

Wikipedia as a Tool for 21st Century Teaching and Learning

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Abstract

Students are often warned by their teachers of the “evils of Wikipedia” and are forbidden from using Wikipedia in any school-related activities. These teachers assume the articles contained in Wikipedia are inaccurate, written by non-credible sources, or are of little use in academic research. But it is possible this academic distaste for Wikipedia comes from ignorance and false tradition, and not because Wikipedia is a poor educational tool and resource. Indeed, many teachers and students do not fully understand what Wikipedia is or how it can and should be used. This article articulates what Wikipedia is, the benefits of using Wikipedia as a research and learning tool, and then describes how using and writing for Wikipedia can open the door for the development of 21st Century teaching and learning skills.

1. Introduction

Wikipedia has been banned from thousands of schools because teachers and administrators are wary of content that can be created and edited by anyone, is not properly vetted, and contains information that is agenda-driven, bias, or just plain wrong. While these are understandable concerns, teachers and students could greatly benefit from better understanding of what Wikipedia is and is not and then by using it appropriately. Wikipedia can be a great learning and research tool that, if properly supported, can assist teachers and students in developing valuable 21st century skills.

This is especially important now as the political and social climate in schools has shifted towards a more technology centric approach. Web 2.0 tools that engage students and learners are bound to become a more integrated part of learning in both K-12 and higher education environments, particularly as schools continue to emphasize the development of digital media literacy and 21st century skills for their students. The appropriate use of Wikipedia can serve as a model for promoting these literacies and skills to the newer technologies that will inevitably come along.

2. Literature Review

While much has been published online (in blogs, editorials, websites, etc.) regarding the shortcomings of Wikipedia, critical references found in academic journals are nowhere to be found. Walking the hallways of many public schools will reveal there is no shortage of teachers who dislike the use of any technology in schools. Similarly, there are certainly educational researchers out there who are anti-technology and anti-Wikipedia. However, there apparently is not enough evidence that Wikipedia is damaging to learning to warrant a peer reviewed publication on the matter.

To the contrary, there are myriad publications outlining the benefits of wikis and other Web 2.0 tools in the classroom. These articles discuss ways of improving student engagement in the classroom [4, 12], improving student research [9], incorporating more dynamic instructional methods [5], creating, supporting, and strengthening a community of learners [6], and exploring new and alternate avenues for online publication [7]. There is a substantial body of literature that points out the benefits of technology in preparing students for the real world, in becoming digital media literate, and in acquiring 21st century skills.

This paper aims to expand upon these positive teaching and learning outcomes while clarifying what Wikipedia is, describing how it can and should be used to promote student learning, and outlining what opportunities exist for promoting the development of 21st century skills.

3. Wikipedia as a Learning Tool

Before Wikipedia can be effectively used in the college classroom, teachers must first truly understand what Wikipedia is, what it is not, and how using and creating content for Wikipedia can promote digital media literacy while fostering the development of 21st century skills.

Wikipedia—as defined by Wikipedia--“is a collaboratively edited, multilingual, free Internet encyclopedia that is supported by the non-profit Wikimedia Foundation” [13]. So quite simply

Wikipedia is 1) an encyclopedia, 2) a free resource available to almost everyone, and 3) a highly sophisticated collaborative tool.

But it is not that simple. Everyone knows that Wikipedia is an encyclopedia, but that has not stopped academics from treating it as something else altogether. Everyone knows that the use of Wikipedia is free, but that has not stopped academics from paying hundreds or even thousands of dollars for inferior resources. Everyone knows that Wikipedia is a collaborative tool, but that has not stopped academics from ignoring its collaborative potential and choosing instead to teach and learn in isolation.

Below I describe these three small details about Wikipedia that are understood superficially by many teachers in an effort to clarify Wikipedia's utility in the college classroom.

3.1. Clarification 1: Wikipedia is an encyclopedia

First and foremost, Wikipedia is an encyclopedia. An encyclopedia is "a type of reference work or compendium holding a comprehensive summary of information from either all branches of knowledge or a particular branch of knowledge" [13].

Encyclopedias have been around for over 2000 years and traditionally have been seen as valuable learning tools and go-to resources for research at public libraries, schools, and elsewhere. In 1768 three Scottish printers founded the Encyclopedia Britannica, a compilation of information that set the standard for encyclopedic volumes as we know them today. Since then various companies have compiled and printed encyclopedic sets.

