Read/Write News: Increasing trust in media through data literacy

Open data and the digital delivery of news have powered the rise of data journalism, enabling skilled reporters to present rich information in compelling ways. Yet public trust in the media is at historic lows in many developed countries, at a time when echo chambers, propagandist bots and fake news seem on the rise. This presents a curious paradox: trust in the news media has declined even as access to information has increased. In our paper we explore this paradox, and observe that *authority* and *accessibility* tend to be negatively correlated: news that is authoritative isn’t always accessible, and news that is accessible isn’t typically authoritative.

We introduce a way of presenting journalistic data analysis that promotes both authority and accessibi­lity, and argue that this method has the potential to reverse the declining trust in data. Our approach is based on two principles: (i) readers must question their assumptions about the data and (ii) the analysis must be transparent, enabling the reader to ascertain the provenance of data and accuracy of the analysis.

# 1. Visualizations that encourage critical thinking

The first way of encouraging critical thinking about data has been trialled by newsrooms such as the New York Times. The “you guess” articles ask the reader to make a guess before showing the actual data. The reader’s input might be completing a time series[[1]](#footnote-1) or guessing a number[[2]](#footnote-2). We develop and evaluate a number of interactive “you guess” visualizations such as the one shown in Figure 1. This way of presenting data encourage an active approach to data – readers need to make their assumptions about the topic explicit, before they are confronted with the accurate data.

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**Figure 1.** The visualization presents the breakout of the UK government expenditure. Readers are first asked to make a guess by dragging the bars (left), before they are presented with the actual data (right).

# 2. Reports that encourage verifying data provenance

Visualizations discussed in the previous section encourage readers to reflect on their own predispo­sitions and biases to improve understanding. The experience with “you guess” visualizations suggest that encouraging further forms of active reading could similarly enhance trust through transparency about the provenance and analysis of the data.

To make visualizations transparent and track the data provenance, each visualization must be backed by a reproducible script that accesses data from a primary source. We explore accessible ways of presenting such scripts and tracing the data through the transformations that were applied. Figure 2 shows an example, listing 2016 UK events related to leaving the European Union. We also develop a more accessible block-based way of presenting the script to non-programmers[[3]](#footnote-3).

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**Figure 2.** The script reads events from Wikipedia and searches for “Leave the EU” (left). When users navigate   
through the script, they see a preview illustrating each step and can verify the accuracy of the analysis (right).

# 3. Can Read/Write News increase trust and understanding?

Our study contributes to ongoing debates over the shifting epistemologies of newsgathering. In contrast to earlier studies, we focus on news at the point of *reception*, rather than the point of *broadcast*, by investigating how ordinary consumers both understand and trust in the evidence they are presented with. By presenting not just the final result, but steps leading to it, we hope to improve readers’ trust in the information presented and set a new standard for transparency. By inviting readers to contribute their estimates, we hope to encourage critical thinking and ultimately improve readers’ understanding.

To test these hypotheses, the paper presents an experimental case study, in which we expose Mechanical Turk participants to government spending data through our interface, and measure the extent to which reported levels of (i) understanding and (ii) trust change, as compared with a more standard digital news interface. These findings help us ascertain the extent to which changes in how data journalism is experienced by users can improve understanding of and trust in the news in the digital age.

# References

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# Author biographies

Tomas Petricek (PhD, University of Cambridge, 2017) is a Visiting Researcher at the Alan Turing Institute and a recipient of the Google Digital News Initiative (DNI) Innovation Fund grant. Following his PhD in theoretical computer science, where he developed foundations for context-aware program­ming languages, he has been working on programming tools for data science and, more recently, became interested in democratizing data science and making the creation of transparent, reproducible data analyses accessible to non-programmers such as data journalists.

1. (Buchanan et al., 2017) [↑](#footnote-ref-1)
2. (Office for National Statistics, 2017) [↑](#footnote-ref-2)
3. Inspired by Scratch (Maloney et al., 2010), a visual programming language for kids [↑](#footnote-ref-3)