Findings are reported from student focus groups and a large-scale survey about how and why students (enrolled at six different U.S. colleges) use Wikipedia during the course-related research process. A majority of respondents frequently used Wikipedia for background information, but less often than they used other common resources, such as course readings and Google. Architecture, engineering, and science majors were more likely to use Wikipedia for course-related research than respondents in other majors. The findings suggest Wikipedia is used in combination with other information resources. Wikipedia meets the needs of college students because it offers a mixture of coverage, currency, convenience, and comprehensibility in a world where credibility is less of a given or an expectation from today’s students.

Abstract
Findings are reported from student focus groups and a large-scale survey about how and why students (enrolled at six different U.S. colleges) use Wikipedia during the course-related research process. A majority of respondents frequently used Wikipedia for background information, but less often than they used other common resources, such as course readings and Google. Architecture, engineering, and science majors were more likely to use Wikipedia for course-related research than respondents in other majors. The findings suggest Wikipedia is used in combination with other information resources. Wikipedia meets the needs of college students because it offers a mixture of coverage, currency, convenience, and comprehensibility in a world where credibility is less of a given or an expectation from today’s students.

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Introduction
Want to stir up a room full of college faculty and librarians?

Mention Wikipedia.

Wikipedia, the online, peer-produced encyclopedia, is one of the most discussed topics on campuses today. Much of the academic debate turns on issues about Wikipedia’s reliability, completeness, accuracy, and intellectual rigor and whether college student should, or should not, use the collectively produced encyclopedia for course-related research assignments [1].

Yet at the same time, very little is known about how and why today’s college students actually use Wikipedia during the course-related research process.

In this paper, we present findings from a survey of U.S. college students on six campuses during the spring of 2009.
We investigated the use of Wikipedia for course–related research in five related areas:

1. How frequently college students use Wikipedia.
2. What motivates students to use Wikipedia.
3. At which stages of research students use Wikipedia.
4. How Wikipedia is used in relation to other information resources.
5. What predictors reveal which types of students are more and less likely to use Wikipedia.

Methods

The findings reported in this paper are part of Project Information Literacy (PIL), an ongoing national research study, based in the University of Washington’s Information School [2].

We conducted the research about Wikipedia usage in two phases during 2008 and 2009.

Phase 1: Student focus groups

The PIL team conducted 11 student focus groups on seven campuses in the U.S between October and December 2008 [3]. On average, each session was 90 minutes long.

The student focus groups provided qualitative data about students’ research habits, behaviors, experiences, and the obstacles that they encountered. A segment of the sessions focused on course–related research and how students used Wikipedia.

We define course–related research in broad terms — from the moment students receive a research assignment through collecting and evaluating materials until the final writing of a mid–course paper (e.g., five–eight pages).

In total, 86 students participated in the sessions. Far more females (70 percent) than males participated in the focus groups [4].

Participants ranged in age from 20 to 30 years old. Students were full–time sophomores, juniors, seniors from four–year public and private colleges and universities, and full–time community college students, who had completed at least one semester at the institution [5].

The focus group sample consisted primarily of students in the humanities or social sciences. This group of students, we assumed, was likely to be acquainted with secondary research methods [6].

The mean GPA for the total student sample across all seven schools was 3.44, or just above a B+ average.

Phase 2: Student survey

A survey was distributed to 27,666 students on six campuses in the U.S. between April and May 2009. The study sample was 2,318 responses. The overall response rate was eight percent.

The 32–item survey was administered online, using survey software provided through the University of Washington.

Surveys were sent to students’ e–mail addresses, which were provided through each school’s Registrar’s Office [7]. The survey instrument underwent a Human Subjects Division review at each participating institution.

The purpose of the survey was to collect data about information needs and behaviors of respondents during course–related and everyday life research. The survey instrument was informed with qualitative data from the student focus groups in Phase 1.

