Photon: Priming and Perceived Performance Study

Firefox User Research
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Summary

- Compared to a control group, respondents primed with news stories describing the improvement of Firefox's performance rated their overall perception of Firefox's performance higher than Chrome in a head-to-head comparison.
- More specifically, articles about improvements to the speed of Firefox's browser rendering engine increased the overall rating of the perception of Firefox's performance. Articles about improvements to Firefox's UI had a significant, but smaller effect on perceived performance.
- The source publication of the news article (either from a technology-oriented publication or a mainstream, national news source) had no measurable effect on the respondents' perception of Firefox's performance.

Background

- Extension of Photon perceived performance research and benchmarking.
- Studies have demonstrated that there is a brand halo effect for search engines. Does this brand halo extend to web browsers?
- Browser performance is a primary metric deployed in software benchmarks, technology media news stories, and related marketing copy for comparing web browsers.
- Most software perceived performance work is primarily concerned with user perceptions of speed and responsiveness in the psycho-physical realm.

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Background

- Despite the similarities with regard to performance and features among top web browsers in the market, Google Chrome dominates in market share.
- Additionally, the influence of branding, media, and marketing on beliefs and attitudes has been widely reported.
- Google owns a large segment of the advertising ecosystem on the Internet and is a major industry organization covered in the media.
- As far as we are aware, no one has studied the role of priming messages in the media on users' perception of speed and performance for web browsers.

Primary Research Hypotheses

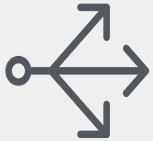
1. Priming users with an article about improved performance in Firefox will lead to higher ratings of perceived performance for Firefox than for the most widely-used browser.
2. Priming users with an article about improved performance in Firefox will lead to higher ratings of perceived performance for Firefox than for their preferred web browser.
3. An article about improved performance in Firefox from a technology-oriented publication will lead to higher ratings of perceived performance for Firefox than a non-technology-oriented publication.

Methodology

- Online survey-based format using SurveyGizmo with US census-balanced recruitment from SSI.
- Divided respondents into six branches. Each branch was given one of six fabricated articles to read.
- Respondents were asked to rate the article on multiple qualities including trustworthiness, currentness, etc.
- After rating the article, respondents were shown four counterbalanced videos of Chrome and Firefox both opening windows and tabs.
- Respondents were asked to rate Chrome and Firefox from the videos based on speed, smoothness, and design innovation.

Branches	**Publication**	**Article**	**Number of respondents**
Control	USA Today	Self-Driving Cars in South Korea	236
	The Verge	Self-Driving Cars in South Korea	253
Exp Group 1: Browser Engine	USA Today	Quantum Improves Firefox Performance	273
	The Verge	Quantum Improves Firefox Performance	240
Exp Group 2: UI Improvements	USA Today	Photon Improves Firefox UI	246
	The Verge	Photon Improves Firefox UI	250

Methodology



BRANCHES

Respondents randomly assigned to one of six branches.

ARTICLES

Each branch reads one of six different articles.

ARTICLE RATINGS

Respondents rate their branch's article on various qualities.

VIDEOS

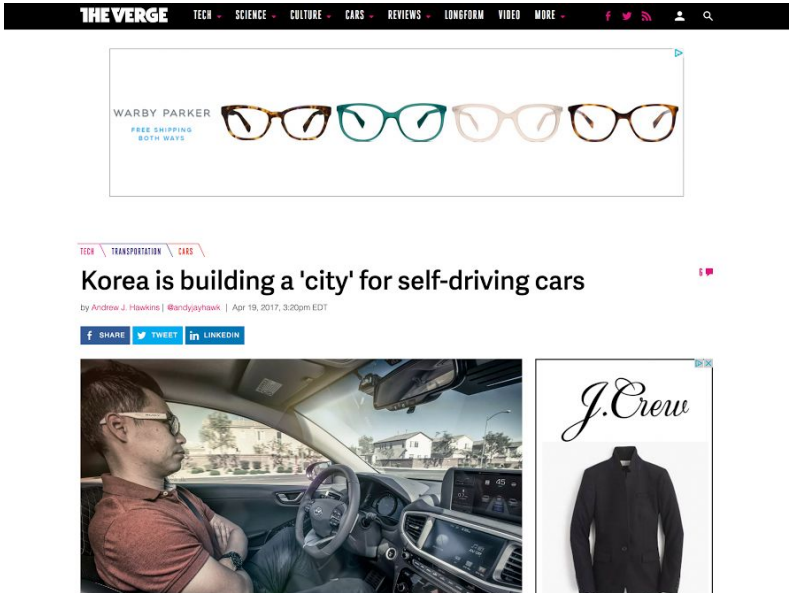
Respondents view four videos: 2 of Chrome, 2 of Firefox opening tabs and windows.

PERFORMANCE RATINGS

Respondents rate browsers on performance, smoothness, etc.

