Community, Cooperation, and Conflict in Wikipedia

John Riedl

GroupLens Research
University of Minnesota
Number of Active Editors
Vision

- Community Health
- Humans + Computers
- Synthetic vs. Analytic Research
Article Readership vs. Creation Date

Geometric Mean of Observed Visits vs. Date of Article Creation
Linear fit: \( \log_{10}(y) = 6.191 - 0.00121 x \)

\((x\) expressed as days since January 1, 2003\)

\(R^2 = 0.113\)
Community Health

We can tell when a community has failed. Our goal is to know *before* it fails, and to know what to do to prevent failure.
Reader
Contributor
Collaborator
Leader
Creating, Destroying, and Restoring Value in Wikipedia

(Group 2007)

Reid Priedhorsky
Jilin Chen
Shyong (Tony) K. Lam
Katherine Panciera
Loren Terveen
John Riedl
WP:Clubhouse? An Exploration of Wikipedia’s Gender Imbalance

WikiSym 2011
Shyong (Tony) K. Lam
University of Minnesota
Anuradha Uduwage
University of Minnesota
Zhenhua Dong
Nankai University
Shilad Sen
Macalester College
David R. Musicant
Carleton College
Loren Terveen
University of Minnesota
John Riedl
University of Minnesota
Gender Gap – Overall

2009 editor cohort – females are...

16% of known-gender editors  [1 in 6]
9% of known-gender edits    [1 in 11]
Gender Gap vs. Edit Count

% Female Editors

Number of Edits

1 2 4 8 16 32 64 128 256 512 1024 2048 4096
Gender Gap – Historical

Is Wikipedia’s gender gap closing?

Many tech gender gaps are narrowing...

Internet, Smartphones, online games

...and some have reversed...

Blogging, Facebook, Twitter
New Editor Gender - Userbox

% Female Editors

R² = 0.0003

Month of First Edit

2006  2007  2008  2009  2010  2011
Effect of Movie Gender on Article Length

Female-interest topics = Lower quality articles
“Imagine a world in which every single human being can freely share in the sum of all knowledge. That’s our commitment.”
H1: Female editors don’t like conflict. SUPPORTED
H2: Female editors have lower confidence. SUPPORTED
H3: Female contributors prefer to share and collaborate. SUPPORTED
H4: Female contributors have less time? REVERSED
Reader
Contributor
Collaborator
Leader
SuggestBot

Cosley et al., IUI 2007
How do people find tasks?

Randomly
Chronologically
Community needs
Alphabetically
Articles you might like to edit, from SuggestBot

SuggestBot predicts that you will enjoy editing some of these articles. Have fun!

<table>
<thead>
<tr>
<th>Stubs</th>
<th>Cleanup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamie Waylett</td>
<td>Devon Murray</td>
</tr>
<tr>
<td>Phineas Nigellus</td>
<td>David Heyman</td>
</tr>
<tr>
<td>Christian Coulson</td>
<td>Chris Rankin</td>
</tr>
<tr>
<td>Molly Parker</td>
<td></td>
</tr>
<tr>
<td>Alfred Enoch</td>
<td></td>
</tr>
<tr>
<td>❑ Hog's Head</td>
<td></td>
</tr>
<tr>
<td>Harry Potter and the Half-Blood Prince (film)</td>
<td>Scabbers</td>
</tr>
<tr>
<td>Erskine William Gladstone</td>
<td>Oblivistor</td>
</tr>
<tr>
<td>Dartmoor Preservation Association</td>
<td></td>
</tr>
<tr>
<td>Unauthorized Chinese Harry Potter books</td>
<td>Minor Dark wizards in Harry Potter</td>
</tr>
<tr>
<td>Hogwarts headache</td>
<td></td>
</tr>
<tr>
<td>Major powers - France</td>
<td></td>
</tr>
<tr>
<td>Biblical judges</td>
<td></td>
</tr>
<tr>
<td>Maritoba Lotteries Corp.</td>
<td></td>
</tr>
<tr>
<td>Madam Hooch</td>
<td></td>
</tr>
<tr>
<td>Adrian Rawlins</td>
<td></td>
</tr>
<tr>
<td>Geraldine Somerville</td>
<td></td>
</tr>
<tr>
<td>❑ Citty St-Catchpole</td>
<td></td>
</tr>
<tr>
<td>Manolo Gaunt</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Merge</th>
<th>Add Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tom Foltin</td>
</tr>
<tr>
<td></td>
<td>Filius Flintwick</td>
</tr>
<tr>
<td></td>
<td>Ralph Fiennes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Wikify</td>
<td></td>
</tr>
<tr>
<td>❑ Devon Litten</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shambuco</td>
</tr>
<tr>
<td></td>
<td>Theatre in education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expand</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strasbg</td>
</tr>
<tr>
<td></td>
<td>Froggle</td>
</tr>
<tr>
<td></td>
<td>The Road Ahead</td>
</tr>
</tbody>
</table>