We sampled students studying in all major disciplinary areas (i.e., humanities, social sciences, sciences, education, engineering, business, and occupational training) [8].
The survey sample consisted of sophomores, juniors, or seniors at four–year institutions (n=1,627) and full–time students who had take 12 units at the community college at which they were enrolled (n=691) [9].

More females (65 percent) than males (35 percent) took the survey. The mean grade point average (GPA) for the total student sample across all six schools was 3.4, or a B+ average [10].

We used PASW (Version 17.0) as a statistical tool for calculating frequencies, cross tabulations, and logistic regressions.

We acknowledge that our findings are not generalizable to the full student college population. However, our analysis of Wikipedia use does show consistent responses and fairly robust relationships among variables from a large sample of students at six separate educational institutions in the U.S.

Results

Major findings from the study are as follows:

1. Far more students, than not, used Wikipedia. Wikipedia was used in addition to a small set of other commonly used information resources at the beginning of the research process.

2. Reasons for using Wikipedia were diverse: Wikipedia provided students with a summary about a topic, the meaning of related terms, and also got students started on their research and offered a usable interface.

3. Respondents who were majoring in architecture, engineering, or the sciences were more likely to use Wikipedia than respondents in other majors [11].

Using Wikipedia

The signature research assignment for humanities and social sciences courses is the argument paper (67 percent). These papers entail choosing a topic, defining an issue, and taking a position backed by evidence culled from secondary resources (e.g., books, journals, and resources found on the Internet).

To a lesser degree, students reported conducting “outside research” for other course–related assignments that were interpretative readings of a text (53 percent), historical analyses (39 percent), and literature reviews (38 percent).

Over half of the survey respondents (52 percent) were frequent Wikipedia users — even if an instructor advised against it [12]. Students reported that they frequently, if not always, consulted Wikipedia at some point during their course–related research (see Figure 1).

Far fewer of the respondents (22 percent) reported that they rarely, if ever, used Wikipedia.
Figure 1: How often do students use Wikipedia during the course–related research process?

Why Wikipedia?

Students used Wikipedia for a variety of reasons. More than any other reason, 8 in 10 survey respondents (82 percent) reported that they went to Wikipedia to obtain background information or a summary about a topic (see Figure 2).

Wikipedia clearly has value to students as a workaround for previewing a topic. As one student in our sessions simply said, “Wikipedia tells me what’s what.”

Respondents also reported that they turned to Wikipedia because it: (1) helped them get started (76 percent); (2) featured an easy to use interface (69 percent); and, (3) helped them find the meaning of terms and use of language used about certain topics (67 percent).

Wikipedia’s greatest value to students may be its ability to alleviate common frustrations students initially have with conducting research [13]. Some students in our focus sessions described a vicious cycle during the research process from the outset.

Students reported they could not begin their research process until they had an idea of what they were going to write about. They did not think that they could approach an instructor about an assignment, until they knew more about their topic. They did not use a scholarly research database early on, given the specificity of academic journal content.

Wikipedia was a convenient go–to source under these circumstances. The source delivered results students could act upon, allowing them to get unstuck and move forward.

To a slightly lesser degree, respondents used Wikipedia because the entries were easy to understand (64 percent), entries included hypertexted citations (54 percent), entries helped students figure out search terms (44 percent), or because entries had current, up–to–the–minute information (39 percent).

Fewer students in the sample used Wikipedia because they thought Wikipedia was more credible than other Web sites (17 percent). In addition, the wiki software, which allows for massively distributed collaboration, did little to drive student traffic. Few respondents (16 percent) considered shared authorship capabilities as a reason for use.
As a whole, the findings suggest that students used Wikipedia for its summaries and to get started, and because of usability, comprehensibility, and lesser so, for credibility or its peer–to–peer (i.e., wiki) capabilities.

![Figure 2: Why do students use Wikipedia for course–related research?](image)

**How Wikipedia fits into the research process**

Most respondents (70 percent) reported using Wikipedia at the beginning of the research process (see Figure 3). Very few used Wikipedia near or at the end (two percent).
The survey results are consistent with accounts we heard in our student focus groups about when they use Wikipedia. Students in the focus group sessions were precise in characterizing Wikipedia as "a .5 step in my research process" or "the very beginning of the very beginning for me."

