Research on gender gap in Wikipedia

WHAT HAS BEEN DONE SO FAR?

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What proportion of Wikipedia editors are female?

Research	Participants	Method	Results
Global South User Survey (2014)	Site visitors, 11 countries, 16 languages	Banners shown to both logged in and logged out users	20% female (n=10,061)
Gender micro survey (WMF, 2013)	Newly registered users on en-wiki	Prompt immediately after registration	22% female (n=32,199)
Editor Survey (WMF, 2012)	Banners in 17 languages	Logged in Wikipedia users who did not respond 'no' to "Have you ever edited Wikipedia?"	10% female (n=8,716)
Editor survey (WMF, December 2011)	Banners in multiple languages	Logged in Wikipedia users who did not respond 'no' to "Have you ever edited Wikipedia?"	9% female (n=6,503)
Editor survey (WMF, April 2011)	Banners in multiple languages	Logged in Wikipedia users who did not say that they made 0 edits	9% female (n=4,930)
UNU-MERIT/WMF survey (2008)	Site visitors who described themselves as contributors in multiple languages	Banners shown to both logged in and logged out users	13% female (n=53,888)

Survey limitations

- Women editors less likely to participate in surveys (16 v/s 13, Hill & Shaw)
- Different study methods
- Participation bias between languages (Bayer, Wikimedia blog)
- Sample size
- “Who is an editor?” (Bayer, Wikimedia blog)

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What proportion of Wikipedia editors are female?

9-22%

Why women do not edit Wikipedia?

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The interface isn't sufficiently user friendly

They don't like Wikipedia's sometimes-fighty culture

They find its overall atmosphere misogynist

They are too busy

Because social relationships are important to them, and Wikipedia offers them fewer opportunities than other sites

The information they bring into Wikipedia is likely to be deleted /reverted

They aren't sufficiently self-confident

Wikipedia culture is sexual in ways they find it off-putting

Their primary language has grammatical gender and find being addressed as male off-putting

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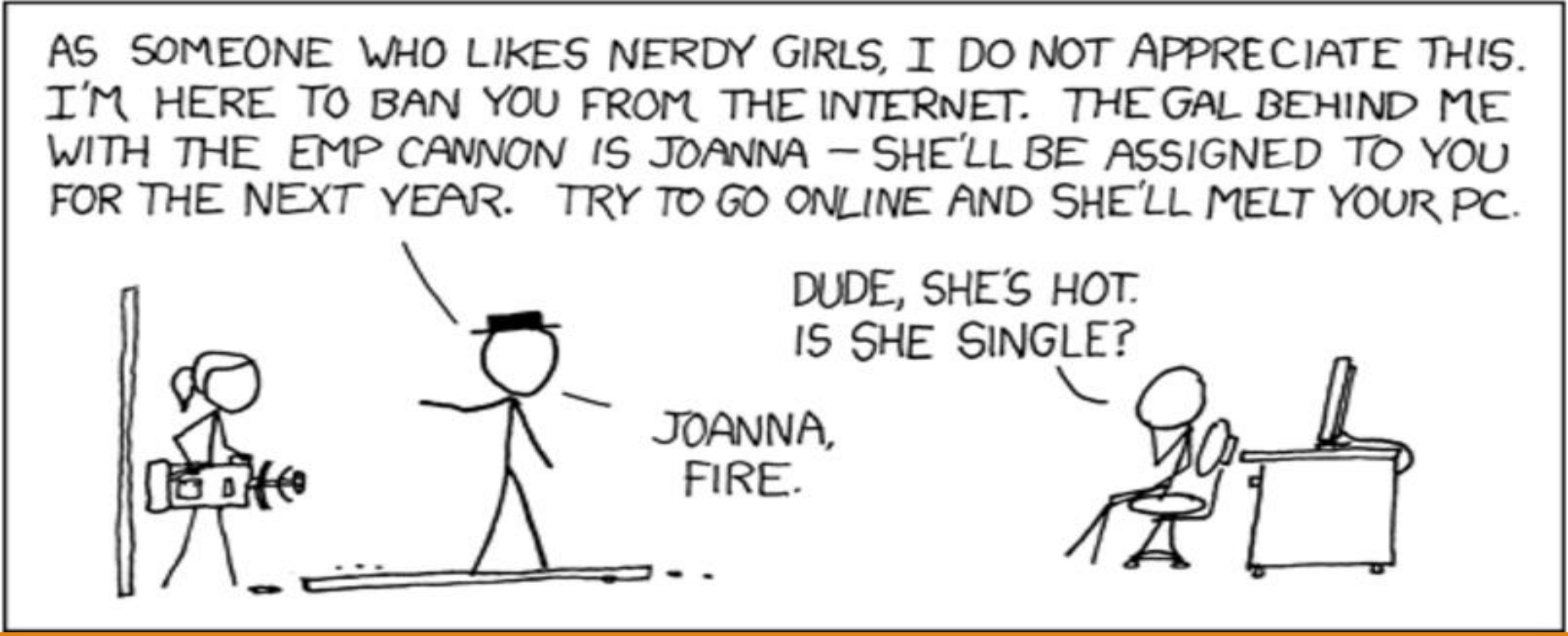
Our Hypothesis	Research	Participants & Methods	Findings
The information women bring into Wikipedia is more likely to be reverted	Lam & Uduwage (2011), en-wiki	Reverts of self-identified female/male Wikipedians for non-vandalism-related reasons from Jan 2011 data dump	Female newcomers are reverted more than males
			Being reverted as newcomers has the same apparent effect on males and females
Women aren't sufficiently self confident	Helgeson (2014), sv-wiki	Banners shown to both logged in and logged out users on sv-wiki (n=2,700)	Significant differences in self-perceived competence of men and women
	Hinnosaar (2015), US population	Survey on Amazon Mechanical Turk (n=974), mostly US Ips, hypothesized article contribution	Beliefs about one's competence explain a large share of gender gap in Wikipedia editing
	Collier & Bear (2012), en-wiki	UNU-MERIT survey, banners shown to all readers (n=40,699)	Female Wikipedia users have a lower confidence in their expertise and lower confidence in the value of their contribution.
	Protonotarios & Sarimpei (2015)	Banners shown to both logged in and logged out users on gr-wiki (n=359 readers, 78 editors)	Women readers lack self confidence with respect to their knowledge and technical skills

