News Consumption Helps Readers Identify Model-Generated News

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Abstract—Text-generation to produce journalistic content is increasing. In parallel, there is public concern about the misuse of language generation to disseminate disinformation. In this focused evaluation study, we report on an IRB-approved experiment carried out online with non-expert news audiences to study their perception of English and Spanish news-like content generated by GPT-3 versus news stories written by journalists. We explore how readers assessed news quality in terms of linguistic coherence/readability, journalistic expertise, and credibility when they perceived articles to be model-generated vs. journalist-written. We also reveal how news consumption may impact readers' capacity to identify generated text.

Index Terms—component, formatting, style, styling, insert

I. Introduction

The use of language generation technology to assist journalists in content creation [1]–[3] has raised debate, in part due to model explainability concerns with the vast number of parameters trained from equally large amounts of data [4], limiting the ability to understand these models' decision processes [5]. In addition, persistent biases are encountered in text generation models [4], [6]–[8] and there is potential for malicious use to misinform readers [4], [7], [9], [10].

Language generation technology has been incorporated by some news organizations despite the risk of misuse. Thomson Reuters, for instance, automated the generation of financial news stories on its online platform in 2006 [11]. Associated Press and Forbes have also been publishing stories based on structured data feeds of corporate earnings and sports scores [3], and some news agencies also use natural language generation to aid storytelling [12].

In this study, leveraging natural language generation technology, we conduct a reader-based evaluation for two languages (English and Spanish) with generated text using OpenAI's Generative Pre-trained Transformer 3 (GPT-3) [13]. The GPT model family was one of the first to achieve mainstream appeal [9], [14], and it has raised disinformation concerns among the public and media due to the quality of its generated texts [15]. We explore questions about the relationship between perceptions of text source (written by a journalist versus

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generated by a model) and specific *news quality constructs* such as journalistic expertise, as well as readers' habits when consuming news. The study's research questions include:

- RQ1 Is there a difference in the reader ratings when they perceive an article to be written by a journalist vs. the GPT-3 model in terms of:
 - 1a. linguistic coherence/readability,
 - 1b. journalistic expertise, or
 - 1c. credibility of content?
- RQ2 Do readers' news consumption habits impact their ability to infer if an article is human or model-generated?

II. SELECT PRIOR WORK

Generation of News Automated generation has been on the rise for textual news content [16], and current text generation models may produce content that is difficult to differentiate from human-written articles [1], [17]. Bullock and Luengo-Oroz conducted proof-of-concept work to highlight the political risks of such text generation [18]. They explain that malicious use may result in fake news and rapid production of disinformation by adding false credibility to news information. In the study by Tewari et al., participants were partially able to differentiate between GPT-2 generated articles and humanwritten articles, and they were better at correctly identifying articles prepared by human writers [15]. Work by Clark et al. involving both versions 2 and 3 of the GPT framework and crowdsourced judgments, observed that layman assessors might not reliably distinguish model-generated and humanwritten texts [19]. Adding instruction mechanisms also did not augment their capacity to do so substantially. We also perform a reader experiment, yet focus specifically on previously verified news quality measures from journalism research [20], and explore the potential role of media literacy, operationalized as readers' news consumption habits.

News Credibility Graefe et al. developed a method to study readers' perception of computer-written news articles by having participants determine the article source and rate the articles on their credibility, readability, and journalistic expertise [20]. Their study focused on whether the readers' perceptions

of a news article's quality were affected if they determined the article's actual source (software versus a human) as opposed to the inferred source. In the present study, we examined readers' perception of news article's quality, using the scales previously validated by Graefe et al. [20], with modifications to account also for, e.g., perceptions of potential syntactic and semantic distinctions in journalist-written versus model-generated newslike texts. The readers' ability to assess the quality of stories was measured using Likert scale rating questions covering linguistic coherence/readability – 4 items related to syntax, semantics, and readability; journalistic expertise – 3 items assessing coherence and comprehensiveness of the story; and credibility – 3 items asking participants to evaluate the text for accuracy and fairness.

AI and Journalism Across Languages Disinformation often targets specific populations [21], [22], yet little work has explored the use of natural language processing for journalistic text-generation in languages other than English from the readers' perspective. Our study expanded this research area by including Spanish speaking participants who read articles generated by GPT-3.

III. METHODS

This IRB-approved study included 30 participants, 15 with reading fluency in English and 15 with reading fluency in Spanish, who consented to the experiment. Thus, the participants represented a broad group of readers with 43% female, 53% male, and one participant identifying with non-binary gender. The race and ethnicity breakdown was 20% Asian/Pacific Islander, 47% Hispanic or Latino, 27% White/Caucasian and 6% Black/African American. Most participants were under 24 years old, and almost half had at least a high school diploma. In terms of employment, 30% were students, 34% were employed full-time and 30% were retired. Politically, 30% were left and 20% right leaning, 23% identified as independents and 27% preferred not to answer this question.

Materials/Stimuli Participants were recruited through digital messages and social media. Before the start of the experiment, each participant reviewed the consent form that provided information about how the data would be used and privacy-preservation measures and received compensation for their participation. To ensure both a controlled study and guarantee that readers had a vested interest in the articles' topic, we intended for articles to be about COVID-19 motivated by concurrent pandemic debates, but since GPT-3 was trained using natural language produced before this pandemic [23], the system could not satisfactorily produce texts on this topic. To retain a pandemic-related topic, we instead generated articles related to Ebola, which received extensive media attention in a 2014 outbreak [24]. They covered the virus outbreak, government response, and vaccination.

The human-written English articles were selected from the following American news organizations: CNN, The Hill, NY Times, and The Washington Post. The Spanish articles were selected from: CNN Spanish, El Diario, El País, and Univision

USA. For GPT-3, a sentence prompt from credible news articles helped generate articles. English prompts tended to be successful with one to two sentences to generate articles, but the Spanish prompts required over two sentences to produce better text results. GPT-3 generated approximately 400-word English articles and 250-word Spanish articles. We added a location or *News Bureau* to model-generated articles for consistency. The articles generated are in the appendix.

Each subject read 4 articles published by the mainstream news sources and 4 articles generated by GPT-3. We randomized the articles' order to avoid creating a pattern for distinguishing between human-authored or GPT-3 generated texts. In total, 8 human-written articles were used – 4 written in English and 4 in Spanish, and subjects read texts in one of the languages. Subjects performed an image captcha-like task between articles, to neutralize any potential affective response prior to the next stimuli [25]. We used the iMotions software [26] and participants sat in front of their computer with a webcam. All subjects in the English and Spanish sessions read the corresponding articles and answered questions about each text after reading it. They identified source and political tone and their confidence in their answer for each. (Post reading questions are included in appendix.) They also indicated their level of agreement with news quality based on measures for credibility, linguistic coherence/readability, and journalistic expertise. A Cronbach's α reliability test showed all three constructs met the reliability threshold: (credibility: $\alpha = 0.83$; readability: $\alpha = 0.88$; journalist expertise: $\alpha = 0.84$). We report results per construct rather than per question to follow the process of Graefe et al. [20], with some items modified. See the appendix for the post reading task.

Beginning and End Surveys At the beginning of the experiment, subjects completed a demographic survey, which also included questions relating to the subject's opinions on the severity of Ebola, the importance of the Ebola vaccine, and the appropriateness of the US response to Ebola (see appendix). At the end, they completed another survey about their news habits, including what type of news they consume, preferred news sources, and how often they consume news. They were also asked about their awareness of automated text generation, as well as other questions about technology. The survey concluded with a question about software-generated versus human-written articles and the motivation for their preference of either.

IV. RESULTS

A. RQ1: Perceived Journalist vs. Model

We examined responses (119, with 1 excluded) for the English texts. For model-generated texts, 61% incorrectly perceived model-generated texts as authored by a journalist. For human-written texts, only 65% of responses correctly identified these texts as human. For Spanish texts (120 responses), 47% incorrectly perceived model-generated texts as human-written, and only 62% identified journalists' texts as human correctly. For the remaining analysis for RQ1, four texts were consistently excluded due to missing responses to one or more

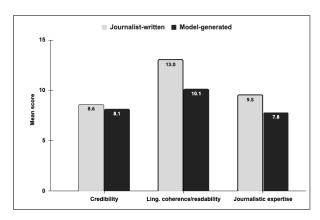


Fig. 1. Mean scores for three news quality constructs (n=236). While means for human texts were higher for all, the difference was statistically significant for linguistic coherence/readability and journalistic expertise.

questions (n=236). In addition, we only report results that represent > 25 texts.

The texts perceived to be written by a journalist had higher confidence score (M=74.4; SD=20.1) compared to those texts perceived to be model-generated (M=68.0; SD=24.0); i.e., respondents were more confident about their ability to identify human texts. There was also variance in how participants scored the political tone of the texts and in the confidence they reported for these political leaning assessments. The participants expressed higher confidence-levels in their answer when identifying articles as having a right-leaning bias (M=71.7; SD=18.9; n=27) than for articles identified as independent (M=66.5; SD=24.8; n=117). They were somewhat less confident when identifying articles as having a centerleft bias (M=61.9; SD=31.4; n=30) or as having center right bias (M=55.6; SD=28.5; n=28). An independent-samples t-test was conducted to compare readers' assessment of news quality of stories perceived to be written by a human versus modelgenerated. We combined the scores for stories in English and Spanish (n=236) to test for overall perception of news quality based on three measures as no variance was found based on language. The use of independent t-test was appropriate for our analysis as the dependent variables were approximately normally distributed across two groups. The trends for mean scores for RQ1a-c are summarized in Figure 1.

To answer RQ1a, there was a statistically significant difference in the linguistic coherence/readability scores for human-written stories (M=13.0, SD=3.1) and model-generated (M=10.1, SD=3.6); t (234)=6.7, p = 0.001. Among the three constructs, this construct also had the most prominent distinction between the two sources (Figure 1). Thus, the results suggest that readers can still discern linguistic differences between news articles composed by journalists and those generated by the GPT-3 model. In addition, this result could be due to GPT-3's text generation in Spanish appearing inferior to that of English. To address RQ1b, we also found a statistically significant difference in readers' assessment of journalistic expertise in the scores for stories perceived to be human-written (M=9.5, SD=2.4) and model-generated (M=7.8, SD=2.7); t (234)=4.9, p = 0.001. This suggests that expertise

in news reporting is still considered a human endeavor since stories perceived to be written by humans are scored higher for journalistic expertise. Lastly, unlike prior research [1], [20], for RQ1c, we did not find a significant difference in readers' assessment of credibility in the scores for stories perceived to be human-written (M=8.6, SD=2.4) and model-generated (M=8.1, SD=2.4); t (234)=1.62, p = 0.1. The weak effect may arise from that the GPT-3 model refers to sources such as President Obama, who would be considered authoritative and credible by most readers, making it difficult to discern differences in the stories based on information accuracy and reliability. This finding also differs from the results of Tewari et al. [15] which used GPT-2, an earlier version of the textgeneration model. Their participants gave machine-generated texts significantly lower credibility scores than human-written articles. The contradictions in the results could relate to GPT-3 improvements over GPT-2, resulting in output more comparable to human-written texts.

RQ2: News Consumption vs. Model Discovery

Half responded that they got their news from social media, one-third from news apps, and one-sixth from either newspapers or television. Based on the frequency of news consumption, responses from readers who read news *frequently throughout the day* (7 subjects; 1 response missing), 67% rightly identified model-based texts, and 71% human-written texts. In contrast, responses from readers who consumed news only *occasionally* (6 subjects) could only identify human-written texts at random 50% of the time and model-based text only 42% of the time. While the data is modest, the results are compelling. They suggest that consuming news more often can make readers more adept at identifying the source of content provided to them as being written by a journalist or generated by a model.

In addition, while only half of the subjects responded affirmatively to the question Did you know that some news sources use algorithms to generate news stories?-i.e., half were unaware, and 87% (26 subjects) responded Human to the question Would you prefer a story written by a human or by computer software?. For instance, subjects reported preferring human authors to avoid mistakes and see journalists' viewpoints: "It gives you a more balance[d] view of the topic and there are in general less mistakes.", and "A human can provide their point of view which software can't." (Spanish original: Un humano puede dar su punto de vista que un software no pudiera.) Additionally, two other respondents observed "If it's a human the[n] it means the person actually have [an] idea of what is really going on in the society, community and country. [...]." Another noted "Although news is supposedly written without bias, I like to perceive the human touch in the tone of the journalist's writing." (Spanish original: Aunque las noticias se supone que se redacten sin bias, me gusta sentir el tacto humano en el tono del periodista en su *escrito.* [...]).

V. DISCUSSION AND CONCLUSION

This study explores readers' perceptions of texts in English and Spanish written by journalists versus those generated by a widely recognized language model. We offer a contribution that is focused on assessing readers' perceptions of news-like texts. For the first research question, we found significant differences based on perceived source (journalist versus model) for news quality in terms of assessed linguistic coherence/readability and journalistic expertise, but not for credibility. Of notable interest was the finding for the second research question, identifying a link between the frequency of news consumption and the ability to tell if texts were written by a journalist or generated by a model. Other notable results were that half of the participants were unaware that news may not be written by a human. In addition, most preferred human texts. Lastly, readers appreciated human perspectives and opinions and trusted in human stories was stronger.

Limitations Our study is based on a modest sample size. The models were not trained exclusively on news, which may have impacted the stories they generated compared to the texts by journalists. Motivated by public concern for the misuse of natural language generation models to create texts that spread misinformation, future work could also address specific issues related to misinformation in methodological study design.

Ethics Statement This IRB-approved study examined how readers responded to texts they perceived to be written by journalists vs. models. The findings offer directions for future work that is grounded in issues of importance for the journalistic profession and the community of readers they serve.

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REFERENCES

- [1] C. Clerwall, "Enter the robot journalist," *Journalism Practice*, vol. 8, no. 5, pp. 519–531, Feb. 2014. [Online]. Available: https://doi.org/10.1080/17512786.2014.883116
- [2] A. Wölker and T. E. Powell, "Algorithms in the newsroom? News readers' perceived credibility and selection of automated journalism," *Journalism*, vol. 22, no. 1, pp. 86–103, 2021. [Online]. Available: https://doi.org/10.1177/1464884918757072
- [3] F. Marconi, Newsmakers: Artificial intelligence and the future of journalism. New York: Columbia University Press, 2020.
- [4] E. M. Bender, T. Gebru, A. McMillan-Major, and S. Shmitchell, "On the dangers of stochastic parrots: Can language models be too big?" in Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, ser. FAccT '21. New York, NY, USA: Association for Computing Machinery, 2021, p. 610–623. [Online]. Available: https://doi.org/10.1145/3442188.3445922
- [5] P. Linardatos, V. Papastefanopoulos, and S. Kotsiantis, "A review of machine learning interpretability methods," *Entropy*, vol. 23, no. 1, 2020.
- [6] A. Abid, M. Farooqi, and J. Zou, Persistent Anti-Muslim Bias in Large Language Models. New York, NY, USA: Association for Computing Machinery, 2021, p. 298–306. [Online]. Available: https://doi.org/10.1145/3461702.3462624
- [7] K. LaGrandeur, "How safe is our reliance on AI, and should we regulate it?" AI Ethics, vol. 1, 2021.