Students in the sessions explained that Wikipedia entries have value in the beginning because they provide a "simple narrative that gives you a grasp," "can point you in the right direction," and "help when I have no idea what to do for a research paper."

Another focus group participant called Wikipedia "my presearch tool." Presearch, as the participant defined it, was the stage of research where students initially figure out a topic, find out about it, and delineate it.

As one student put it, Wikipedia is ideal for big-picture background "in good English" and "putting me in my comfort zone" before moving on to more serious research (i.e., scholarly research databases and to a lesser degree, library books).

The large majority of students we interviewed said they begin with Wikipedia despite professors’ cautions about Wikipedia as an authoritative source. As a student in a focus group commented, "Sure, I use Wikipedia just to get a taste, even though my professors say not to."

Most students also said they do not tell their professors they use Wikipedia; they simply avoid citing it in their reports. This was particularly true in the case of students in our sample enrolled in four-year institutions, who more likely to use Wikipedia than students in two-year institutions.

Few students in our sessions ended their course-related research with Wikipedia. As one student in the focus group sessions described, "My professor says Wikipedia is a great place to start, but a horrible place to end."

Moreover, we found almost all of the respondents in our survey reported using an information strategy reliant on a small set of common information sources — close at hand, tried and true [14].

Students exhibited little inclination to vary the frequency or order of their use, regardless of where they were enrolled and despite all the online and in-person resources available to them.

Figure 4 presents a list of information resources used specifically for finding background during the course-related research process (listed from most to least used).

<table>
<thead>
<tr>
<th>Resources used for obtaining background about a topic</th>
<th>Frequency (%) and N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Course readings</td>
<td>97% 1,903</td>
</tr>
<tr>
<td>2. Google (i.e., for finding sites other than Wikipedia)</td>
<td>95% 1,891</td>
</tr>
<tr>
<td>3. Scholarly research databases (EBSCO, ProQuest, JSTOR, etc.)</td>
<td>93% 1,823</td>
</tr>
<tr>
<td>4. Online Public Access Catalog (OPAC)</td>
<td>90% 1,791</td>
</tr>
</tbody>
</table>
These findings suggest when students needed background information, they turned to course readings, Google, online scholarly databases, the library’s online public access catalog (OPAC), and instructors — and less frequently to Wikipedia [15].

Who is likely to use Wikipedia?

We utilized a logistic regression to investigate which members in our sample were likely to be Wikipedia users.

Specifically, we examined the relationship of certain student characteristics (i.e., institutional affiliation by two–year vs. four–year campus, major area of study, and information resource usage) with the likelihood that respondents would use Wikipedia for course–related research [16].

The results of the logistic regression and explanation appear in Figure 5.

| 5. Instructors | 87% 1,662 |
| 6. Wikipedia | 85% 1,675 |
| 7. Government Web sites | 74% 1,381 |
| 8. Classmates | 71% 1,362 |
| 9. Personal collection | 69% 1,288 |
| 10. Library shelves | 69% 1,312 |
| 11. Encyclopedias (print or online, e.g., Britannica) | 61% 1,188 |
| 12. Friends | 57% 1,088 |
| 13. Other search engines (e.g., Ask, Yahoo!) | 52% 1,022 |
| 14. Librarians | 45% 865 |
| 15. Blogs | 25% 474 |

Figure 5: Predicting the probability of using Wikipedia during course–related research.
Note: Variable(s) entered on step 1: campus_dummy, architecture, arts, business, education, occupational, sciences, Google–di, crilibr_di, instructor_di, creading_di.

