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Spotting Online News: A Mixed Method Study of Online News Engagement and Perceptions on Misinformation Interventions

Khatiwada, P., Halko, L., Syed, N., Mahesh, A., Alvanpour, A., & Mauriello, M. (2025). *Spotting online news: A mixed-method study of online news engagement and perceptions on misinformation interventions.* In *Proceedings of the ACM on Human-Computer Interaction (CSCW '25)*. ACM.

CSCW2025

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3. Key Findings
4. Design Implications
5. Insights, Limitations and Future Work

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Motivation and Background

Problem 1:

Rampant exposure to misinformation: Over 70% of adults regularly encounter false information on social media.

In the U.S., 59% say misinformation skews their understanding of current events (*Pew Research Center, 2021*).

Motivation and Background

Problem 2:

Online News habits often mirror offline preferences *(Flaxman et al.)*

Growing gap between news literacy and actual consumption behavior *(Moller et al. and Bentley et al.)*

Motivation and Background

Problem 3:

Existing tools (fact-checking, warnings, flagging) often:

- Lag behind viral content
- Feel biased or paternalistic
- Fail to support everyday critical news engagement

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Goal

Understanding how people engage with online news and perceive potential interventions that support better discernment by studying the relationship between news media literacy, news consumption behavior, and attitudes toward online monitoring and interventions.

RQ1 How do users' perceptions of their news consumption (e.g., time spent, news sources) and habits (e.g., engaging in lateral reading) align with their observed behavior?

Goal

Understanding how people engage with online news and perceive potential interventions that support better discernment by studying the relationship between news media literacy, news consumption behavior, and attitudes toward online monitoring and interventions.

RQ2 How do user features such as literacy level relate to discernment abilities in news credibility evaluations, and to what extent does this association impact their online information consumption behavior?

Goal

Understanding how people engage with online news and perceive potential interventions that support better discernment by studying the relationship between news media literacy, news consumption behavior, and attitudes toward online monitoring and interventions.

RQ3 And, what challenges and benefits do users perceive about current and future online misinformation intervention tools?

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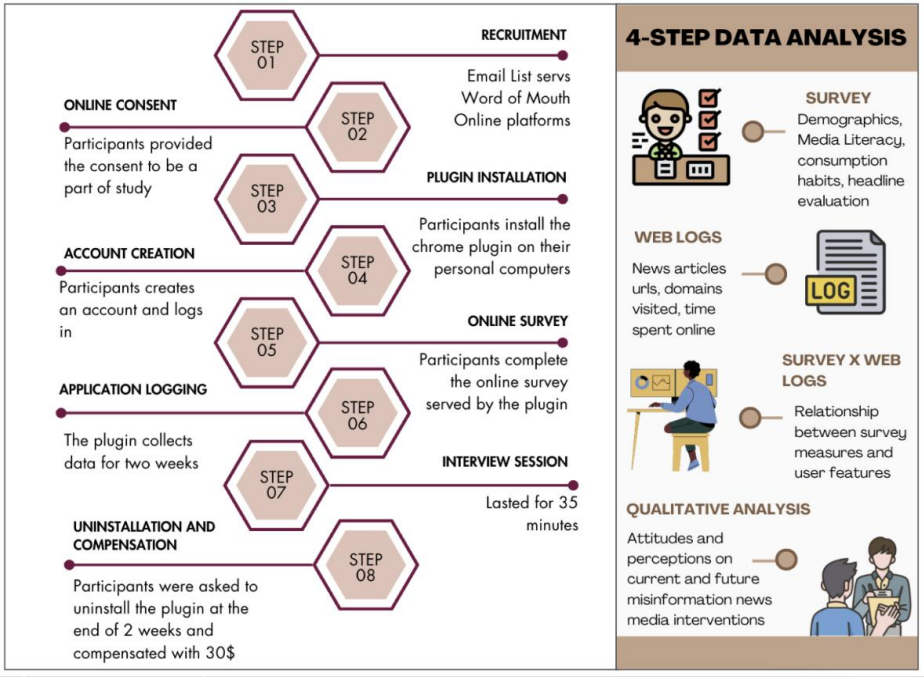
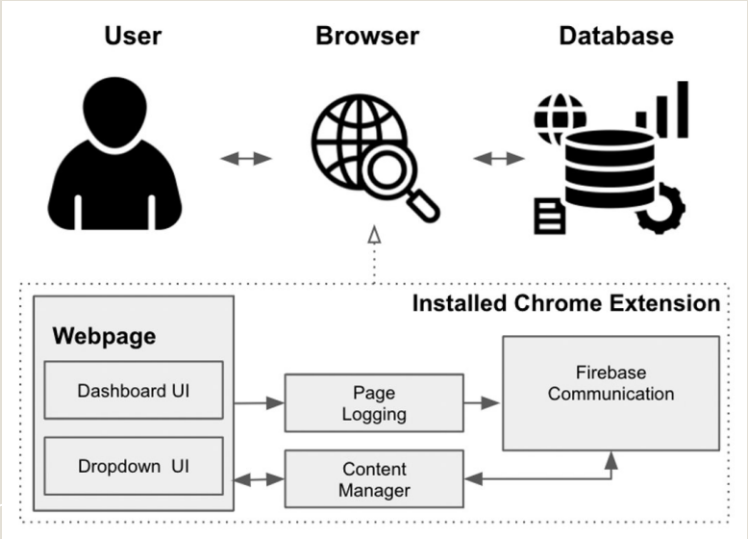


