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THE IMPORTANCE OF EXPERIENCE WITH WEB 2.0 TECHNOLOGIES FOR KNOWLEDGE MANAGEMENT SYSTEM DEVELOPMENT

VAŽNOST POZNAVANJA VEB 2.0 TEHNOLOGIJA ZA RAZVOJ MODELA SISTEMA ZA MENADŽMENT ZNANJA

Mladen Veinović, Mladen Opačić
University Singidunum, Danijelova 32, Belgrade, Serbia

Apstrakt:

This paper attempts to quantify experience with Web 2.0 technologies and provide an answer to the question concerning the effects of such quantity of experience on the development of knowledge management system framework. In order to do so we conducted a survey encompassing undergraduate students. We asked them about the quantity of their experience with social networks, wikis, blogs, micro blogs, forums and emails. The results are quite interesting as they show that students have much more experience than we initially suspected, which has clear implications on the development of Web 2.0 based knowledge management system.

Gljučne reči:

Web 2.0, knowledge management, knowledge management system framework.

Abstract:

U ovom radu pokušali smo da kvantifikujemo iskustvo u radu sa Veb 2.0 tehnologijama i da odgovorimo na pitanje kakve su njegove implikacije na razvoj modela sistema za menadžment znanja. Da bi smo to postigli anketirali smo studente osnovnih studija vezano za njihova iskustva u radu sa društvenim mrežama, vikijima, blogovima, mikroblogovima, forumima i elektronskom poštom. Rezultati su veoma interesantni jer ukazuju na to da studenti imaju mnogo više iskustva nego što smo prvobitno pretpostavili, što ima jasne implikacije na razvoj Veb 2.0 baziranog modela sistema za menadžment znanja.

Key words:

Veb 2.0, menadžment znanja, modeli sistema za menadžment znanja.

1. INTRODUCTION

Web 2.0 technologies or as they are also called social media technologies have become predominant on the Internet. Social networks such as Facebook and LinkedIn have millions of daily users. Some of them access Internet using mobile devices such as smartphones, which makes them permanently online, even while they are sleeping. At the time of writing this paper, Facebook had 745 million mobile daily active users (Facebook, 2015) and 1.39 billion monthly active users. These and other technologies such as wikis have also found their way into our daily lives (Đorđević Boljanović J. *et al.*, 2014). This goes so far that we regularly check for unknown terms on Wikipedia even without consciously thinking about it. Blogosphere comprised of blogs and micro blogs have become almost as influential source of information as television and radio. Everyone can start a blog and instantly become a blogger, with little or no effort. Sharing experience and knowledge with the whole world has never been easier. As time progresses people also become more and more skilled with the use of these technologies. However, research of implications of this accumulated tacit knowledge on knowledge management system frameworks is almost nonexistent. Numerous knowledge management system frameworks (Heisig, 2009) have been proposed in knowledge management literature. Most of them are based on older Web 1.0 technologies and principles. There is also a great number of Web 3.0 based knowledge system frameworks. Frameworks based on Web 2.0 technologies and principles might not be that numerous but they have a vast potential in the sense that Web 2.0 are the most popular tech-

nologies. However, none of the existing frameworks consider the quantity of accumulated tacit knowledge and experience an important factor in knowledge management system framework development. We believe that the knowledge users have accumulated using Web 2.0 technologies should be considered an important factor. Therefore, this paper shall attempt to quantify experience with Web 2.0 technologies and answer the question about the effects of such experience with most popular Web 2.0 technologies on the development of knowledge management system.

2. LITERATURE REVIEW

There are generally two main approaches to the application of Web 2.0 for knowledge management uses in the literature (Heisig, 2009). The first approach (Martin-Niemi & Greatbanks, 2009) generally focuses on the research of the application of one specific Web 2.0 technology. For instance, it can refer to ways in which blogs (Martin-Niemi & Greatbanks, 2009; Li & Li, 2009) or wikis (Razmerita & Kirchner, 2011) (Grace, 2009) can be used for knowledge management. The second approach explores Web 2.0 as a whole. Researchers who use this second approach are focused on the creation of knowledge management system frameworks. These frameworks (Zhao *et al.*, 2012) attempt to explain how Web 2.0 technologies should function together as a system to help the organizations to get the most out of their knowledge resources. In this paper, we are closer to the holistic approach as we study particular technologies in the function of inclusion into the knowledge management system framework.