Our Hypothesis	Research	Participants & Methods	Findings
Women do not like Wikipedia's fighty culture	Collier & Bear (2012), en-wiki	UNU-MERIT survey, banners shown to all readers (n=40,699)	Female contributors prefer to share and collaborate rather than delete and change.
	Protonotarios & Sarimpei (2015)	Banners shown to both logged in and logged out users on gr-wiki (n=359 readers, 78 editors)	Women's behaviors may be driven by personal motivations such as enjoyment and learning.
	Lam & Uduwage (2011), en-wiki	Proportion of of "male" and "female" protected articles	Articles with high female editor concentrations are MORE contentious.
	Collier & Bear (2012), en-wiki	UNU-MERIT survey, banners shown to all readers (n=40,699)	Female Wikipedia users perceive high level of conflict.
	Collier & Bear (2016)	UNU-MERIT/WMF survey English version (2008) , banners shown to all readers, marked as US residents, occasional contributors not wanting to contribute more (n=1,598)	Women report more discomfort in editing other's work (which typically involves conflict) and more negative responses to critical feedback.

Our Hypothesis	Research	Participants and methods	Findings
Social relationships are important to women Wikipedians	Lam & Uduwage (2011), en-wiki	Self-identified female/male Wikipedians (n=4,900 f, 43,850 m) editing User & User talk namespaces	Females are more likely to participate in community and social areas of Wikipedia
Women are too busy	Collier & Bear (2012), en-wiki	UNU-MERIT survey, banners shown to all readers (n=40,699)	No evidence to infer that women have less discretionary time available for contributing.
	Collier and Bear (2016)	UNU-MERIT/WMF survey English version (2008) , banners shown to all readers, marked as US residents, occasional contributors not wanting to contribute more (n=1,598)	No evidence to infer that women have less discretionary time available for contributing.
Women report to have lesser internet skills than men.	Hargittai, Shaw (2014)	Young adults in the US, surveyed twice (n=547), paper-pencil method, assessed for internet use patterns, whether they edit Wikipedia	Gender gap in editing is exacerbated by an internet skills gap. Most likely contributors are high skilled males, among low skilled internet users, no gender gap exists.



Do women and men editors behave differently on Wikipedia?