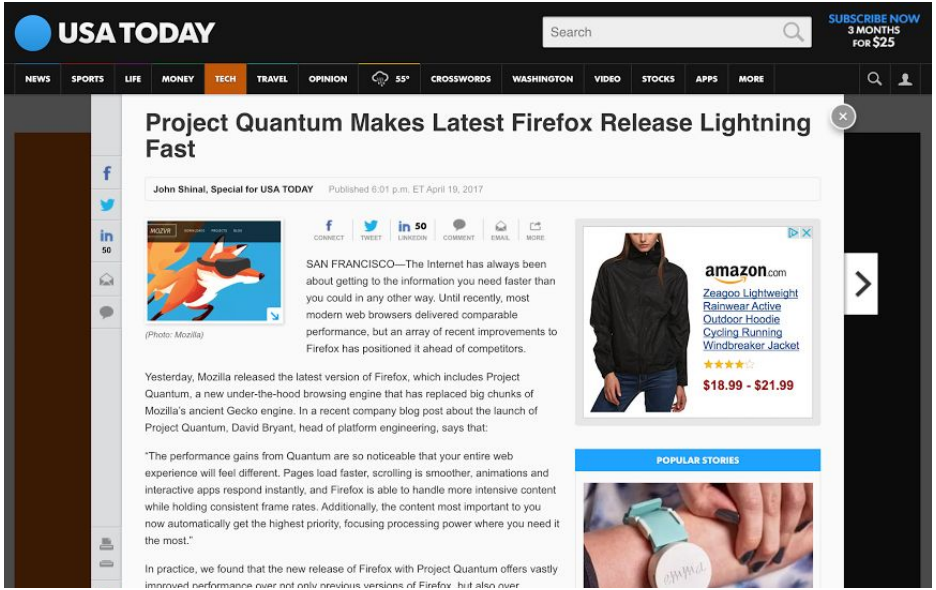
Methodology

Fabricated USA Today *article on self-driving cars in South Korea presented to respondents in control branch*

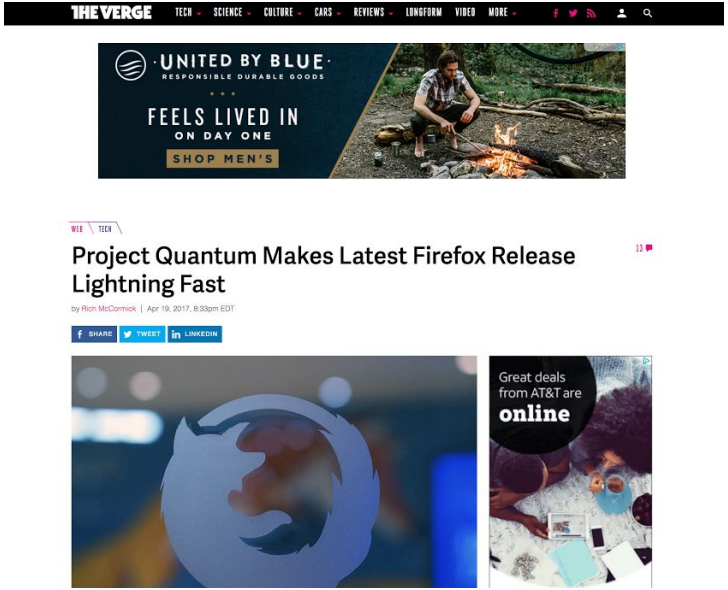


Same article presented in The Verge

Methodology

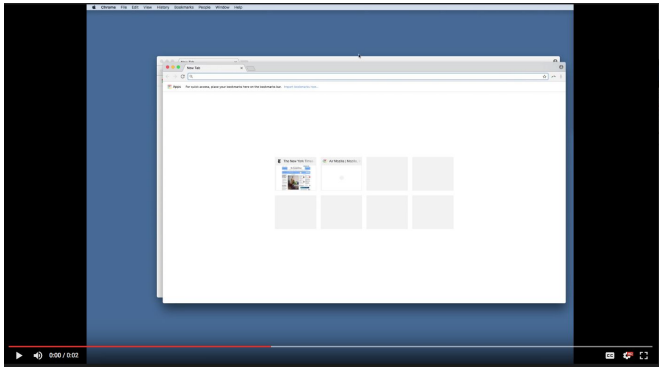


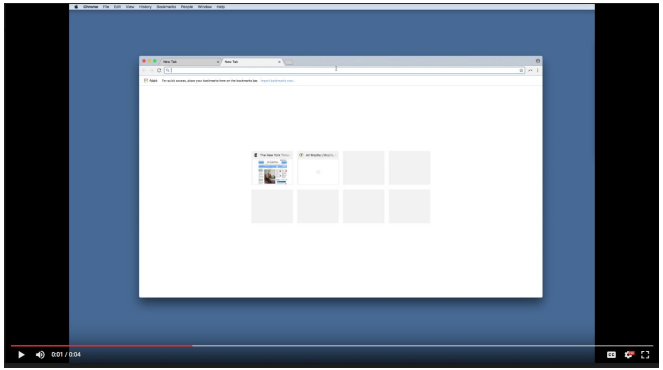
Fabricated USA Today *article on Quantum presented to respondents in one experimental branch*