Technologies that we will cover in this paper are social networking systems, wikis, blogs, micro blogs, forums and email. Email is a prerequisite for all other mentioned technologies. Some authors (Anderson & Mohan, 2011) also consider all cloud technologies delivered via web as Web 2.0 technologies. This would make email a Web 2.0 technology even if it is not completely correct in the sense of O'Reilly's original definition (O'Reilly, 2005) of Web 2.0. Wiki technology is probably the most popular Web 2.0 technology among knowledge management theoreticians. Grace (Grace, 2009) divides wikis into five categories: personal wikis, semantic wikis, corporate wikis, structured wikis and peer-to-peer wikis. (Poole & Grudin, 2011) divide wikis into three groups: group wikis, single contributor wikis and "pedias" wikis that resemble encyclopedias. There are also many examples from practice (Dotsika & Patrick, 2013) that prove that wikis are a very good knowledge management tool. However, according to (Trkman & Trkman, 2009), success is not guaranteed. The biggest issue seems to be finding enough people who are willing to constantly contribute to the organizational wiki. Therefore, creating supportive culture is of vital importance. Organizations should elaborate on reward systems aimed at motivating knowledge contributors. Social networking systems are very popular with general public, especially with younger generations where almost the whole generation uses these systems and it seems very hard to find someone who doesn't have a Facebook account or two. Organizational use of these systems is also on the rise. These systems (Opačić *et al.* 2013) help organizations to find their experts more easily in order to enhance knowledge sharing and collaboration and allow formation of virtual communities of practice. Blogs and micro blogs are Web 2.0 technologies (Baxter *et al.* 2010) that allow logging of important events. Word blog itself comes from two words -web and log- thus indicating a web diary of the user. Micro blog is a blog with a limited number of characters per entry. Persons who are writing blogs are called bloggers. They (Baxter *et al.* 2010) can use blogs to reflect on their personal experience or actions and by doing so they are actually sharing tacit knowledge. Blog are contents creation centered and allow communities to be formed around them. Lee (Lee & Trimi, 2008) groups blogs into five categories according to their primary use: employee blogs, group blogs, executive blogs, promotional blogs and newsletter blogs. Forums or as they are also called discussion boards are content- centered Internet technology that enables online communities to be formed around them.

3. METHODOLOGY

We have chosen undergraduate student population to test our assumptions about the quantity of experience with Web 2.0 technologies. Research was conducted by means of a questionnaire survey. We received N = 91 valid questionnaires. The questionnaires consisted of 9 questions about the quantity of experience measured in years that they might have with Web 2.0 technologies. Each question started with the same phrase "How many years have you been using" and then the name of the technology. The scale included eight options. The respondents had to choose one option for all of the questions. The first option was N which meant no experience, then a range from 0 to 5 and then 6+ symbolizing more than six years of experience. The first question "How many years have you been using email?" was about the experience with email. The second question was about social networks and third referred to micro blogs (Twitter). The questions from 4 to 9 were about wikis, blogs and forums and for each of the technologies we had two questions one about the years of experience as a reader and a content creator.

4. RESULTS AND DISCUSSION

The expected quantity of experience with email is very large as 75.82% of the respondents have more than six years of experience working with email (see Figure 1). Also, all respondents have experience in using email.

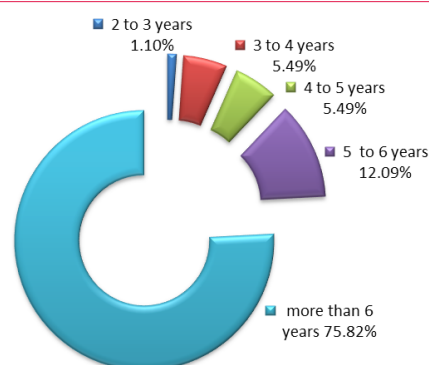


Figure 1. Quantity of experience with email

The next in line are social networking systems. Their popularity is not the same as the popularity of email, but is still substantial (see Fig. 2). Only 6.59% of the respondents have never used any of these technologies. At the same time, 52.75% of the respondents have more than six years of experience using social networking systems.