Architecture of Chrome Plugin

The plugin follows a similar architecture to prior work such as *OpenLabel*, an open-source media labeling browser extension (VanTol et al., 2022).



Step 1

Chrome Plugin Setup: Users installed the unlisted Chrome extension, created an account, logged in, and completed a Qualtrics demographic survey.

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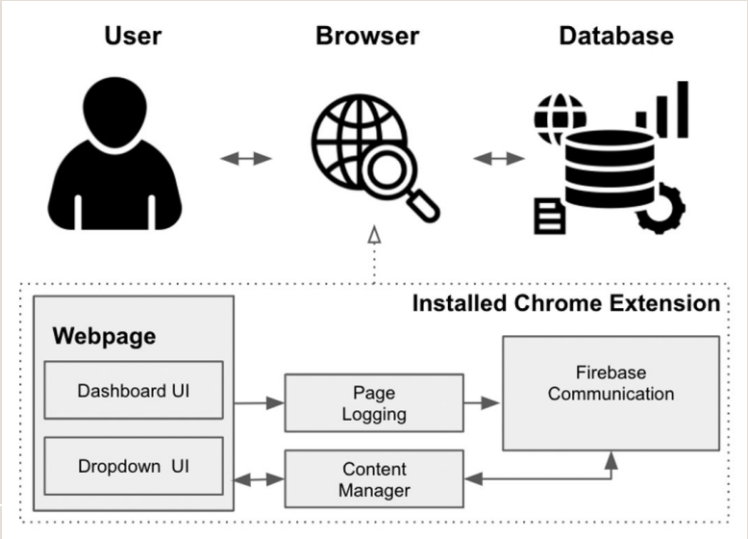

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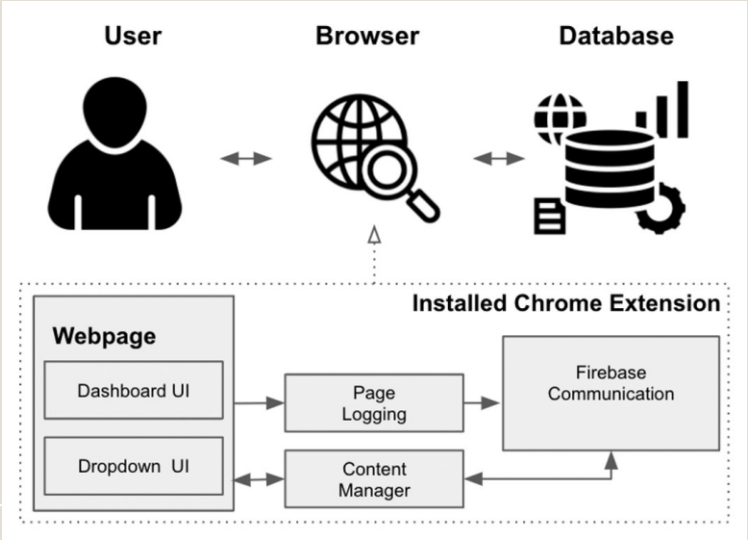

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Step 3

Engagement Tracking: Tab-switch and focus-based tracking captured real-time active browsing (clicks, scrolling, multimedia interaction) while excluding inactive periods.

All Sides Dataset

The AllSides Dataset is a collection of prominent media outlets labeled for political bias, containing data on the source, article content, and bias rating assigned by the AllSides team.

