

# Wikipedia reader motivations and behavior



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# QR code



<https://goo.gl/IJcm2q>



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# *“Pop quiz, hotshot”*

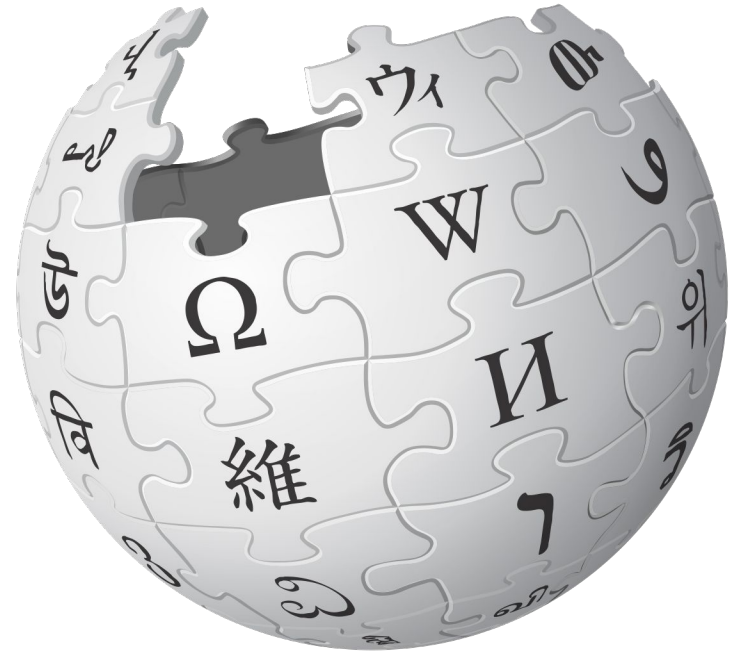
1. What % of wikipedia readers come for:
  - a. Quick fact
  - b. Topic overview
  - c. In-depth learning

# *“Pop quiz, hotshot”*

2. What % of wikipedia readers come because of:
  - a. work/school
  - b. saw something in the media
  - c. bored

# Agenda

1. Who we are
2. What we knew
3. The project
4. Method
5. The results
6. What next



# Who we are



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# Who I am



Jon Katz

Product lead, Reading team

Wikimedia Foundation

[jkatz@wikimedia.org](mailto:jkatz@wikimedia.org)



# Reading Team

By BrokenSphere - Own work, CC BY-SA 3.0



# Reading team impact

Help people learn more using  
Wikimedia projects



# Global View



Engage and retain readers

Enable new readers

# Shameless plug

New Reader's project overview

[https://meta.wikimedia.org/wiki/New\\_Readers](https://meta.wikimedia.org/wiki/New_Readers)

[Research results deck](#) + [Video of results presentation](#)

# We know some things



Surveys

Data logs

User

walk-throughs

Guerilla testing

Quant research

Qual research

Health metrics

Generative research

Evaluative research



# Research Team

By <http://wellcomeimages.org>, CC BY 4.0

# Research team

Design and test new technologies, produce empirical insights to support product and engineering decisions, and publish research informing the organization's and the Movement's strategy.

[https://www.mediawiki.org/wiki/Wikimedia\\_Research](https://www.mediawiki.org/wiki/Wikimedia_Research)

# What we knew



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# Basic traffic patterns





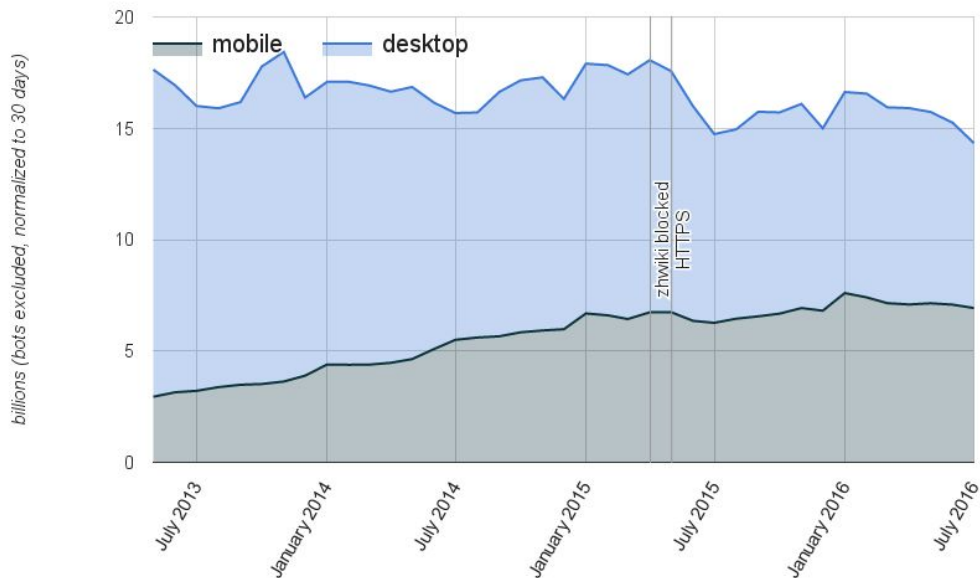
# Summary

- We are huuuge:
  - 15B pvs a month, ~1B unique devices/month\*
- We are half mobile, mobile is growing, desktop shrinking
- Mobile is shallow
  - $<1/2$  the pageviews per device of desktop
- Overall usage is flat, even in locations where things grow

\* using the device numbers for only the top wiki in each country

# Long-term traffic trends

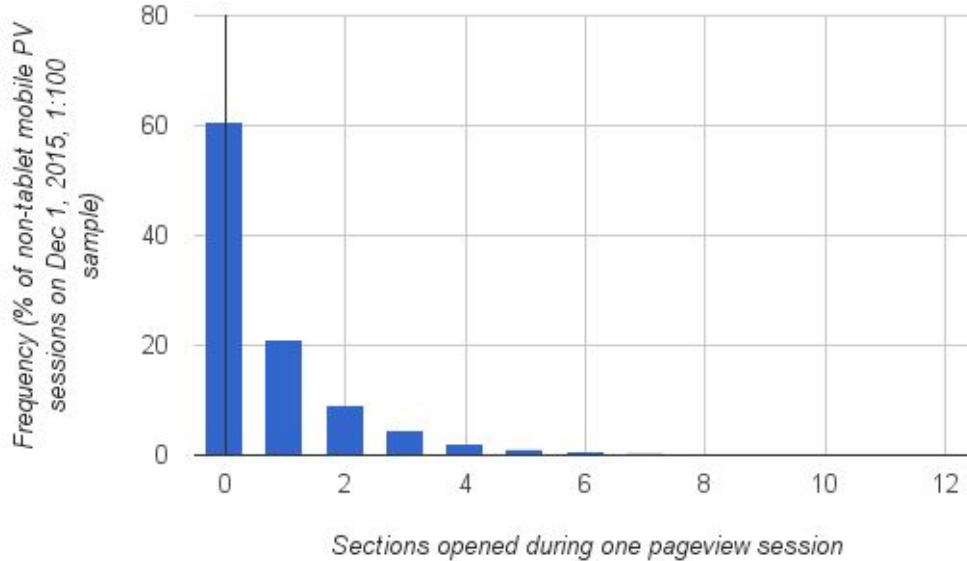
Wikimedia monthly pageviews (desktop+mobile), 2013-2016



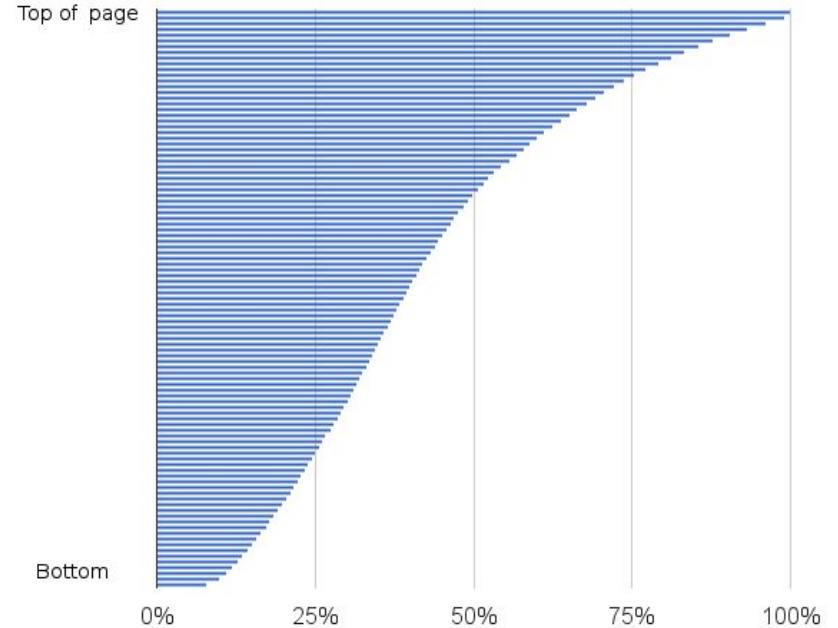
	Annual change (2013-16, linear)
Total	-3%
Desktop	-18%
Mobile (web+apps)	+25%

# Reading is shallow

Number of sections opened per pageview



Lowest page position viewed (on Android app)



More detail and other findings:

[\[\[File:New readership data \(Wikimedia Foundation Tech Talk\).pdf\]\]](#), [\[\[m:Research:Which parts of an article do readers read\]\]](#)



# What's new



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# Why do people read Wikipedia?



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**Are there different  
kinds of readers?**



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**Do different articles  
appeal to different  
kinds of readers?**



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# Some external research suggested the answer is yes

[Reader Preferences and Behavior on Wikipedia](#)<sup>[1]</sup> found distinct browsing patterns and associated topics among readers. They also found that the most popular topics did not always align with the activity of editors.

[1] [Janette Lehmann , Claudia Müller-Birn , David Laniado , Mounia Lalmas , Andreas Kaltenbrunner, Reader preferences and behavior on Wikipedia, Proceedings of the 25th ACM conference on Hypertext and social media, September 01-04, 2014, Santiago, Chile](#)

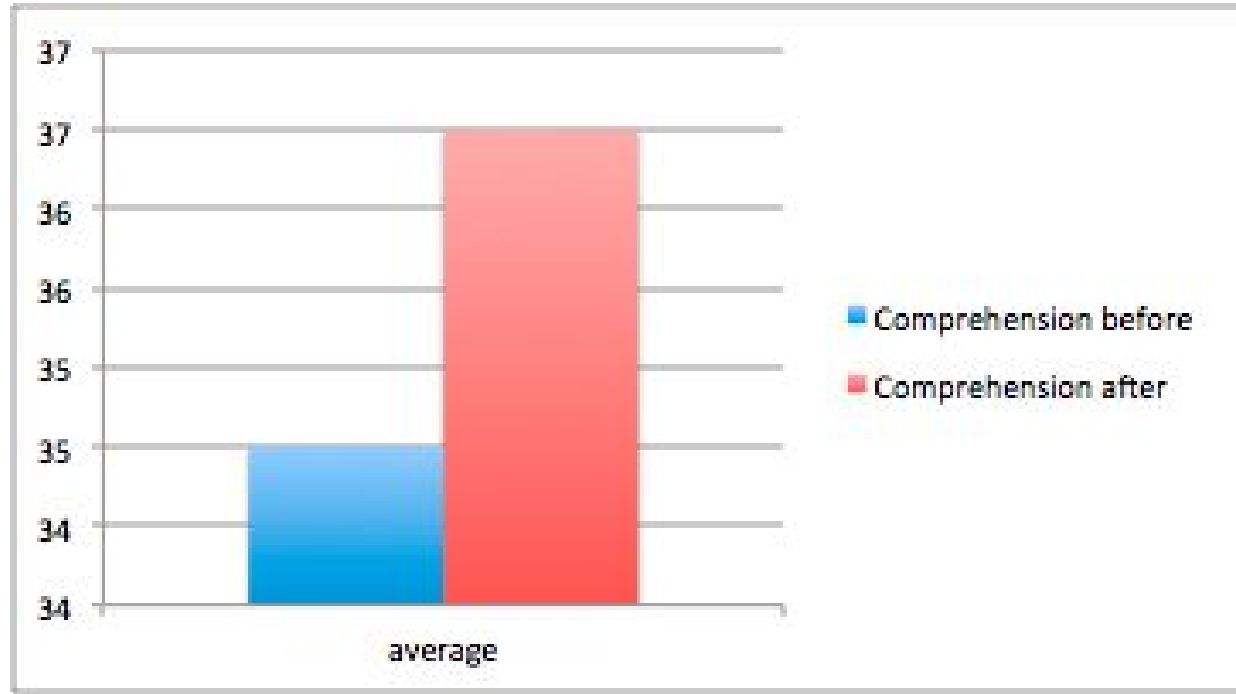


# Why it matters

- How articles are written
- What features we prioritize for readers
  - You'll see some of the feature decisions below....
- Avoid the danger of “averages”

