Don't Bite the Newbies: How Reverts affect the Quantity and Quality of Wikipedia Work

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Wikipedia: Volunteer participation

- Decreasing barriers
  - Increases the number of participants
  - Allows malicious changes to be made
Wikipedia: Volunteer participation

- Decreasing barriers
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Wiki solution: The revert

- The revert
What does a revert look like?

article history

reverted to

reverting

reverted

Time
Revert – Not just for vandalism

• Reverts can represent something more substantial
  • ~40% of reverts in English Wikipedia
    – Not related to vandalism
    – Not self-reverts (mistakes)

• Prior work
  • Editors are demotivated when their work is edited\(^1\).
    – Newbies especially
  • Newbies are getting reverted more & this has been implicated in their recent decrease\(^2\).

Research Question:

What effect does being reverted have on editor activity?
The Message
(thanks John!)

- Editors appear to be demotivated by being reverted
  - This is especially true for newcomers
  - and especially true for those reverted by old-timers
- But, reverts appear to be an effective training mechanism
  - Reverts appear to have a net positive effect on editor productivity.
Outline

1. Research Questions & Metrics
2. Measuring changes in editor activity
3. Results & Implications
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Research Questions & Metrics

Metric \textit{represents} Hidden Variable
Research Questions & Metrics

RQ1: How does being reverted affect the quantity of editor work?
Research Questions & Metrics

RQ1: How does being reverted affect the **quantity** of editor work?

- words added/day
- revisions/day

RQ2: How does being reverted affect the **quality** of editor work?

- revert/revision
- PWR/word
Research Questions & Metrics

Persistent Word Revisions

1 Steve: blue apples are yummy
2 Chris: apples are yummy
3 Paul: apples are certainly yummy
4 Robin: apples are certainly most yummy
5 Phil: apples are nutritious
6 Dave: apples are nutritious for realz

• Quality of an edit be measured by observing how other editors react.
• The longer and editor's contributions last, the higher the quality of work.

Problem: Safer edits appear to be higher quality.
Research Questions & Metrics

RQ1: How does being reverted affect the quantity of editor work?

- words added/day
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- reverts/revision
- PWR/word

- establishment of removed words
- words changed/revision

Boldness

Quantity

Quality
Research Questions & Metrics

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An edit is bold when it is more likely to be noticed by other editors.

- Bold edits change *more* article content.
- Bold edits change more *established* content.

**Problem:** Does the change in boldness account for the change in quality?
RQ1: How does being reverted affect the **quantity** of editor work?

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Productivity (quantity x quality)
Research Questions & Metrics

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**Productivity**: The product of the quantity and quality of an editor's work

- Lacks the problem of boldness.
Research Questions & Metrics

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RQ3: How does being reverted affect editor communication?

- User_talk revs/day
- Article_talk revs/day

![Diagram of metrics and productivity](image-url)
Research Questions & Metrics

RQ1: How does being reverted affect the **quantity** of editor work?

- words added/day
- revisions/day

RQ2: How does being reverted affect the **quality** of editor work?

RQ3: How does being reverted affect editor communication?

  - User_talk revs/day
  - Article_talk revs/day

RQ4: How does editor experience moderate these effects?

  **Tenure:** Time since editor's first edit in Wikipedia.
Research Questions & Metrics

RQ1: How does being reverted affect the **quantity** of editor work?
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- revert/revision
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RQ3: How does being reverted affect editor communication?
- User_talk revs/day
- Article_talk revs/day

Productivity (quantity x quality)

Communication
Measuring changes in editor activity: The “activity delta”
Measuring Changes: Activity Deltas
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Sample: 400,000 revisions:
- 200,000 reverted (not vandal or self-reverts)
- 200,000 not-reverted

Controlled measures of activity by sd(week -1)
- $\frac{\Delta}{\sigma}$ AKA “effect size”
- Allows direct comparison of all editors, regardless of edit rate
Discovering likely effects

- Linear and Logistic regressions identify effect
  - Determines direction and strength of correlation
  - Allows us to control for confounding factor by including them as explanatory variables to control for their effects.
    - Reverted editor experience
    - Reverting editor experience
    - Characteristics of the reverted edit
      - Words added/removed, Establishment of words removed, etc.
  - Plots help us reason about the shape of effect
Results & Implications
RQ1: Effect on Quantity of work

**Newbie:** Less than one month of tenure  
**Old-timer:** More than one year of tenure
RQ1: Effect on Quantity of work

Newbie: Less than one month of tenure
Old-timer: More than one year of tenure

Reverted editor

Reverting editor
RQ1: Effect on Quantity of work

- Lower probability of survival (survival = edit for 8 more weeks)
- Reduced quantity of work even for those who survive
- Reverted newbies decrease their quantity of work more
- Editors reverted by old-timers decrease their quantity of work more
RQ2: Effect on Quality of work
(quality: reverts/revision)
RQ2: Effect on Quality of work
(boldness)
RQ2: Effect on Quality of work
(productivity: PWR/day)
RQ2: Effect on Quality of work

- Quality (acceptability to others) increased
- Boldness of work decreased
- Productivity is higher – including editors who leave or decrease their work
  - Especially for newbies and less productive editors
RQ3: Effect on Communication

(Controlled for editor tenure)
RQ3: Effect on Communication

- Reduced personal communications to other editors
  - Could be a bad sign. Commiseration with other editors could reinforce motivation.
- Maintain communication over article content
  - Wikipedia's Bold, Revert, Discuss cycle encourages this behavior.
    - Could support learning
    - Essential for finding consensus after conflict
Summary

- Being reverted predicts:
  - Decreases in quantity of work
  - Increase in quality of work
- Both predictions are more extreme for reverted newcomers.
  - Special concern should be granted for reverted newbies
- Being reverted by an old-timer intensifies the decrease in quantity, no change to quality
  - Highly experienced editors should be kept away from newbies.
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