News Source	AllSides Bias Rating
Associated Press	L L C R R
CNN (Online News)	L L C R R
Fox News (Online News)	L L C R R
Insider	L L C R R
National Review	L L C R R
NBC News (Online)	L L C R R
New York Post (News)	L L C R R
New York Times (News)	L L C R R
New York Times (Opinion)	L L C R R
Newsmax (News)	L L C R R

Study Approach- Mixed Method

Pre-Survey and logging browsing session

1 Quantitative Research

+

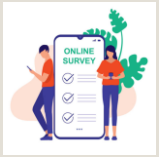
2 Qualitative Research

Follow-up Semi-structured Interviews.

Triangulation

3 Key findings

Pre-Survey and logging browsing session



1 Quantitative Research

+

2 Qualitative Research

Follow-up Semi-structured Interviews.

Triangulation

3 Key findings

Age: 18+ years
Residency: U.S. citizens or permanent residents
Language: Proficient in English (reading & writing)
Browser: Use Chrome on a desktop computer for news reading

Step 1

Recruitment & Consent: Participants were recruited via email/online and provided consent.

Step 2

Setup: They created an account and installed a Chrome plugin.

Step 3

Data Collection: The plugin logged browsing behavior for 2 weeks.

Step 4

Follow-up: Participants completed a short survey + 35-min interview

Finally, they uninstalled the plugin and received $30.

This study protocol was approved by our university's Institutional Review Board (IRB Protocol #1871618-2).

Pre-Survey on Media Literacy & Demographics

1

Participation was solicited via an email listserv, and access to the survey was provided through the dropdown in the tool.

2

(i) a headline evaluation task, (ii) a self-report about news consumption habits, (iii) a news media literacy evaluation, (iv) information literacy evaluation, and (v) basic demographic information

3

Participants were given ten headlines, some true and some false, and asked to identify which were fake or real.

4

News Media Literacy was assessed with seven Likert-scale items, and Information Literacy was measured using multiple-choice questions with one correct and three incorrect options.

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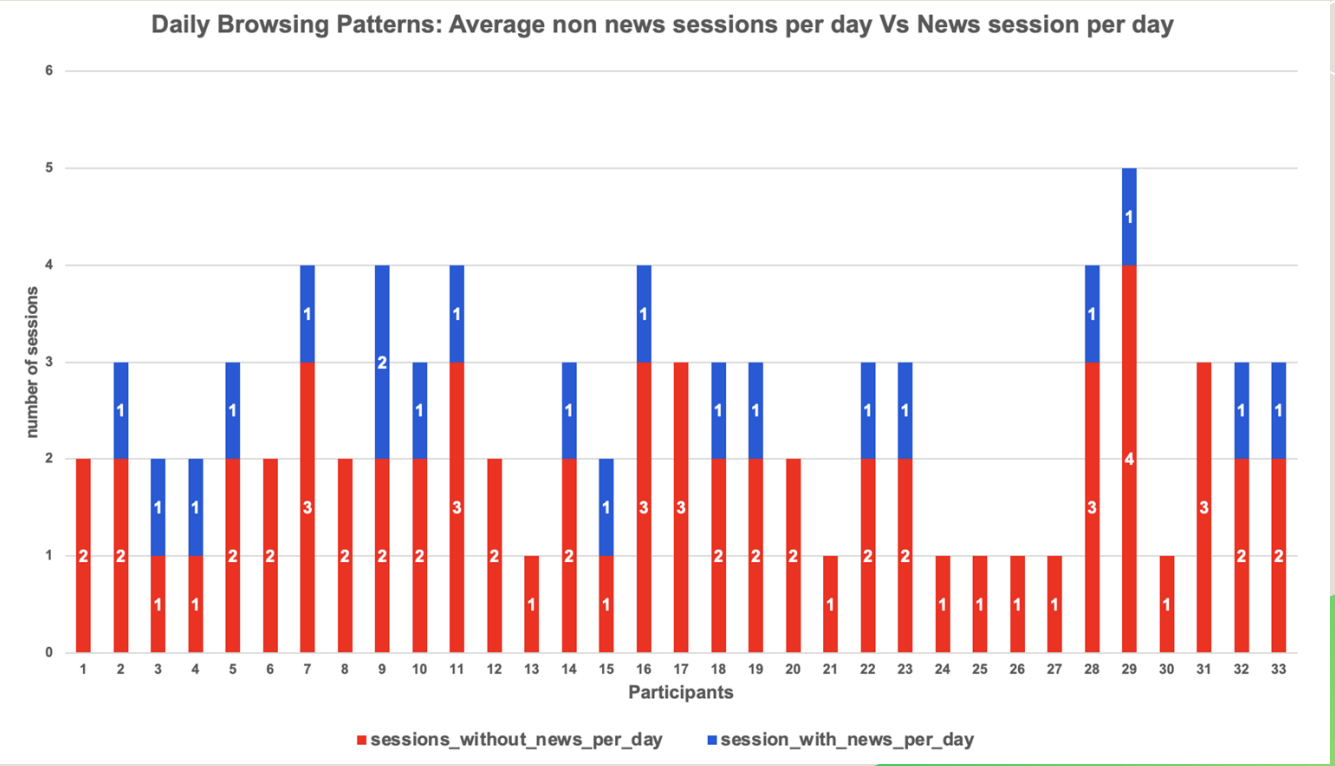
Findings | Survey