SuggestBot picks articles in a number of ways, from comparing articles that need work to other articles you've edited, to choosing articles randomly (ensuring that all articles with cleanup tags get a chance to be cleaned up). It tries to recommend only articles that other Wikipedians have marked as needing work. Your contributions make Wikipedia better -- thanks for helping.

If you have feedback on how to make SuggestBot better, please tell me on SuggestBot's talk page. Thanks from ForteTuba, SuggestBot's caretaker.

P.S. You received these suggestions because your name was listed on the SuggestBot request page. If this was in error, sorry about the confusion. -- SuggestBot 04:05, 20 March 2006 (UTC)
SuggestBot Results

- Intelligent recommendations 4x more likely to be acted on
- Type of intelligence not as important
- Live on Wikipedia; Join at:

- SuggestBot 2.0: Balance *interest* with *value*
### Articles you might like to edit, from SuggestBot

- **SuggestBot** predicts that you will enjoy editing some of these articles. Have fun!

#### Traditional

<table>
<thead>
<tr>
<th>Stubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Cloud Rail Bridge</td>
</tr>
<tr>
<td>Raymond E. Baldwin Bridge</td>
</tr>
<tr>
<td>Boulevard Bridge</td>
</tr>
</tbody>
</table>

#### Readership

<table>
<thead>
<tr>
<th>Stubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudo-Hadamard transform</td>
</tr>
<tr>
<td>Integral cryptanalysis</td>
</tr>
<tr>
<td>Tom M. Apostol</td>
</tr>
</tbody>
</table>

#### Quality

<table>
<thead>
<tr>
<th>Stubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>★★★ Bargate (ward)</td>
</tr>
<tr>
<td>★★★ Shirley Holms Halt railway station</td>
</tr>
<tr>
<td>★★★ Hart Plain</td>
</tr>
</tbody>
</table>

#### Both dimensions

<table>
<thead>
<tr>
<th>Stubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>★★★ Scintilla (editing component)</td>
</tr>
<tr>
<td>★★★ Dawn: Portrait of a Teenage Runaway</td>
</tr>
<tr>
<td>★★★ 14th Airlanding Brigade (United Kingdom)</td>
</tr>
</tbody>
</table>

#### Combined

<table>
<thead>
<tr>
<th>Stubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>★★★ Taftan (bread)</td>
</tr>
<tr>
<td>★★★ Rashid Bin Humaid Al Nuaimi</td>
</tr>
<tr>
<td>★★★ British Gulf International Airlines</td>
</tr>
</tbody>
</table>
Vision

- Community Health
- Humans + Computers
- Synthetic vs. Analytic Research
Figure 2. The Huggle interface makes it easy to review a series of recent revisions by filtering them according to the user’s preferences.
Figure 1. Stacked proportion of reverts (rejection of damaging edits) for bots, cyborgs, and human editors on Wikipedia. Bots and cyborgs have been taking over an increasing role in protecting articles from damage since early 2006.
- Reader
- Contributor
- Collaborator
- Leader
He Says, She Says: Conflict and Coordination in Wikipedia

Aniket Kittur, Bongwon Suh, Bryan Pendleton, Ed Chi

CHI 2008
Types of work

Direct work
Immediately consumable

Indirect work
Coordination, conflict

Maintenance work
Reverts, vandalism

Article
Talk, user, procedure
Machine Learning: Predicting Conflict
The Effects of Diversity on Group Productivity and Member Withdrawal in Online Volunteer Groups

Jilin Chen
Yuqing Ren
John Riedl

CHI 2010
“A diverse collection of independently-deciding individuals is likely to make certain types of decisions and predictions better than individuals or even experts.”
However, differences in opinions and backgrounds can also cause conflicts, protests, and wars sometimes.
Newcomers vs. Old-timers

“This user is sick of the bullshit on wikipedia. It is my belief that wikipedia … is increasingly becoming a place for a small group that is in power to force their views upon the world.”
What is Diversity?