While encyclopedias have been around for a long time they have not always been accessible to the average Joe. As early as the 1920's, encyclopedias were sold door-to-door for hundreds, even thousands of dollars [1]. More affluent families often purchased encyclopedias (complete with specialized bookcases) to display in their home libraries, symbolizing a commitment to education and learning. Those with less financial means looked for sets in thrift stores and yard sales.

However, where print encyclopedias were once the authoritative source on all academic topics, they have gradually been replaced with innumerable print and online resources. One of those resources – Wikipedia – is not constricted by the bounds of print encyclopedias or textbooks and can include much more information on each topic than their print counterparts. In 2012, largely in response to the popularity of Wikipedia, the Encyclopedia Britannica ceased printing after 244 years of continuous publication [2]. They do, however, continue to produce online content. Indeed, while print encyclopedias accounted for less than 1% of

Britannica's revenue in 2015, they still turned a profit through their digital curriculum products and yearly website subscriptions to their premium version of the encyclopedia (at \$69.95/year). Clearly, the need for encyclopedias still exist both in schools and in homes.

3.2. Clarification 2: Wikipedia is extremely accessible throughout the world

The great value attributed to print encyclopedias can be tied to the wide regard they held for providing the best and most comprehensive information on many given topics not included in textbooks or other print resources. For this reason many schools, libraries, and households made it a priority to have current sets on-hand for academic and other use. Unfortunately, the fast-paced world we now live in changes so rapidly that very few print resources can keep pace.

By 2014 there were more than 30 million articles written for Wikipedia, in 287 languages. It is easily the largest and most popular general reference resource in the world, and with 18 billion page views and nearly 500 million unique visitors each month it ranks 5th globally in popularity among all websites, just behind Yahoo, Facebook, Microsoft, and Google [3]. Wikipedia can be especially useful to teachers and students because it provides general information about any given topic. It is therefore no surprise that today Wikipedia is being used by the general populous much more than any print encyclopedia.

Adding to its popularity is the fact that Wikipedia is free to use. And "free" is significantly cheaper than the \$1000 or more a set of encyclopedias cost in the 1990s. Not only were the popular encyclopedia sets of the 1960s, 70s, 80s and 90s expensive, they also had to be updated frequently, often at an additional yearly cost of \$20-100 or more. Schools and libraries would gladly pay these expenses in order to have the best research tools available to their patrons. Today anyone with an internet connection on their personal computer or mobile device has immediate and free access to the millions of pages included in Wikipedia. Access to the internet and the wealth of information found therein is growing each year.

3.3. Clarification 3: Wikipedia is an online collaboration tool

Since the turn of the century schools have sought to prepare students to be competitive in the current marketplace through the development of 21st century skills. Chief among these skills is the ability to collaborate in both face-to-face and online environments.

Much of Wikipedia's value can be attributed to its success as a highly sophisticated collaboration

tool. In an educational climate that puts a premium on teamwork, community building, and collaboration, Wikipedia is a learning resource that brings novices and experts together for the common good. Wikipedia can be used for distance learning, transcontinental collaboration, and in conjunction with busy schedules. The learning curve for making contributions to Wikipedia is relatively low so with proper support contributions can be made by practically anyone. These reasons and others make Wikipedia a logical choice as an important reference guide and research tool for any learner.

Teachers can greatly benefit by understanding what Wikipedia is, how easily (and cheaply) it might be accessed, and that it has the potential to support the development of the 21st century skills these teachers are trying so hard to promote. In order to fully understand and embrace this tool we must also look at a few commonly held criticism and misconceptions currently plaguing many teachers in regard to Wikipedia.

4. Common Criticisms of Wikipedia

Despite many of the benefits of Wikipedia just described, many K-12 and even college instructors steer their students away from Wikipedia more for what it is not, ignoring the value it brings. And what it is not probably has more to do with false traditions and the many negative associations brought on by the public schooling system and not because of any actual shortcomings of the tool. It is an unfortunate truth that many teachers are discouraging the use of this learning tool because they do not fully understand what it is and how it is intended to be used. Common negative stereotypes and criticisms of Wikipedia center on the ease of access (how anyone can contribute), the accuracy and reliability of articles, and the erroneous notion that encyclopedia articles are acceptable primary sources in academic research.