<table>
<thead>
<tr>
<th>B</th>
<th>S.E.</th>
<th>P</th>
<th>Odds ratio</th>
<th>95% for C.I. odds ratio</th>
<th>Probability for using Wikipedia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>* Dummy variable (two–year institution)</td>
<td>-1.23</td>
<td>.150</td>
<td>.29</td>
<td>.219</td>
<td>.394</td>
</tr>
<tr>
<td><em>Architecture and engineering majors</em></td>
<td>1.02</td>
<td>.288</td>
<td>0</td>
<td><strong>2.77</strong></td>
<td>1.578</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>Arts and humanities majors</td>
<td>.262</td>
<td>.197</td>
<td>.184</td>
<td>1.30</td>
<td>.883</td>
</tr>
<tr>
<td>Business majors</td>
<td>.455</td>
<td>.236</td>
<td>.054</td>
<td>1.58</td>
<td>.993</td>
</tr>
<tr>
<td>Education majors</td>
<td>.59</td>
<td>.576</td>
<td>.303</td>
<td>1.81</td>
<td>.585</td>
</tr>
<tr>
<td>Occupational training majors</td>
<td>.233</td>
<td>.219</td>
<td>.288</td>
<td>1.26</td>
<td>.822</td>
</tr>
<tr>
<td><em>Science majors</em></td>
<td>.625</td>
<td>.213</td>
<td>.003</td>
<td><strong>1.87</strong></td>
<td>1.232</td>
</tr>
<tr>
<td><em>Google usage</em></td>
<td>2.30</td>
<td>.225</td>
<td>0</td>
<td><strong>10.01</strong></td>
<td>6.435</td>
</tr>
<tr>
<td><em>Librarian usage</em></td>
<td>-3.90</td>
<td>.140</td>
<td>.005</td>
<td><strong>.677</strong></td>
<td>.514</td>
</tr>
<tr>
<td>Instructor usage</td>
<td>.340</td>
<td>.191</td>
<td>.075</td>
<td>1.40</td>
<td>.966</td>
</tr>
<tr>
<td>Course reading usage</td>
<td>.062</td>
<td>.305</td>
<td>.838</td>
<td>1.06</td>
<td>.586</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.90</td>
<td>.372</td>
<td>.188</td>
<td>.613</td>
<td></td>
</tr>
</tbody>
</table>

The model contained 11 independent variables in three general groupings: (1) two–year institutional enrollment; (2) majors in architecture and engineering, arts and humanities, business, education, occupational training, sciences, and social sciences (social sciences was the reference category); and, (3) information resources usage, including Google, librarians, instructors, or course readings [17, 18].

The model’s dependent variable was “the use of Wikipedia.” We determined use by students’ response to a survey question about whether they used Wikipedia or not at some point during their course–related research process.

The full model containing all predictors of Wikipedia usage had a (Nagelkerke) R–squared value of 20 percent. In other words, 20 percent of all the variance in the use of Wikipedia can be accounted for by these variables, using this model.

As shown in Figure 5, five independent variables were associated with Wikipedia usage at a statistically significant (.05%) level. These variables appear bolded and asterisked in the first column of Figure 5.

Overall, the strongest predictor of using Wikipedia was being someone who also used Google for course–related research, with an estimated odds ratio of 10.00 or a probability of about 91 percent (controlling for all other factors in the model).

Two other predictors of Wikipedia usage were: (1) being an architecture or engineering major, with an estimated odds ratio of 2.77 or a probability of about 74 percent; and, (2) being a science major, with an estimated odds ratio of 1.87 or a probability of about 65 percent, compared to a social sciences major and everything else that is not explicitly included (controlling for all other
factors in the model).

To a lesser extent, two more predictors of Wikipedia usage can be deduced from negative values reported in Figure 5. Respondents enrolled in two–year institutions were less likely than students in four–year institutions to use Wikipedia, with an estimated odds ratio of .32 or a probability of about 23 percent (controlling for all other factors in the model).

Respondents who used a librarian were less likely to use Wikipedia than those who don’t, with an estimated odds ratio of .67 or a probability of about 23 percent (controlling for all other factors in the model).

In addition to the five statistically significant variables in our model, another six independent variables were not significantly associated (.05%) with the dependent variable.