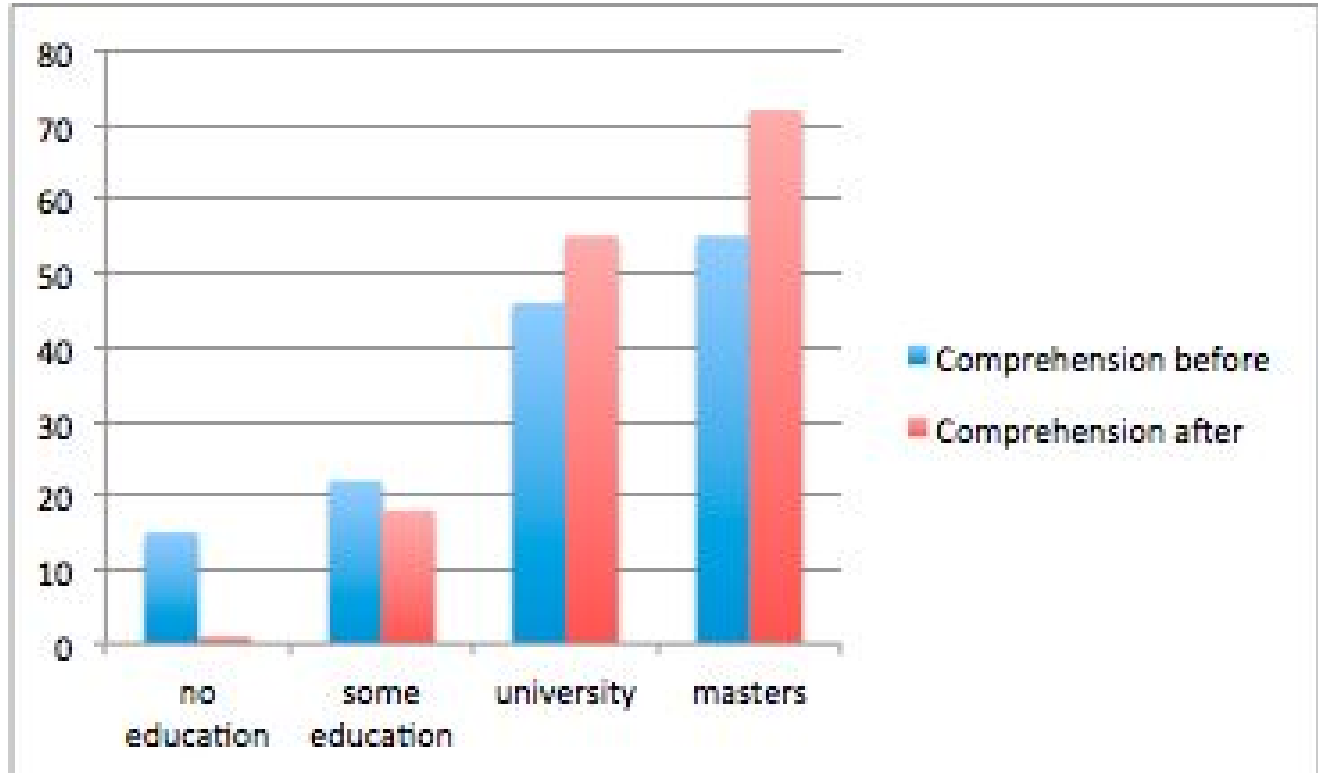
# Averages are dangerous

“7%  
improvement,  
let’s push it  
live!”



# Averages are dangerous

“Woah...serious issues.”



# Method



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# Research Process

- Ask reader questions
- Record browsing
- Analyze

# Details

- 1 week
- enwiki, eswiki, fawiki
- 5:1000 sampling rate for enwiki



# Bias

Coverage: we only look at  
En Wiki for final analysis



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# Bias

Response bias: people who responded had much longer sessions. Used propensity scoring to compensate, but the impact was not significant. Only the data mining results below use the corrected data.





# Initial round



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# Why are you reading this article today?



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By Timothy Lauro -  
Own work, CC BY-SA  
3.0

**For work!**



# Studying for my med school test

**To extend my  
research, comparing  
the April 2015 Nepal  
Earthquake and the  
September 11 attacks.**



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**I want to build a deck  
“wooden” and support  
a hot tub at one end  
of it.**

**Because I'm currently  
watching this show  
and wondered when  
the episodes  
originally aired.**

**Curiosity.**





**Bored.**



**cuz yolo.**

# Answers fit into 2 dimensions



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# External Motivation



By germany - Flickr: bg\_twitter, CC BY-SA 2.0

# I am reading this article because...

<b>work/school</b>	I have a work or school-related assignment.
<b>personal-decision</b>	I need to make a personal decision based on this topic (e.g., to buy a book or game, to choose a travel destination).
<b>current event</b>	I want to know more about a current event (e.g. Black Friday, a soccer game, a recent earthquake, somebody's death).
<b>media</b>	the topic was referenced in a piece of media (e.g. TV, radio, article, film, book).
<b>conversation</b>	the topic came up in a conversation.
<b>bored/random</b>	I am bored or randomly exploring Wikipedia for fun.
<b>intrinsic_learning</b>	this topic is important to me and I want to learn more about it. (e.g., to learn about a culture).

# Depth



By Eva holderegger walser - Own work, CC BY-SA 3.0

# I am reading this article to...

<b>fact</b>	look up a specific fact or to get a quick answer.
<b>overview</b>	get an overview of the topic.
<b>in-depth</b>	get an in-depth understanding of the topic.

# Familiarity

A close-up photograph of a man and a dog. The man, on the left, has dark, wavy hair and is wearing glasses and a blue textured jacket. He is seen from the back, with his arms around the dog. The dog, on the right, is a large breed with white fur and large brown patches, particularly around its eyes and ears. It has a silver chain collar and is looking towards the man. The background is blurred, suggesting an outdoor setting.

By Sberlazza - Hug in Lisbon Uploaded by tm, CC BY 2.0



# Prior to visiting this article ...

<b>familiar</b>	I was already familiar with the topic.
<b>unfamiliar</b>	I was not familiar with the topic and I am learning about it for the first time.

# We then looked at other characteristics

## User:

- Mobile/Desktop
- Time of day, day of week
- Country, Continent

## Session:

- Pages looked at
  - Topic, centrality, page rank
- Session time, pageview #
- Branching within session



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Details, caveats and more here:

[https://meta.wikimedia.org/wiki/Research:Characterizing\\_Wikipedia\\_Reader\\_Behaviour/S3-English\\_Large\\_Scale](https://meta.wikimedia.org/wiki/Research:Characterizing_Wikipedia_Reader_Behaviour/S3-English_Large_Scale)

More results: <https://github.com/ewulczyn/readers/blob/master/src/analysis/Metrics.ipynb>

# The results



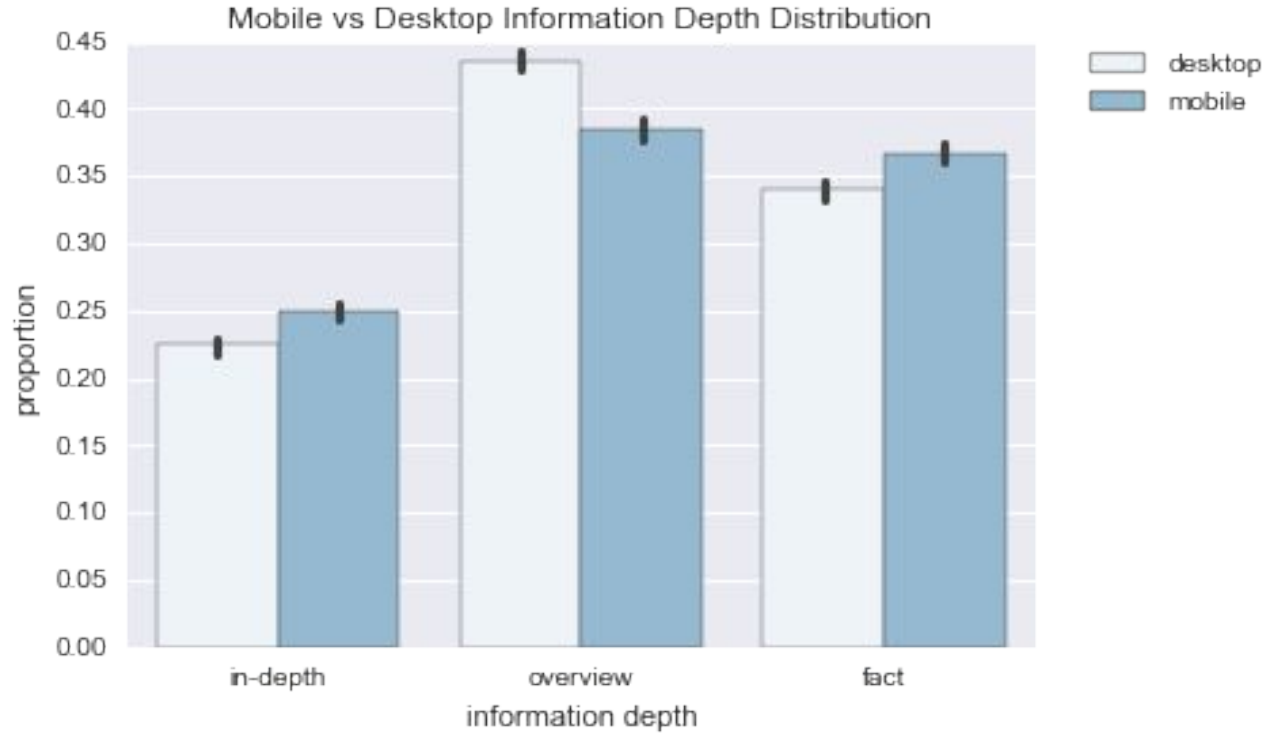
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# Depth

