantage because it makes its content available for anyone to read, edit and create [5].

We have to bear in mind that Serbian Wikipedia is edited not only by common registered users, but also by devoted volunteers hierarchically organized in a functional structure in which they have various roles like admins, supervisors, patrollers and rollbackers. There are also specialized technologies developed to recognize malicious content [6]. Also, in order to increase its credibility, Wikipedia uses and requires licensing and referencing mechanisms because in that way it ensures security and enables user verification of stated facts. Nevertheless, Wikipedia is still not sufficiently acknowledged in educational institutions at all levels.

There are several studies regarding using Wikipedia for educational purposes. Recent study uncovered Wikipedia habits of 381 involved students in higher grades of general education schools in Estonia, showing the larger interest and awareness of Wikipedia usage in higher grades with emphasized digital and information literacy skills development [7]. Study conducted in Australia investigated the influence of Wikipedia on academic life of 1681 tested undergraduate students and suggested a large impact of Wikipedia in students learning as an introductory source of information [8]. Another study focused on the effect of Wikipedia on students learning [9] and involved 226 Pakistan master programme students, showing that students use Wikipedia regularly and they have overall positive perception about Wikipedia. The same was concluded in another study that involved 336 students from Bangladesh [10]. Also, similar results were obtained in a study conducted on 203 Serbian students, where it was confirmed that Wikipedia improves the quality of teaching [11]. One recent study conducted in Germany with 57 postgraduate students involved, emphasized the practical aspect of Wikipedia editing [12]. Aforementioned studies involved theoretical or practical research, but none of them involved both important aspects.

In this paper we present the preliminary results of the pilot cooperation between the Faculty of Computer Science of the University Union Nikola Tesla, Šabac grammar school and Wikimedia Serbia. The main goals of this cooperation are to introduce possibilities of Wikipedia and to promote building the skills in editing of Wikipedia to students in higher and

secondary educational facilities in order to explain the importance of adequate creation, curation and editing of Wikipedia content which leads to increasement of Wikipedia credibility locally and globally.

2. Materials and Methods

The main research question we wanted to answer is ”To what extent can exercises and lectures help to promote Wikipedia usage to computer science students of different ages?”. In order to obtain the answer to this question, we selected two groups of students with good computer science background and with good research-oriented skills, one consisted of 20 third-year students at Faculty of Computer Science and Informatics of University Union Nikola Tesla, and the other consisted of 20 fourth-year information technology specialized high school students at Šabac Grammar School. All selected students agreed to be involved in this research project.

We divided our research into four main phases: initial phase, informative phase, proactive phase and evaluation phase. All phases are meant to be carried out sequentially but partially mutually dependent on the former phase results. The main goal of the first phase is to reflect the current state of the students' awareness and Wikipedia usage behavior. Initial phase results directed the informative phase training content enabling us to focus on emerged problems in the selected groups of students. Informative phase was organized by Wikimedia Serbia and conducted by their representatives. All lectures and training in the informative phase are carefully designed and adapted to the age, level of knowledge and interest of the surveyed students. The effect of the informative phase is long termed but at the moment it can be estimated through the proactive and evaluation phase. In agreement with the students involved in this survey, we selected the topics with no or little articles at the Serbian Wikipedia as the topics for the proactive phase. For the university students the selected topic is: “Internet tools and services”, and for the grammar school students it is: “Operating systems”. During the proactive phase, students were asked to create, rather than to edit, at least one Wikipedia page on Serbian language within the selected topic but according to their own preferences and affinities. During the proactive phase, students are monitored and, if needed, guided by Wikimedia Serbia representatives. After successful completion of the selected assignments and during the evaluation phase, students are giving their opinion about the lectures, training and editing Wikipedia, and emerging problems. This allows us to track the progress in the evaluation phase and to point out what is missed or need improvement during the previous phases.

We are using surveys in the form of structured questionnaires as a quantitative method for the first and fourth phase. Both questionnaires are in Serbian language and they consist of 10 basic but informative questions. We divide questions in three groups, the first group question is about Wikipedia in general, the second one is concerning copyright licenses and the third group of questions is about referencing. We collected questionnaire answers separately for grammar school students and for University students and used descriptive statistics to explain the perception of respondents about Wikipedia usage.

3. Results

The first phase questionnaire gave us an insight to the current status of student perception of Wikipedia and its usage, and from the fourth phase questionnaire we expect to show our progress in the Wikipedia education process. Detailed results showing general informativity of students concerning Wikipedia are given in Table 1. We found referencing and copyright licensing are very important as trust mechanisms and detailed results of students’ thinking about copyright in general and copyright licensing are given in Table 2, while detailed results regarding students' perception of referencing are given in Table 3.

