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Wikipedia's Credibility
An Empirical Study on the Evaluation of the Online Encyclopedia
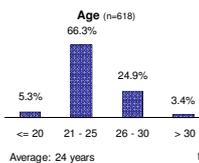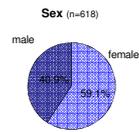
Basics of the Study

Background:

- The Internet and wiki technology offer new opportunities of producing, gathering, and organizing knowledge.
- Wikipedia is a free online encyclopedia whose basic principle implies that every user is allowed to add new articles and edit existing ones. Contents are not being checked by editorial staff, but by the users at large. Thus, participation by a great number of users shall ensure the contents' quantity as well as quality.
- The original English version of Wikipedia was launched in 2001. Today there are Wikipedias in about 250 different languages with a total of 9.6 million articles. The second largest Wikipedia is the German one with approximately 700.000 articles (http://meta.wikimedia.org/wiki/List_of_Wikipedias, 06.02.2008).
- In Germany as well as worldwide, Wikipedia belongs to the top ten of the most frequently visited websites.
- The use of Wikipedia as a resource of knowledge seems to be popular among students. Apparently, they appreciate the benefits of freely available information on a broad range of subjects, although many universities disapprove of quoting Wikipedia in academic assignments as the online encyclopedia is not (yet) considered to be a reliable source of scientific information (Bendel 2006; Kuhlen 2005).
- However, it is unknown how students themselves assess the online encyclopedia. Therefore, the primary research question of this study is:
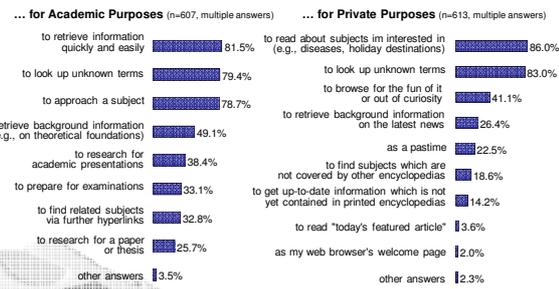
  How do students assess Wikipedia's credibility?

Methodology:

- Online survey between 11 September, 2007 and 1 October, 2007
- Target population: German-speaking students who use Wikipedia at least occasionally
- Recruiting via mailing list of the University of Hohenheim and forwarding
- Data cleansing left 618 data sets for analysis. On average, participants needed 14 minutes to complete the survey.

General Results

Sex (n=618)

male / female

Age (n=618)

66.3%
24.9%
5.3%
3.4%

<= 20 / 21 - 25 / 26 - 30 / > 30

Average: 24 years

Reasons to Use Wikipedia …

… for Academic Purposes (n=607, multiple answers)

to retrieve information quickly and easily	81.5%
to look up unknown terms	79.4%
to approach a subject	78.7%
to retrieve background information (e.g., on theoretical foundations)	49.1%
to research for academic presentations	38.4%
to prepare for examinations	33.1%
to find related subjects via further hyperlinks	32.8%
to research for a paper or thesis	25.7%
other answers	3.5%

… for Private Purposes (n=613, multiple answers)

to read about subjects im interested in (e.g., diseases, holiday destinations)	86.0%
to look up unknown terms	83.0%
to browse for the fun of it or out of curiosity	41.1%
to retrieve background information on the latest news	26.4%
as a pastime	22.5%
to find subjects which are not covered by other encyclopedias	18.6%
to get up-to-date information which is not yet contained in printed encyclopedias	14.2%
to read "today's featured article"	3.6%
as my web browser's welcome page	2.0%
other answers	2.3%

Frequency of Wikipedia Use (n=618)

	for academic purposes	for private purposes	total	
daily	5.5%	11.5%	64.6%	regularly
at least once a week	35.4%	41.6%		
at least once a month	39.2%	33.2%		
less frequently	18.1%	13.3%	35.4%	rarely
never	1.8%	0.5%		

Specific Hypotheses and Results*

Hypothesis 1: Students assess Wikipedia as less credible than other sources of information.

Research on the credibility of the Internet compared to other media has shown that many online resources are still seen rather sceptically. Online contents are considered as less trustworhy as they can be published and altered by any individual user (Flanagin/Metzger 2007; Ridder/Engel 2005; Schweiger 1999).
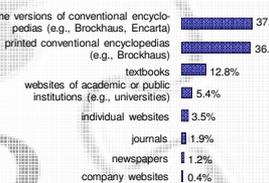
On a scale of 0 to 100 percent, what percentage of Wikipedia's information do you assume to be accurate and reliable? (n=558)
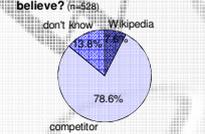
0.7% / 8.6% / 38.4% / 52.3%

<= 25 percent / 25 - 50 percent / 50 - 75 percent / > 75 percent

arithmetic mean: 75.1%
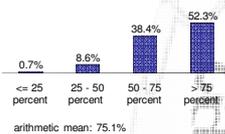
Ranking of Sources of Information According to their Perceived Credibility (n=592-595)

rank	source of information
1	textbooks
2	journals
3	conventional encyclopedias (printed or online)
4	websites of academic or public institutions
5	Wikipedia
6	newspapers
7	company websites
8	individual websites

Wikipedia's Most Important Competitor (n=570)

online versions of conventional encyclopedias (e.g., Brockhaus, Encarta)	37.9%
printed conventional encyclopedias (e.g., Brockhaus)	36.8%
textbooks	12.8%
websites of academic or public institutions (e.g., universities)	5.4%
individual websites	3.5%
journals	1.9%
newspapers	1.2%
company websites	0.4%

If you got conflicting information from the following sources of information, which of the sources would you be more inclined to believe? (n=528)

don't know 15.8%
Wikipedia 5.7%
competitor 78.6%

Wikipedia's Perceived Credibility
arithmetic means (1="strongly disagree" to 5="strongly agree")

Wikipedia / competitors at large / encyclopedias (printed, online)

	Wikipedia	competitors	encyclopedias
believable	3.58	4.44	4.52
accurate	3.39	4.24	4.32
trustworthy	3.20	4.33	4.45
unbiased	3.40	3.44	3.52
complete	2.72	3.13	3.15

(r) =item recoded
n (Wikipedia)=555-560
n (competitors)=512-517
n (encyclopedias)=384-387
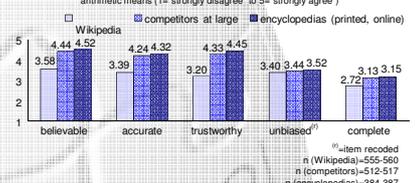
To test this hypothesis, we used different operationalizations of credibility. The results are heterogenous. Although the students assume a large percentage of Wikipedia's information to be reliable, they would prefer other sources of information if confronted with contradictory information. Furthermore, users rank Wikipedia as less credible than competing sources of information. This finding holds true for the ranking as well as the measurement via five items selected from former credibility research (Flanagin/Metzger 2007, 2000; Chesney 2006).
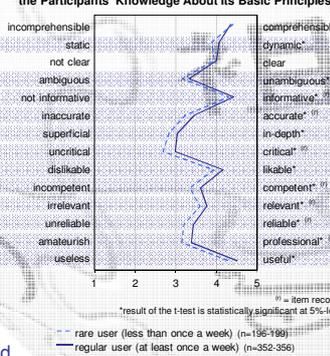
Result: Hypothesis 1 can be accepted.

Hypothesis 2: The more frequently students use Wikipedia the more credible they assess the online encyclopedia.

Research on the credibility of traditional media and the Internet found a positive correlation between usage and perceived credibility of media (Flanagin/Metzger 2000; Schweiger 1999; Shaw 1973; Greenberg 1966; Westley/Severin 1964).

These results indicate that people either use those media they consider as credible or that they rate their most frequently used media as credible.

The present study confirms a positive correlation between the frequency of Wikipedia use and its perceived credibility. This finding applies to credibility ratings at large as well as to many single items used to measure the online encyclopedia's perceived credibility.

Wikipedia's Perceived Credibility According to the Participants' Knowledge About Its Basic Principles

incomprehensible — comprehensible (r)
static — dynamic*
not clear — clear
ambiguous — unambiguous*
not informative — informative*
inaccurate — accurate* (r)
superficial — in-depth*
uncritical — critical* (r)
dislikable — likable*
incompetent — competent* (r)
irrelevant — relevant* (r)
unreliable — reliable* (r)
amateurish — professional* (r)
useless — useful*

1 2 3 4 5

*result of the t-test is statistically significant at 5%-level

- - rare user (less than once a week) (n=196-199)
— regular user (at least once a week) (n=352-356)

(r) = item recoded

Result: Hypothesis 2 can be accepted.

Hypothesis 3: Wikipedians assess Wikipedia as more credible than users who have never edited articles.

Users who have yet worked on Wikipedia contents by writing new articles or editing existing ones are termed Wikipedians.

They are assumed to be familiar with the basic principles of the online encyclopedia and to use it more intensively and actively than users who passively consume its contents.
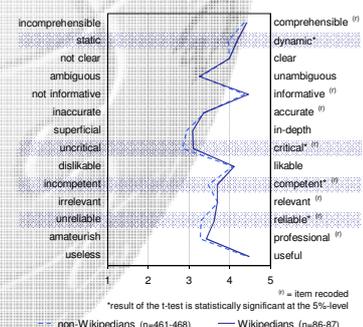
Therefore it is conceivable that Wikipedians' perceptions of the online encyclopedia might differ from those of other users.

Active Participation in Wikipedia (n=564)

	edited article	written article	total (Wikipedians)
yes	15.1%	3.5%	15.4%
no	84.9%	96.5%	84.6%

The data show that Wikipedians assess Wikipedia as more credible than passive users. Thus supports the hypothesis. However, many results are non-significant, which may be due to the small number of Wikipedians participating in this study.

Wikipedia's Perceived Credibility Among Wikipedians and Other Users

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inaccurate — accurate (r)
superficial — in-depth
uncritical — critical* (r)
dislikable — likable
incompetent — competent* (r)
irrelevant — relevant
unreliable — reliable* (r)
amateurish — professional
useless — useful

1 2 3 4 5

*result of the t-test is statistically significant at the 5%-level

— non-Wikipedians (n=461-468)
— Wikipedians (n=86-87)

Result: Hypothesis 3 can be accepted.

Hypothesis 4: The more students know about Wikipedia's basic principles the more credible they assess the online encyclopedia.

Former credibility research found that the users' knowledge about and experience with a medium might influence their perception of that medium (Flanagin/Metzger 2007; Robinson/Kohut 1988).
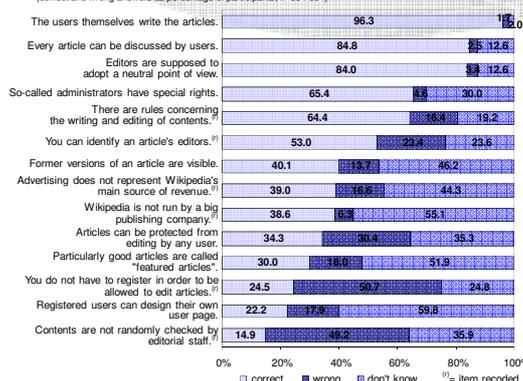
This might be true especially for Wikipedia which features distinctly new modes of gathering and publishing information. Awareness of the collaborative system, i.e. that all contents are written and edited by other users without being controlled by editorial staff, is considered as an important factor in the perception of the online encyclopedia.

Additionally, this perception might be influenced by the users' knowledge about Wikipedia's organizational characteristics and its special features for providing a certain degree of content quality.

Knowledge about Wikipedia's basic principles is measured via several statements. Participants are classified according to their number of correct answers.

The assumed correlation between knowledge and perceived credibility is confirmed. Participants who are aware of most of Wikipedia's basic principles assess the online encyclopedia as significantly more credible than users with only very little knowledge. Students with a medium level of knowledge do not differ significantly from the other two groups for all items.

Knowledge About Wikipedia's Basic Principles
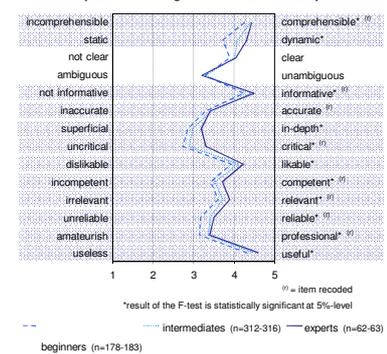(correct and wrong answers as percentage of participants, n=584-594)

	correct	wrong	don't know
The users themselves write the articles.	96.3	1.7	2.0
Every article can be discussed by users.	84.8	2.5	12.6
Editors are supposed to adopt a neutral point of view.(r)	84.0	3.4	12.6
So-called administrators have special rights.	65.4	4.6	30.0
There are rules concerning the writing and editing of contents.	64.4	16.4	19.2
You can identify an article's editors.(r)	53.0	23.4	23.6
Former versions of an article are visible.	40.1	13.7	46.2
Advertising does not represent Wikipedia's main source of revenue.(r)	39.0	16.6	44.3
Wikipedia is not run by a big publishing company.(r)	38.6	6.3	55.1
Articles can be protected from editing by any user.	34.3	30.4	35.3
Particularly good articles are called "featured articles".	30.0	18.0	51.9
You do not have to register in order to be allowed to edit articles.(r)	24.5	50.7	24.8
Registered users can design their own user page.	22.2	17.9	59.8
Contents are not randomly checked by editorial staff.(r)	14.9	49.2	35.9

0% 20% 40% 60% 80% 100%

(r) = item recoded

Classification of Participants According to Their Knowledge About Wikipedia (n=573)

experts 11.0%
beginners 32.8%
intermediates 56.2%

Classification according to the number of correct answers:
beginners: 0-5 correct answers
intermediates: 6-10 correct answers
experts: 10-14 correct answers

arithmetic mean: 6.9 correct answers

Wikipedia's Perceived Credibility According to Participants' Knowledge About Its Basic Principles

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uncritical — critical* (r)
dislikable — likable*
incompetent — competent* (r)
irrelevant — relevant* (r)
unreliable — reliable* (r)
amateurish — professional* (r)
useless — useful*

1 2 3 4 5

(r) = item recoded

*result of the F-test is statistically significant at 5%-level

······ intermediates (n=312-316) — experts (n=62-63)
- - beginners (n=178-183)

Result: Hypothesis 4 can be accepted.

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* Only a selection of hypothesis and results are presented on this poster. For further information please contact the authors: monika.taddicken@uni-hohenheim.de or susanne.hillen@gmx.de.