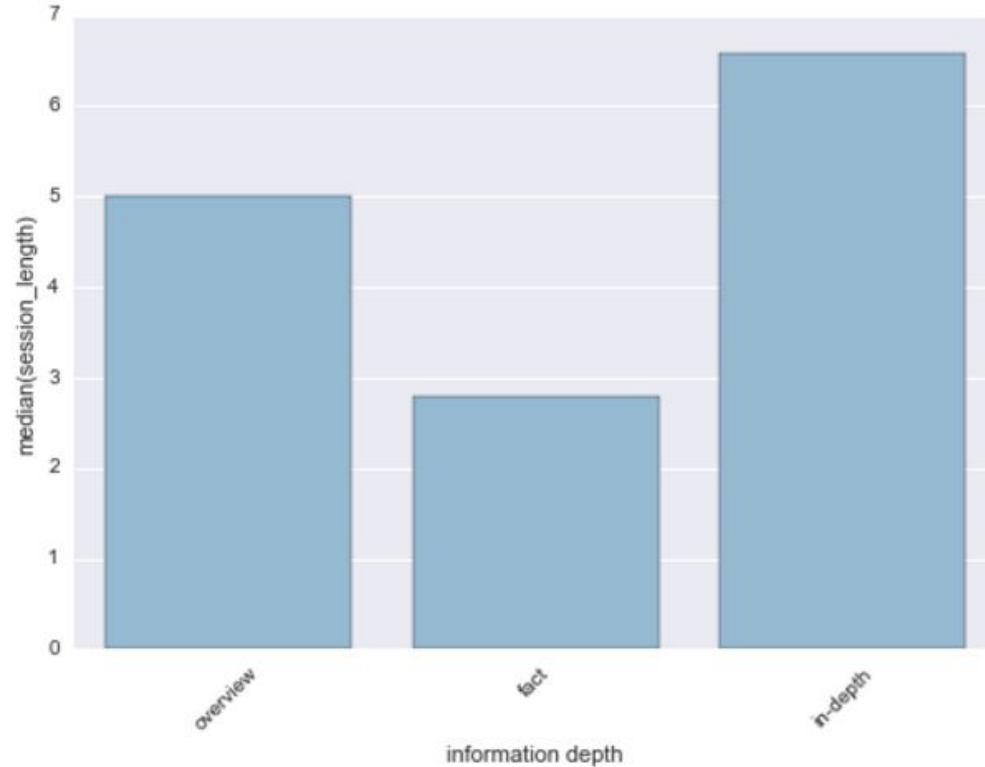


By Eva holderegger walser - Own work, CC BY-SA 3.0,

# Only 1/4 of users come for in-depth reading



# People spend more time based on purpose

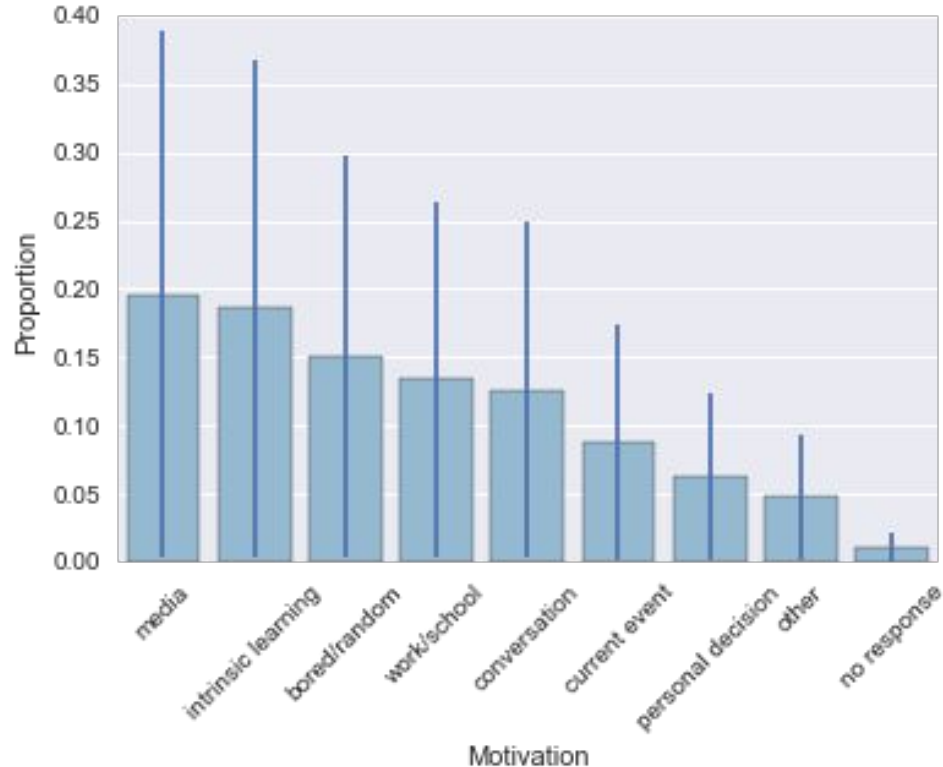


# Motivation



By germany - Flickr: bg\_twitter, CC BY-SA 2.0,

# Media is the leading motivator



\*results limited to respondents who listed one external motivation (70%)



***Intrinsic learning is  
the biggest driver of  
in-depth***



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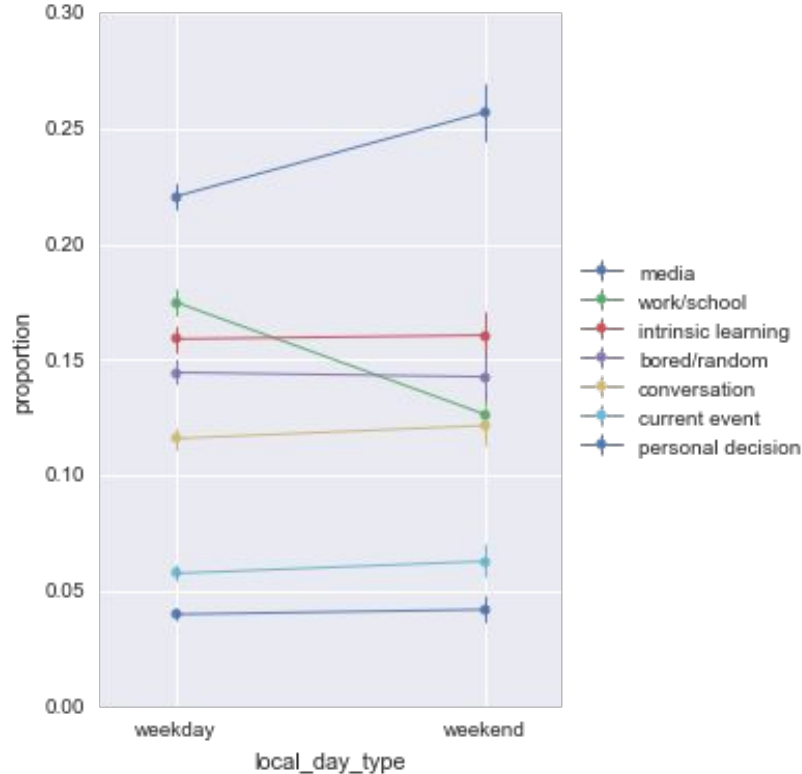
***Media* is the leading  
motivator for everything  
else...followed by  
*work/school***



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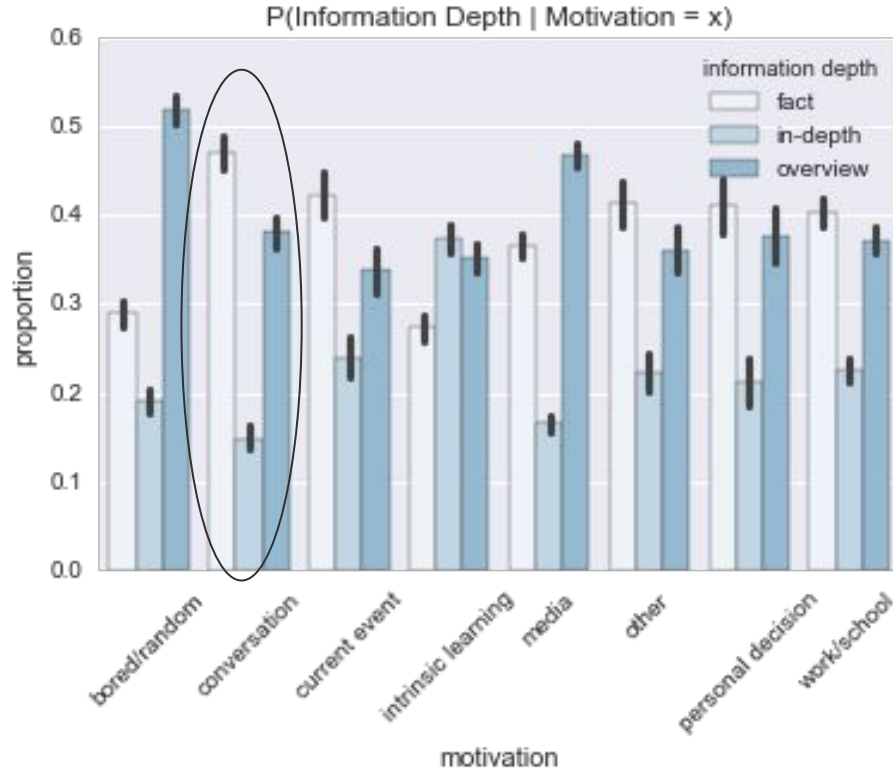
# Weekday v. Weekend is predictable

On weekends, work/school goes down and media goes up.



# The bar bet hypothesis...

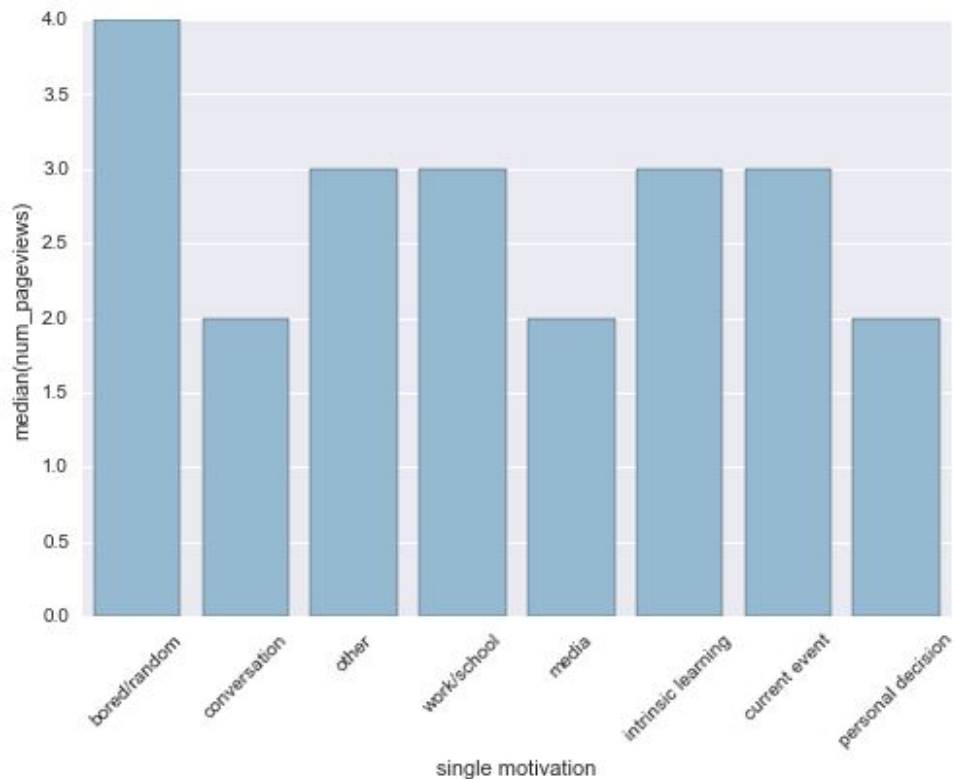
Users motivated by a conversation are more likely to be looking up a fact.