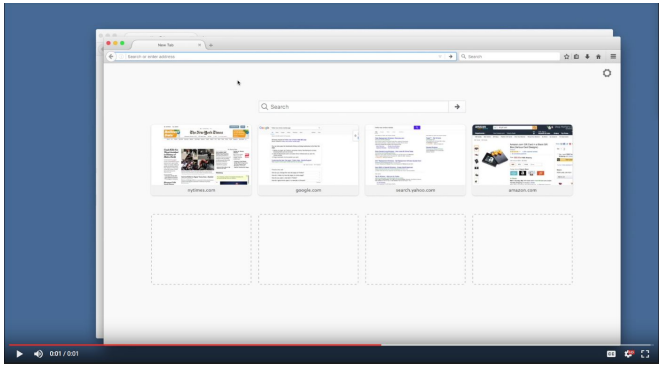


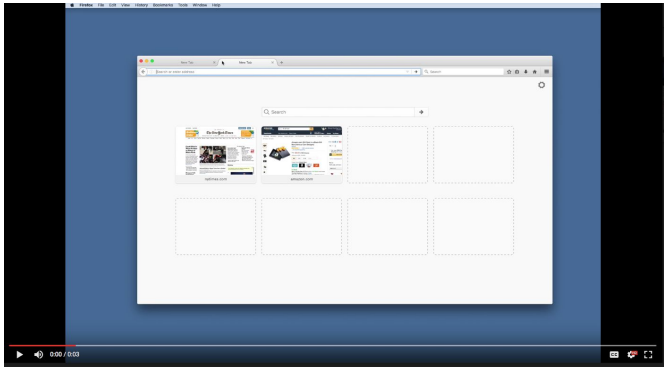
Same article presented in The Verge

Methodology









Video screenshots: Chrome and Firefox open new windows

Video screenshots: Chrome and Firefox open new tabs

Respondents

- US-based respondent panel provided by SSI.
- Total of 1500 respondents.
- Matched for census on age, gender, ethnicity, educational attainment, income.
  - Age range: 18 - 75
  - 53% Female, 47% Male
  - Ranges of income and self-reported ethnicity closely matched census ratios

Results

Analysis Model

- We treated the following as the control conditions for comparison analysis:
  - The self-driving cars article for content treatment
  - USA Today for source treatment
- To determine the main effects of treatments, we compared proportions of respondents between treatment conditions against controls.
- To estimate the likelihood of the effects, we assigned dummy variables for each respondent indicating if they rated Firefox as faster and Firefox as their preferred browser.
- Using logistic regression, we regressed the dummy variables on:
  - Treatment condition (Control or Experimental Variant A or Variant B)
  - Source condition (The Verge or USA Today)
  - Preferred browser

Results

So what happened?