1	**Sample Profile**	34 participants (median age = 27, majority female and democrats, diverse racial/educational backgrounds).
2	**News habits**	Most read news online daily, but mainly from a narrow set of mainstream/liberal outlets (NYT, CNN, Washington Post, BBC, etc.).
3	**Media Literacy**	High news media literacy (M = 0.83), but relatively low information literacy (M = 0.58).
4	**Headline Judgements**	True headlines rated more accurate than false (0.58 vs. 0.43), but sharing intentions were similar for both (≈0.22).
5	**Discernment**	Positive for accuracy ratings (DI_acc = 0.15) but slightly negative for sharing (DI_dis = –0.01), showing a gap between recognizing accuracy and deciding what to share.

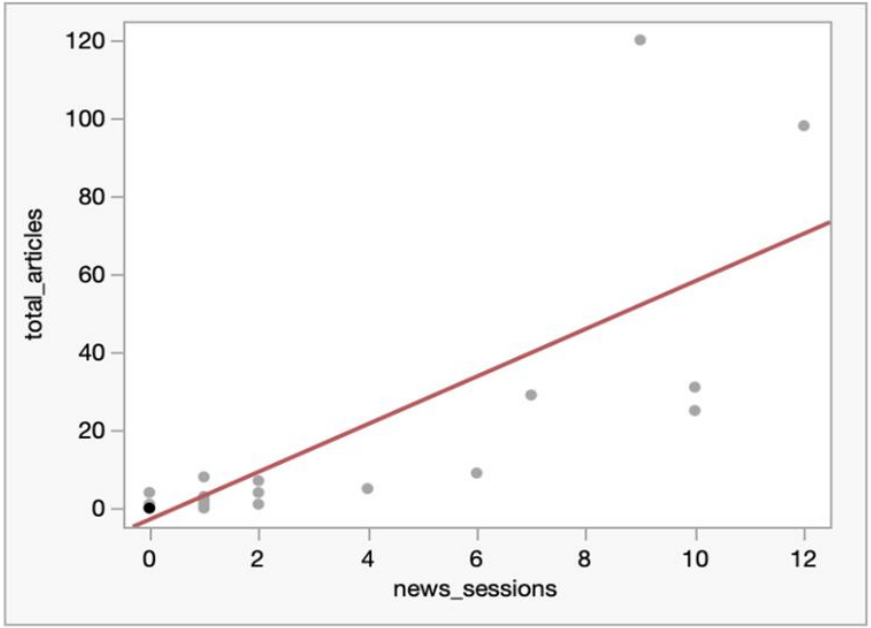
DI_acc (Accuracy Discernment Index): A measure of how accurately participants can distinguish between true and false headlines. It reflects the ability to correctly identify the veracity of information.
DI_dis (Sharing Discernment Index): A measure of how selectively participants choose to share headlines based on their accuracy. It reflects whether people are more likely to share true headlines while withholding false ones.

Findings | Browsing Log



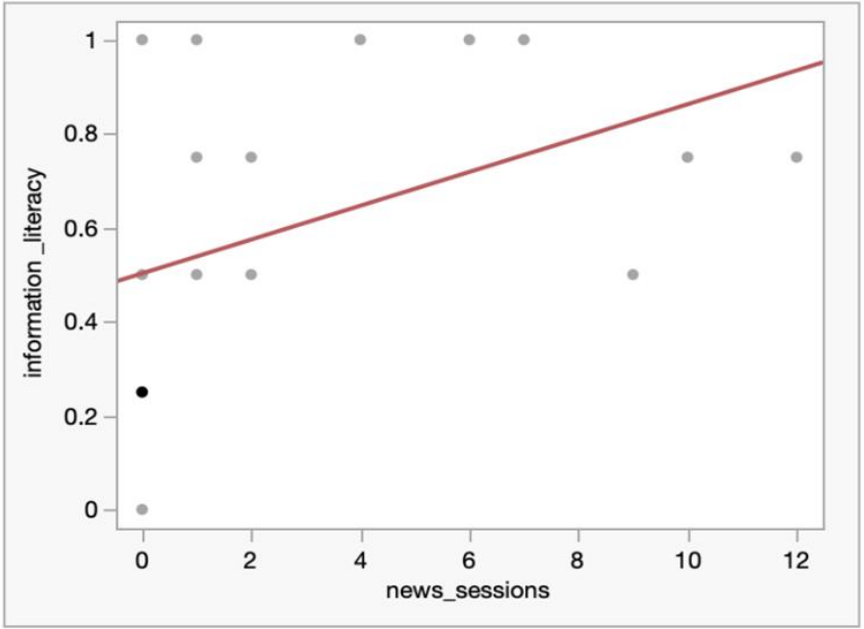
- Avg. 2 hrs/day active browsing (SD = 1.43).
- ~2 non-news sessions & 1 news session/day.
- 20/34 participants engaged with news; 14 did not.
- News bias: Most participants reading skewed left-center: 44.42% → Left-Center, 9.09% → Center, 6.06% → Left, 3.03% → Right

Browsing Data X Survey Results



Articles read and News session

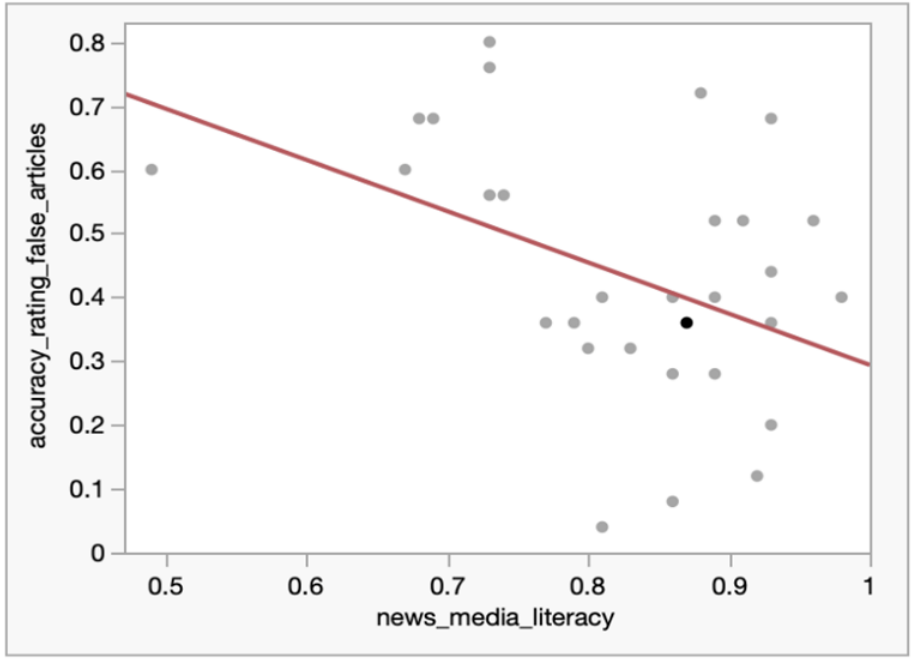
(R2 = 0.63, f(1, 31) = 51.84, p <.0001.)*



Information literacy and News session

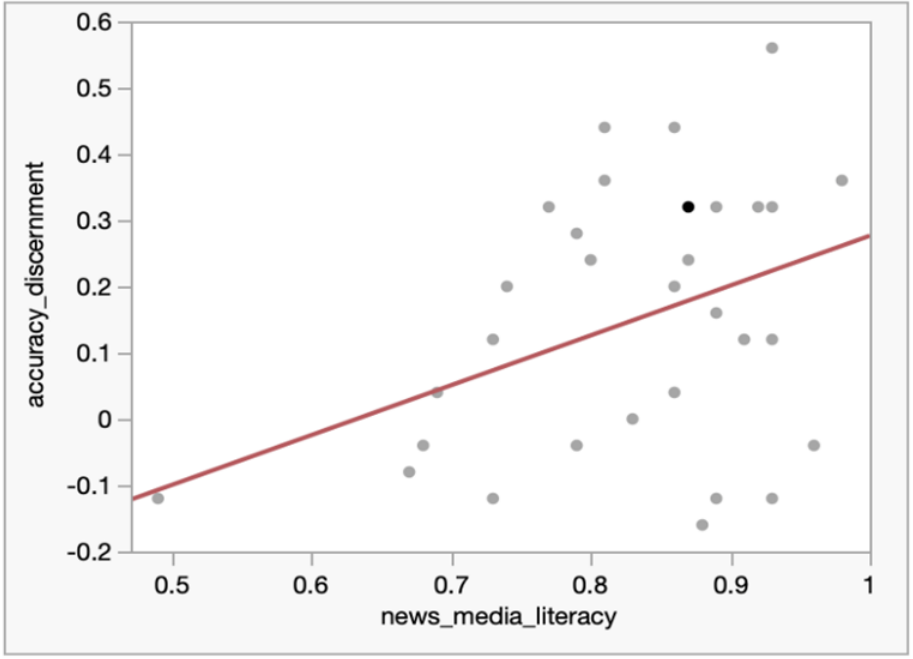
(R2 = 0.16, f(1, 31) = 5.98, p = 0.02)*

Browsing Data X Survey Results



News media literacy Vs. Accuracy rating of false article

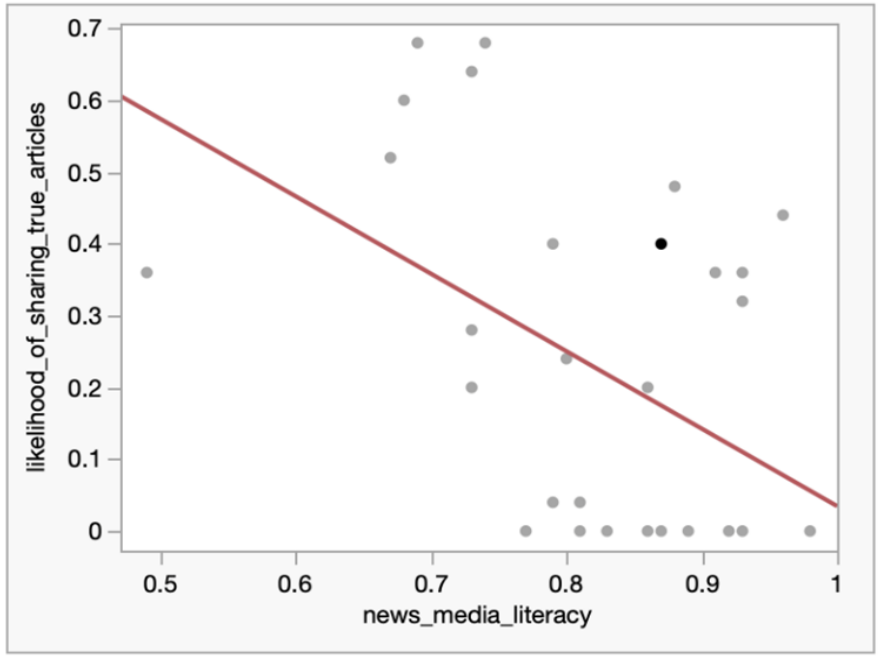
(R2 = 0.18, f(1, 31) = 7.17, p = 0.0117)*



News Media Literacy Vs. Accuracy Discernment

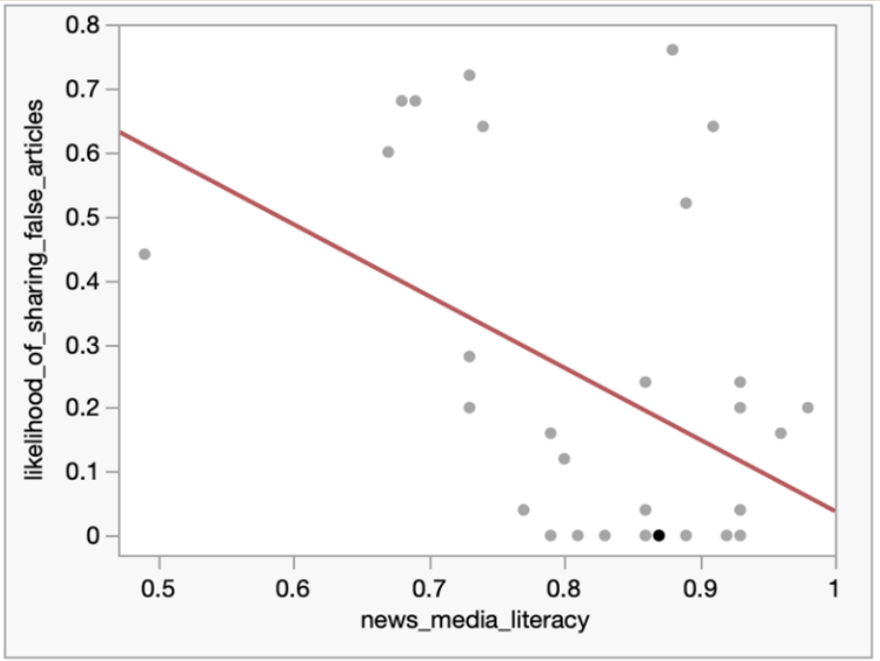
(R2 = 0.15, f(1, 31) = 5.6, p = 0.0245)*

Browsing Data X Survey Results



News media literacy Vs Likelihood of sharing (True article)

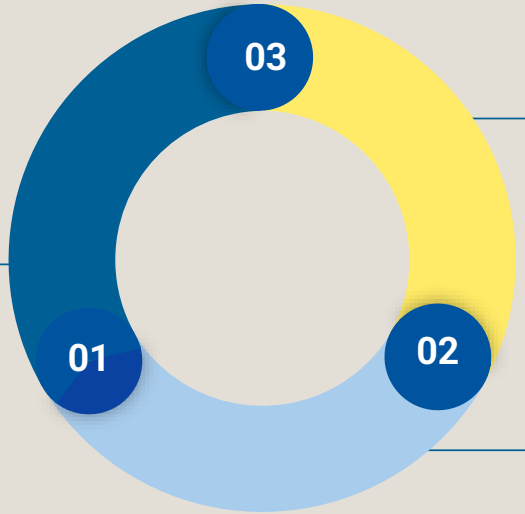
($R2$ = 0.22, f(1, 31) = 8.9, p = 0.0054)*



News Media Literacy Vs Likelihood of sharing (False article)

($R2$ = 0.19, f(1, 31) = 7.4, p = 0.0020)*

Lateral Reading: Browsing Behavior vs. Survey Responses



Time Spent Online

Lateral readers browsed slightly longer daily (2.2 hrs vs. 1.7 hrs), but this difference was not statistically significant.

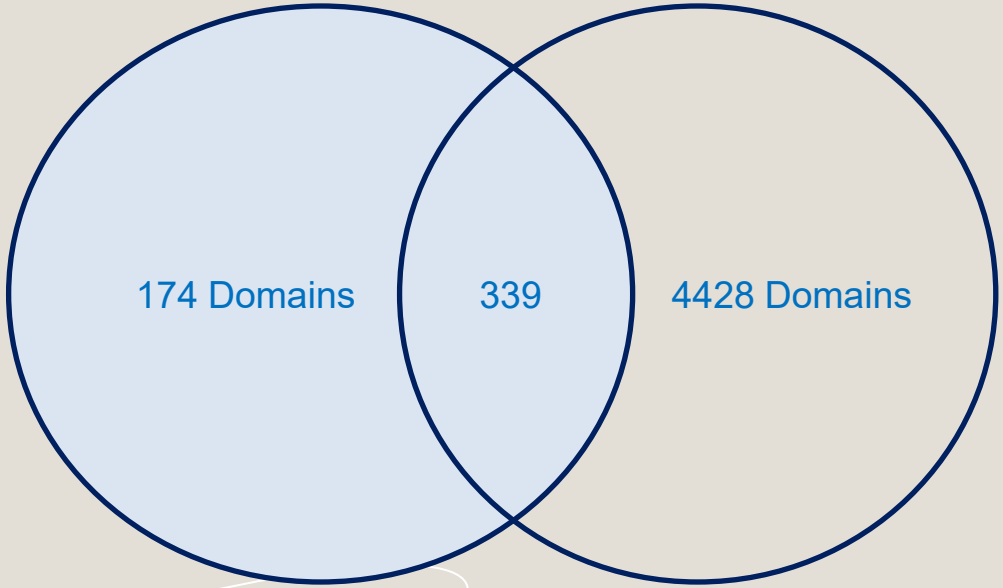
Literacy scores

Lateral readers scored significantly higher in both news media literacy (0.87 vs. 0.79; p = .038) and information literacy (0.70 vs. 0.47; p = .029), with medium-to-strong effect sizes.

News Sessions

Lateral readers had significantly more news-reading sessions per day (M = 4 vs. 1; *p* = .009, medium effect).

Interaction with misinformation



Users in our study tended to visit a relatively small number of domains, with 84 unique domains visited among the other studies datasets and 50 unique domains from our dataset. Of these domains, the vast majority, 79 out of 84, were labeled as "reliable," while only five were labeled as "unreliable."

Findings: Qualitative Impression

Most participants (14/15) reported a daily habit of reading online news, averaging about 45 minutes per day — but their self-reported time often differed from observed patterns due to multitasking and switching tabs.

Nearly half (7/15) found it challenging to track their actual reading time across different platforms (websites, apps, social media).

"I often struggle to figure out how much time I spend reading articles because I'm quite meticulous about fact-checking… I might go to CNN, Fox, or PBS to see how each covers the story, so it's tricky to nail down exactly how long I'm on each article." — P17

Interviews: Subset of participants (**n = 15**) invited via email

Topics: Fake news, platform perceptions, tool familiarity, attitudes toward interventions

Duration: ~35 minutes on average (SD ≈ 11.8)

Findings: Qualitative Impression

Nearly half (7/15) agreed that sentiment analysis could be helpful, provided the analysis was trustworthy.

"I think knowing the sentiment will also be useful. But then, again, it depends on who's evaluating the emotion. Is it AI? Is it a human being? Because there's a lot of difference between a human being doing that and AI, and if it's AI doing it, I think we need to improve it through machine learning, but I think it would be" (P45).

Findings: Qualitative Impression

One-third (5/15) were negative and hesitant about the idea of the tool constantly monitoring their browsing behaviors and saw more risks than benefits from this kind of data collection.

"I rarely install plugins unless I believe they are crucial because I am generally wary about data collection. If it monitors my browsing behavior, looks at my news, and gives me feedback, I will not download it. It would be insulting to me personally, and it would also be quite dangerous for many other people." (P30)

Findings: Qualitative Impression

Most participants showed mixed reactions toward the tool's data collection: 7/15 were neutral, wanting clarity on privacy policies and data protection before use.

2/15 were positive, seeing benefits in accurate information about news publishers and willing to share data if they gained value in return.

"I am comfortable using such tools if they provide me with good articles… but they should give me something in return." — P23

Findings: Qualitative Impression

Participants expressed interest in a personal informatics dashboard to help them reflect on their online activity and behavioral change

It would be excellent to have a feature that allows users to view their activity during the past week, reflect on what they did, and determine whether it has changed their behavior. I'd like to see everyone have access to as much information as possible about the safety, efficacy, and costs of drugs, vaccines, devices, and medical services, particularly regarding health care. Those who think the content warning is part of a conspiracy would not use it. (P44)

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Design Implications

Personal Informatics for Browsing

Track reading time, article counts, and source bias; show dashboards or playful feedback to help users reflect and diversify their news habits.

Lateral Reading Support

Integrate links and cues within articles to encourage credibility checks and provide guidance for users with lower digital literacy.

Optimized Media-Literacy Tools

Offer personalized challenges, visual progress trackers, and tutorials for vulnerable groups to strengthen critical evaluation skills.

Reflective Prompts & Nudges

Use brief reminders, weekly summaries, and adaptive prompts to expose users to diverse perspectives without overwhelming them.

Non-Intrusive & Transparent Practices

Build trust through clear permissions, gradual onboarding, customizable settings, and strong privacy controls.

In-Situ Content Warnings

Highlight biased or emotionally charged text directly in articles to promote awareness, avoiding disruptive pop-ups or over-used warnings.

Wrapping Up: Key Insights & Limitations

- Logged behavior reveals gaps between perceived vs. actual news habits.
- Media literacy & lateral reading linked to stronger engagement and misinformation detection.
- Participants are quite adept at evaluating news credibility/bias, but weaker in broader search strategies.
- Participants generally showed a basic awareness of defense mechanisms against misinformation, consuming news primarily from reliable outlets
- Limitations:
  - Pilot study with small, skewed sample (educated, liberal-leaning women), dataset bias
  - Limited to Desktop Users
  - Mobile behaviors not captured
  - Allsides Data Reliance

Questions! Let's discuss.

Or, let's chat later. Contact me at: preranak@udel.edu

Full paper → Scan here

Find me on Linkedin

Thank you


Prerana Khatiwada


Luke Halko


Nabiha Syed


Aneseh Alvanpour


Ashrey Mahesh


Dr. Matthew Mauriello

University of Delaware SENSIFY LAB