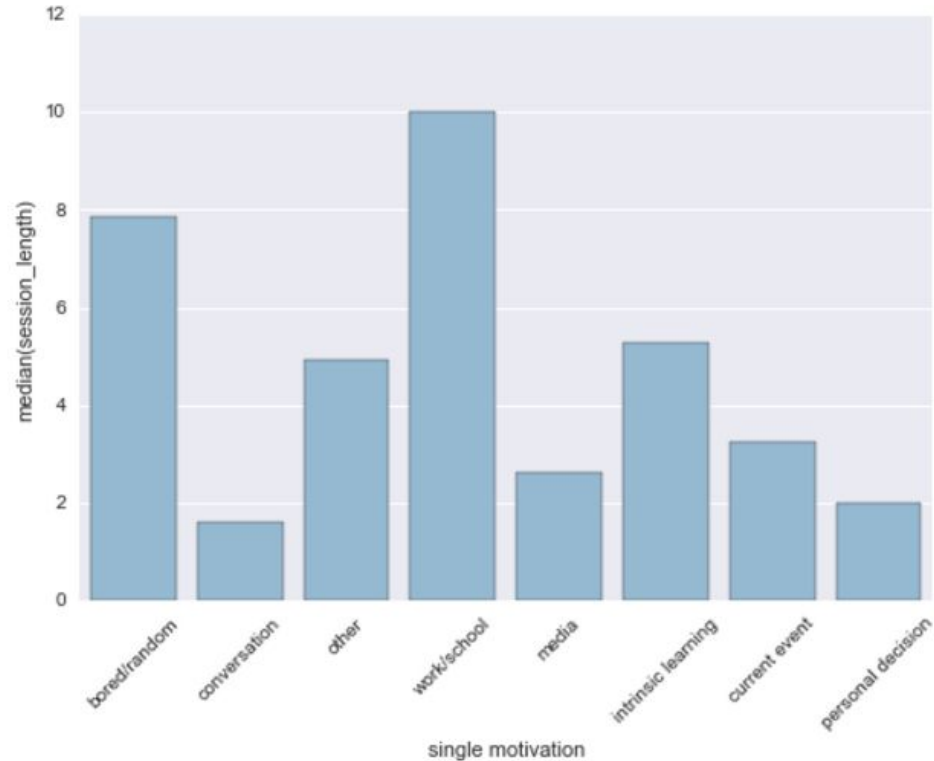
# Bored people surf more

If you look at averages, then work/school is also hefty

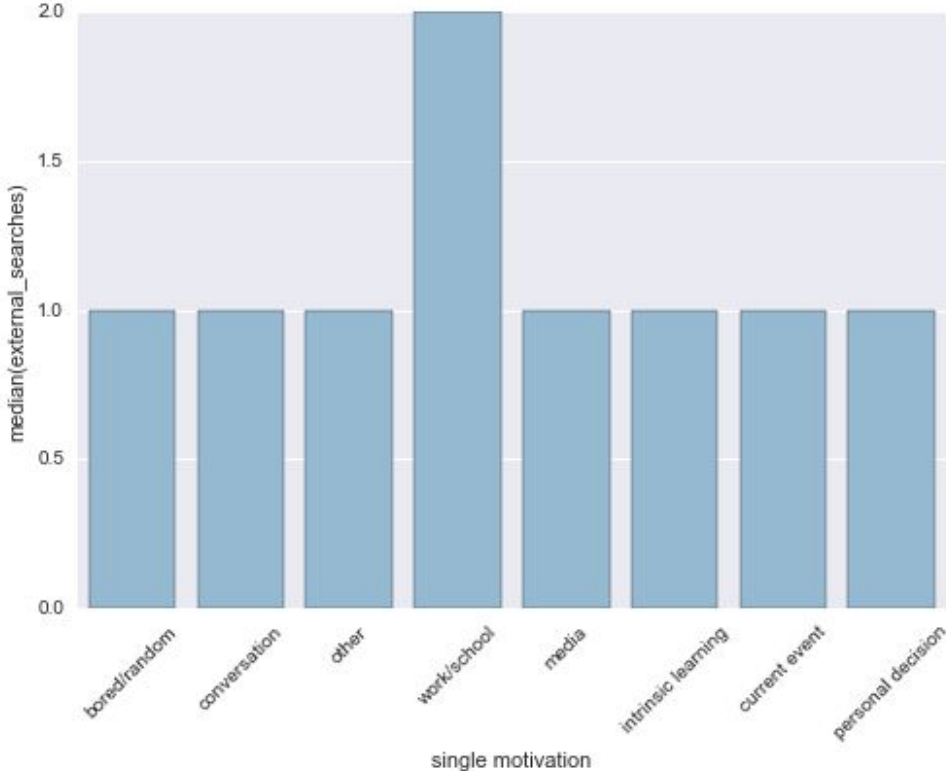
Work/school spend more time per page.



# Work/school means more time spent

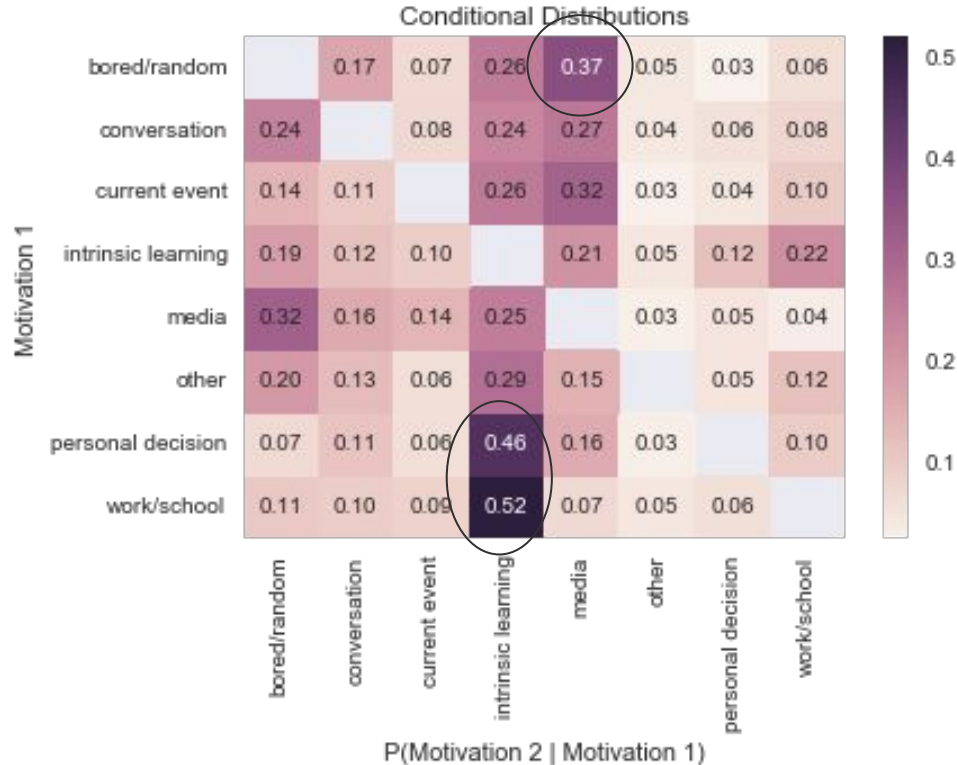


# Work/school means more external searches



# Co-related motivations\*

- Bored & Media
- Work/School & Intrinsic learning



\*For the 30% of readers who listed >1 external motivation:

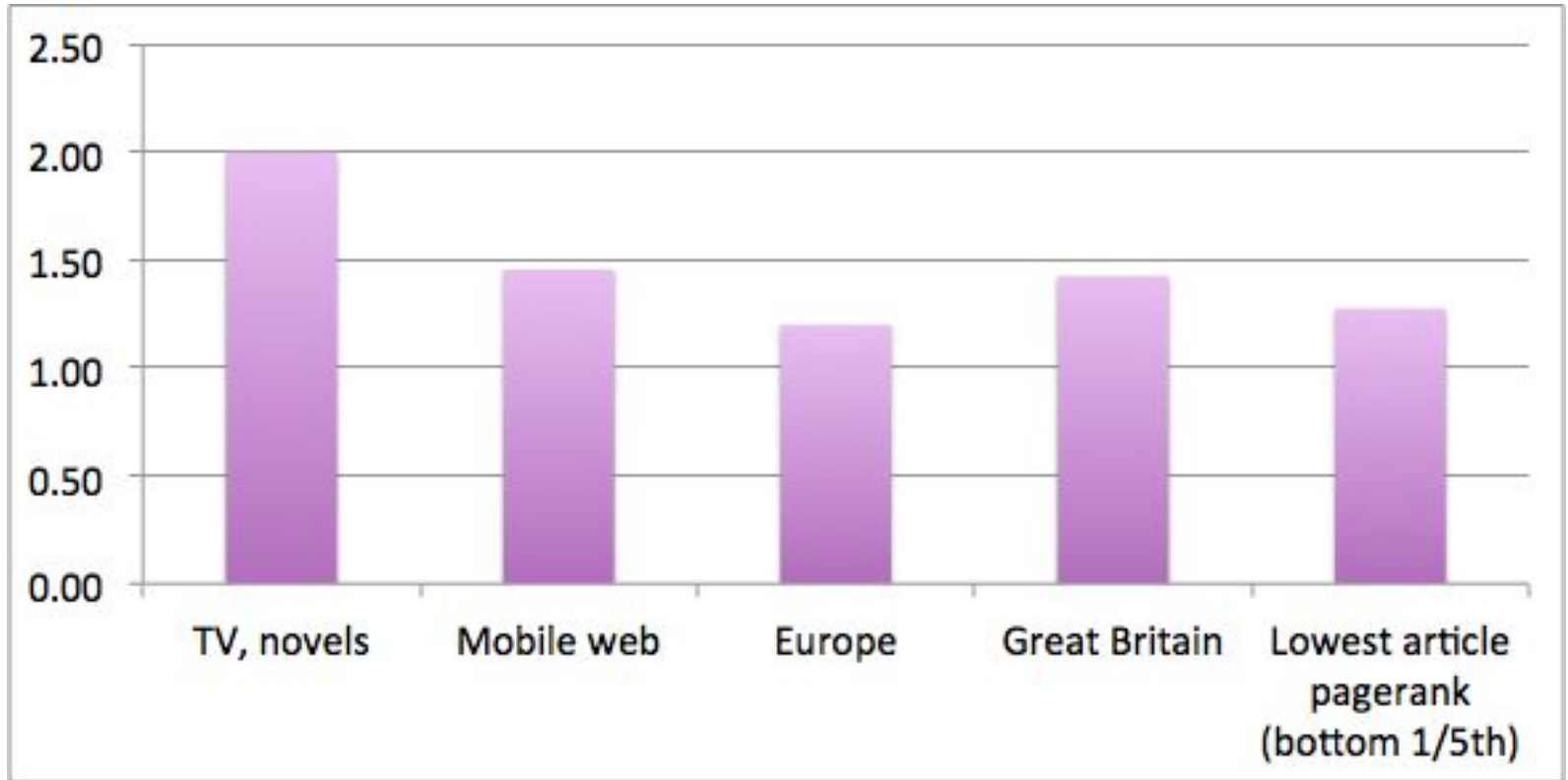


# Mining the data

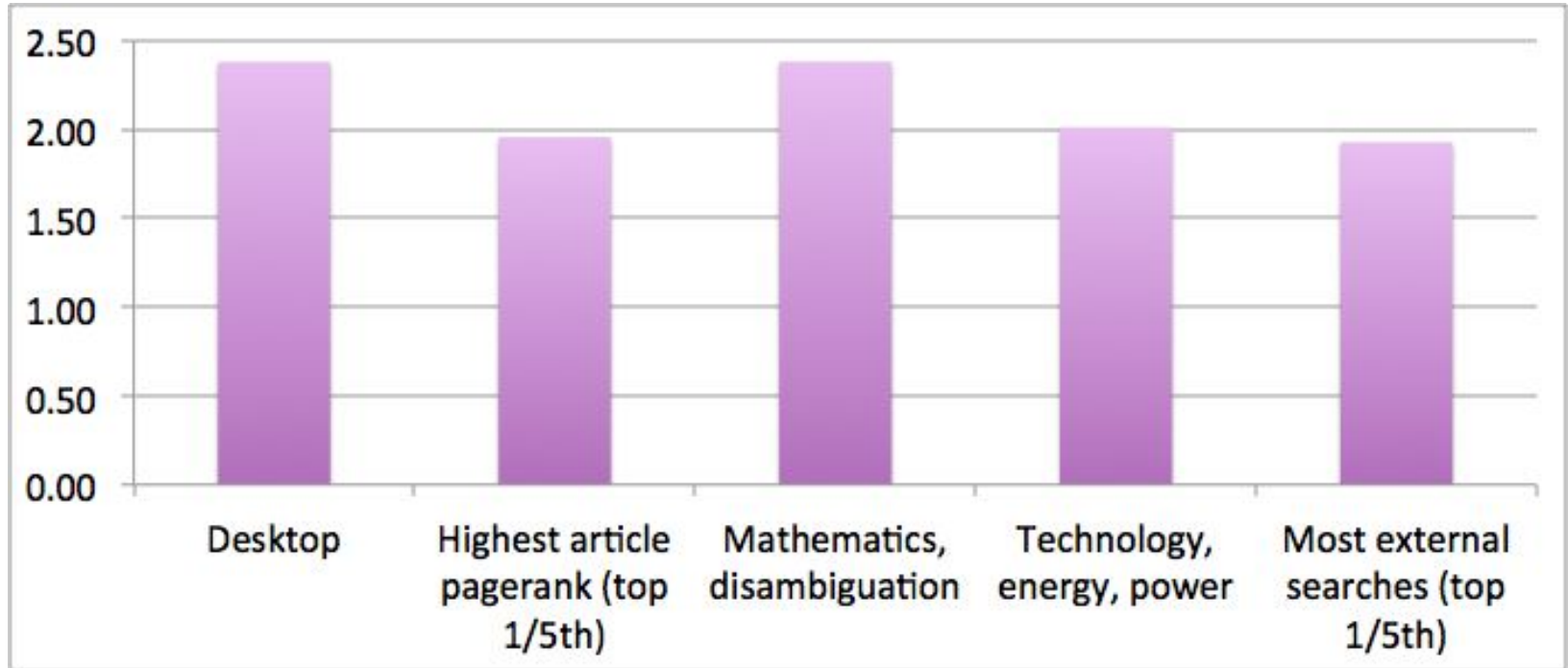


Mine by 663highland - 663highland, CC BY 2.5  
Dog, Public Domain

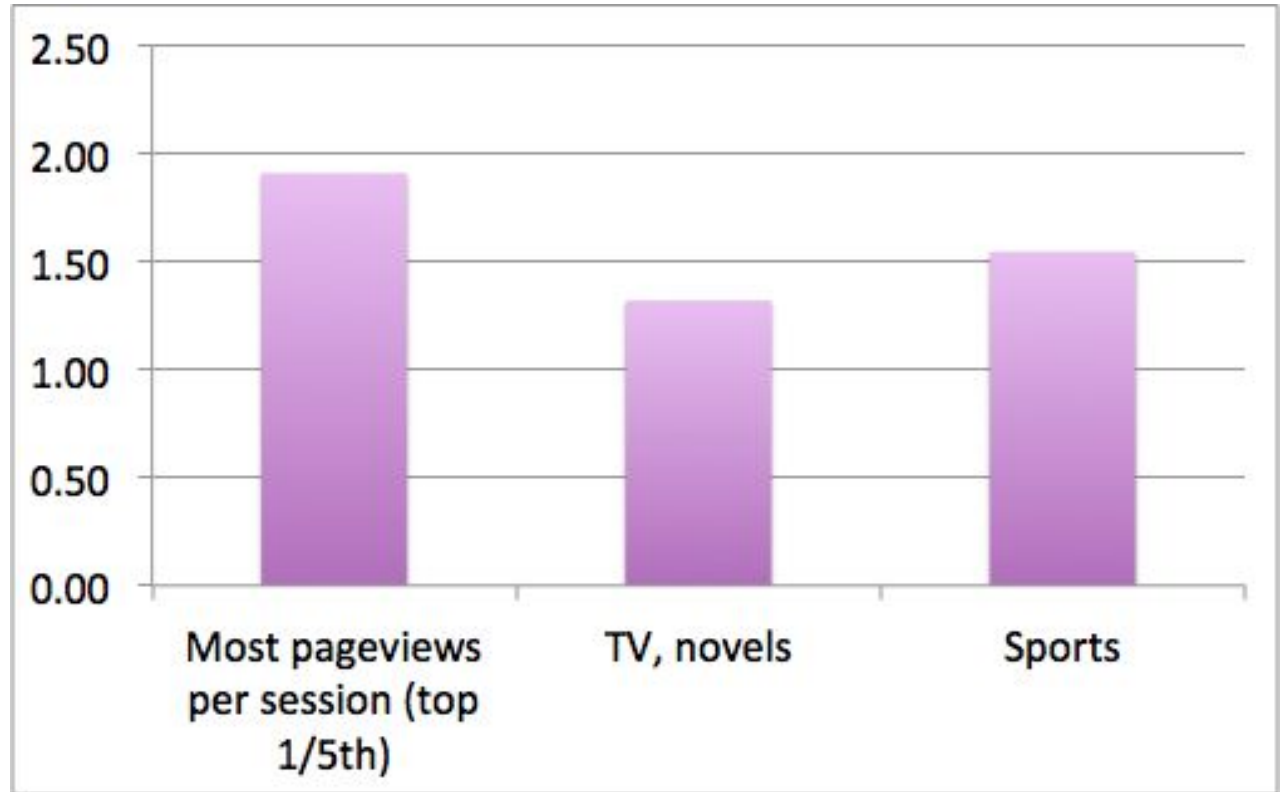
# Media: \_\_ times more likely...



# Work/school: \_\_ times more likely



# Bored: \_\_ times more likely...



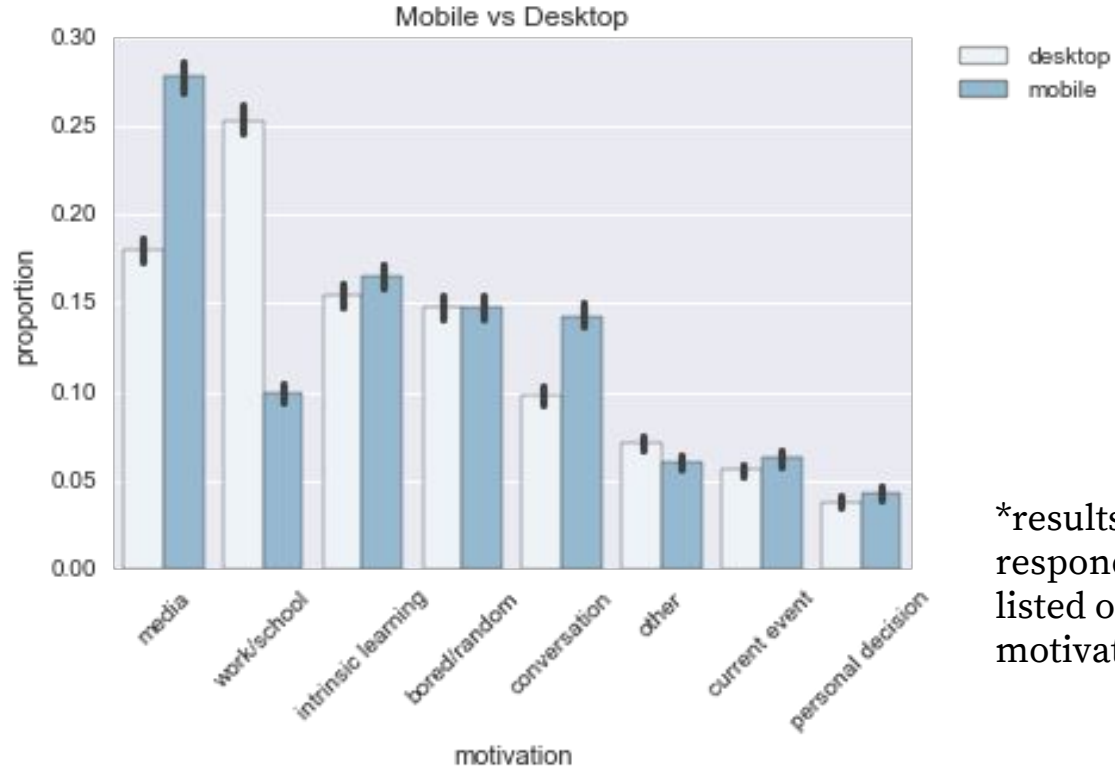
# Mobile v. Desktop



By Kt mac32 - Kate Richardson, Public Domain

# Platform matters

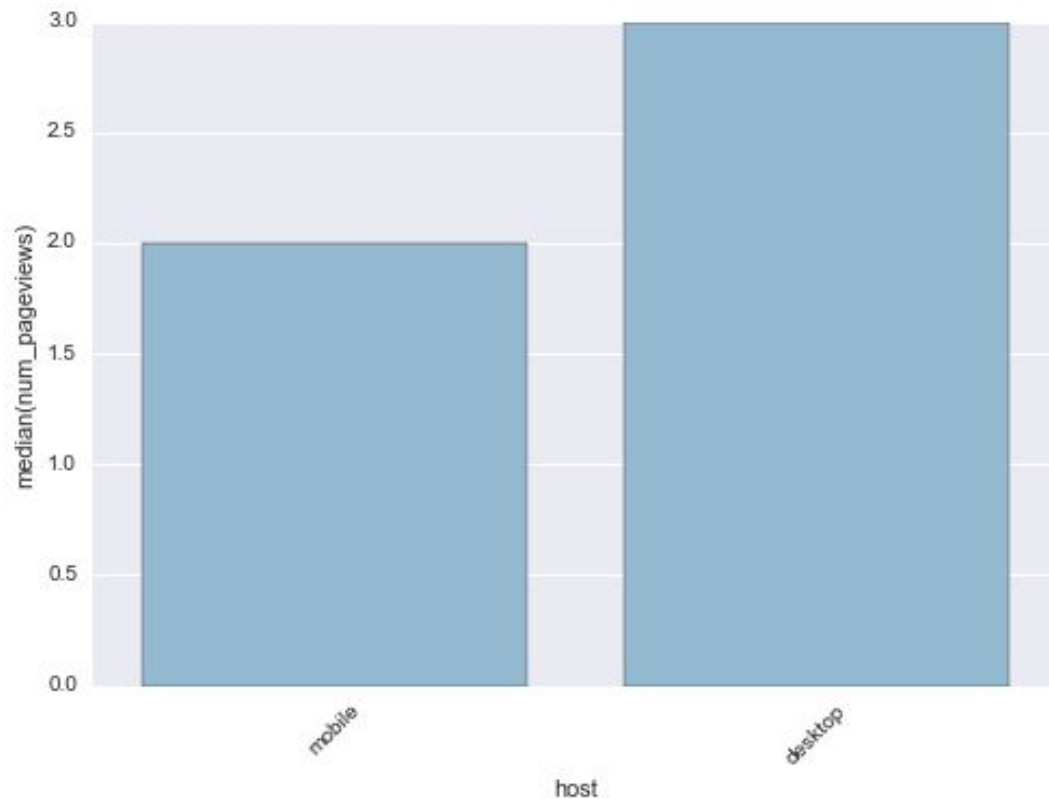
We see predictable differences between desktop and mobile.\*



\*results limited to respondents who listed one external motivation (70%)