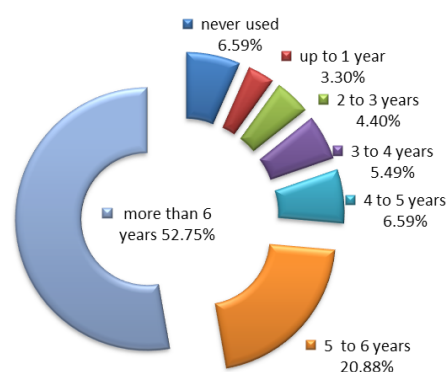


Figure 2. Quantity of experience with social networking systems

The third question was related to micro blogs (Twitter). Results show that micro blogs are much less used than social networking systems (see Fig. 3). Majority of respondents (52.75%) has never used micro blogs before, while only 9.89% stated that they have more than six years of experience.

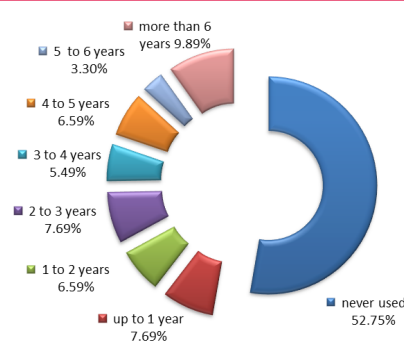


Figure 3. Quantity of experience with micro blogs



The next two questions were about wiki technology. The first question was about the experience as a reader of the content created by others (see Fig. 4). All respondents indicated that they used wikis as a reader of contents. This generally supports the opinion that in this kind of system everyone reads the content, while only some users contribute. Majority of respondents are very experienced in terms of reading wiki contents, while 53.85% indicated that they have more than six years of experience.

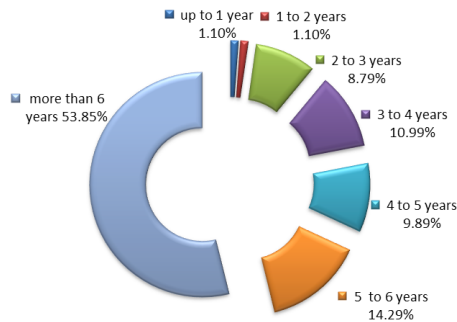


Figure 4. Quantity of experience as readers of wikis

The second question about wikis was about content creation (see Fig. 5). Results are completely different from reading content. A great majority (75.82%) has never contributed to wikis they use.

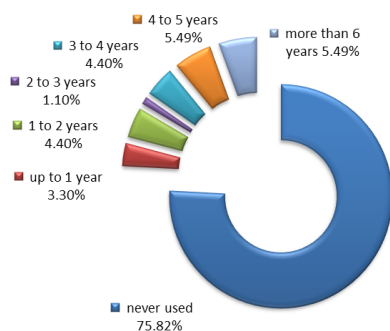


Figure 5. Quantity of experience as contents contributors

The next two questions were about blog. The first question was about blog reading (see Fig. 6) and the second about blog writing. Results are interesting and the number of readers is again much higher than the number of writers. The number of respondents who have never read any blog is also very high with the percentage of 25.27%.

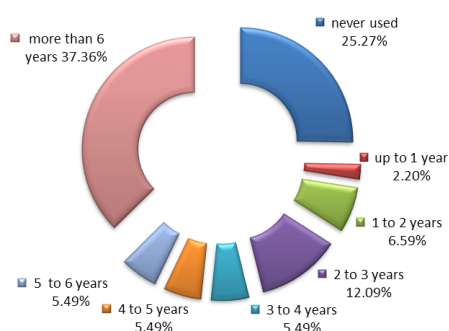


Figure 6. Quantity of experience as blog readers

As for writing blogs, 79.12% has never written a blog (see Fig. 7) and only 1.10% or 1 respondent has been doing so for more than six years.

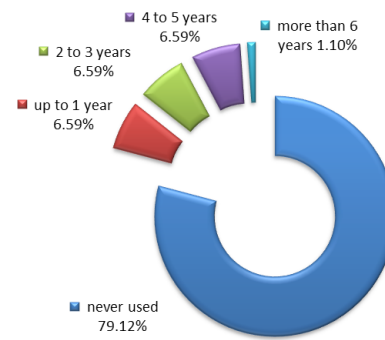


Figure 7. Quantity of experience as blog writers

The last two questions were about forums and reading and writing on forums. The first question was about reading forums (see Fig. 8). Only 3.30% of the respondents never used forums as readers and 59.34% has more than six years of experience with forum software.