With no treatment, Chrome wins in performance

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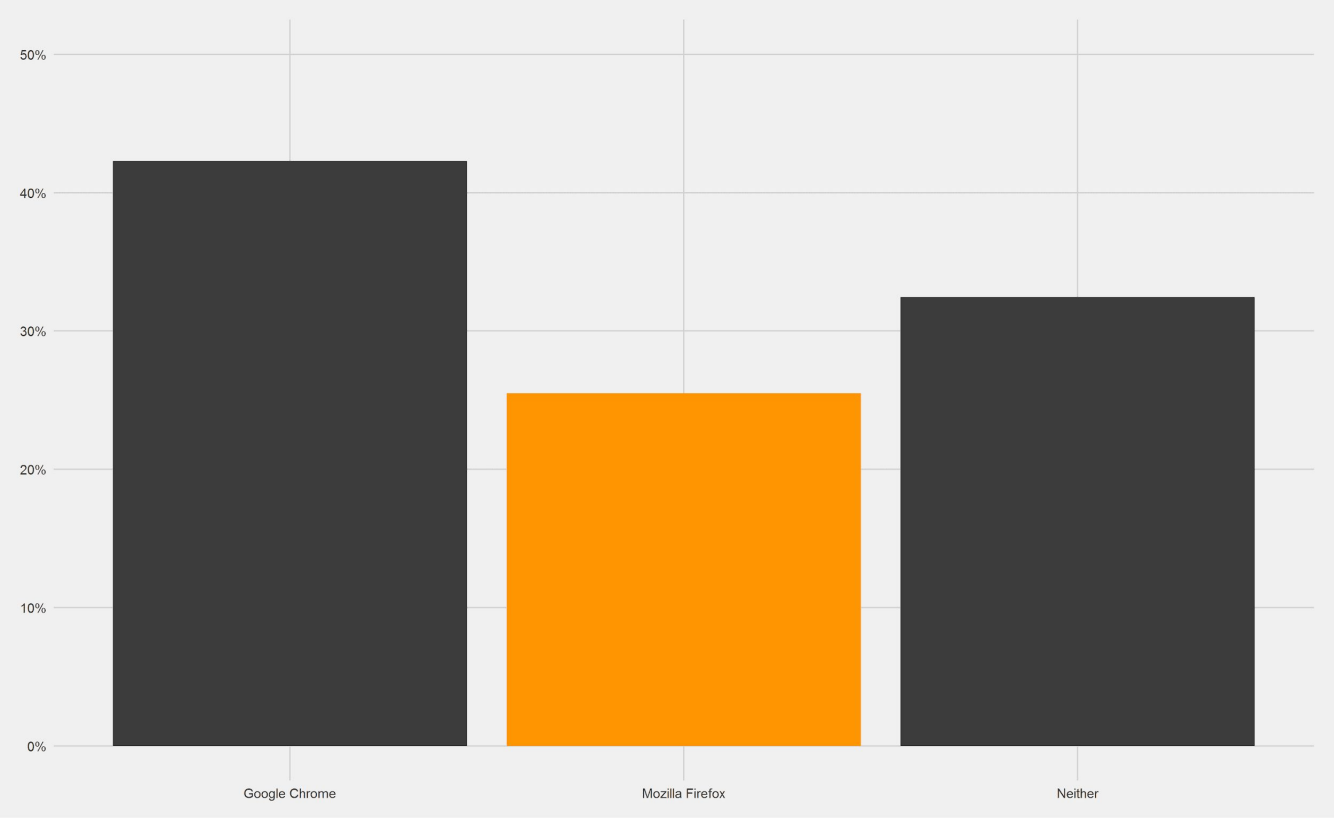
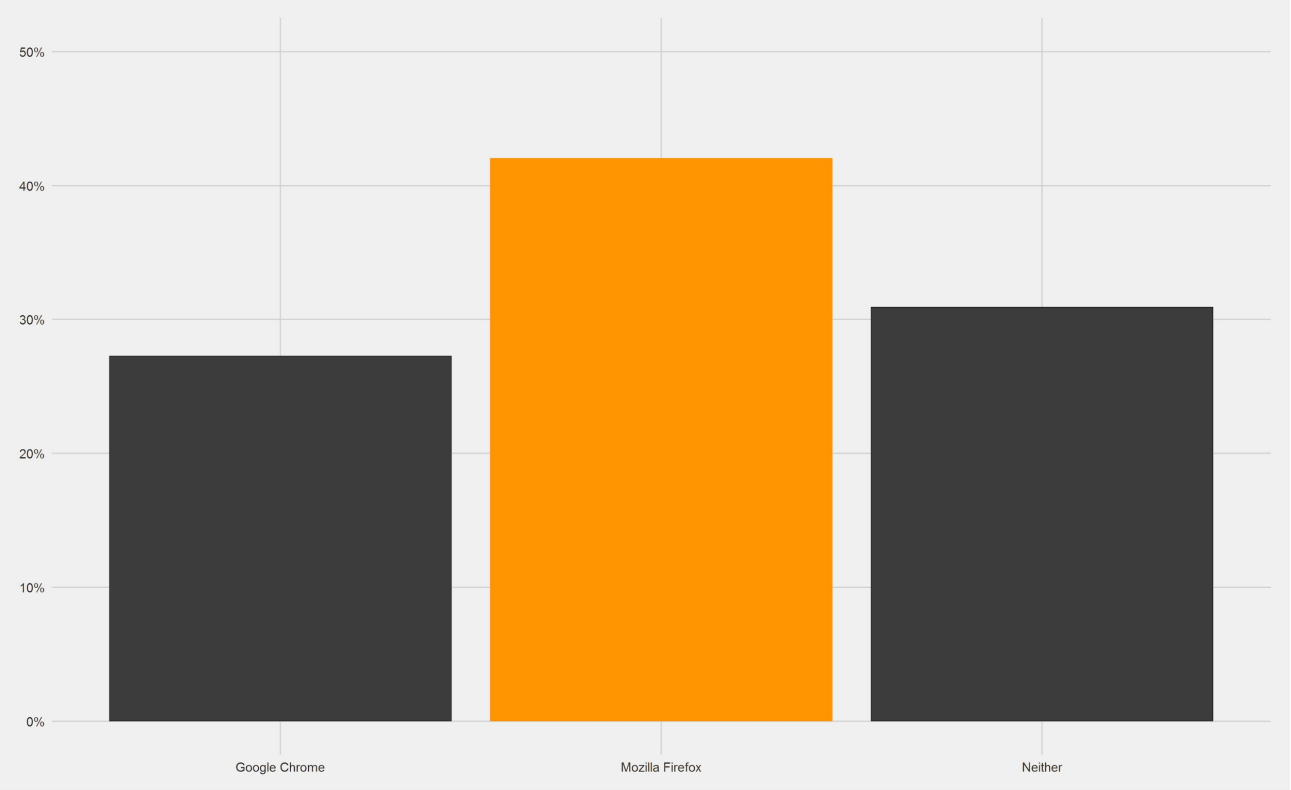
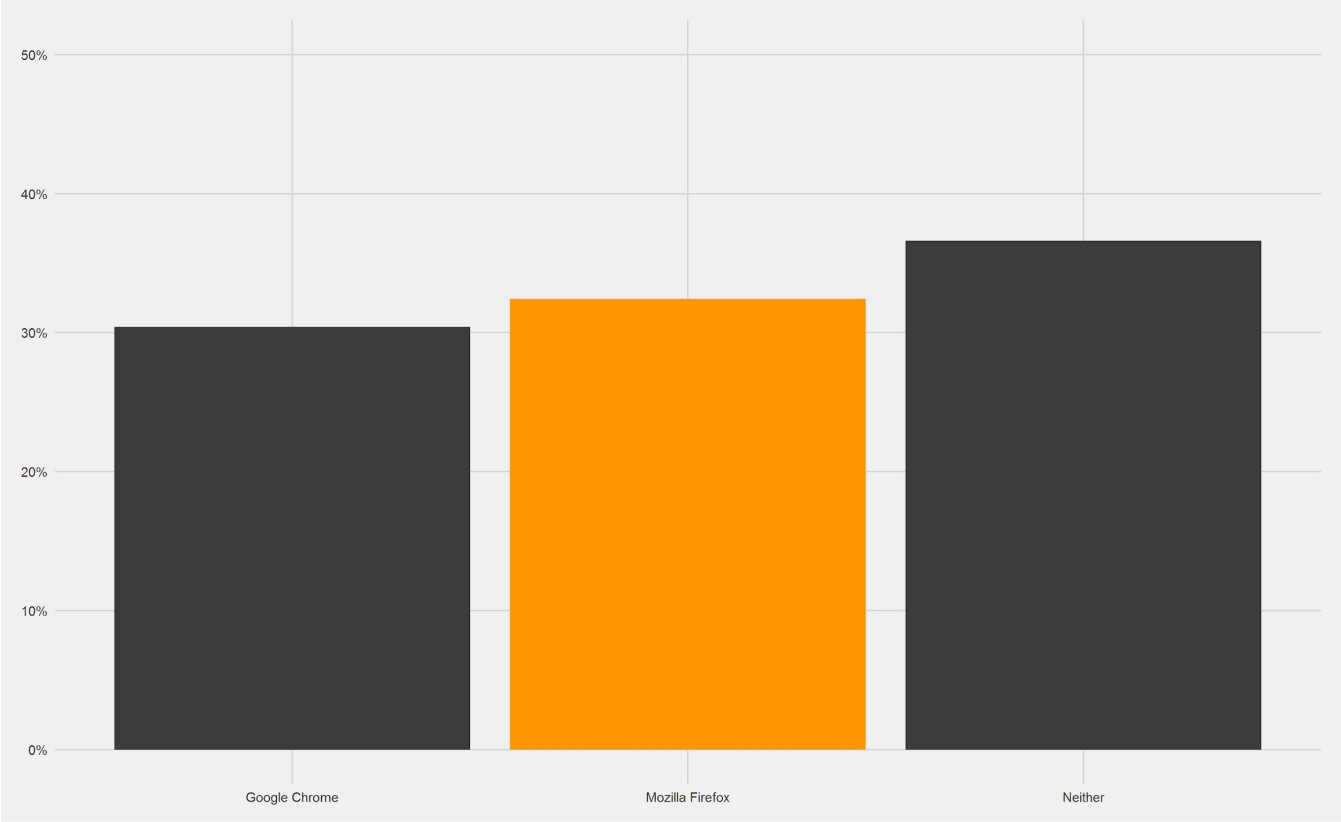