After completing the initial phase, we identified different levels of three emerging problems in both educational facilities: unawareness of the Wikipedia possibilities, reference importance and usage, and license importance.

Table 1. Frequencies of answers in the initial phase obtained for the first group of questions from high school students (HS%) and University students (UNI%).

Question	Answers	HS%	UNI%
To what extent do you find interesting the possibility to edit Wikipedia?	extremely interesting	10	30
	very interesting	5	35
	interesting	50	30
	little interesting	25	5
	no interesting	10	0
Have you ever tried to edit Wikipedia?	yes	15	30
	no	85	70
Have you ever successfully edited Wikipedia?	yes	20	10
	no	10	5
	I have never tried to edit Wikipedia	70	85
What does Wikipedia represent to you?	Online source of information	55	30
	literature for essay writing	5	10
	knowledge sharing point	10	10
	online searching tool	0	0
	Internet encyclopedia	30	50

For what purpose do you use Wikipedia?	writing essays	9.76	27.08
	expanding knowledge	21.95	27.08
	online searching	34.15	27.08
	fun	9.76	2.08
	finding something new	24.39	16.67

Table 2. Frequencies of answers in the initial phase obtained for the third group of questions from high school students (HS%) and University students (UNI%).

Question	Answers	HS%	UNI%
What does referencing consist of?	Citation of information sources	40	55
	Listing everything we have read that is related to the given topic	30	35
	Rewriting	5	5
	A set of rules that makes writing difficult	10	0
	citation of literature at the end of the essay	15	5
When to cite and when not?	Never	2.73	0
	When I literally copy a text from a book or textbook	12.73	26.09
	When I literally copy any text	10.91	15.94
	When I literally state something that is common knowledge	2.73	1.45
	When I retell something that is common knowledge	1.82	0
	When I retell a text from a book or textbook	11.82	10.14
	When I retell any text	4.55	7.25
	When I literally state something someone told me	9.09	5.80
	When I retell something someone told me	1.82	1.45
	When I retell someone else's ideas	7.27	2.90
	When I literally state someone else's ideas	10.91	11.59
	When I state my ideas	2.73	0
	When I copy someone else's entire table	11.82	10.14
	When I copy part of someone else's table	9.09	7.25

Table 2. Frequencies of answers in the initial phase obtained for the second group of questions from high school students (HS%) and University students (Uni%).

Question	Answers	HS%	UNI%
What is a copyright?	The right that someone claims to their work	25%	60%
	Part of intellectual property	0%	5%
	A method to prohibit everyone from using a particular source of information	0%	0%
	Source of income	0%	0%
	The author's right to determine how his work will be used	75%	35%
Which copyright licenses do you know?	Creative Commons	23.08%	42.86%
	Copyleft	11.54%	7.14%
	GNU	11.54%	28.57%
	Public domain	15.38%	7.14%
	SPARC	9.62%	0.00%
	Finding Images	7.69%	0.00%
	Open Educational Resources	9.62%	7.14%
	Open Access	11.54%	7.14%
Have you ever used copyright licenses?	yes	20%	25%
	no	80%	75%

For now, 30% of undergraduate students and 0% of high school students finished their assignments, so we can only partially evaluate our research. Respondents think that informative phase lectures and training were very good, very useful and very understanding. They also think that editing Wikipedia is very interesting, relaxing and easy and they are very satisfied with the availability of the instructor during the proactive phase. Also, university students find the notions of referencing and licensing more clear than before the informative phase and they are able to accurately define these notions and to apply them to their work.

Taking into account aforementioned findings we found that students are keen to edit, curate and create Wikipedia content but the proper guided preparation is needed.

4. Discussion

Existing studies show that students in various levels of education use Wikipedia as an introductory and supplemental source of information [8], usually for checking the facts and background information [13-14]. Several studies state that students find Wikipedia easy to use, accurate and comprehensive to some extent [15-16].

There are a few studies involving the usage of Wikipedia in Serbia [11,17, but this one is the first study exploring the usage of Serbian Wikipedia in two levels of education.

We are currently finishing the third phase, and starting the fourth phase of this research, and obtained results are preliminary but promising. Available results are based on the completed first two phases for all students and results of the several students that finished their assignments and completed the fourth phase structured questionnaire. Results from the initial phase directed this study and helped us to focus on emerging problems. Although only several students from one educational facility finished their assignments, preliminary results from the evaluation phase showed that understanding the importance of curation of Wikipedia, license and adequate reference usage is significantly raised in the student population of the higher education facility and we expect the same for the high school students.

Obtained results encourage us to continue our work and to expand this research and to include more students, more domains and more languages.

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