

# Social Transparency Online

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Carnegie Mellon University

FXPAL



CONNECTED  
EXPERIENCE  
LAB



**Carnegie Mellon University**  
**HeinzCollege**



12:59

@hootsuite/team List

**jngsta** 12:00pm, Jul 9  
 Behind the Twitter-LinkedIn Divorce: HootSuite CEO @invoker weighs in @FortuneMagazine: [owl.li/c6hgH](#)

**invoker**  
 Thanks for having n @billgood980 @CKM

**drobles**  
 ¿Algún sitio donde automáticamente t partidos de la selec (preparación y <u>

**soro**  
 I'm at HootSuite Sal (Vancouver, BC) [4sc](#)

**gotonyc**  
 Top Secret infograp Owls out there: [ow.](#) #HootSuite #BSU

facebook Profile edit Friends ▾ Inbox (115) ▾

News Feed

added "the dillinger escape plan" to her favorite music.

joined the group Rapscaillon Theatre Collective.

became a fan of Thich Nhat Hanh.

Thich Nhat Hanh  
 Other Public Figure  
 711 fans - Become a Fan  
 See more Pages

posted a video.

Willy Mason - Save Myself  
<http://www.youtube.com/watch?v...>  
 I love this song

slow and steady. >>>  
 Add a comment

and are attending The Permanent Revolution: Changel - Premieres @ NY Anarchist Film Festival.

and are going to the event The Permanent Revolution: Changel - Premieres @ NY Anarchist Film Festival on April 11th. It's hosted by Arthur Magazine. So far 123 people have been invited. Don't forget to RSVP!

posted a video.

Jose Gonzalez - Crosses  
<http://www.youtube.com/watch?v...>  
 Official video for "Crosses" by Jose Gonzalez, from the album Veneer

crosses. >>>  
 Add a comment

Twitter

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John W. @ The Dish Cafe  
 Richard L. @ Fortage Bay C...

Today

15. @ Stumptown Coffee  
 @ Portland Incom...  
 @ Abbey Court  
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IT IS BETTER TO BE A FAILURE AT SOMETHING YOU LOVE THAN TO BE A SUCCESS AT SOMETHING YOU HATE.

TO Live a creative life. We MUST LOSE OUR fear OF BEING WRONG

someone's laugh is funnier than the joke.

my 24th birthday party in so many years Today, April 4 at 11:00pm

# Social Media

Users articulate an interest network of people and artifacts

Receive updates on actions by those people or on those artifacts

Affords unprecedented level of transparency in form of visibility of actions by others

# Socially transparent...work?



How does transparency influence collaborative work?

What should a transparent work environment look like?

1: Qualitative studies of how people use transparency to support professional activity

2: Field experiments with transparent design elements

# Professional social networks

**github**  
SOCIAL CODE HOSTING

 **schacon** [account](#) | [profile](#) | [guides](#) | [log out](#)  
103 repositories: all | [search](#)

 **schacon**

GitHub Role: Gizzard  
Name: Scott Chacon [edit](#)  
Email: [schacon@gmail.com](mailto:schacon@gmail.com) [edit](#)  
Blog: <http://jointheconversation.org> [edit](#)  
Company: Logical Awesome [edit](#)  
Location: Redwood City, CA [edit](#)  
Followers: 123  
Public Repos: 39  
Member Since: Jan 27, 2008

**asgit**  
ActionScript Git library and browser implementation  
Created May 27, 2008

all commits | commits by owner | 52 week participation



**dotgit**  
A Git implementation for .NET written in C#  
Forked from [pheew/dotgit](#) December 15, 2008

all commits | commits by owner | 52 week participation

## Following






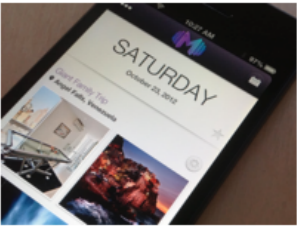
## Public Activity


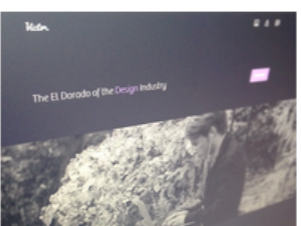
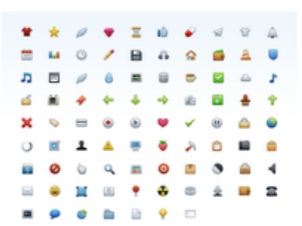

- schacon pushed to master at [schacon/schacon.g](#)** minutes ago  
HEAD is [5692b7b69b56cff9ea3c9bbd879644](#)  
 **schacon** committed [5692b7b6](#):  
added github ribbon
- schacon committed to [schacon/schacon.g](#)**  
[5692b7b69b56cff9ea3c9bbd879644dc33a01](#):  
added github ribbon
- schacon pushed to master at [schacon/schacon.g](#)** ago  
HEAD is [c64f4f2ea8127d5b08a2ebffa1a147c](#)  
 **schacon** committed [c64f4f2e](#):  
added a link to my second page
- schacon committed to [schacon/schacon.g](#)**  
[c64f4f2ea8127d5b08a2ebffa1a147c6ac7f9b2](#):  
added a link to my second page

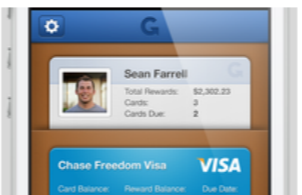



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Popular Everyone Debuts Playoffs

-  Dave | Sticker Mule | 6,194 views, 116 comments, 402 likes
-  Rally Interactive (via Ben... | 2,347 views, 68 comments, 304 likes
-  Nick Slater | 1,012 views, 20 comments, 185 likes
-  Eric Hoffman | 1,802 views, 28 comments, 208 likes

-  Mike | Creative Mints | 1,422 views, 24 comments, 186 likes
-  Victor Erixon | 1,966 views, 42 comments, 180 likes
-  Visual Idiot | 1,979 views, 16 comments, 186 likes
-  Ryan Putnam | 1,157 views, 19 comments, 133 likes

- 
- 
- 
- 



## Online community for open source software development

- Over six million public code repositories
- Over 3.5 million registered users
- Over 80,000 code commits per day

Social networking functionality provides real-time updates on what others are working on



**Sam Stephenson**  
sstephenson

37signals  
Chicago  
sstephenson@gmail.com  
http://sstephenson.us/  
Joined on Mar 08, 2008

**1.4k** followers  
**211** Starred  
**24** following

Organizations



Repositories Public Activity

Unfollow

Filter sstephenson's repositories...

All Sources Forks Mirrors

**rbenv** Shell ★ 2,652 🍴 159  
Simple Ruby version management  
Last updated a day ago

**ruby-build** Shell ★ 955 🍴 162  
Compile and install Ruby  
Last updated 2 days ago

**sprockets** Ruby ★ 1,699 🍴 200  
Rack-based asset packaging system  
Last updated 4 days ago

**kinect** C ★ 85 🍴 9  
Kinect playground  
Last updated 18 days ago

**bats** Shell ★ 129 🍴 8  
Bash Automated Testing System  
Last updated a month ago

**ruby-build-download-mirror** ★ 1 🍴 0  
Last updated a month ago

**prototype** JavaScript ★ 2,541 🍴 327  
Prototype JavaScript framework  
Last updated a month ago

**stitch** CoffeeScript ★ 607 🍴 66  
Stitch your CommonJS modules together for the browser  
Last updated a month ago



## Public Activity



**sstephenson** opened issue 1 on [josh/nack](#) 2 days ago

Fire an event when an app fails to boot

---



**sstephenson** opened pull request 2 on [skamplер/ndns](#) 2 days ago

Add package.json

1 commit with 14 additions and 0 deletions

---



**sstephenson** pushed to master at [sstephenson/ndns](#) 2 days ago

9be5368 Add package.json

---



**sstephenson** forked [skamplер/ndns](#) 2 days ago

Forked repository is at [sstephenson/ndns](#)

---



**sstephenson** created gist: 771090 3 days ago

```
$ sudo su - # mkdir /etc/resolver # cat > /etc/resolver/test
```

---



**sstephenson** started watching [jamis/csmazes](#) 5 days ago

csmazes's description:

Maze algorithms implemented in CoffeeScript, with an eye toward demonstrating how the algorithms work by animating them.