Improved performance messaging has a big effect



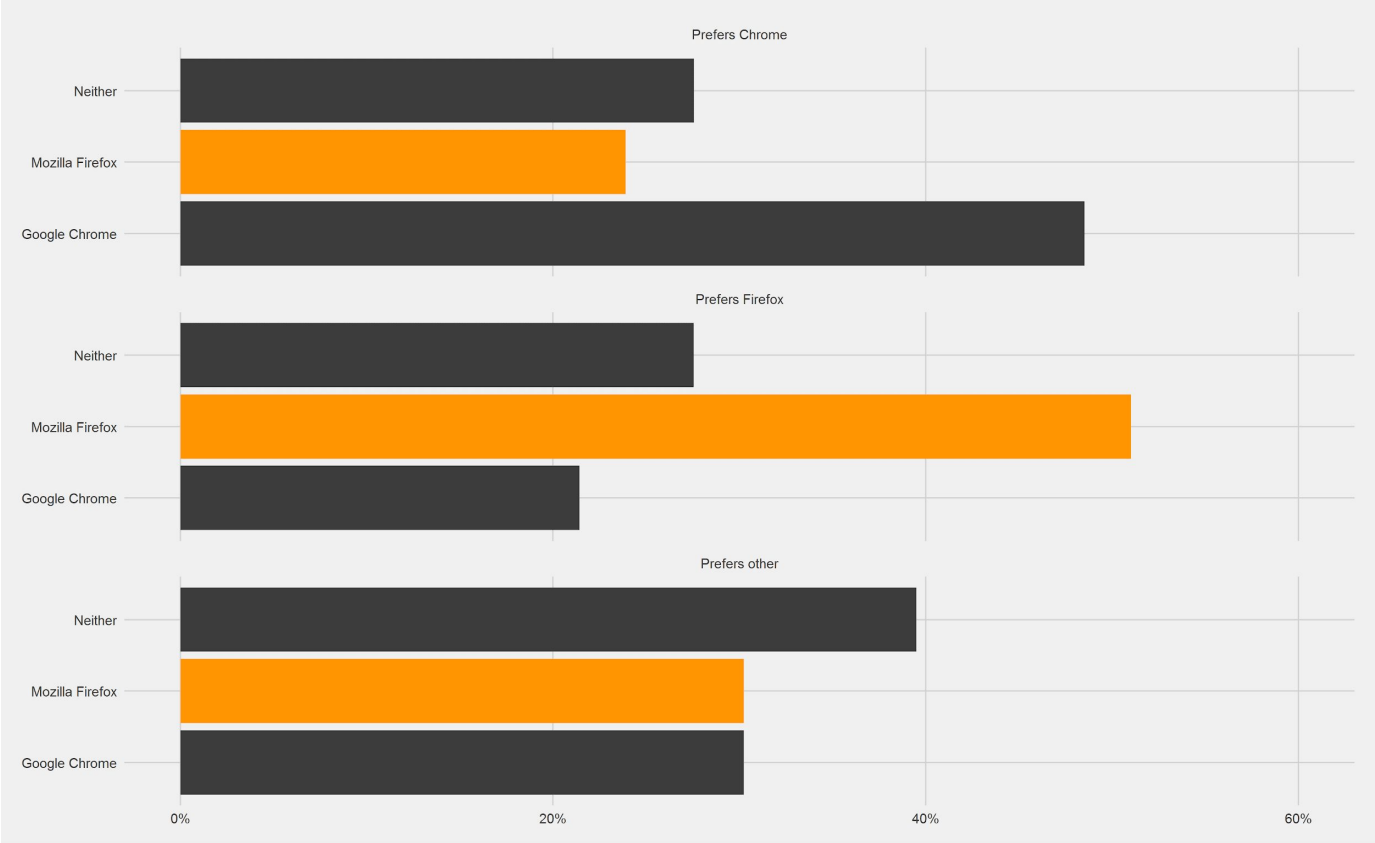
Reading about our new UI works, but not as well



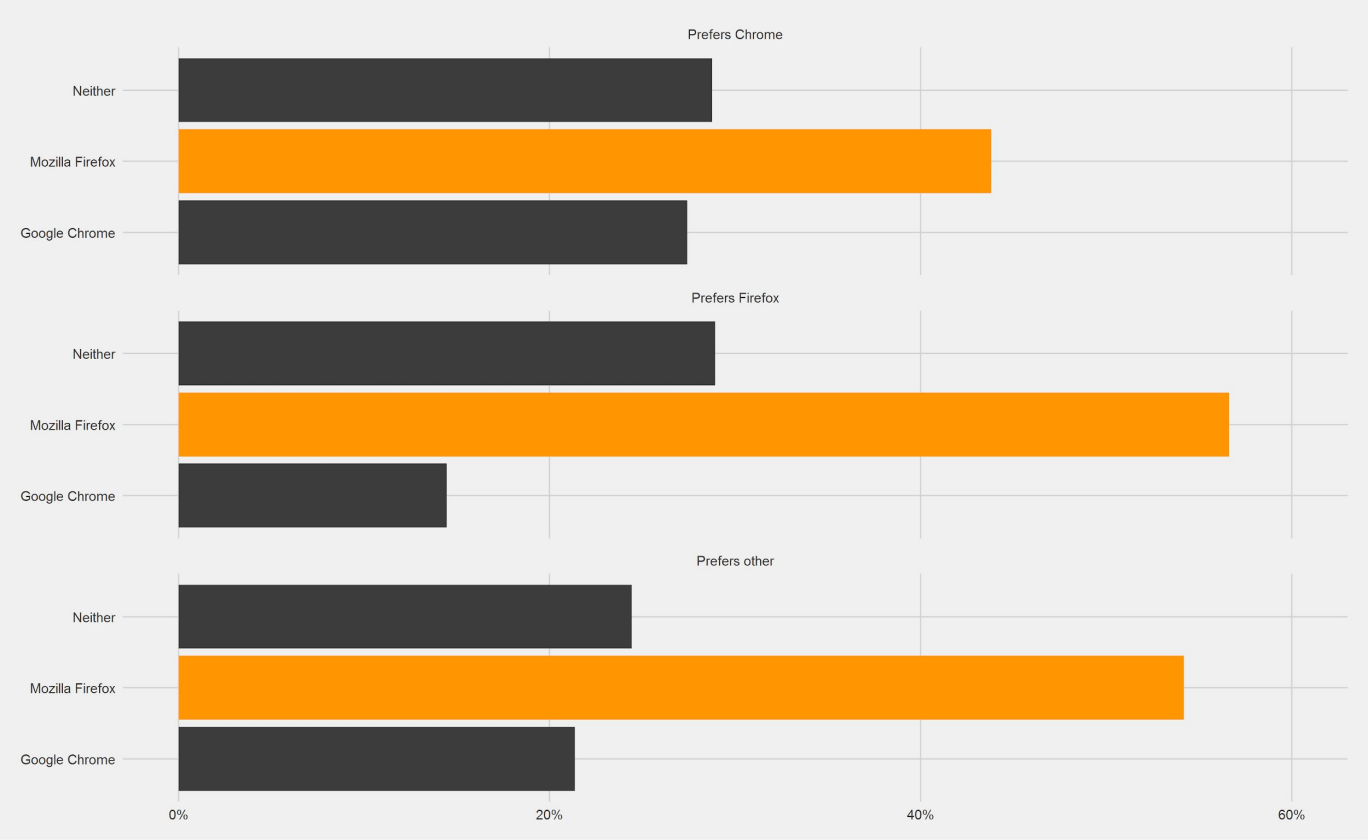
Results

What about Chrome users?