Variables for which the odds ratio did not differ significantly from 1 (i.e., a 50 percent chance that they would use Wikipedia and a 50 percent chance they would not) were students with majors in arts and humanities, business, education, occupational training and also the use of instructors or course readings for course–related research.

Overall, the predictors from our model about Wikipedia use are as follows:

1. Respondents who were Google users were 10 times more likely to use Wikipedia for course–related research than respondents who did not use Google (controlling for all other factors in our model).

2. Respondents majoring in architecture or engineering were almost three times more likely to be Wikipedia users, compared to social sciences majors (controlling for factors in our model). While respondents majoring in sciences were more than 1.5 times more likely to use Wikipedia, compared to social science majors (controlling for all other factors in the model).

3. Those enrolled in two–year campuses were less likely than those in four–year institutions to report that they used Wikipedia.

4. Those who consulted librarians were less likely to report using Wikipedia than those did not consult librarians.

Discussion

Few research studies have investigated how and why college students use Wikipedia.

The Pew Internet & American Life Project found that 50 percent of online users with a college diploma used Wikipedia to find information, based on a large–scale survey of U.S. residents (n=1,492) (Rainie and Tancer, 2007) [19]. The Pew researchers concluded that college students, and the “well educated,” were more likely to use Wikipedia than those with only a high school diploma.

A recent study surveyed a small sample of communication majors (n=134) and found more than a third (39 percent) of the sample reported being frequent Wikipedia users (i.e., had used Wikipedia more than 15 times in the prior semester) (Lim, 2009) [20]. Students used Wikipedia for obtaining background information and checking facts, even though their perceptions about information quality were not high.

Our research findings substantiate these studies’ earlier claims: Many students are indeed Wikipedia users; many use the site for background information.

Yet our research provides a snapshot of which students may be more likely to turn to Wikipedia than others, too.
Students majoring in architecture, engineering, or the sciences, compared to other majors in our model, were more likely to use Wikipedia than other students in our sample.

One explanation for these findings may be these majors, more than students in other disciplines, may need additional background for their paper assignments.

Argument papers, the bread and butter of humanities and social science courses, may be unfamiliar territory for them. And the resources needed to complete these assignments may be unknown to them, too.

We also found students enrolled in four–year institutions were more likely to use Wikipedia than students in our sample enrolled in two–year institutions (i.e., community colleges).

This finding suggests respondents from two—year institutions may have received more hands–on training about how to conduct scholarly research than at four–year institutions, given the curriculum and accreditation requirements in community colleges.

The four Cs

In a larger sense, our study also examined how Wikipedia fits into overall course–related research process of college students.

In general, we found Wikipedia was used, but less so than other resources that students frequently turned to for background information. When students were looking for background context they went to course readings, Google, scholarly research databases, and OPACs, more often than Wikipedia.

The findings suggest Wikipedia plays a part, but Wikipedia does not drive this part of the student course–related research process. This finding may help dispel some worries and concerns academics have about Wikipedia’s omnipotence and its use as a solitary source of information.

In fact, we found that if a student uses Wikipedia, it is surgically and methodically applied; usually in the very beginning of the research process as a precursor to a more in–depth investigation of a topic.

Wikipedia plays an important role when students are formulating and defining a topic. But when students are in a deep research mode scholarly research, it is library databases, such as JSTOR and PsychINFO, for instance, that students use more frequently than Wikipedia.

As a whole, these findings suggest that course–related research is a complex and a multi–step process. Students consistently employ preferred problem–solving strategies for course–related research, based on efficiencies and using a mix of self–taught workarounds and some formally learned research methods.

All in all, Wikipedia has a unique information utility. We define information utility in terms of how useful a resource is to students, based on their needs, standards, and expectations [21].

Wikipedia’s information utility is tied to four Cs it delivers — currency, coverage, comprehensibility, and convenience.

It is Wikipedia’s hyper currency combined with a sheer range of coverage that is brief and easy to understand and access that makes Wikipedia useful and distinct from so many other sources (e.g., Encyclopedia Britannica, both the online and offline versions) [22].