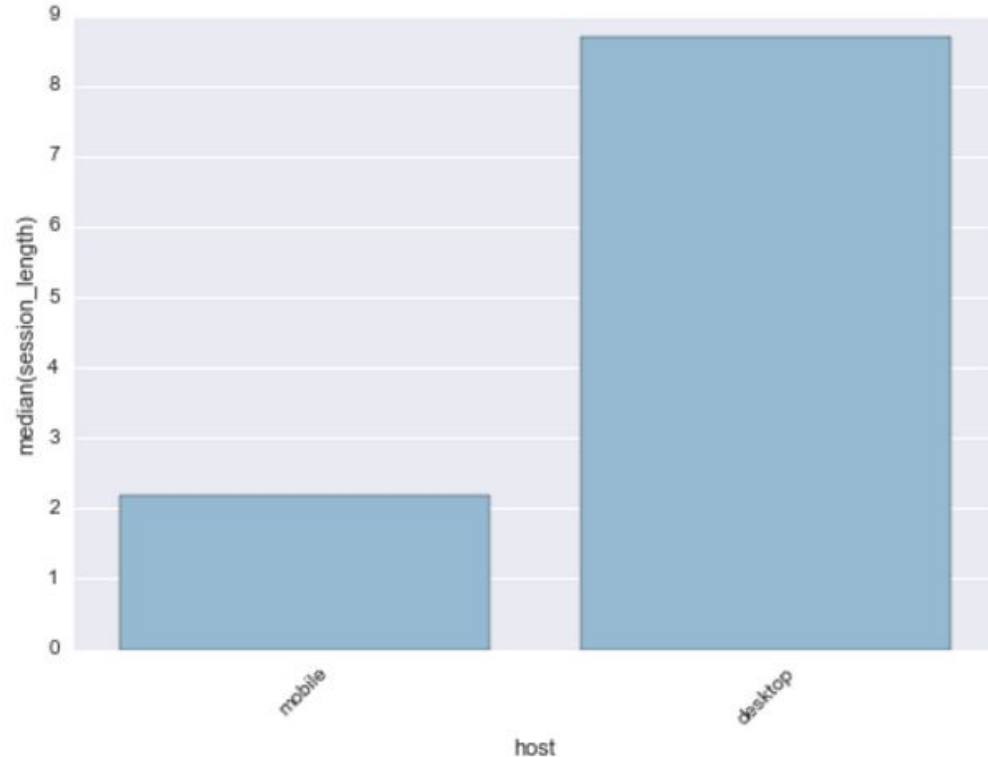
# Desktop has deeper sessions

Also more searches, more branching



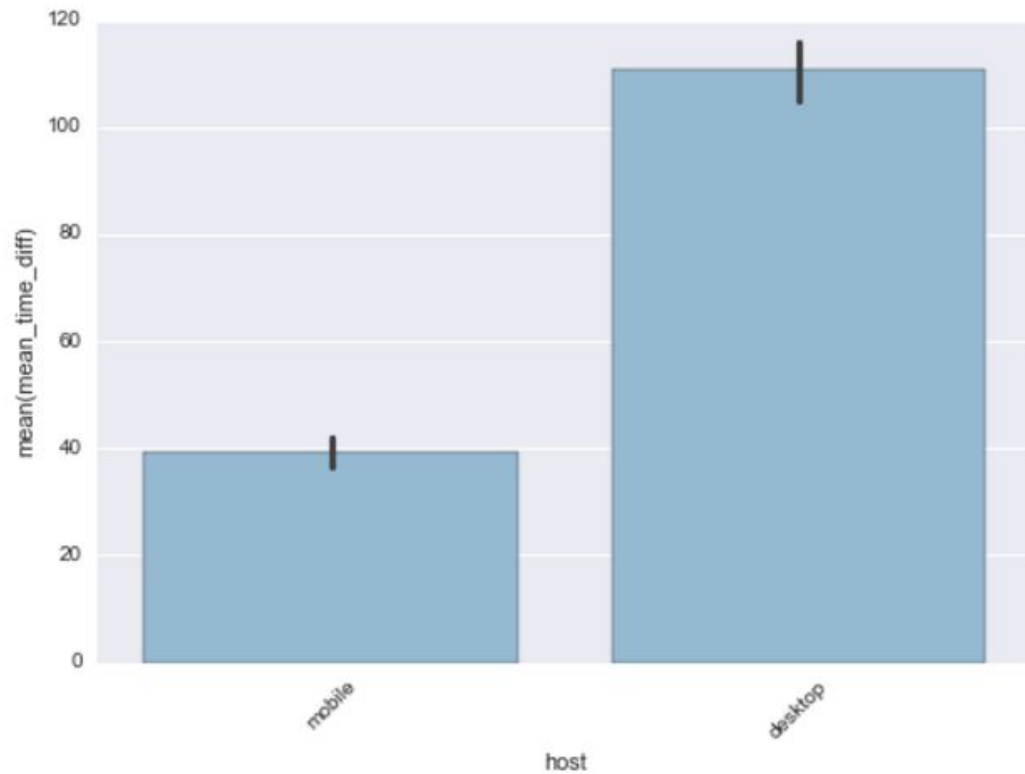
# Desktop has longer sessions

More dramatic  
when you look at  
time spent





# And more time per page

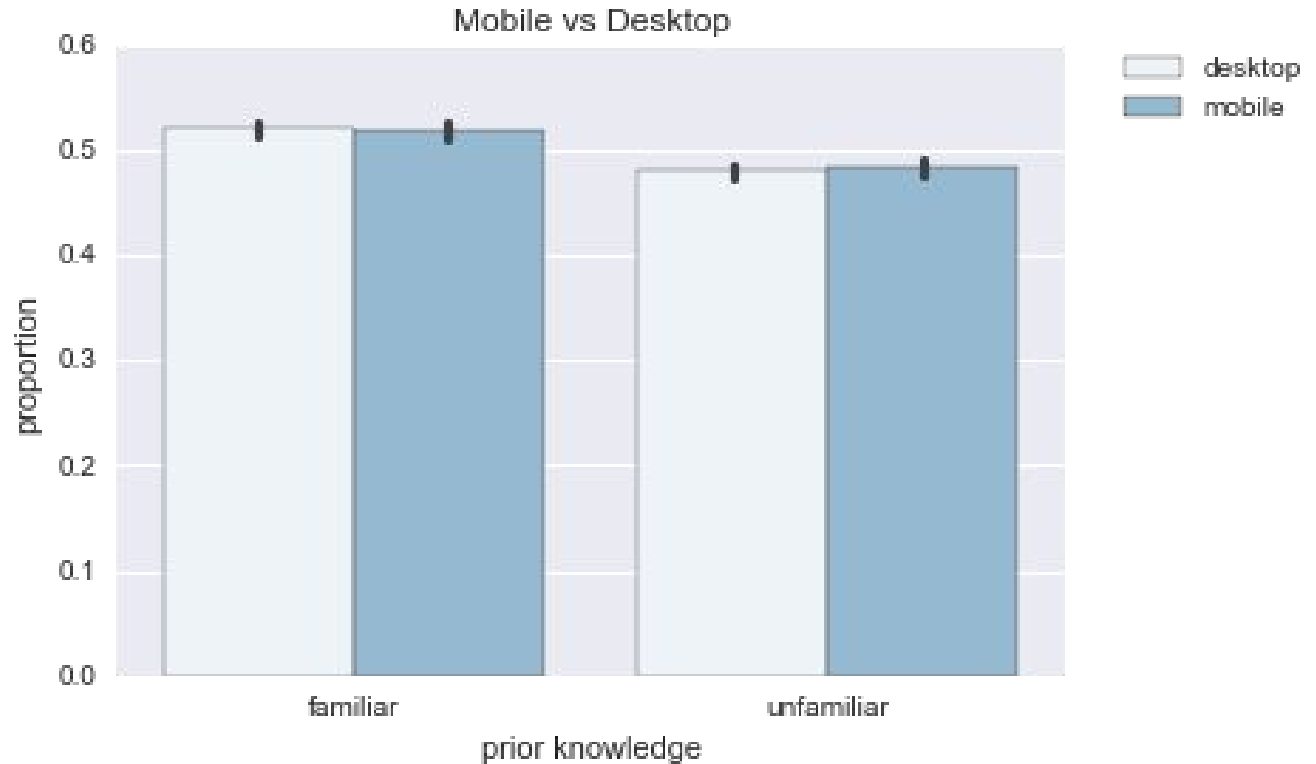


# Familiarity

A photograph showing the back of a man's head and shoulders on the left, wearing a blue textured jacket and glasses. A large black and white dog is leaning its head against the man's shoulder, with its front paws resting on his jacket. The dog has a chain collar. The background is blurred, suggesting an outdoor setting.

By Sberlazza - Hug in Lisbon Uploaded by tm, CC BY 2.0

# Roughly 50:50



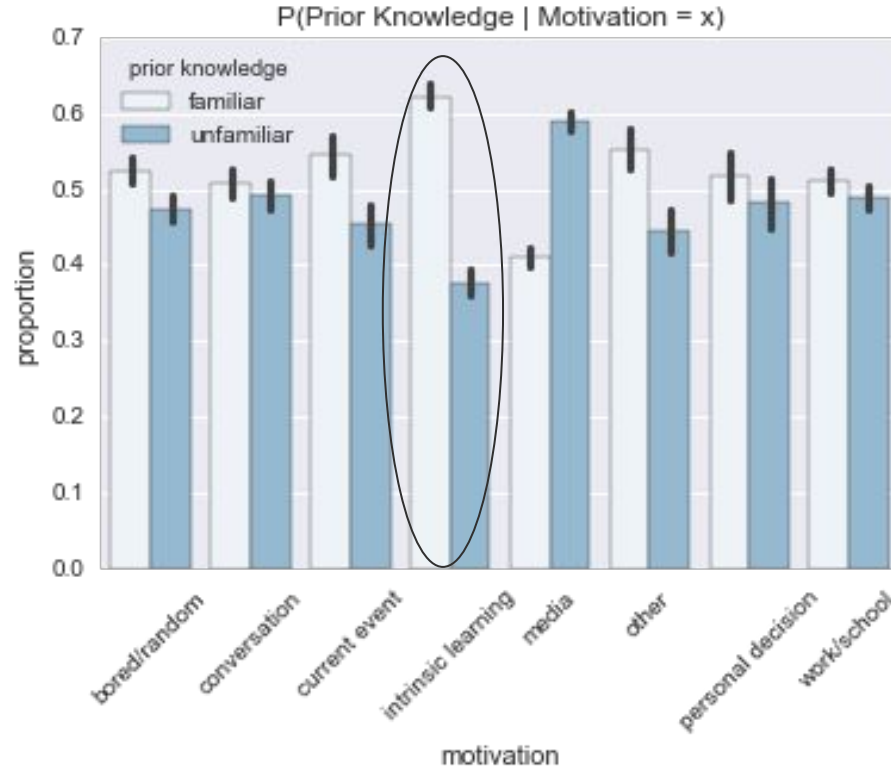
**Users unfamiliar with a topic are likely to be driven by media, looking for an overview and spend less time on smaller, less central pages.**



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# Intrinsic learners focus on familiar

Strong connection between media and unfamiliar



# Moar:

Details, caveats and more here:

[https://meta.wikimedia.org/wiki/Research:Characterizing\\_Wikipedia\\_Reader\\_Behavior/S3-English\\_Large\\_Scale](https://meta.wikimedia.org/wiki/Research:Characterizing_Wikipedia_Reader_Behavior/S3-English_Large_Scale)

More results:

<https://github.com/ewulczyn/wiki-readers/tree/master/src/analysis>


Paper pending.



# What next



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**This informs every  
decision we make.**



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# Some examples

# Top of article

What is a  
Barack  
Obama?