Difference among individuals on:
- Demographic attributes: age, gender, race
- Informational attributes: tenure, education level, knowledge and interest areas
- Value attributes: personality, belief
What is Diversity?

Difference among individuals on:
- Demographic attributes: age, gender, race
- Informational attributes: tenure, education level, knowledge and interest areas
- Value attributes: personality, belief
## Getting started

There are a few things you can do right now to get started helping the project:

1. **Add your name to the Wikipedia:WikiProject Philosophy page**. This will help other editors know you're involved in the project.
2. **Contribute to an article**. Take a look at the list of articles below and choose one that interests you. You can help by improving the content, adding sources, or expanding it.
3. **Join the discussion**. Go to the discussion page for WikiProject Philosophy and share your thoughts or ask questions. This is a great place to connect with other editors and get support.

### Top Articles

<table>
<thead>
<tr>
<th>Rank</th>
<th>Page</th>
<th>Views</th>
<th>Views (per day average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Albert Einstein</td>
<td>561635</td>
<td>18117</td>
</tr>
<tr>
<td>2</td>
<td>Martin Luther King, Jr.</td>
<td>481115</td>
<td>15519</td>
</tr>
<tr>
<td>3</td>
<td>Leonardo da Vinci</td>
<td>454987</td>
<td>14677</td>
</tr>
<tr>
<td>4</td>
<td>Love</td>
<td>438439</td>
<td>14143</td>
</tr>
<tr>
<td>5</td>
<td>Socialism</td>
<td>403647</td>
<td>13020</td>
</tr>
</tbody>
</table>

For more information, visit the Wikipedia:WikiProject Philosophy page directly.
Please add your entry alphabetically by user name (rather than surname). Use the format `{{user|yourname}}` to automatically add links to your contributions and talk pages.

In addition, if you add `{{User WP Philosophy}}` to your user page, or any of the other philosophy user boxes, it will add you to Category:WikiProject Philosophy members.

The users in **bold** on this page were active as of April 2006. For past or inactive members, please see this page.

**Members**

- **1.618O (talk · contribs)** I'm only an amateur philosopher but I enjoy the topic, especially metaphysics
- **Aidis (talk · contribs)** Interests: sophism, language, general semantics. B.A. in Philosophy
- **Alcmeneonid (talk · contribs)** Interests: history of philosophy, esp. the pre-Socratics and the German line of Kant->Schopenhauer->Nietzsche.
- **AmaranthineNight (talk · contribs)** Interests: Aesthetics (My Knowledge here is VERY limited), Existentialism, and Political Philosophy. Credentials: Undergrad student with a double major in Computer Science and Philosophy.
- **Anarchia (talk · contribs)** Primary interests: Practical reason and ethics. PhD student and part-time lecturer.
- **Arash Eb (talk · contribs)** A Very amateur philosopher, a Student and interested in analytic philosophy.
- **Baddog144 (talk · contribs)** Interests: Mostly metaphysics, and history of philosophy
- **Baidurya-rousseau (talk · contribs)** Postmodernism, Deconstruction, Existentialism, Nietzsche, Derrida, Giles Deleuze, Alain Badieu, Marx, Gayatri Chakravorty Spivack, Marginality, Otherness, Luis Althusser.
- **Banno (talk · contribs)**
- **Beala (talk · contribs)** Phil undergrad at Uni of Colorado at Boulder. Trying to help where I can.
- **Belicker (talk · contribs)** BA in Philosophy, concentration in Aesthetics
- **Benapollo (talk · contribs)** Recent U.S. college graduate with a B.A. in Philosophy. Current Law student.
- **Benaoa (talk · contribs)** Bachelor of Arts in Philosophy, Philosophy of Science.
Analysis Approach