# Qualitative Methodology

Semi-structured interviews w/ 50 GitHub members

- Peripheral and heavy users (project with > 80 watchers)
- OSS hobbyists and paid contributors

Focused on recent site usage, project management, and social activity

Open coded their responses to look at how transparent information influenced dependency management

# Social transparency implications

Information seeking practices:

Micro-supply chain management

Expressive action practices:

Audience pressures

Social practices

# Impression formation



**jeresig** (John Resig)

Name John Resig  
Email [jeresig@gmail.com](mailto:jeresig@gmail.com)  
Website/Blog <http://ejohn.org/>  
Company Khan Academy  
Location Boston, MA  
Member Since Feb 28, 2008

**Public Rep**

Find a repository

All Repositories



**sstephenson** (Sam Stephenson)

Name Sam Stephenson  
Email [sstephenson@gmail.com](mailto:sstephenson@gmail.com)  
Website/Blog <http://sstephenson.us/>  
Company 37signals  
Location Chicago  
Member Since Mar 08, 2008

**Public Repositories (31)**

 **ndns** JavaScript 1 4  
Forked from [skampler/ndns](#)

dns library for nodejs  
Last updated 2 days ago

all commits | commits by owner | 52 week participation

 **stitch** CoffeeScript 5 1

Stitch your CommonJS modules together for the browser  
Last updated December 27, 2010

Marlow, J., Dabbish, L., Herbsleb, J. Impression formation in commons-based peer production: Activity traces and personal profiles in GitHub. In *Proceedings of CSCW 2013*.

Marlow, J., & Dabbish, L. Activity traces and signals in software developer recruitment and hiring. In *Proceedings of CSCW 2013*.

**31** public repos **348** followers

**Public Activity**

**sstephenson pushed to master at sstephenson/ndns 2 days ago**  
9be5368 Add package.json

**sstephenson forked skampler/ndns 2 days ago**  
Forked repository is at [sstephenson/ndns](#)

# Designing socially transparent work environments

# Social Transparency:

What are the social effects of activity transparency?

- Credibility and advice taking  
(Nguyen, Dabbish & Kiesler, CSCW 2015)
- Work evaluation and impressions  
(Marlow & Dabbish, CSCW 2015)

# Visualizing activity history in a peer production context

FLICKR/OPENSOURCEWAY

Jennifer Marlow

FXPAL



Laura Dabbish

HCI, Carnegie Mellon University



# Peer production

(Benkler & Nissenbaum, 2006)

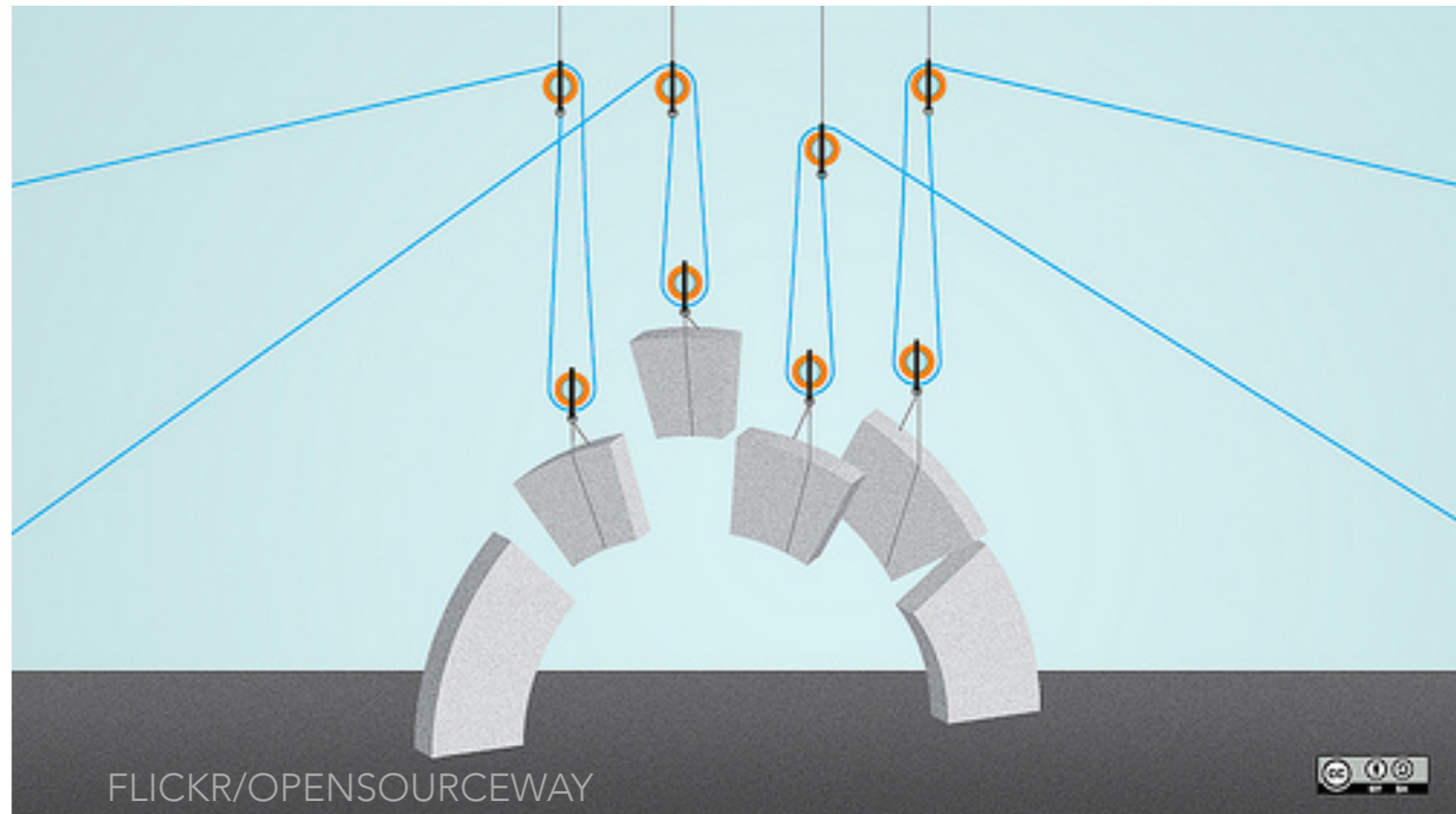


WIKIPEDIA  
*The Free Encyclopedia*



 Smithsonian

SMITHSONIAN DIGITAL VOLUNTEERS: TRANSCRIPTION CENTER





# Issue in large scale peer production

“Uncertainty about the quality of others is the rule rather than the exception”

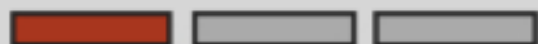
(Stewart, 2005)

# Peer review in peer production

## (1) Transcribe



Volunteer(s) work together to transcribe document. When finished, can request review.



## (2) Review



A new volunteer reviews transcription. Can approve or send back to (1) for more edits.



## (3) Approve



Smithsonian staff approves transcription or sends back to (1) for more edits



# Peer review online



**Karrar234** (talk | contribs) . (142,495 bytes) (+194) . (undo) (Tags: Mobile ed



**Worker ID**  
A23ZO4PNK67M5

**Lifetime Approval**  
100% (1/1)

**Block Status**  
Never Blocked

## LATEST UPDATES

- Anonymous marked for review a page from Certified Proofs of Indiana Box 6
- Sunidesus reviewed a page from Certified Proofs of Indiana Box 6
- mlawton50 marked for review a page from Certified Proofs of Indiana Box 6

Smithsonian

SMITHSONIAN DIGITAL VOLUNTEERS: TRANSCRIPTION CENTER

# Benefits of *minimal* information about workers

Minimizing history  
information can level  
the playing field  
(Tausczik & Pennebaker, 2011)

People may be biased  
by whatever they see  
first and use heuristic  
shortcuts or cues  
(Metzger et al., 2010)

# Benefits of *detailed* information about workers

Reputation could be a useful heuristic  
for assessing quality of work

(Anderson & Shirako, 2008)

# Transcription evaluation task



**User 700 typed:  
STAGNO'S BAKERY  
INC. STAGNOS**



Accept



Reject



Edit

# RQ1

How does exposure to information about an individual's work history influence initial attitudes towards that person?

# History and initial attitudes

H1: Valence of work history should inform initial impressions of the person

(Anderson & Shirako, 2008)



# RQ2

How does subsequent direct experience with the individual's actual work influence final impressions of that person?

# History and final impressions

H2a: Initial impressions will persist even in the face of contrary evidence

(Nickerson, 1998)

H2b: Individuals will change their opinions after new evidence is revealed

(Walther et al., 2014)

# RQ3

How does the design and presentation of work history information influence final impressions of that person and editing behaviors on their work?

# Existing history designs vary in level of detail

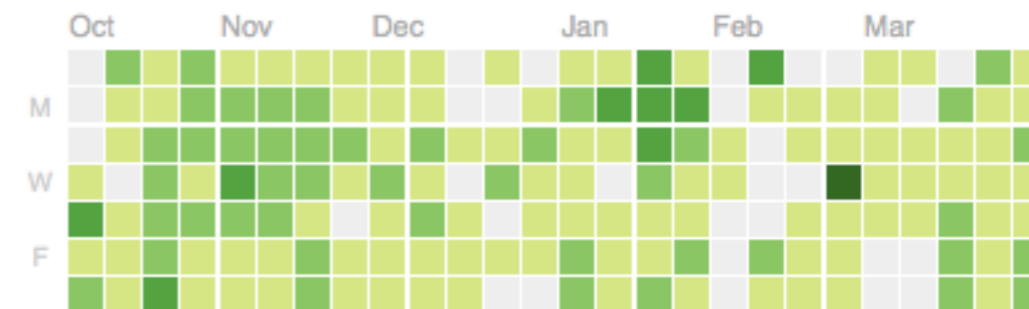
30,005 Answers

activity newest

- 5 Cant make while() loop work when keep adding up random doubles until a particular distance is reached 55 mins ago
- 0 processing Xhtml files with Xdocument class adds unwanted elements 1 hour ago
- 3 Convert Func<T, TProperty> to Expression<Func<T, Property>> 2 hours ago



## Public contributions

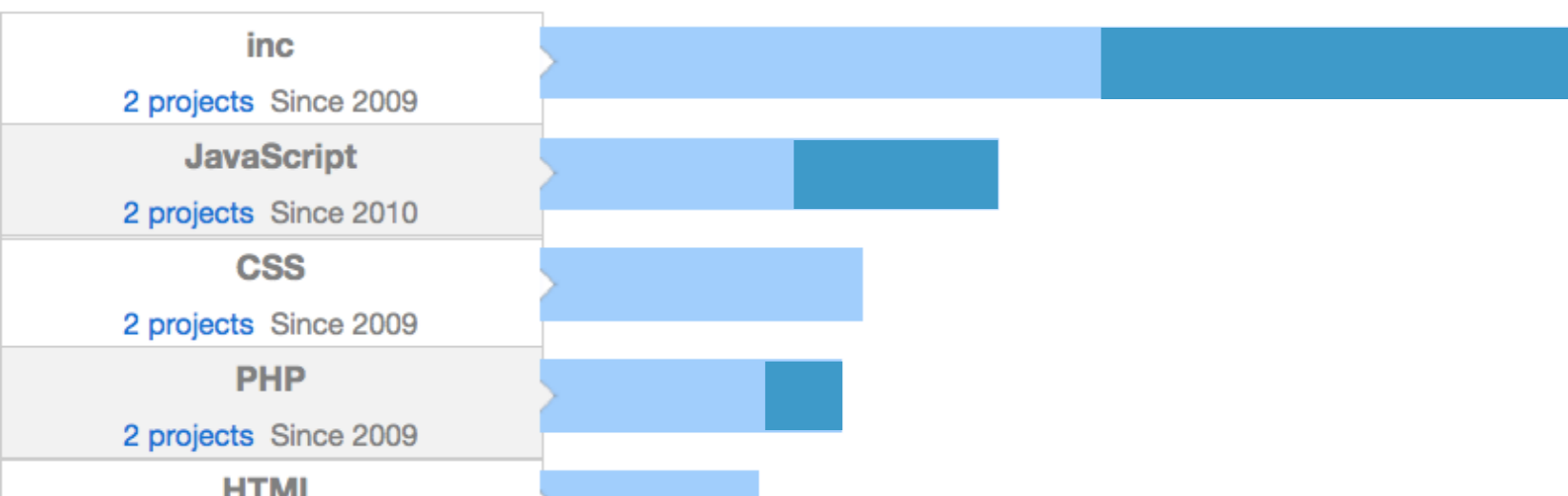


Summary of Pull Requests, issues opened, and commits. [Learn more.](#)

## Profile

### Programming skills

open source private Code



125 commits

1.3%

62 commits

36%

51 commits

100%

# Detail vs. abstraction

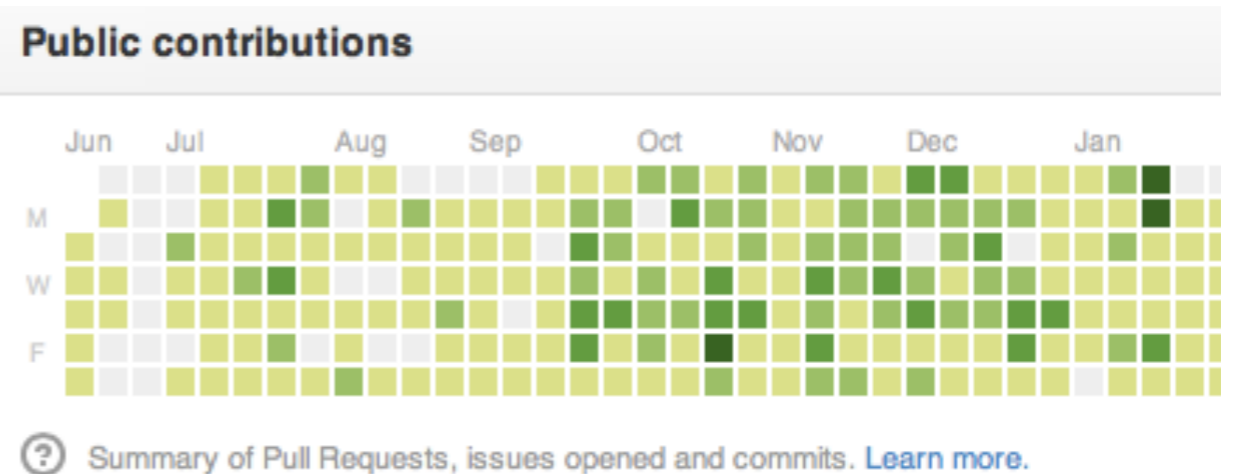
a month ago  
**schacon** pushed to master at [github/gitscm-next](#)  
f1647b1 Merge pull request #234 from ryanhodson/rys-git-tutorial  
66261a5 Add Ry's Git Tutorial to External Links page  
[View comparison for these 2 commits »](#)

---

a month ago  
**schacon** merged pull request [github/gitscm-next#234](#)  
Add Ry's Git Tutorial to External Links page  
1 commit with 8 additions and 0 deletions

---

a month ago  
**schacon** commented on pull request [github/gitscm-next#225](#)  
Sorry, I don't think it's on auto-deploy anymore. I've just deployed, you should se



Informative but  
primacy effect?

Easier to interpret  
but less useful?

# How does presentation of work history influence impressions?

H3a: More detail will increase positivity  
[reducing uncertainty]

(Stephan et al., 2010)

H3b: More detail will increase negativity  
[too much processing effort]

(Oppenheimer, 2006)

# Online experiment

- Crowdsourcing context (Mechanical Turk)
- 284 participants
- Peer review task

# Transcription evaluation task



Editor



Sees worker's  
history

First  
impression  
of worker  
quality



Reviews & edits worker's  
transcriptions

Final impression of  
worker quality  
Amount of work  
edited



# Transcription evaluation task



**User 700 typed:  
STAGNO'S BAKERY  
INC. STAGNOS**



Accept



Reject



Edit

# 2 history qualities (RQ1)

## GOOD HISTORY

Top 75% of  
workers

91%  
complete

## BAD HISTORY

Bottom  
2.5% of  
workers

47%  
complete

# 2 work qualities (RQ2)



**GOOD WORK**



Edit (6 char)

**User 700 typed:  
STAGNO'S BAKERY  
INC. STAGNOS**

**STAGNO'S BAKERY  
INC. STAGNOS BAKERY**

# 2 work qualities (RQ2)



**BAD WORK**



Edit (18 char)

**User 600 typed:  
STANGNOS BAKERY**

**STANGNO'S BAKERY  
INC. STAGNOS BAKERY**

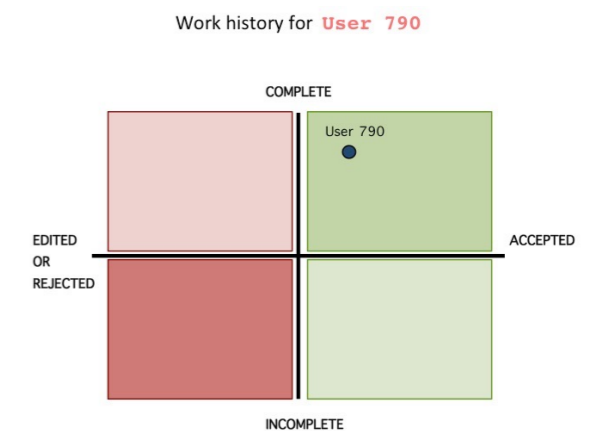
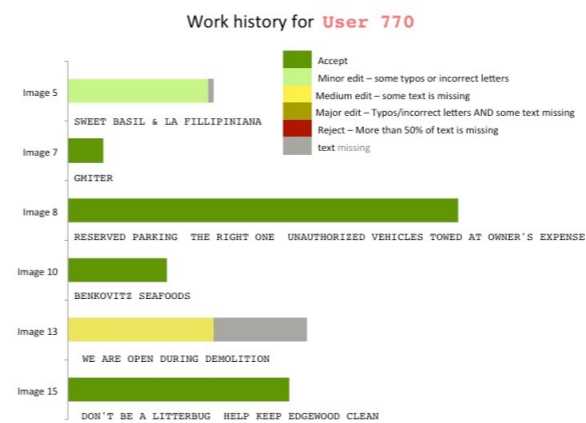
# Detailed vs. abstract (RQ3)

## Detailed display

Work history for **User 750**

Image	Correct text	Work from User 750	Amount of text typed	Evaluation of work
5	SWEET BASIL & La FILIPINIANA	SWEET BASIL & LA FILLIPINIANA	100%	MINOR EDIT: Typos or incorrect letters
7	GMITER	GMITER	100%	ACCEPT
8	RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE	RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE	100%	ACCEPT
10	BENKOVITZ SEAFOODS	BENKOVITZ SEAFOODS	100%	ACCEPT
13	SUPER DOLLAR STORE WE ARE OPEN DURING DEMOLITION	WE ARE OPEN DURING DEMOLITION	60%	MEDIUM EDIT: Some text is missing
15	DON'T BE A LITTER BUG HELP KEEP EDGEWOOD CLEAN	DON'T BE A LITTER BUG HELP KEEP EDGEWOOD CLEAN	100%	ACCEPT