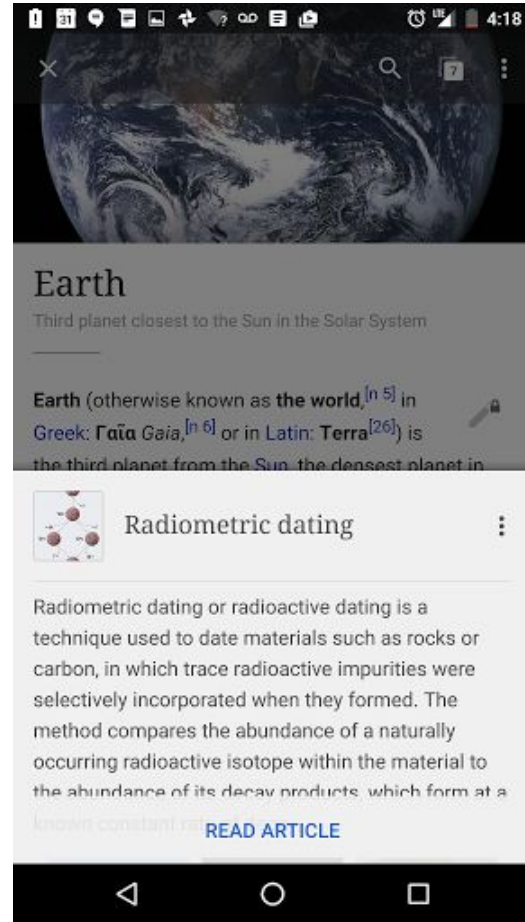


Before

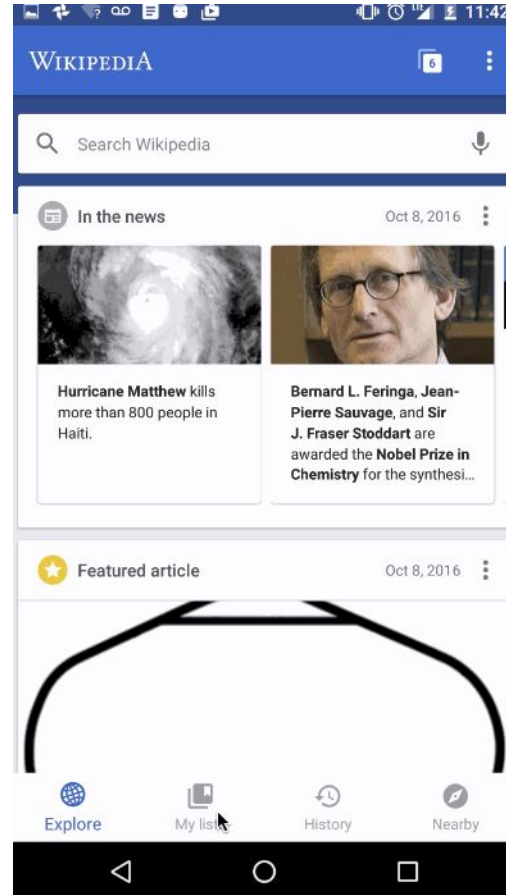


After

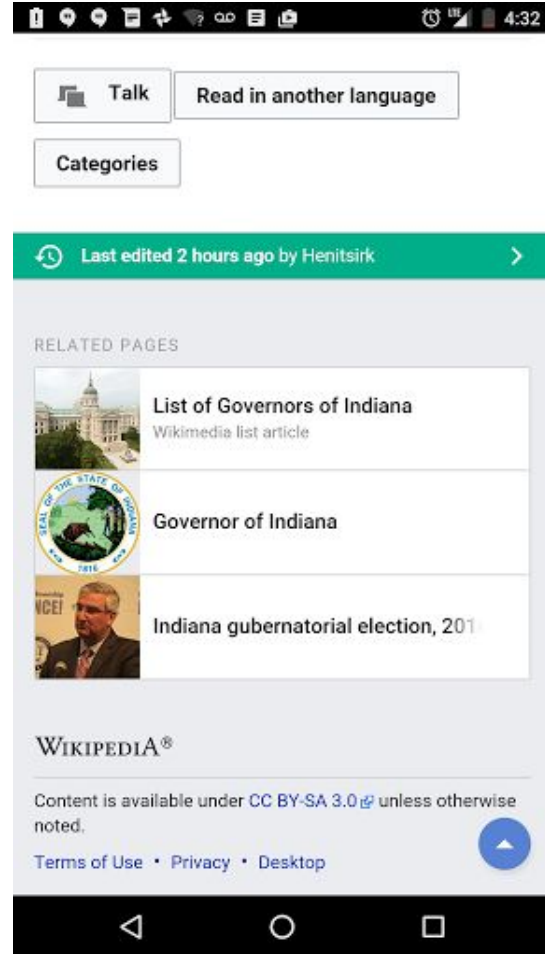
# Page preview



# The feed



# Related pages

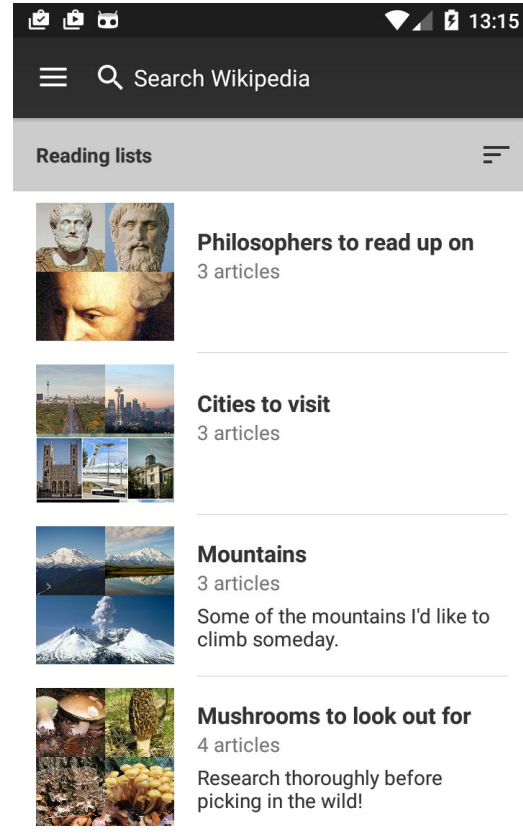


The screenshot shows a mobile interface for a Wikipedia article. At the top, there is a status bar with various icons and the time 4:32. Below it are three buttons: "Talk", "Read in another language", and "Categories". A green bar indicates the article was "Last edited 2 hours ago by Henitsirk". The "RELATED PAGES" section lists three items:

- List of Governors of Indiana**  
Wikimedia list article
- Governor of Indiana**
- Indiana gubernatorial election, 201**

At the bottom, the Wikipedia logo is displayed, followed by the text: "Content is available under [CC BY-SA 3.0](#) unless otherwise noted." Below this are links for "Terms of Use", "Privacy", and "Desktop", and a blue circular button with an upward-pointing arrow.

# Reading lists



The screenshot shows a mobile application interface for Wikipedia. At the top, there is a dark header with a hamburger menu icon, a search icon, and the text "Search Wikipedia". Below this is a grey bar with the text "Reading lists" and a hamburger menu icon. The main content area displays four reading lists, each with a grid of images, a title, and a description of the number of articles and a brief note.

**Philosophers to read up on**  
3 articles

**Cities to visit**  
3 articles

**Mountains**  
3 articles  
Some of the mountains I'd like to climb someday.

**Mushrooms to look out for**  
4 articles  
Research thoroughly before picking in the wild!

**Opportunities to tailor  
content are limited**

**How do you think we  
should use this  
information?**





**What should we  
explore next?**

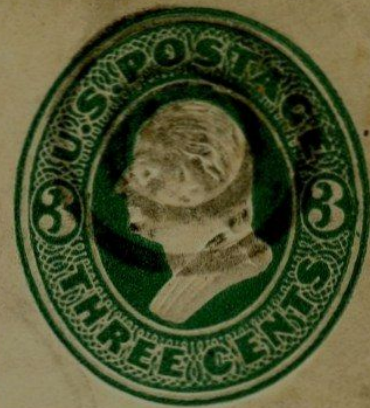
or within ten days, please return to

WARD TUCKER,

SECRETARY OF THE

ate Insurance Company,

WOKUK, IOWA.



email me:  
[jkatz@wikimedia.org](mailto:jkatz@wikimedia.org)

*J. B. Ferry*  
*Albia*

THANK YOU



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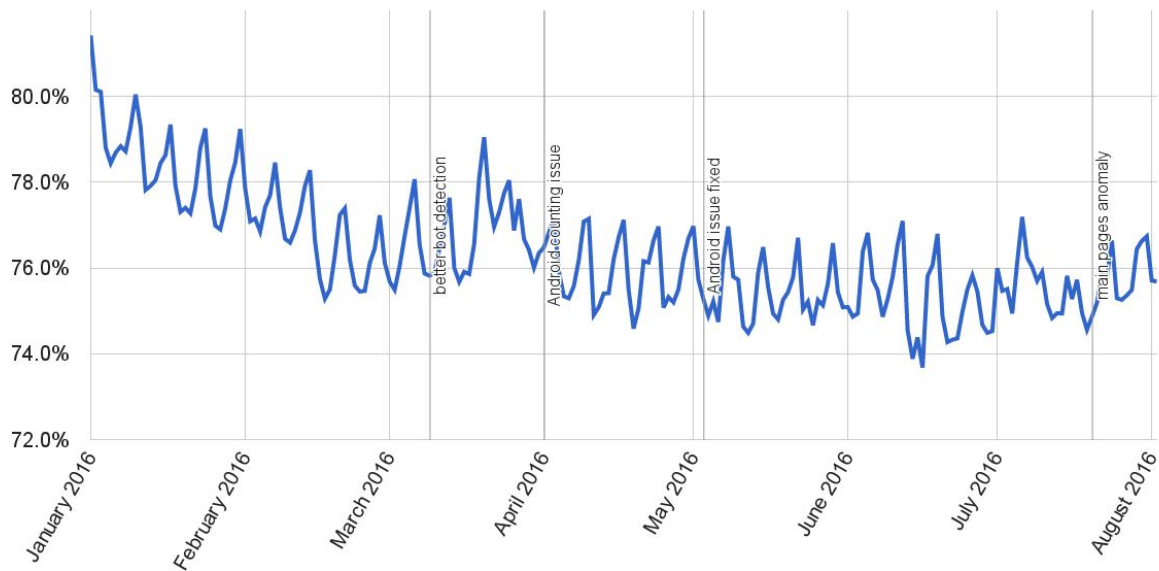
# Skipped slides



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# Regions

Percentage of pageviews from the Global North



After a notable decrease earlier this year (or, increase of the Global South ratio), this has been relatively steady in recent months.

NB: We are currently rethinking this metric and might replace it with a different country selection constructed as part of the work on the New Readers project.

For more detailed updates on our core metrics, see [\[\[mw:Reading/Readership metrics reports\]\]](#) and [\[\[mw:Wikimedia Product\]\]](#).

# Size and breakdown

- 478m pageviews/day, across all projects
  - Desktop 51.7%
  - Mobile web 46.9%
  - Mobile apps 1.4%

For detailed updates on core Reading metrics, see [\[\[mw:Product\]\]](#) and [\[\[mw:Reading/Readership metrics reports\]\]](#)

# Unique devices

Project	Monthly unique devices (desktop + mobile web) July 2016	% mobile
English Wikipedia	559 million	65%
Spanish Wikipedia	112 million	62%
German Wikipedia	78 million	56%
Japanese Wikipedia	54 million	66%
Russian Wikipedia	61 million	55%

Monthly pageviews/device English Wikipedia July 2016 (not corrected for main pages anomaly)	
Desktop	22
Mobile web	9

Top 5 projects by overall unique devices - no global number available [yet](#))

NB: devices <> users

# Initiatives

Strategic  
initiatives

**Improve**

*encyclopedia  
experience*

Engagement and  
retention in current  
experiences

EXISTING  
USERS

**Reach**

*new readers*

Reach new readers in  
the “Global South”

NEW READERS

**Explore**

*new experiences*

Collaborative and  
interactive experiences

NEW  
MEMBERS



# Strategy

Strategic initiatives

**Improve**

*encyclopedia  
experience*

Engagement and retention in current experiences

EXISTING  
USERS

**Reach**

*new readers*

Reach new readers in the “Global South”