Photo : xkcd, CC-BY-SA 3.0, https://xkcd.com/322/

Our Hypothesis	Research	Participants and methods	Findings
Women are too introverted	Amichai-Hamburger, Lamdan (2008)	Online questionnaire to test personality traits (n = 139, both Wikipedians and non-Wikipedians, men and women)	Wikipedian women were less introverted than non-Wikipedian women.
Women are more diligent than men			Men scored significantly lower in conscientiousness scale as compared with women.
Women make less revisions than men	Antin & Yee (2011)	Users who created valid new account and optionally disclosed gender on en-wiki (n=437) from Sep 2010 to Feb 2011	Most active men made more number of, and smaller-sized revisions than women. Bottom 75% men and women made similar number of revisions.
Women are more positive and communicate more with other women.	Laniado, Castillo (2012)	Approx 6,000 editors with at least 100 comments on talk pages, crowdsourcing assessment of gender, measured emotional content of comments using Affective Norms for English Words (ANEW)	Women tend to participate in discussions with a more positive tone. Editors having similar emotional styles are more likely to interact with each other.
Women and men edit different types of articles	Schrijver (2016), en-wiki	Registered users on Wikipedia who have mentioned gender preference and edited at least once (n = 257,157) and edit history classified according to Wikipedia's categories	76% of Wikipedia's categories are overrepresented by either gender, out of which 35% categories are female and 65% are male.

WOMEN-OVERREPRESENTED CATEGORIES

AnatomicalStructure

Area

ChemicalSubstance

Colour

Disease

EthnicGroup

Food

Holiday

Name

PersonFunction

Species

TimePeriod

MEN-OVERREPRESENTED CATEGORIES

Agent

Award

Biomolecule

Device

Event

List

MeansOfTransportation

Place

SportsCompetitionResult

SportsSeason

TopicalConcept

UnitOfWork

Work

Schrijver (2016), *Gender gap on Wikipedia : Visible in all categories?*

I actively avoid areas or tasks that are stressful

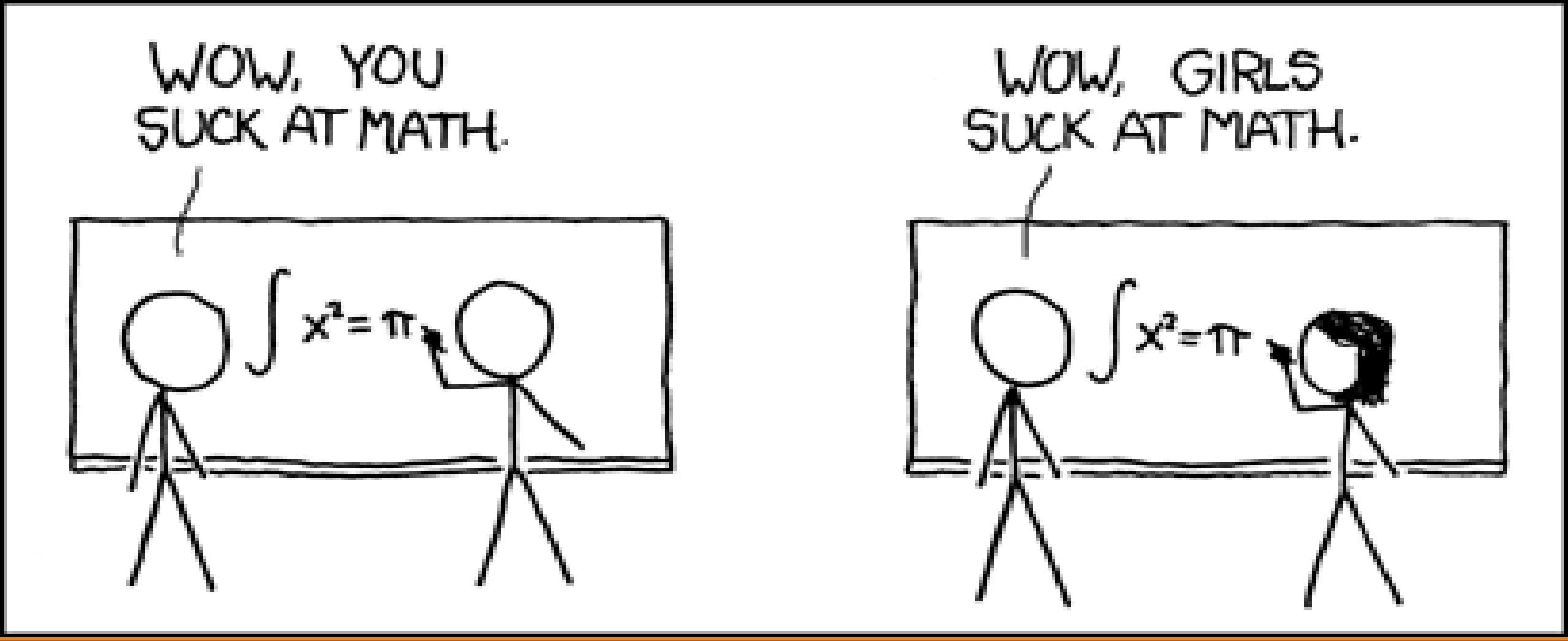
I don't participate in those discussions (talk pages) because that is too much emotional work for me