4.1. Criticism 1: Wikipedia content can be created by anyone

The truth is that the content on Wikipedia can be created by anyone. For that reason, many people including academic experts have argued that Wikipedia's articles cannot be trusted [8]. Articles written and edited by volunteers who have never been vetted sounds like a recipe for disaster, and it is true that some of what is written on Wikipedia is not reliable, reputable, or free of bias. Additionally, because Wikipedia uses no attribution, you cannot cite a single author, or even be confident in who the author(s) are and whether they have any authority on the subject they have written about. Contributors may have hidden agendas or block others from posting contrary viewpoints. Some rare contributors

are even hackers who want to fill the encyclopedia with misinformation. The reality is that while most of the popular articles are well vetted, the information in Wikipedia is not always correct. Errors can go uncorrected, sometimes for months or even years.

The good news is that Wikipedia now has an army of dedicated volunteers who generally fix any errors that might be found. The more popular a topic, the more likely it is to be edited by experts. In fact, in many academic topics (especially new and cutting edge information), Wikipedia is likely to be more correct than its print counterparts because experts can and do make the necessary corrections and additions to keep information as current, correct, and complete as possible. Also, making edits to Wikipedia can be more difficult than you might think. Popular topics are often "locked" and only editors with some experience are allowed to make edits to those entries.

As user generated content continues to improve many have seen the value in soliciting this kind of content and which has resulted in extreme growth in popularity. Even the established producers of traditional encyclopedias (e.g. Britannica) have now followed Wikipedia's lead and introduced user-submitted content to their repositories [11]. Wikipedia has proven a huge success, not just as a website that provides huge quantities of valuable information on any number of topics, but as a collaborative tool that enables novices, experts, and everyone in-between to share their knowledge with a larger audience.

4.2. Criticism 2: Wikipedia is not always reliable

According to Turnitin, Wikipedia remains the most popular single source for student-matched content on the Web. While this exposes a major problem in higher education—that of plagiarism—it also throws up a red flag for the quality of sources being used for research. According to Wikipedia itself, "[W]hile some articles are of the highest quality of scholarship, others are admittedly complete rubbish... Use [Wikipedia] with an informed understanding of what it is and what it isn't" [13]. Clearly, Wikipedia can be (and often is) unreliable.

How does Wikipedia determine which sources are most reliable and should be included in their articles? Wikipedia says they consider the "most reliable sources" to be peer-reviewed journals and books published in university presses, followed by university-level textbooks, then magazines, journals, books published by respected publishing houses, and finally mainstream newspapers, but not the opinion pages of newspapers [8]. So Wikipedia is going to great lengths to continually improve the reliability of

its articles. While this user-generated resource will never be infallible, neither will its print counterparts. For example, all print encyclopedias written prior to 2006 describe Pluto as the ninth planet. Yet when the International Astronomical Union (IAU) formally defined “planets” and declassified Pluto to a “dwarf planet” the change was made immediately in Wikipedia. Many of the print encyclopedias did not reflect this change for several years. Not only that but Wikipedia also described the reason for the change and directed readers to primary sources on the issue. Wikipedia is now often the *most* reliable source on many topics.

4.3. Criticism 3: Wikipedia is not a primary source

In completing research assignments students are encouraged by their instructors to use primary sources whenever possible to back the claims they are making. When that is not possible secondary sources are often considered acceptable. Encyclopedias (including Wikipedia) ARE NOT primary sources and consequently should not be authoritative sources used in research. They do however, often point the researcher to primary sources (found in the references) and can thereby be considered an extremely valuable resource in the research process. So Wikipedia should not be cited in research papers. No encyclopedia should. If Wikipedia is being used as a primary source for term papers, that is not the fault of the technology but the teacher and students’ inability to see it for what it is. Encyclopedias can be incredibly valuable in the research process, but it is a research tool, not a source to be cited. When teachers understand this they can better support their students writing by equipping them with the proper tools.

So Wikipedia articles can be created by anyone, the content is constantly being updated and changed, and it should not be used as a primary source for research topics. These are all positive attributes if viewed in the right light. We live in a world of eight billion plus people, so giving everyone—including content matter experts—the opportunity to contribute to situated knowledge is a great idea. We also live in a world that is in constant state of flux, and understanding that information changes should be a priority for every teacher and student. Academics should also understand the tools they are using for research and use each tool appropriately. Guided by these understandings Wikipedia has great potential to improve student learning in schools while also promoting skills that will serve students in the real world.

5. Using Wikipedia in Schools to Promote 21st Century Learning and Skills

Knowing that the articles in Wikipedia can be created by anyone, that the content can be unreliable, and that Wikipedia articles are not primary sources (although they do often link to them), why on earth would any teacher or student want to use Wikipedia for anything remotely academic? The answer to that is simple: teachers and students are in the learning business and Wikipedia is one of the greatest teaching resources available in the world today. Instead of focusing on what Wikipedia is not, schools could benefit by utilizing this technology for what it is—an incredible learning tool.

Students overwhelmingly use Wikipedia because it is often one of the easiest ways to find information on any given topic, academic or otherwise. Studies have shown that when students are researching topics for non-academic reasons (i.e. they simply want to learn about something), they first engage in a Google search, with Wikipedia being their second search method ahead of friends, scholarly databases, social networks, and other resources [10]. Many students also use Wikipedia as a resource in deciding on a research topic or narrowing down their research options. They use Wikipedia because it is the largest encyclopedia in the world and consistently ranks as one of the top 10 most used websites. They use it because it is easy to read and understand, directs readers to primary sources, and is easily and freely available. And they use it because it is the most convenient and intuitive source available to them.

Wikipedia is an amazing teaching and learning resource that does not just benefit students, but can be a great asset to their teachers as well. Teachers can use Wikipedia to quickly find answers to many questions they or their students have about any topic. Wikipedia can be used to support nearly any research and is especially helpful in providing academic content that falls outside a teacher’s field of expertise.

Wikipedia also presents an opportunity to teach information literacy (i.e. digital media literacy) to a generation of students who are very tech savvy when it comes to social media but much less so when it comes to scholarly research. The ability to find quality content online and engage interactive learning tools are skills that are becoming increasingly valued in our high-tech world.

5.1. Student Contributions to Wikipedia

While there is immense benefit in simply reading Wikipedia articles, there is also considerable benefit in writing for Wikipedia. Writing an encyclopedia article is much different than constructing an essay or personal narrative. In order to be accepted and

remain posted, entries must be objective, technical, and include reliable sources. Writing for a wiki also requires some basic knowledge of coding and meet specific layout specifications. This is the kind of technical writing that will prepare students for the “real world” as many professions require these same kinds of writing skills. Students do not even need to be assigned to write about academic topics in order to develop these valuable 21st century skills. Writing about their favorite television show, dog breed, or author can be very motivating. Throw in writing for the whole world instead of just for a teacher or a grade and it is probable that students will be more engaged in the writing process.

Writing effectively for Wikipedia also requires students to learn how to do effective internet research. Articles are only published if adequate evidence for claims are cited within the article, so students must first do meaningful research to write in a way that is more objective and verifiable than might be required for other writing assignments.

Finally, writing for Wikipedia might be started by one solitary student who writes in isolation, but it ends with a community of editors or commenters who add to and improve each article. Indeed, students writing for Wikipedia can help in correcting biased or false information. Being a part of a community of editors is a worthwhile experience for any student especially as they engage in the collaborative process of writing something that real people actually read and respond to. This kind of authentic real-world learning is what so many schools claim they are striving to achieve, yet those same schools often dismiss Wikipedia as a resource that should not be tolerated. It is time for these schools to understand what Wikipedia is and how it might greatly improve the teaching and learning happening within their own doors.

5.2. Teacher Contributions to Wikipedia

Students do not have to be the only ones who benefit from this collaborative tool. One way that teachers need to adapt to teaching in the 21st century is by working on the same skills they are exposing their students to. Teachers today need to learn to collaborate in online environments as more and more research and teaching opportunities are taking place in virtual spaces.

Teachers can benefit by writing for Wikipedia because it enables them to better understand what Wikipedia is and how wikis work. Writing can also help teachers cultivate a personal connection to various research topics and even help them develop a research agenda. Teachers can write about meaningful topics and share their expertise with not only their own students but a worldwide audiences of learners.

Finally, teachers can benefit by being exposed to and learning a little bit of code. More and more graduates are pursuing tech industry jobs but few of these graduate have K-12 mentors when it comes to technology. Teachers who take the time to learn computer programming basics can be a real asset to the students they teach.

6. Conclusion

Wikipedia is a relatively new learning tool, yet it has already fallen victim to educators who do not understand what it is or how it might be used to promote learning. A greater understanding of what Wikipedia is and what it is not can assist teachers and students in becoming better researchers, writers, and scholars. Contributing to Wikipedia also has many benefits to teachers and students alike.

As we move further into the information age Wikipedia can and should be a valuable tool for teachers and students in promoting and supporting the development of 21st century teaching and learning skills.

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