- Hierarchical Linear Model
  - Project quarters within the same project are correlated

- Incremental Approach
  - Start with a null model, and increase its complexity incrementally
  - Ensure that the predictors in the model are useful
Interest Diversity: Results

Amount of Work

Member Withdrawal

Edits

Withdrawal

Interest Diversity

3.0 3.2 3.4 3.6 3.8

0.0 0.5 1.0 1.5 2.0 2.5 3.0
Future Research

Direct Manipulation of Group Diversity
- Is it more beneficial to introduce a newcomer or an old-timer to a particular project?

Examination of Group Processes
- Do members yell at each other more often when the group is too diverse?
Don't bite the newbies: How Reverts affect the Quantity and Quality of Wikipedia Work

Aaron Halfaker, Niki Kittur and John Riedl
WikiSym 2011
Research Question:

• What effect do reverts have on editor activity?
Measuring Changes: Activity Deltas
Measuring Changes: Activity Deltas
Measuring Changes: Activity Deltas
Effect on Quality of work

![Graph showing the effect on quality of work with two lines, one for not-reverted and one for reverted, over the weeks.

- Not-reverted line starts at (0, 0.00) and rises steeply to (3, 0.04)
- Reverted line starts at (0, -0.02) and rises gradually to (3, 0.00)

Week: 0, 1, 2, 3

Change in quality: Δ irresist/revisions]
Summary

- Being reverted predicts:
  - Decreases in quantity of work
  - Increase in quality of work
  - Overall increase in productivity!

- Curmudgeons
  - Being reverted by an old-timer intensifies the decrease in quantity, no change to quality
  - Highly experienced editors should be kept away from newbies.
Female newcomers get reverted more often than male newcomers

Lam et al. WikiSym 2011: WP:Clubhouse
NICE:
Social Translucence through UI Intervention
Aaron Halfaker, Bryan Song, D. Alex Stuart, Niki Kittur, John Riedl
WikiSym 2011
NICE

- User Interface mod for English Wikipedia
  - Installed by the editor performing the revert
  - Helps an editor revert gently
- Live and available in English Wikipedia
Reverting Normally

Formed in 1903 as a result of the amalgamation of three clubs from Aberdeen, they rarely challenged for honours until the 1950s, when they won each of the major Scottish trophies under manager [[Dave Halliday]]. This level of success was surpassed in the

Content that violates any copyrights will be deleted. Encyclopedic content must be verifiable.

By clicking the "Save Page" button, you agree to the Terms of Use, and you irrevocably agree to release your contribution under the CC-BY-SA 3.0 License and the GFDL. You agree that a hyperlink or URL is sufficient attribution under the Creative Commons license.

Edit summary (Briefly describe the changes you have made)

Undid revision 451916878 by [[Special:Contributions/WhiskyGolf|WhiskyGolf]] ([[User talk:Whisk

This is a minor edit (what's this?)  Watch this page

Save page  Show preview  Show changes  Cancel  Editing help (opens in new window)

If you do not want your writing to be edited, used, and redistributed at will, then do not submit it here. All text that you did not write yourself, except brief excerpts, must be available under terms consistent with Wikipedia's Terms of Use before you submit it.

Insert

Sign your posts on talk pages: ~~~~  Cite your sources:

<ref></ref>
Reverting NICE-ly

Formed in 1903 as a result of the amalgamation of three clubs from Aberdeen, they rarely challenged for honours until the 1950s, when they won each of the major Scottish trophies under manager [[Dave Halliday]]. This level of success was surpassed in the

**Note:** You are reverting a new editor. *Don't bite.*
Analysis suggests that reverting this editor is likely to discourage them from making future contributions.

The form below will allow you to both save your changes to Aberdeen_F.C. and post a brief message to WhiskyGolf's talk page explaining the revert. This is your opportunity to help a new user learn the ropes.

**Message header** (This will be posted on WhiskyGolf's talk page)

Reverted your revision {(diff|4519166878)} to [[Aberdeen_F.C.]]