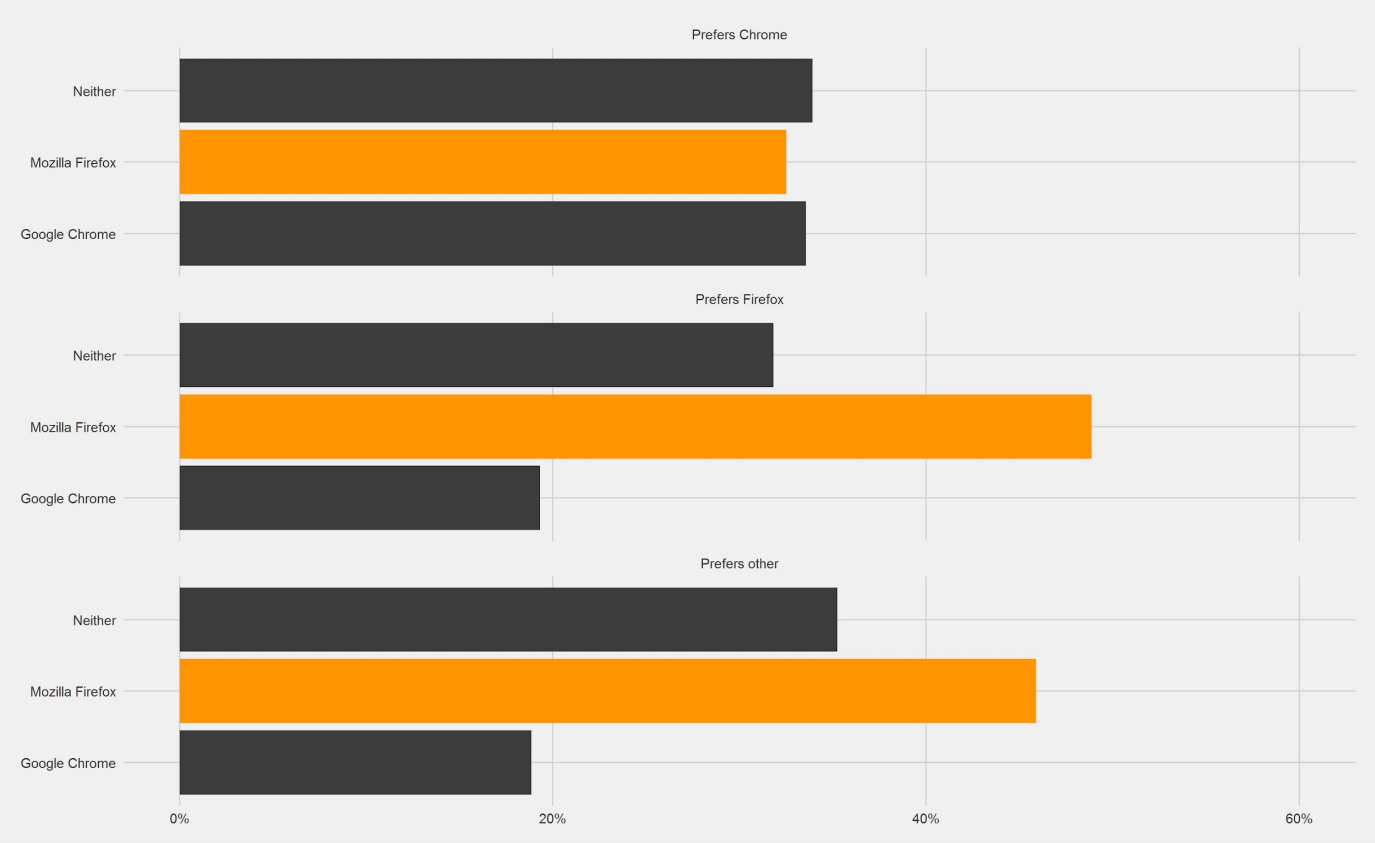
Normally, everyone plays favorites



Improved performance messaging works in our favor



The new UI doesn’t persuade Chrome users as much

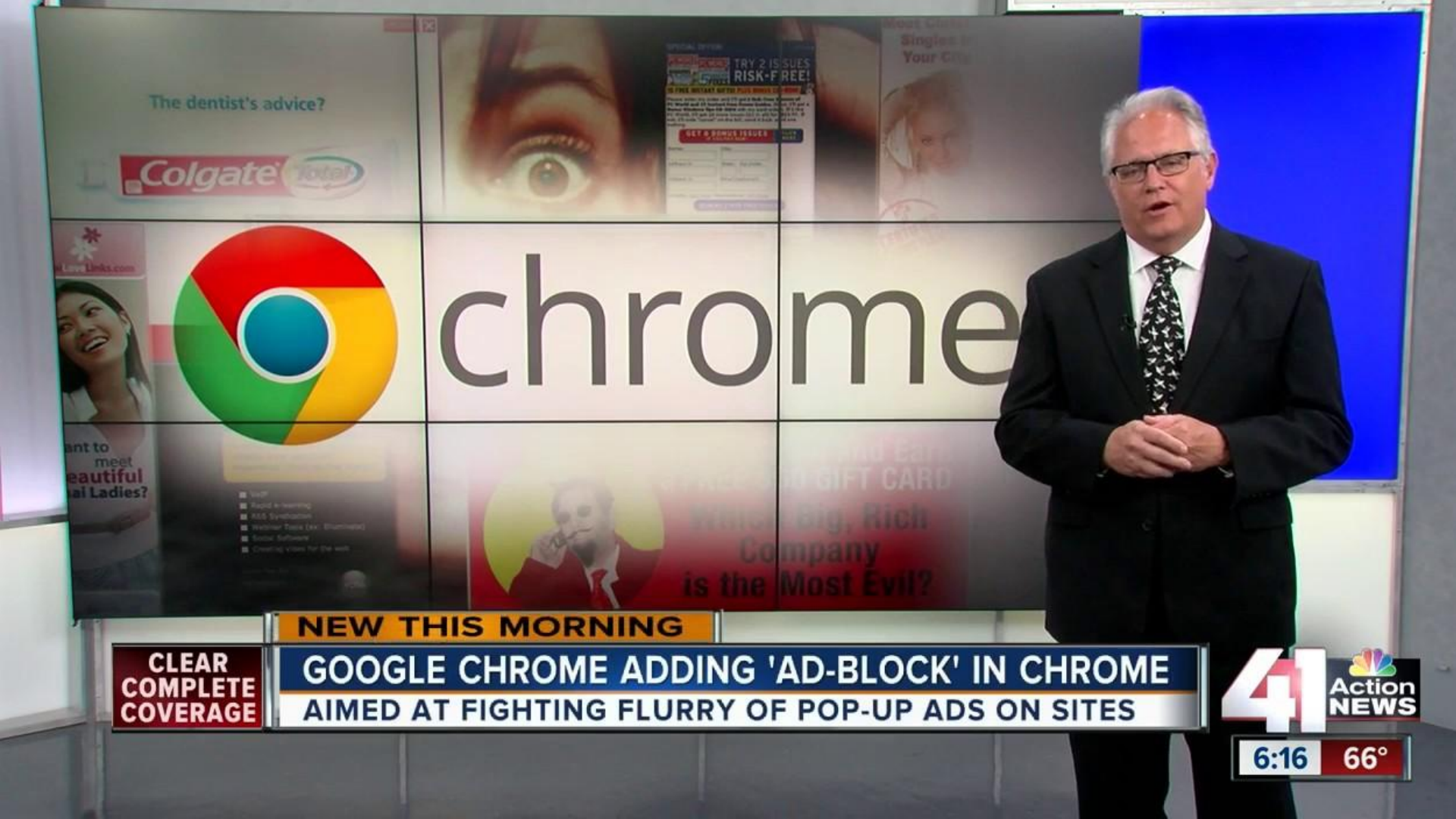


Results

- Compared to reading about self-driving cars, the Quantum performance article treatment significantly predicts rating Firefox as faster regardless of source (p = < 0.001)
- Respondents in the performance article group are **18%** more likely to rate Firefox as faster than Chrome compared to the control (reading about self-driving cars)
- The Photon article was a significant predictor for endorsing Firefox as faster than Chrome, but not as much (**8%,** p = 0.011)
- The source of the article (The Verge vs. USA Today) was not a significant predictor (p = 0.566)
- Surprising no one: if respondents already reported they preferred to use Firefox, they were **16%** more likely to rate Firefox as faster than Chrome compared to users who preferred either Chrome or another browser (p = < 0.001)

Revisiting hypotheses

1. Priming users with an article about improved performance in Firefox will lead to higher ratings of perceived performance for Firefox than for the most widely-used browser. **True.**
2. Priming users with an article about improved performance in Firefox will lead to higher ratings of perceived performance for Firefox than for their preferred web browser. **Somewhat true (depends on the respondent's preferred browser).**
3. An article about improved performance in Firefox from a technology-oriented publication will lead to higher ratings of perceived performance for Firefox than a non-technology-oriented publication. **False.**


The dentist's advice?
Colgate Total
TRY 2 ISSUES RISK-FREE!
chrome
Company is the Most Evil?
NEW THIS MORNING
CLEAR COMPLETE COVERAGE
GOOGLE CHROME ADDING 'AD-BLOCK' IN CHROME
AIMED AT FIGHTING FLURRY OF POP-UP ADS ON SITES
41 Action NEWS
6:16
66°

Recommendations

- Media stories matter and can influence users' perception of performance. Theme of the story is also important. Engaging with the media to present Firefox as a more performant browser can influence consumers' beliefs about the performance of Firefox.
- The source of the story does not appear to affect the priming effect. It's just as important to engage with non-technology media.
- For Photon launch, invite media to test drive the new Firefox.
- Performance (and its perception in general) is an important factor in the assessment of a browser in the browser market. In addition to continuing to study media influence on perception of performance, an on-going, full time user research program to study and improve the perceived performance of Firefox is essential.

Thanks!

Questions?