On any given day, Wikipedia’s breadth of coverage is something that was unfathomable a short time ago. One student in our sessions put it simply when discussing the value of Wikipedia: “Even Joe the Plumber is in Wikipedia!”

At the same time, we found credibility (another "C") was less of a criterion for Wikipedia usage. Only 16 percent of the respondents in our survey reported using Wikipedia because it was more of a credible source of content than other Web sites.

Students in our sessions assumed they would need to substantiate what they first found in Wikipedia in their early stages of research with some additional fact checking [23].
Some students in the focus groups told us if they doubted a Wikipedia entry, they did some fact–checking elsewhere — a news clip on YouTube to “see if the two things added up.” Other students reported looking for Wikipedia’s editorial notes (e.g., the broom image at the top of an entry page, stating that an entry needed to be “cleaned up”).

These findings suggest the advantage of using Wikipedia far outweighs its perceived drawbacks (i.e., credibility and/or some professors’ disapproval). Today’s students appear to negotiate the accuracy of Wikipedia content, rather than assume it.

Conclusion

This study investigated how and why college students use Wikipedia within the context of using other resources for course–related research.

In particular, we investigated how Wikipedia fits into information–seeking strategies students employ for fulfilling course–related research assignments.

Overall, we found:

1. Students’ driving need for background context makes Wikipedia one of the predictable workarounds that many students use, especially during the first stages of their research process.

2. Course–related research may begin with Wikipedia, but it rarely ends there. In our study, students employed a complex information problem strategy in their research processes, reliant on a mix of information resources that were from scholarly sources and public Internet sites.

3. In our study, we found the combination of coverage, currency, comprehensibility, and convenience drives Wikipedia use, in a world where credibility is less of a given — or an expectation from students — with each passing day.

4. Overall, college students use Wikipedia. But, they do so knowing its limitation. They use Wikipedia just as most of us do — because it is a quick way to get started and it has some, but not deep, credibility.

Opportunities

As a whole, our findings present some opportunities for librarians, educators, and information resource vendors.

The need for context–sensitive presearch sources and coaching services appears to be in high demand. There is a need for solutions that logically bridge the early stages of research to the rest of the research process and deliver the kinds of efficiencies students have come to expect (e.g., the “four Cs”).

When students have critical questions about narrowing down topics, figuring out search terms, and obtaining background information appears to be a critical time of need. It is a period of initial curiosity, but also one rife with inevitable frustrations in search of solutions. Our findings lead us to believe that support and solutions from multiple outlets, not just one tool, service, or individual, may work the best.

Whether these opportunities and our findings hold with students from other campuses is unclear. Further research about the use of Wikipedia by students needs to be conducted with different study populations.

Additional research about the relationship between using Wikipedia for course–related research and outcomes (e.g., grades, quality, and learning) would lend to a deeper understanding of
Wikipedia usage, too.

About the authors

Alison J. Head, Ph.D. and Michael B. Eisenberg, Ph.D. are the Co–Principal Investigators and Co-Directors of Project Information Literacy, which is based in the Information School at the University of Washington. Head is a Research Scientist in the Information School and Eisenberg is Dean Emeritus and Professor in the Information School.


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Notes


2. See the Project Information Literacy Web site at http://projectinfolit.org.

3. The student discussion groups were held on seven campuses with full–time sophomores, juniors, and seniors at Harvard University, University of Illinois at Urbana–Champaign, Mills College, University of Washington, and with students, who had completed at least one semester at three community colleges, including Diablo Valley College (Calif.), West Valley College (Calif.), and Shoreline Community College (Wash.), during October, November, and December 2008.

4. For the discussion groups, we did not intentionally try to balance our sample for gender (one of the institutions in the campus sample was a women’s college). Without this campus in the sample, more than half of the sample from co–ed campuses was female (63 percent).

5. We intentionally excluded any freshmen from our four–year institution sample and students who had taken fewer than 12 units from our community college sample. These students were more likely to discuss research strategies they had used in high school, rather than those they had developed (or were learning to develop) and had used, so far, in college.