NEW READERS

**Explore**

*new experiences*

Collaborative and interactive experiences

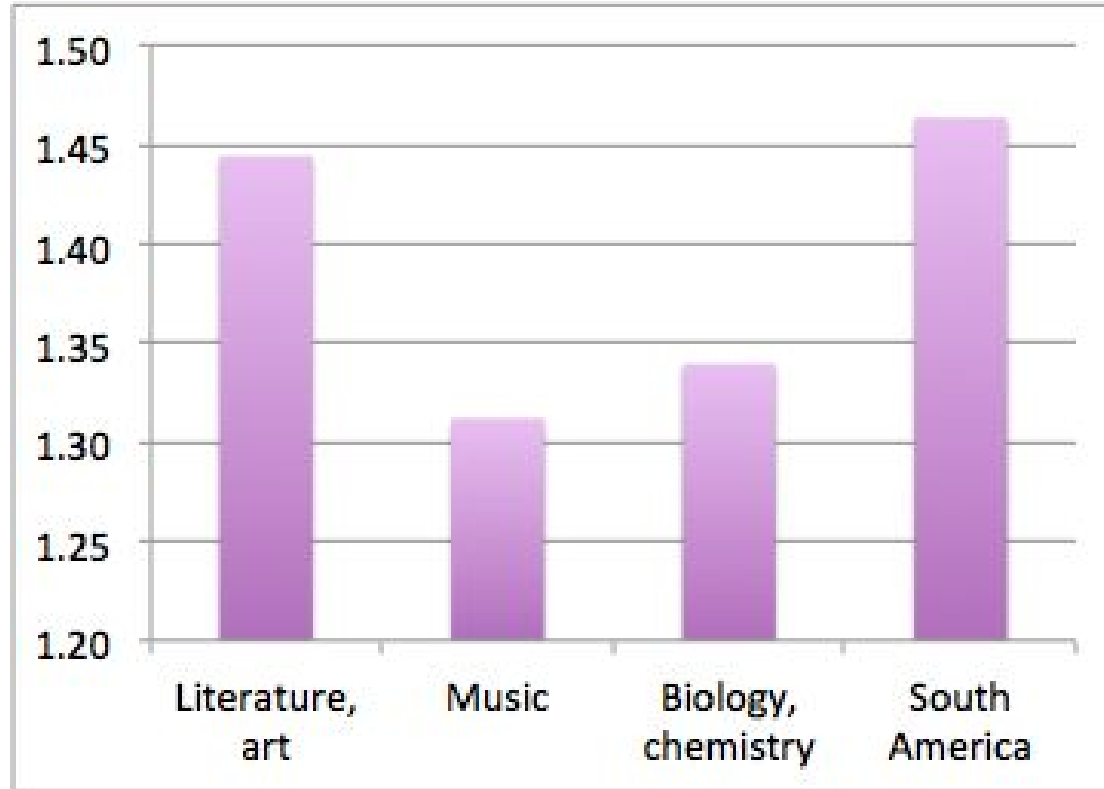
NEW  
MEMBERS

Based on  
Foundational  
Work

Understand our users

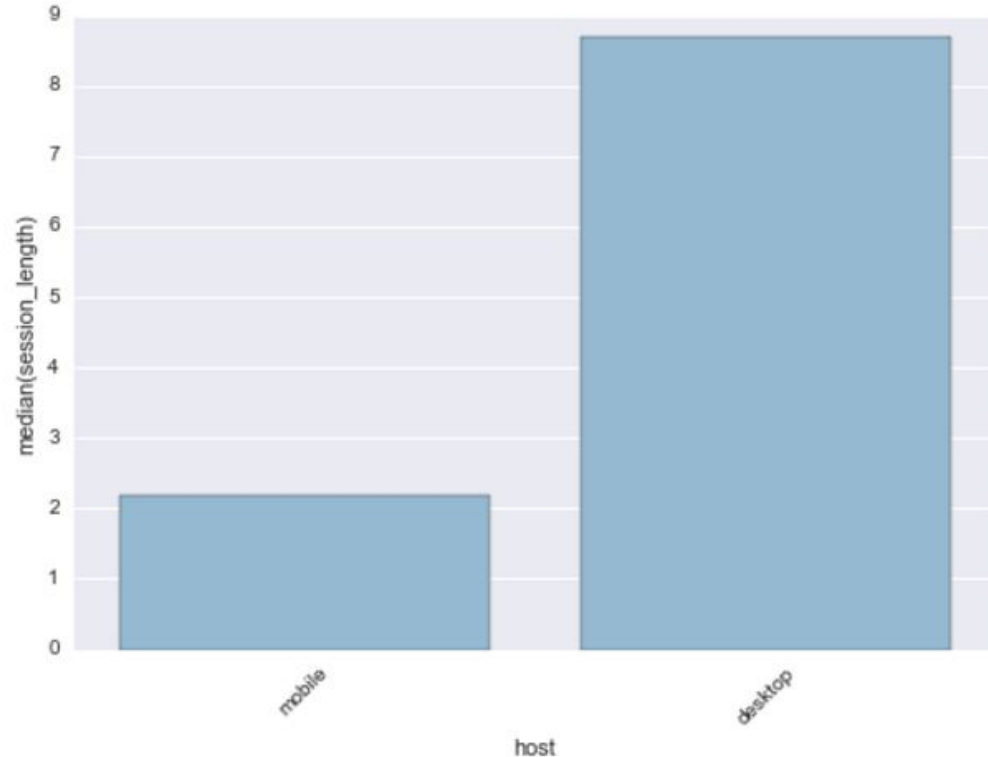
Services

**Intrinsic motivation: \_\_ times more likely...**

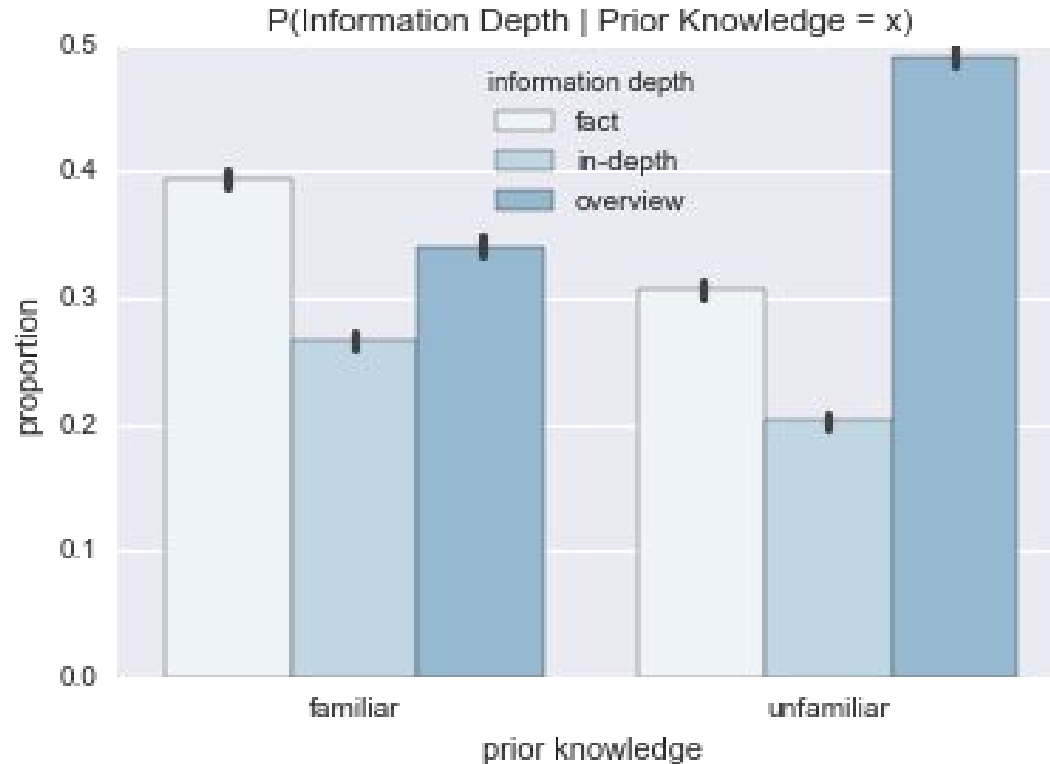


# Desktop has deeper sessions

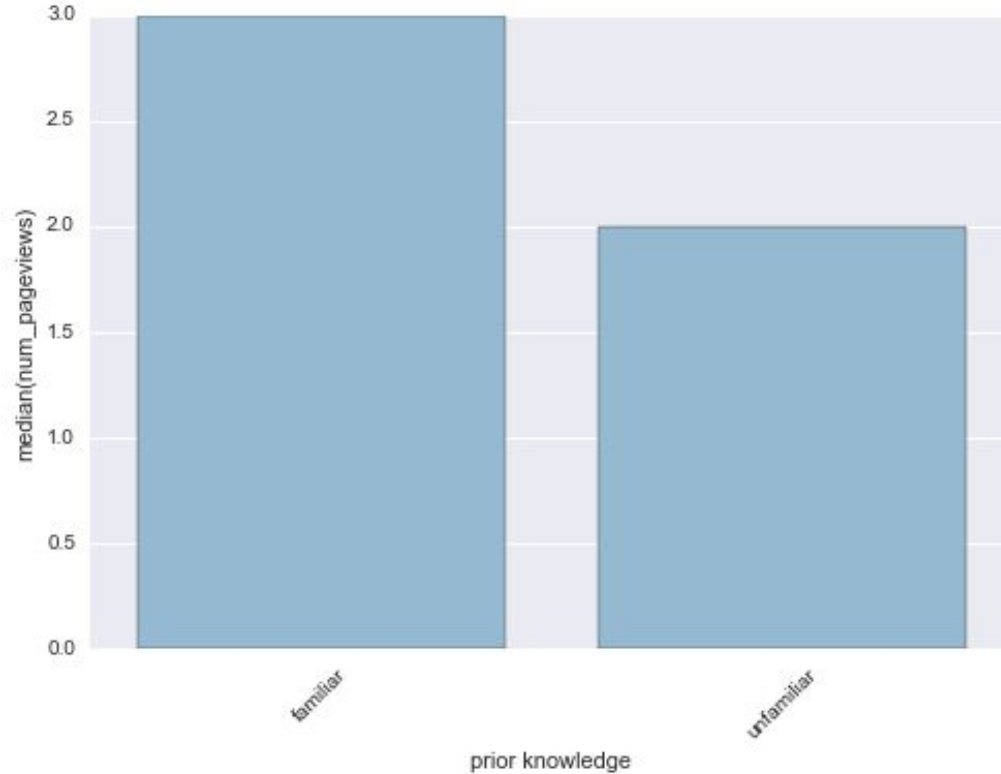
More dramatic  
when you look at  
time spent



# Unfamiliar leads to overviews

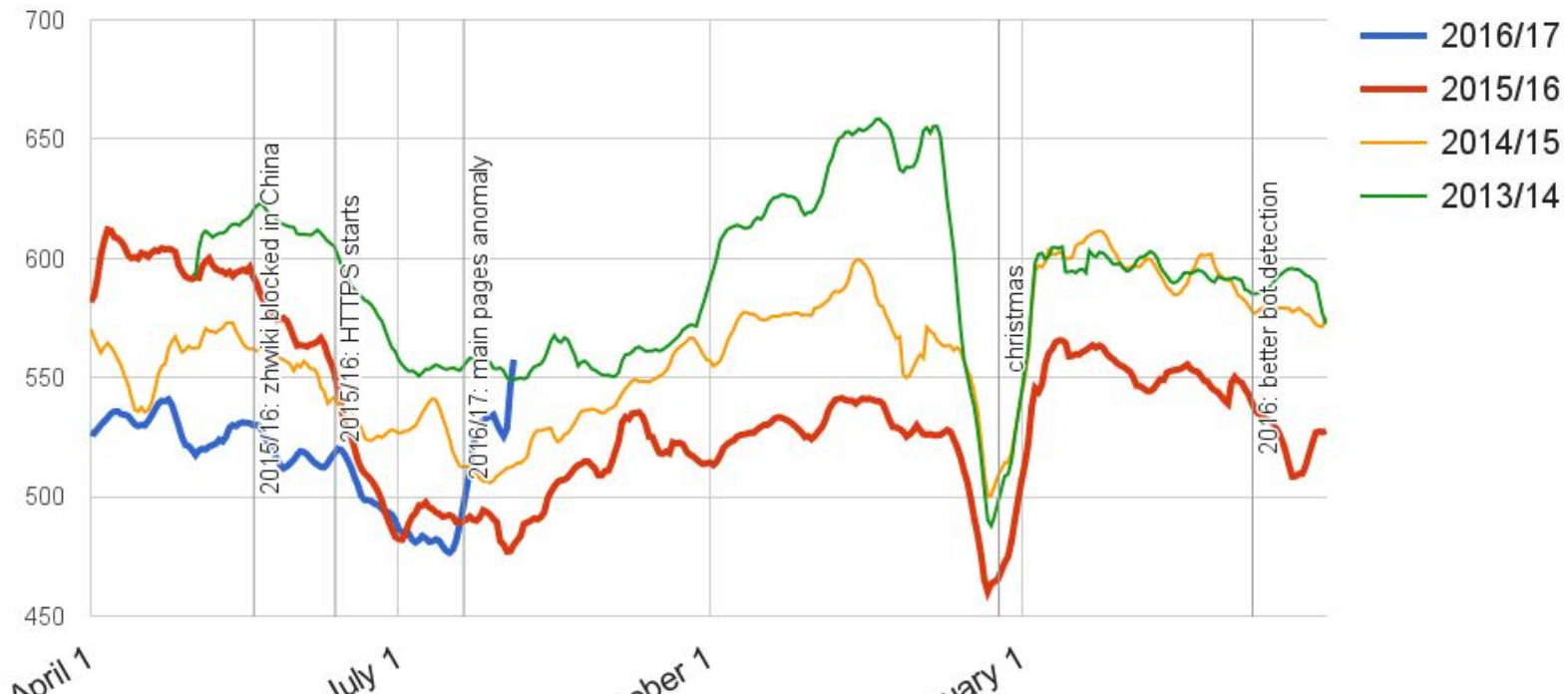


# Unfamiliar leads to shorter sessions



# Traffic is highly seasonal

Wikimedia pageviews year-over-year comparison,  
May 2013-July 2016



# Why are you reading this article today?

## I am reading this article to

- look up a specific fact or to get a quick answer.
- get an overview of the topic.
- get an in-depth understanding of the topic.

## Prior to visiting this article

- I was not familiar with the topic and I am learning about it for the first time.
- I was already familiar with the topic.

## I am reading this article because

Please select all answers that apply

- I want to know more about a current event (e.g. a soccer game, a recent earthquake, somebody's death).
- I am bored or randomly exploring Wikipedia for fun.
- the topic was referenced in a piece of media (e.g. TV, radio, article, film, book).
- this topic is important to me and I want to learn more about it. (e.g., to learn about a culture).
- I have a work or school-related assignment.
- I need to make a personal decision based on this topic (e.g. to buy a book, choose a travel destination).
- the topic came up in a conversation.
- Other: