Social Transparency Online

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FXPAL
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
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
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 skampler/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 skampler/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


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

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Peer production
(Benkler & Nissenbaum, 2006)
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.
<table>
<thead>
<tr>
<th>Worker ID</th>
<th>Lifetime Approval</th>
<th>Block Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>A23ZO4PNK67M5</td>
<td>100% (1/1)</td>
<td>Never Blocked</td>
</tr>
</tbody>
</table>

Peer review online

Karrar234 (talk | contribs) · (142,495 bytes) (+194) · (undo) (Tags: Mobile ed)
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
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.
Detail vs. abstraction

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

Reviews & edits worker’s transcriptions

First impression of worker quality

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)

User 700 typed: STAGNO’S BAKERY INC. STAGNOS

GOOD WORK

Edit (6 char): STAGNO’S BAKERY INC. STAGNOS BAKERY
2 work qualities (RQ2)

User 600 typed:
STANGNOS BAKERY

BAD WORK

STANGNO’S BAKERY INC. STAGNOS BAKERY

Edit (18 char)
Detailed vs. abstract (RQ3)

**Detailed display**

**Abstract displays**
Visualization detail

more detailed

Table

more abstract

Graph

Quadrant

Work history for User 750

<table>
<thead>
<tr>
<th>Image</th>
<th>Correct text</th>
<th>Work from User 750</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>SWEET BASIL &amp; La FILIPINIANA</td>
<td>SWEET BASIL &amp; La FILIPINIANA</td>
</tr>
<tr>
<td>7</td>
<td>GMITER</td>
<td>GMITER</td>
</tr>
<tr>
<td>8</td>
<td>RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE</td>
<td>RESERVED PARKING THE RIGHT ONE UNAUTHORIZED VEHICLES TOWED AT OWNER'S EXPENSE</td>
</tr>
<tr>
<td>10</td>
<td>BENKOVITZ SEAFOODS</td>
<td>BENKOVITZ SEAFOODS</td>
</tr>
<tr>
<td>13</td>
<td>SUPER DOLLAR STORE WE ARE OPEN DURING DEMOLITION</td>
<td>SUPER DOLLAR STORE WE ARE OPEN DURING DEMOLITION</td>
</tr>
<tr>
<td>15</td>
<td>DON'T BE A LITTER BUG HELP KEEP EDGEMOOD CLEAN</td>
<td>DON'T BE A LITTER BUG HELP KEEP EDGEMOOD CLEAN</td>
</tr>
</tbody>
</table>

Work history for User 790

- COMPLETE
- EDITED
- OR
- REJECTED
- INCOMPLETE

User 790
# Between-subjects design

<table>
<thead>
<tr>
<th>3 history visualizations</th>
<th>2 history quality</th>
<th>2 work quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table</td>
<td>Good/Bad</td>
<td>Good/Bad</td>
</tr>
<tr>
<td>Graph</td>
<td>Good/Bad</td>
<td>Good/Bad</td>
</tr>
<tr>
<td>Quadrant</td>
<td>Good/Bad</td>
<td>Good/Bad</td>
</tr>
<tr>
<td>No history</td>
<td>Good/Bad</td>
<td>Good/Bad</td>
</tr>
</tbody>
</table>
Results

H1: Valence of work history should inform initial impressions of the person
History influenced first ratings (manipulation check)

* $p < .001$
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)

* p<.05
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

First rating of worker quality

- Good history
- Bad history

* p<.05
Abstraction lowered final impressions for bad work

Final rating of worker quality

Bad work

p=.06

- No viz
- Detail
- Abstract
Abstraction increased editing (bad work)

![Bar chart showing the effect of abstraction on editing characters. The chart compares No viz, Detail, and Abstract conditions.](chart.png)

- **No viz**
- **Detail**
- **Abstract**

Character edited:
- No viz: 100
- Detail: 120
- Abstract: 140

The Abstract condition shows a significant increase in editing compared to the No viz condition (p < 0.05).
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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