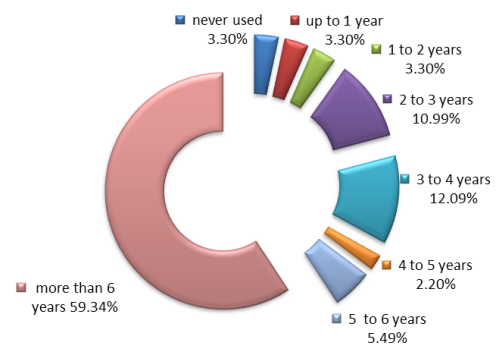


Figure 8. Quantity of experience as forum readers

The results shown in Figure 9 are very interesting because it appears that percentages are much better for forums than for wikis and blogs. Only 49.45% of the users have never written anything on a forum and 20.88% of users have more than six years of experience with forum software.

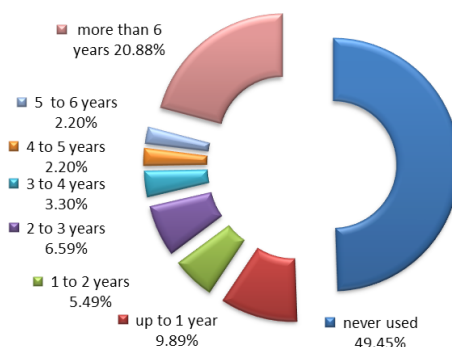


Figure 9. Quantity of experience as forum writers

Email is by far the most popular technology among the selected technologies, which is by no means a surprise. The fact



that all of the respondents indicated that they have experience using email was expected. Besides being de facto standard in online communication, email has another crucial characteristic, being a prerequisite for all of other mentioned technologies. Without email it is not possible to register on an Internet forum, wiki, blog, social network or micro blog. Since all respondents know how to use an email, it is obvious that it is not a limiting factor for using other Web 2.0 technologies. Other technology that all respondents use is wiki technology. Wikis are practically as popular as email but only for reading its contents. When we observe the experience with content creation, it is clear that only a small portion of wiki users contributes to wiki pages they use. Many researchers tend to forget this when speaking about wikis. However, wikis are still a very potent Web 2.0 technology in terms of knowledge sharing and collaboration. Organizations that intend to use wikis as a collaboration platform have to consider this ratio of readers versus writers. In particular, it is important to consider the fact that we have surveyed the future IT professionals and that this ratio might be even worse in an organization. The situation with blogs is similar but unlike wikis, 25.27% have never used blogs as readers and 79.12% have never written on a blog. Therefore, knowledge managers who want to implement blog into their organizational knowledge management system have to be very careful about this ratio of contributors vs. non contributors. The first surprise for us in this research comes in the form of forum. Namely, only 3.30% of the respondents indicate that they never used forums as readers and only 49.45% have never written on a forum. This make a forum more potent knowledge sharing software than wikis and blogs. It appears that forum software can be more important than shown in our literature review. Micro-blogs are another technological surprise, but in the opposite direction with 52.75% of respondents who have never used it. Again after literature review, we had the impression that this percentage will be much lower. Finally, there are social networking systems with 73.63% of the respondents who use them for more than five years and only 6.59% of the respondents who have never used these systems.

3. SUMMARY

Having in mind all above stated, it is obvious that Web 2.0 technologies or at least the most popular of them are no longer new and unknown technologies and that even university students have substantial amount of accumulated experience with using these software tools. This has clear implications on the creation of any future knowledge management system framework. Simply put, these technologies are here to stay. The fact that the majority of future knowledge workers use them in everyday lives makes Web 2.0 technologies even more important. Social networking systems, forums, wikis and blogs are serious candidates for any knowledge system framework. Micro blogs don't seem as important. This research opens abundance of new questions for further research. First of all, there is a question of intensity and quality of experience people have with these technologies. It is not the same if someone has ten years of experience using these systems daily or monthly. Also, more complex systems such as social networking systems have to be examined in detail. It is not only a question of whether someone contributes with contents, but it is also concerned with the type of content and the methods and reasons for such contribution. Also, there is a question of the roles people might assume. For instance, being an administrator of a forum or a Facebook group will certainly make that person much more involved with these technologies then by being an ordinary user. There is also a question concerning the relationship between forums and social networking systems

and sites. They are both community software, so the question imposes as to when to use them and why.

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