## Abstract displays



# Visualization detail

more detailed

more abstract



Table

Graph

Quadrant

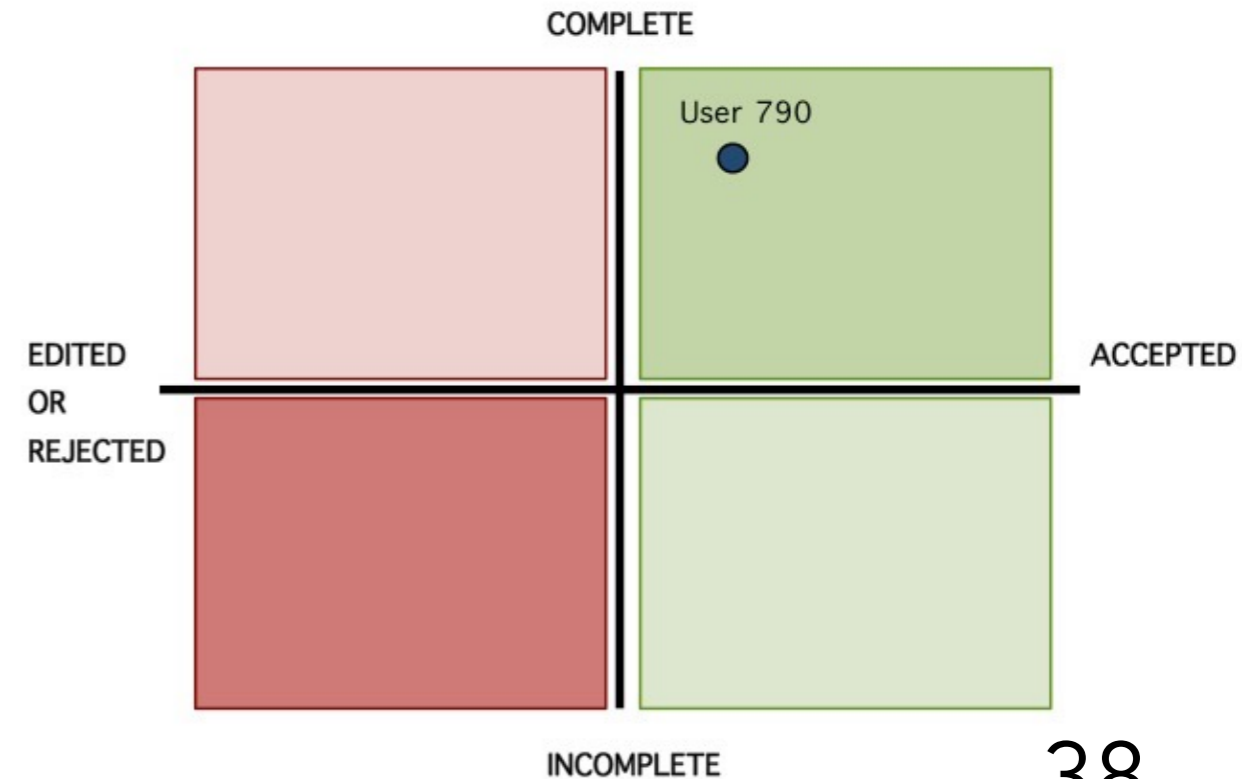
Work history for **User 750**

Image	Correct text	Work from User 750
5	SWEET BASIL & La FILIPINIANA	SWEET BASIL & LA FILLIPINIANA
7	GMITER	GMITER
8	RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE	RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE
10	BENKOVITZ SEAFOODS	BENKOVITZ SEAFOODS
13	SUPER DOLLAR STORE WE ARE OPEN DURING DEMOLITION	WE ARE OPEN DURING DEMOLITION
15	DON'T BE A LITTER BUG HELP KEEP EDGEWOOD CLEAN	DON'T BE A LITTER BUG HELP KEEP EDGEWOOD CLEAN

Work histo



Work history for **User 790**



# Between-subjects design

3 history  
visualizations

2 history  
quality

2 work  
quality

Table

**Good/Bad**

**Good/Bad**

Graph

**Good/Bad**

**Good/Bad**

Quadrant

**Good/Bad**

**Good/Bad**

No history

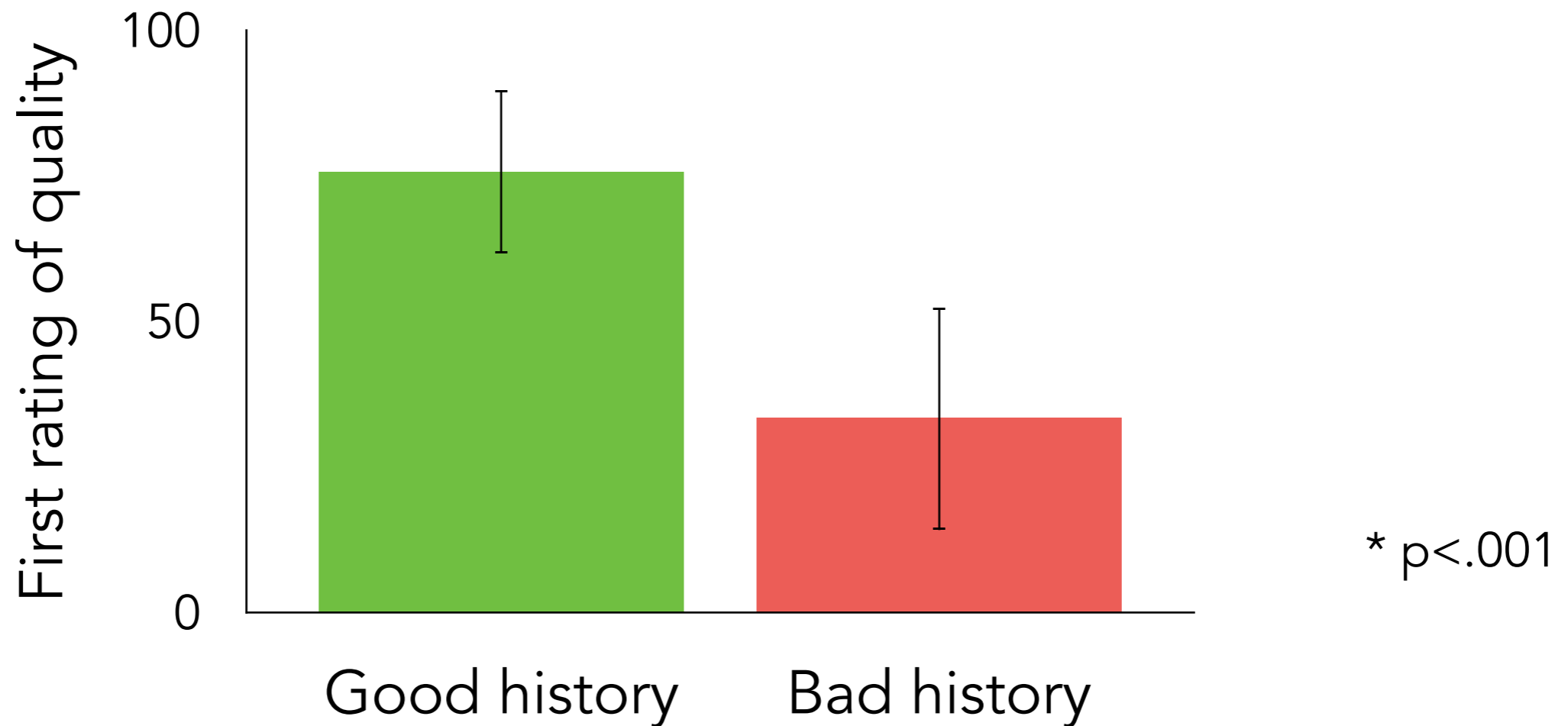
**Good/Bad**

# Results

H1: Valence of work history should inform initial impressions of the person



# History influenced first ratings (manipulation check)



# RQ2

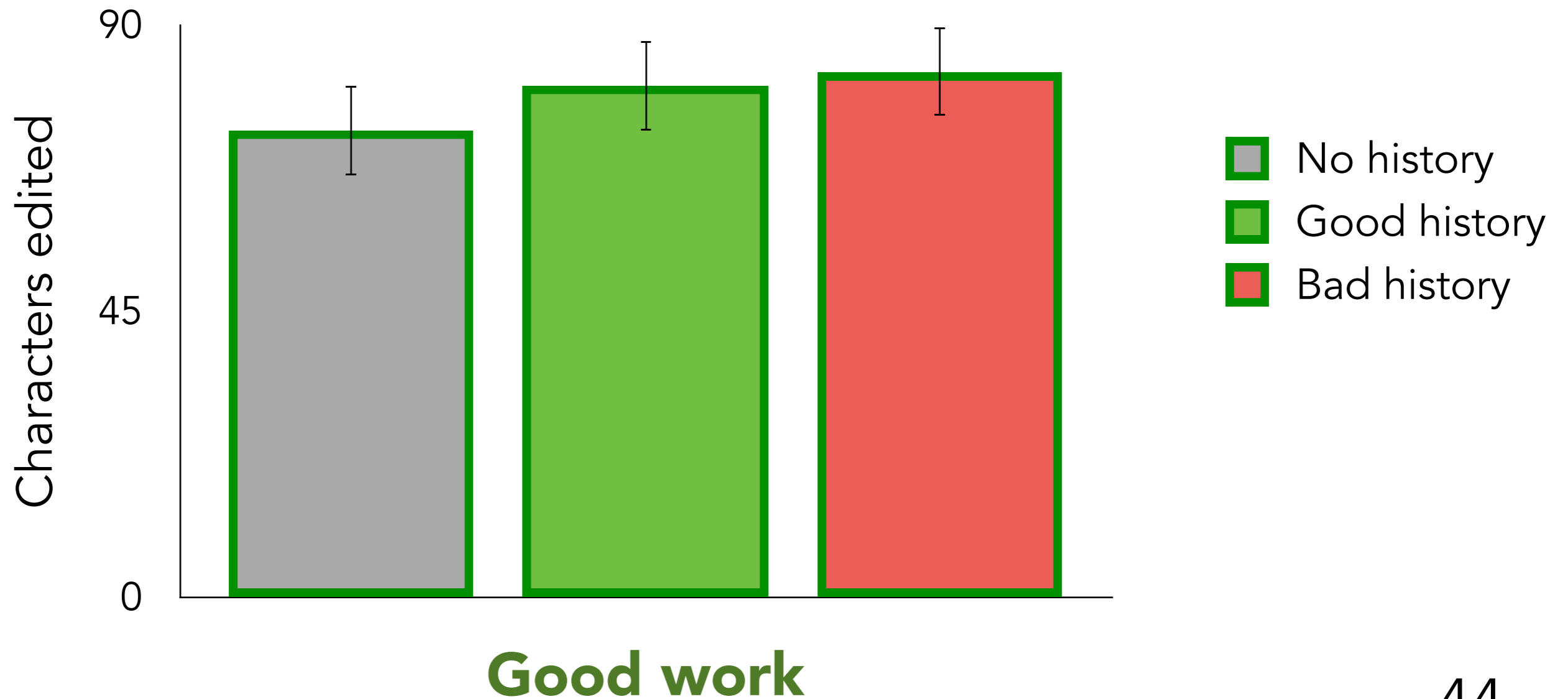
H2a: Initial impressions will persist even in the face of contrary evidence

H2b: Individuals will change their opinions after new evidence is revealed

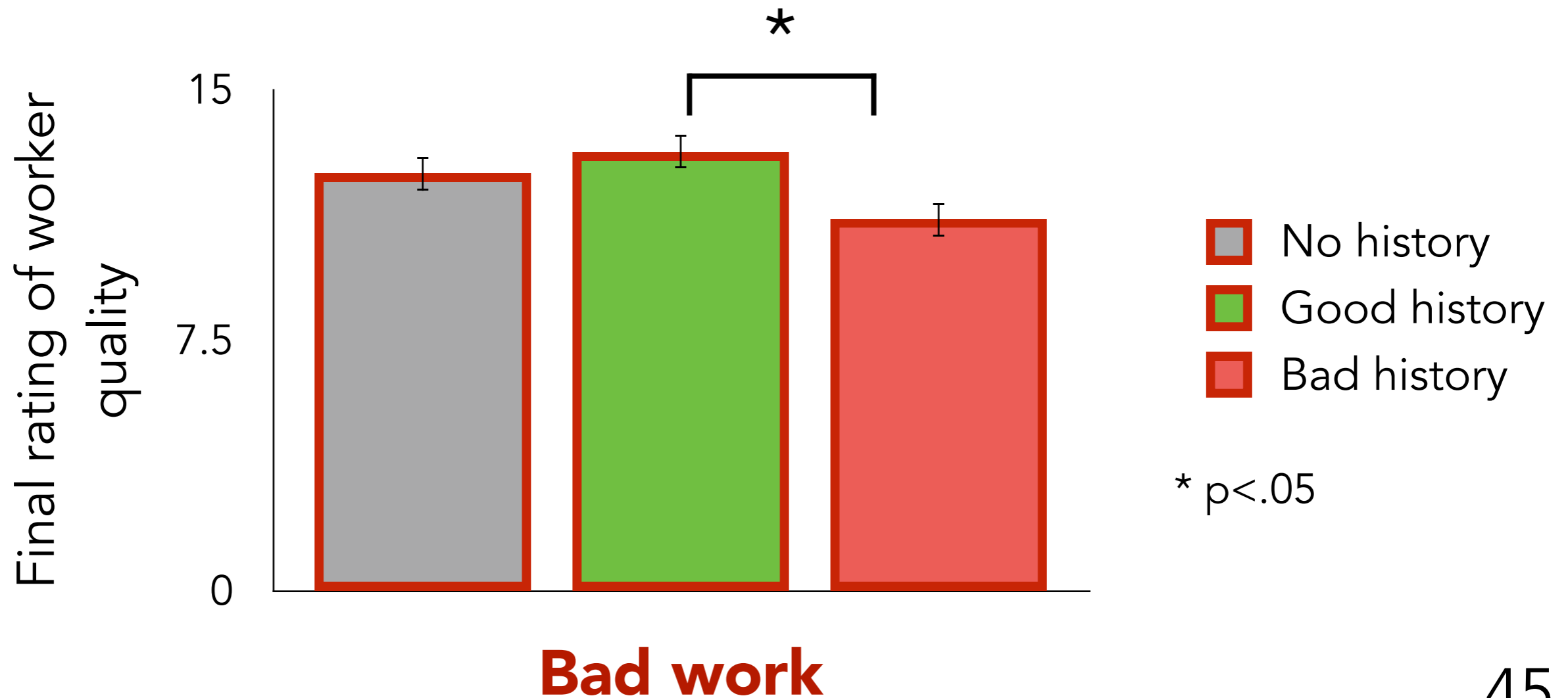
# History didn't affect final impressions (good work)



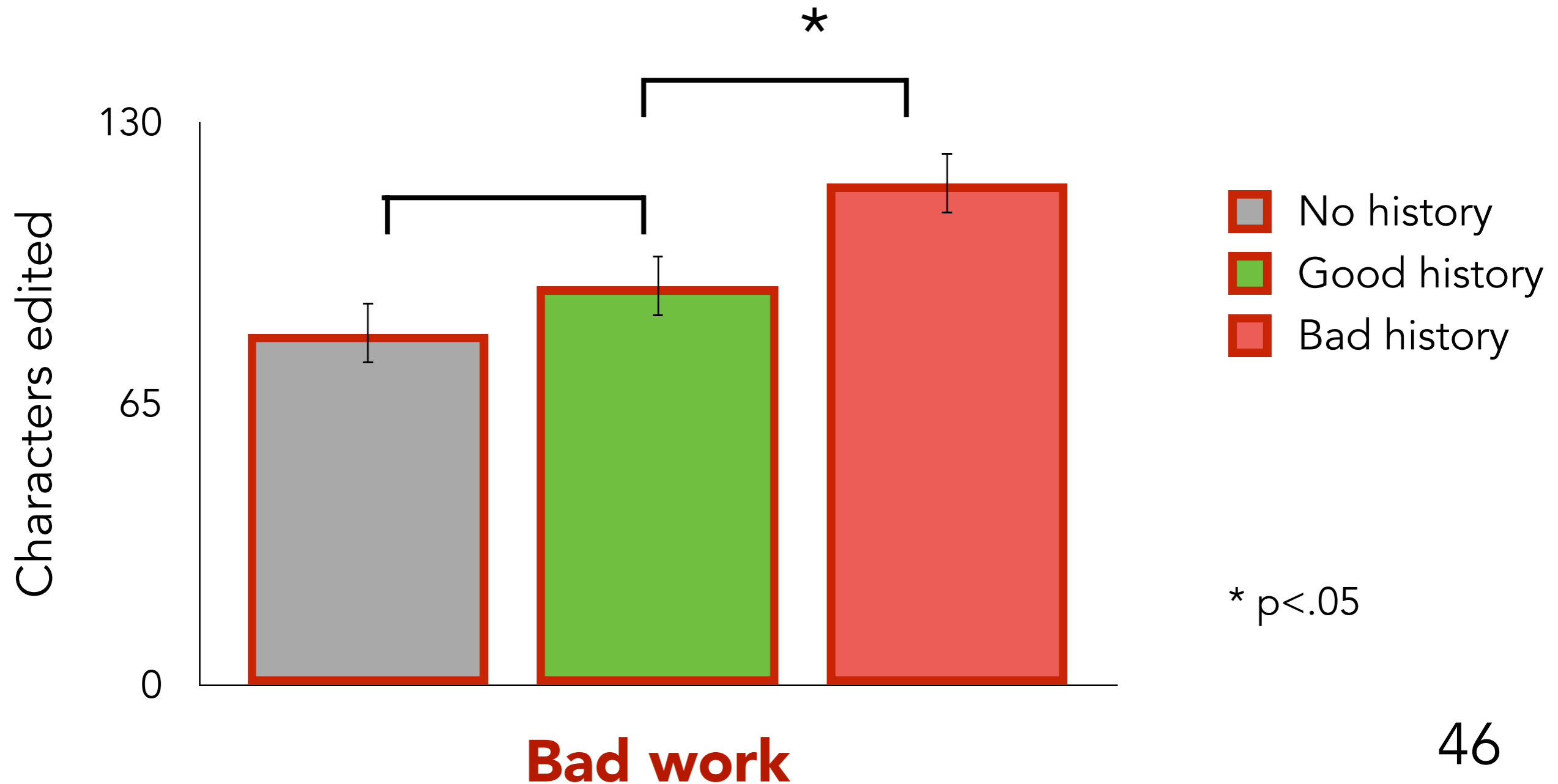
# History didn't affect editing (good work)



# Bad history lowered final impressions (bad work)



# Bad history increased editing (bad work)



# **RQ3: How does presentation of history influence impressions?**

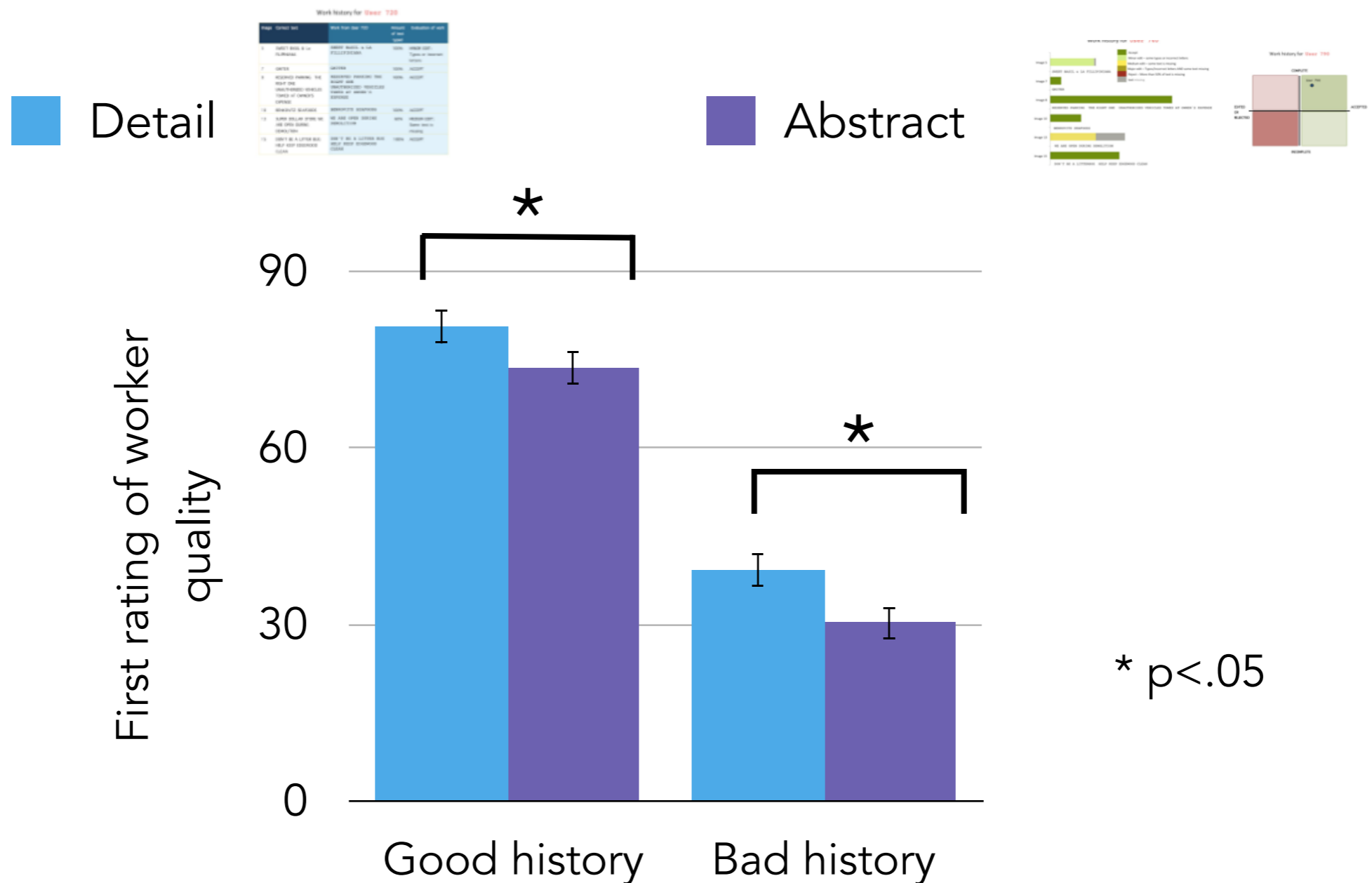
H3a: More detail will increase positivity

(Stephan et al., 2010)

H3b: More detail will increase negativity

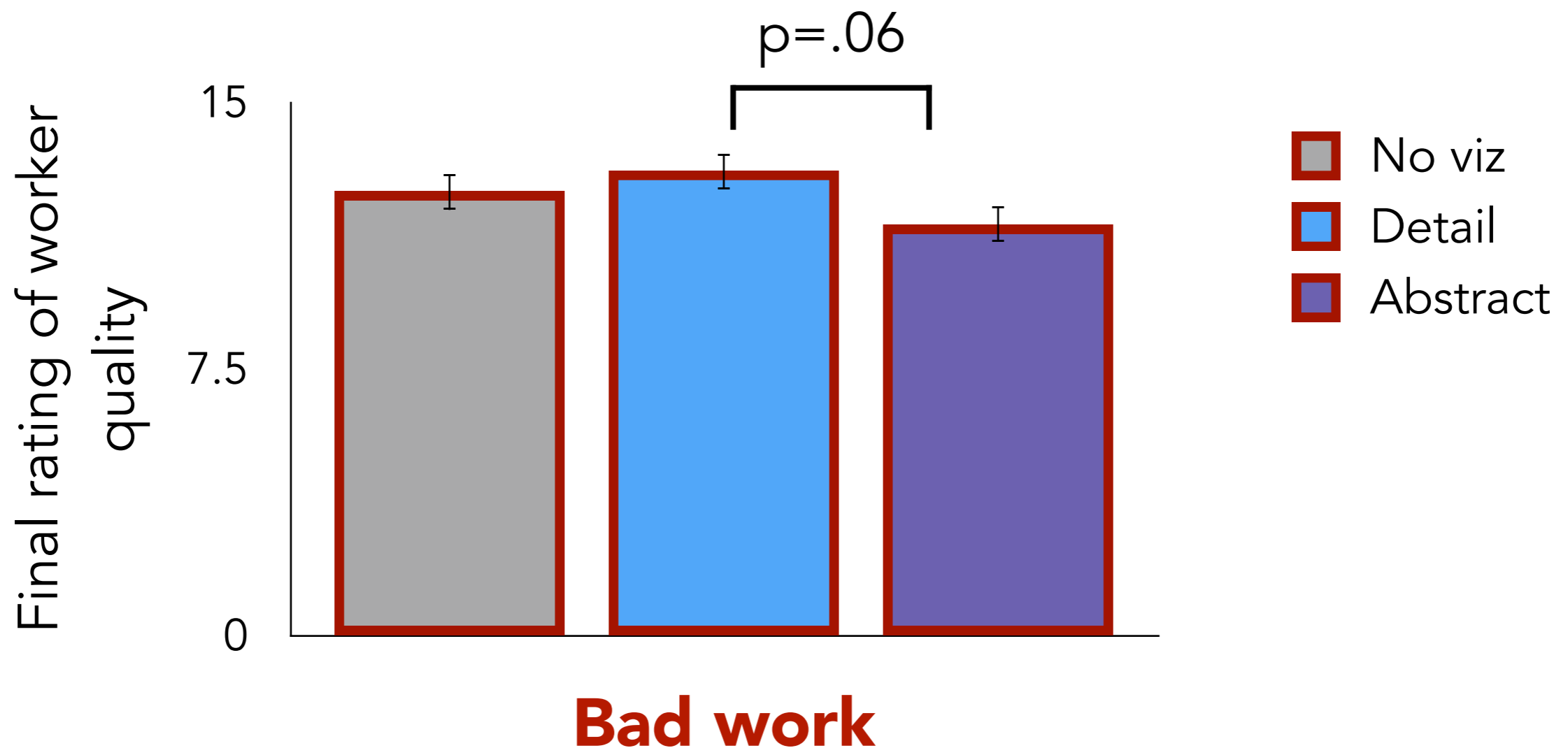
(Oppenheimer, 2006)

# Detail increased positivity of first impressions

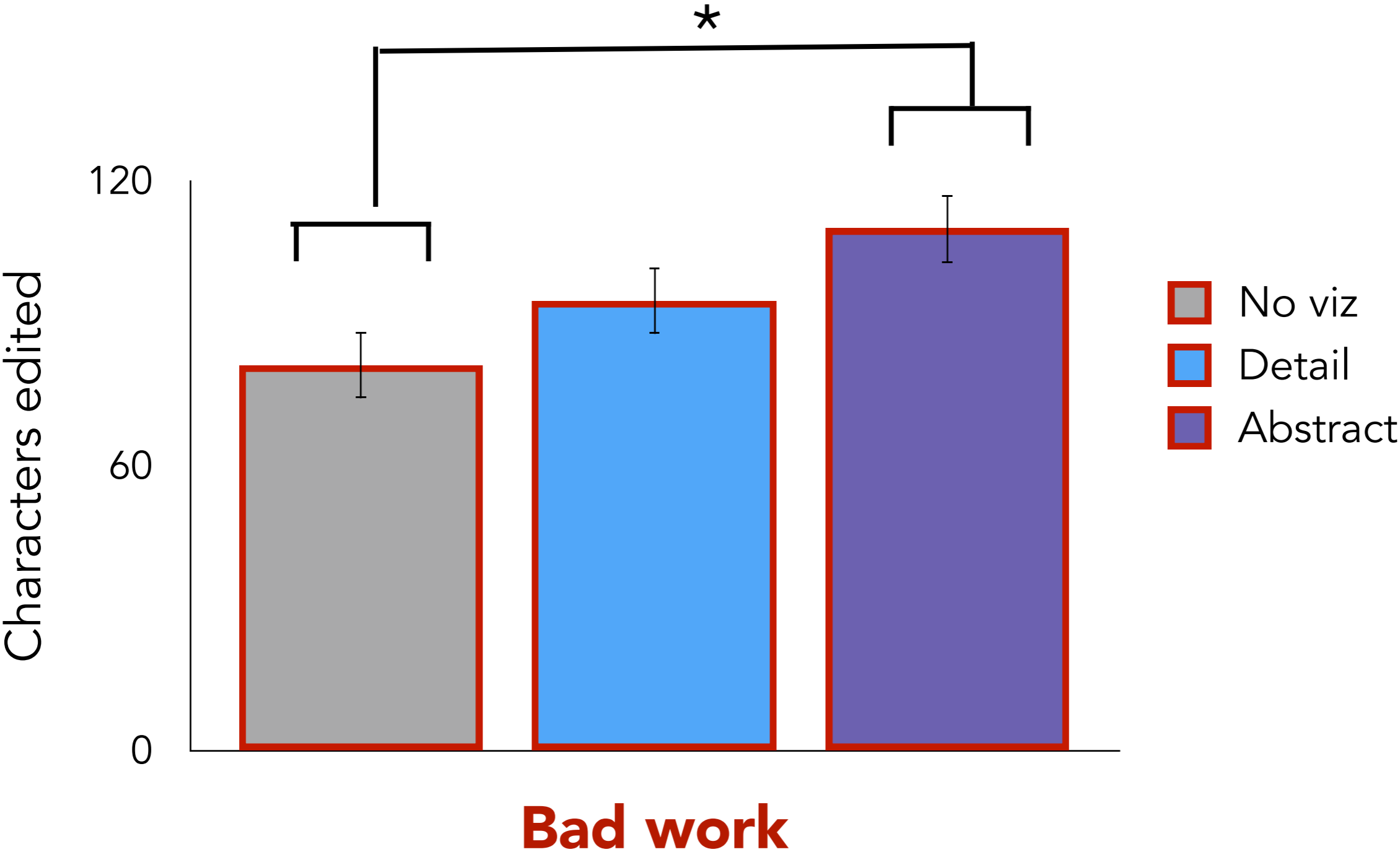




# Abstraction lowered final impressions for bad work



# Abstraction increased editing (bad work)



# Findings: History quality

- Good work -> History didn't change impression or editing regardless of how visualized
- Bad work -> Impressions depended on history quality. Bad history hurt impressions but increased editing for bad work.

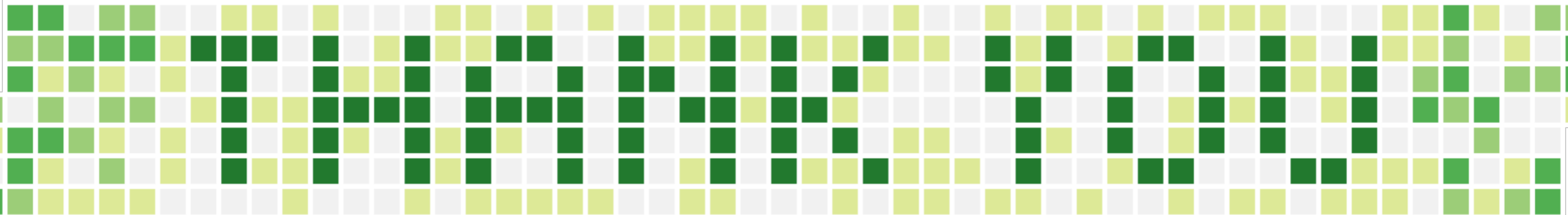
# Findings: Visualization

- Detail increased positivity of first impressions for good or bad history and final impressions for bad work
- Possible mechanisms could be:
  - Concreteness of detail
  - Salient colors in abstract view suggest negativity

# Design implications

- Emphasizing editing: Colors, artificial bad history to encourage sensitivity
- Caveat: Improved editing performance could come at the expense of more negative attitudes towards the worker

- Initial insights for how various design parameters might influence both interpersonal attitudes and work evaluation behaviors (sometimes in different ways)
- Not only *what* is presented but *how it is shown* can have differing effects.



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dabbish@cmu.edu



# Thank you!

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awards: IIS-1111750, CNS-1040801