**Explanation** (Consider explaining the appropriate Wikipedia Policy)

*Edit summary* (Briefly describe the changes you have made)

*Undid revision 4519166878 by [[Special:Contributions/W|]]

*This is a minor edit (what's this?)*  —  *Watch this page*

*Save page*  —  *Show preview*  —  *Show changes*

*Cancel*  |  *Editing help* (opens in new window)
Field Experiment

- Broadcast to forums & mailing lists used by Wikipedians
  - 49 reverting editors
    - Message Box
    - Newbie Warning
    - Message Box + Newbie Warning
    - Control
  - 487 reverted editors
Results

- Message Box (easy communication)
  - Newbies: (-) Quality (Sigh!)
  - Non-newbies:
    - (+) Project pages, (+) Communication (+) Quality

- Newbie Warning (social awareness)
  - Newbies: (+) Article work
  - Non-newbies: (+) Quality
Vision

- Community Health
- Humans + Computers
- Synthetic vs. Analytic Research
• Reader
• Contributor
• Collaborator
• Leader
Estimated Article Mortality Rate

Article creation restricted to registered users

Linear fit: $y = 0.195 + 0.0001571 x$

(x expressed as days since January 1, 2005)

$R^2 = 0.4773$

Jimmy Wales’ Wikimania plenary: focus on quality instead of quantity
Female Leaders

- Females who become Wikipedian are much more likely to become admins.
Reporters in Captivity

“A journalist is someone who is on no side and a friend of everybody.”

- Rohde captured by Taliban, Nov 2008
- Times gets 7 months news embargo
- Wales says “mainstream media did not report”, so Wikipedia could embargo
- Christian Science Monitor not mentioned – though Rohde won Pulitzer there
- Rohde escapes, June 2009
The Effects of Group Composition on Decision Quality in a Social Production Community

Shyong (Tony) K. Lam
Jawed Karim
John Riedl

University of Minnesota
Stanford University

GROUP 2010
Wikipedia Article Deletions

- About 30% of created articles are deleted
- Most deletions are uncontroversial
- Disagreements resolved via decision process Articles for Deletion (AfD)
AfD Result (Keep or Delete)

AfD
Nomination

Discussion and debate

Wikipedians call these “!votes”
Measuring Decision Quality

Computing a believable quality metric is hard
Lots of Wikipedia policies
Who are we to judge?

Use implicit community feedback
Persistent decision = Good
Reversed decision = Bad

About 4% of decisions are reversed in 1 year
Consensus Call Profiles

% AfDs Closed as Delete vs. Delete !Vote %

- Wikipedia-Wide
- Keep-Biased Admin
H4: Biased-Admin-Worse Supported

Keep-biased admins:
+23% odds of bad keep decision
–8% odds of bad delete decision
## Result Summary

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect on Decision Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Bigger $\rightarrow$ better, diminishing returns</td>
</tr>
<tr>
<td>Formation</td>
<td>None in most cases, despite apparent recruitment bias</td>
</tr>
<tr>
<td>Newcomers</td>
<td>Newcomer participation $\rightarrow$ worse</td>
</tr>
<tr>
<td>Tenure diversity</td>
<td>High diversity $\rightarrow$ better</td>
</tr>
<tr>
<td>Biased admin</td>
<td>Decision with bias $\rightarrow$ worse</td>
</tr>
<tr>
<td></td>
<td>Decision against bias $\rightarrow$ better</td>
</tr>
</tbody>
</table>

Diverse  Knowledge  Independent  Fair
Future Directions

Build automated tools to detect problems or opportunities for improvement

Explore Wikipedia’s possible biases (recruitment, administrative)

Study AfDs qualitatively to understand why
Vision

- Community Health
- Humans + Computers
- Synthetic vs. Analytic Research
Thank you!

Acknowledgements

- GroupLens Research
- Wikimedia Foundation
- National Science Foundation
  - grants: IIS 05-34420, 07-29286, 08-08711, 0968484, and OCI-0943148

John Riedl
riedl@umn.edu
Community, Cooperation, and Conflict in Wikipedia

John Riedl

GroupLens Research
University of Minnesota
Bit Bucket