6. In the discussion group sample, there was representation from students studying anthropology, art history, communication, economics, education, English, gender studies, global studies, health, history, international relations, languages, linguistics, music, political science, psychology, social
studies, and sociology. To a much lesser degree (nine percent of the sample), some student "walk ins" were studying computer science, nursing, engineering, and business administration.

7. Survey respondents were full–time students enrolled at Harvard University, Illinois State University, University of Washington, and with students, who had completed at least one semester, at three community colleges, including Chaffey Community College (Calif.), Shoreline Community College (Wash.), and Volunteer State Community College (Tenn.) during April, May, and June 2009. A PIL research protocol underwent Human Subjects at University of Washington, the institution sponsoring the research, and at each institution in the sample.

8. We defined "majors" in broad terms in our study to include students with declared majors in a specific discipline at four–year institutions and also students with a primary emphasis of study at two–year community colleges. We used a logistic regression to determine which majors were likely to use Wikipedia (see section on "Who is likely to use Wikipedia" in this paper for details).

9. The largest category of survey respondents was sophomores (43 percent), though juniors (25 percent) and seniors (24 percent) also made up the sample. Students studying in arts and humanities, social sciences, and the sciences comprised nearly half (42 percent) of the community college sample and about three–fourths of the four–year college sample (74 percent). A number of students had declared "other" majors (n=255); many were attending community colleges and taking courses in occupational training (e.g., dental hygiene, paralegal studies, radiology technician) and were recoded, as such.

10. For purposes of our analysis, we employed University of Washington's scale for translating GPA to letter grades, courtesy of the Office of the Registrar, [http://www.washington.edu/students/gencat/front/Grading_Sys.html](http://www.washington.edu/students/gencat/front/Grading_Sys.html), accessed 10 August 2009.

11. In the analysis, the independent variables for majors in architecture and engineering, arts and humanities, business, education, occupational training, and social sciences and a dependent variable of Wikipedia usage in our model.

12. The survey question (#13) was stated as follows: “Some students use Wikipedia, in one way or another, at some time during their course–related research process. How often do you use Wikipedia? Do you ever go to Wikipedia during your research process for course–related research, even if your instructor suggests that you should not?”


15. In our prior research (2007), a survey was administered on a single campus with a smaller sample (n=178). We found a small amount of respondents (three percent) used Wikipedia as their first step in the research process; most used course readings first, see Alison J. Head, 2007. “Beyond Google: How do students conduct academic research?” First Monday, volume 12, number 8 (August), at [http://firstmonday.org/article/view/1998/1873](http://firstmonday.org/article/view/1998/1873), accessed 16 December 2009.

16. In our logistic regression analysis, we did not investigate interaction effects between the different variables.

17. The survey question (#7) about using Google was worded so that it was use of Google for finding sites other than Wikipedia.

18. The logistic regression model contained five binary independent variables: enrollment in a two–year institution, use of course readings, use of instructors, use of Google, use of librarians,
major area of study; 0–absent/1–present and five categorical independent variables for primary area of study/major: architecture and engineering, arts and humanities, business, education, occupational training (e.g., paralegal, radiology technician, dental hygienist, etc.). A variable for the area of study in social sciences was used as the intercept, or as a basis of comparison to other majors.


21. In our discussion we define information utility broadly to cover the needs, standards and expectations students have for information within the context of course-related research. Previous definitions have defined information utility in terms of Web behavior and ease, convenience, and usefulness of information (Lim, 2009; Rieh and Hillgoss, 2007).


23. Lim (2009) also found that “student attitudes toward Wikipedia tended to be cautious, as they were aware that it may include inaccurate information, In other words, it seems that students did not use Wikipedia blindly,” p. 2,200. Sook Lim, 2009. “How and why do college students use Wikipedia?” Journal of the American Society for Information Science and Technology, volume 60, number 11 (November), pp. 2,189–2,202.

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