The only acceptable model for behaviour on Wikipedia is to behave like a man, which is, to ignore all the bullshit.

I experienced "Wikistress" caused by gender-based hostility

I do not experience trolling or harassment because I actively avoid areas or tasks that are "stressful"

Amanda Menking, Ingrid Erickson, *The Heart Work of Wikipedia : Emotional Labor in the World's largest Encyclopedia*, CHI Crossings, Seoul, S. Korea (2015)



Are women portrayed differently from men on Wikipedia articles?

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Coverage bias

Research	Participants & Methods	Findings
Wagner, Garcia (2015)	WP in 6 languages, compared with reference datasets : Freebase, Pantheon, Human Accomplishment, assessed for number and length	Men and women are covered equally well on Wikipedia.
Wagner, Graells-Garrido (2016)	DBpedia 2014 dataset, inferred gender for WP bios, global notability calculated by no. of languages with the bio & Google search volume	Women in Wikipedia are slightly more notable than men.
Reagle, Rhue (2011)	Biographical subjects from 6 sources compared to en-wiki and Britannica, gender guessed via balance of gendered pronouns	Wikipedia has better coverage, longer articles. Wikipedia articles on women are more likely to be missing than that of men compared to Britannica.

Structural bias

Research	Participants & Methods	Findings
Wagner, Garcia (2015)	WP in 6 languages, compared with reference datasets : Freebase, assessed for asymmetry and centrality	Articles about women tend to link more to articles about men than the opposite. Men are significantly more central.
Garrido, Lalmas (2015)	DBpedia 2014 dataset, inferred gender for WP bios, checked if certain attributes are more frequent for women, analyzed meta data	Articles about men are disproportionately more central than articles about women
Wagner, Graelles-Garrido (2016)	DBpedia 2014 dataset, inferred gender for WP bios, attributes, PageRank for centrality	There are structural differences in terms of metadata and hyperlinks on Wikipedia.

Lexical bias

Research	Participants and Methods	Findings
Wagner, Garcia (2015)	WP in 6 languages, Log likelihood ratios for comparing gender-word relationships.	Men and women are presented differently on Wikipedia
Garrido, Lalmas (2015)	DBPedia 2014 dataset, en-wiki dump Oct 2014, Inferred gender for WP biographies, LIWC dictionary	Marriage and sex related content are more frequent in women's biographies, cognition related content is highlighted in men's biographies
Wagner, Graells-Garrido (2016)	DBpedia 2014 dataset, inferred gender for WP bios, positive and negative content analyzed using adjectives	Abstract terms tend to be used to describe positive aspects of men and negative aspects of women in their biographies

Visibility bias

Research	Participants and Methods	Key findings
Wagner, Garcia (2015)	WP in 6 languages, Chi square test on proportion of men and women on main page	Selection procedure of featured articles of Wikipedia community does not suffer from gender bias

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What is the public perception/reception of gender gap on Wikipedia?

I'm sure this (gender gap) has something to do with the fact that women aren't show-offy-know-it-alls.

Wikipedia has to be fact-checked and referenced, whereas women prefer to make baseless claims and get into arguments.

How is it that, if fewer women that men contribute, that it is a problem, and somehow the fault of the site?

I have hardly ever met a real 'collector' type woman, while I know dozens of males obsessed with a certain topic and systematically collect everything about it.

Women can always go create their own version of Wikipedia. It can contain articles on puppies, kittens, handbags, man-hating, Lady Gaga etc

Collaborative editing task

Research	Participants and methods	Results
Shane-Simpson, Gillespie-Lynch (2016)	University students from the US (n=203), participating in a collaborative editing task	Overall, women added more content. Men added more content when feedback was neutral. Women added more content when feedback was constructive. Women perceived anonymous editors as male and as more critical when compared to gender neutral peers.

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