- [8] L. Lucy and D. Bamman, "Gender and representation bias in GPT-3 generated stories," in *Proceedings of the Third Workshop on Narrative Understanding*. Virtual: Association for Computational Linguistics, Jun. 2021, pp. 48–55.
- [9] R. Dale, "GPT-3: What's it good for?" Natural Language Engineering, vol. 27, no. 1, p. 113–118, 2021.
- [10] L. Floridi and M. Chiriatti, "GPT-3: Its nature, scope, limits, and consequences," *Minds and Machines*, vol. 30, no. 4, pp. 681–694, Nov. 2020. [Online]. Available: https://doi.org/10.1007/s11023-020-09548-1
- [11] A. van Dalen, "The algorithms behind the headlines," *Journalism Practice*, vol. 6, no. 5-6, pp. 648–658, Oct. 2012. [Online]. Available: https://doi.org/10.1080/17512786.2012.667268
- [12] A. Fanta, "Putting Europe's robots on the map: Automated journalism in news agencies," *Reuters Institute for the Credibility of Journalism*, pp. 1–23, 01 2017.
- [13] OpenAI, "GPT-3 powers the next generation of apps," https://openai. com/blog/gpt-3-apps/, 2021.
- [14] K. Elkins and J. Chun, "Can GPT-3 pass a writer's Turing test?" *Journal of Cultural Analytics*, Sep. 2020. [Online]. Available: https://doi.org/10.22148/001c.17212
- [15] S. Tewari, R. Zabounidis, A. Kothari, R. Bailey, and C. O. Alm, "Perceptions of human and machine-generated articles," *Digital Threats: Research and Practice*, vol. 2, no. 2, apr 2021. [Online]. Available: https://doi.org/10.1145/3428158
- [16] J. Jung, H. Song, Y. Kim, H. Im, and S. Oh, "Intrusion of software robots into journalism: The public's and journalists' perceptions of news written by algorithms and human journalists," *Computers in Human Behavior*, vol. 71, pp. 291–298, 2017. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S074756321730095X
- [17] H. van der Kaa and E. J. Krahmer, "Journalist versus news consumer: The perceived credibility of machine written news," in *Proceedings of the Computation+Journalism Conference*, 2014. [Online]. Available: https://pure.uvt.nl/ws/portalfiles/portal/4314960/ cj2014_session4_paper2.pdf
- [18] J. Bullock and M. A. Luengo-Oroz, "Automated speech generation from UN general assembly statements: Mapping risks in AI generated texts," CoRR, vol. abs/1906.01946, 2019. [Online]. Available: http://arxiv.org/abs/1906.01946
- [19] E. Clark, T. August, S. Serrano, N. Haduong, S. Gururangan, and N. A. Smith, "All that's 'human' is not gold: Evaluating human evaluation of generated text," in *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)*. Online: Association for Computational Linguistics, Aug. 2021, pp. 7282–7296. [Online]. Available: https://aclanthology.org/2021.acl-long.565
- [20] A. Graefe, M. Haim, B. Haarmann, and H.-B. Brosius, "Readers' perception of computer-generated news: Credibility, expertise, and readability," *Journalism*, vol. 19, no. 5, pp. 595–610, Apr. 2016. [Online]. Available: https://doi.org/10.1177/1464884916641269
- [21] C. Flores-Saviaga and S. Savage, "Anti-latinx computational propaganda in the United States," *CoRR*, vol. abs/1906.10736, 2019. [Online]. Available: http://arxiv.org/abs/1906.10736
- [22] M. Shrestha, "Midterm 2018 and targeting Latino community through misinformation and disinformation online," Master's thesis, West Virginia University, USA, 2018.
- [23] T. Brown, B. Mann, N. Ryder, M. Subbiah, J. D. Kaplan, P. Dhariwal, A. Neelakantan, P. Shyam, G. Sastry, A. Askell, S. Agarwal, A. Herbert-Voss, G. Krueger, T. Henighan, R. Child, A. Ramesh, D. Ziegler, J. Wu, C. Winter, C. Hesse, M. Chen, E. Sigler, M. Litwin, S. Gray, B. Chess, J. Clark, C. Berner, S. McCandlish, A. Radford, I. Sutskever, and D. Amodei, "Language models are few-shot learners," in Advances in Neural Information Processing Systems, H. Larochelle, M. Ranzato, R. Hadsell, M. F. Balcan, and H. Lin, Eds., vol. 33. Curran Associates, Inc., 2020, pp. 1877–1901.
- [24] W. H. Organization, "WHO Ebola Situation Report 10 June 2016," https://reliefweb.int/sites/reliefweb.int/files/resources/ebolasitrep_ 10Jun2016_eng.pdf, 2016.
- [25] M. Saraf, T. Roberts, R. Ptucha, C. Homan, and C. O. Alm, "Multimodal anticipated versus actual perceptual reactions," in *Adjunct of the 2019 International Conference on Multimodal Interaction*, ser. ICMI '19. New York, NY, USA: Association for Computing Machinery, 2019. [Online]. Available: https://doi.org/10.1145/3351529.3360663
- [26] iMotions, "iMotions Research Software," https://imotions.com/.

APPENDIX

SUPPLEMENTAL MATERIALS

Post-Reading Task

 Provide a one-sentence summary of the story you just read:

Credibility Scale:

- 2) The article contains accurate information
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 3) The article provides a balanced and fair view of the issue.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 4) The information in the article comes from reliable sources.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree

Linguistic Coherence/Readability Scale:

- 5) The article was enjoyable to read.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 6) The article was well-written.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - Strongly agree
- 7) The article was grammatical.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - · Somewhat agree
 - · Strongly agree
- 8) The article semantically made sense.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree

Journalistic Expertise Scale:

- 9) The information was presented in a coherent manner.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - Strongly agree
- 10) The important information was communicated clearly.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - Strongly agree
- 11) The article includes adequate background information about the topic.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - Strongly agree

Other Questions:

- 12) Was this story written by a human or by computer software?
 - Human
 - Computer software
- 13) On a scale from 0% 100%, how confident are you in your previous answer?
- 14) What is the political tone of this story?
 - Far Left
 - Left
 - Center Left
 - Independent
 - Center Right
 - Right
 - Far Right
- 15) On a scale from 0% 100%, how confident are you in your previous answer?

Demographic Survey

- 1) Gender:
 - Female
 - Male
 - Transgender Female
 - Transgender Male
 - Non-binary
 - Prefer not to answer
 - Other
- 2) Race:
 - Asian/Pacific Islander
 - Hispanic or Latino
 - Black or African American
 - White or Caucasian
 - Native American or American Indian
 - Prefer not to answer
 - Other

- 3) First Language:
- 4) Age:
 - Under 24
 - 25 35
 - 36 45
 - 46 55
 - 56 65
 - Over 65
- 5) Education Level:
 - PhD
 - Masters
 - Bachelors
 - High School Diploma
 - No Degree
 - Other
- 6) Employment Status:
 - Employed full-time
 - Employed part-time
 - Unemployed
 - Consultant
 - Student
 - Retired
- 7) Political Identification
 - Far Left
 - Left
 - Center Left
 - Independent
 - · Center Right
 - Right
 - Far Right
 - Prefer not to answer
- 8) Ebola virus was a serious health threat.
 - · Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 9) A safe and effective vaccine is an important tool to prevent the spread of an infectious disease.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 10) The US government should have done more to help people affected by Ebola.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 11) The Obama Administration responded well to the Ebola threat.
 - Strongly disagree

- Somewhat disagree
- Neutral
- Somewhat agree
- Strongly agree
- Isolation and quarantine should be mandatory for Americans returning from abroad who exhibit signs and symptoms of Ebola.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree

End Survey

- 1) Where do you primarily get your news from? Select one:
 - · social media
 - radio
 - newspapers
 - television
 - · news apps
- 2) How often do you read, listen or watch the news?
 - every day
 - few times a week
 - · frequently throughout the day
 - occasionally
 - never
- 3) Of the following, what is your preferred news organiza-
 - The Atlantic
 - Breitbart
 - Business Insider
 - CBS News
 - CNN
 - Fox News
 - Healthline
 - Huffpost
 - The Guardian
 - The Los Angeles Times
 - MSNBC News
 - National Review
 - NBC News
 - · New York Post
 - New York Times
 - NPR
 - Reuters
 - US News
 - USA Today
 - Verge
 - Vox
 - · Washington Post
 - CNN Spanish
 - Telemundo USA
 - El Diario
 - Univision USA
 - El Pais

- Voz de America
- Other
- 4) Do you enjoy discussing or sharing the news stories you read, watched or listened to?
 - Yes
 - No
- 5) Explain your answer:
- 6) Before this study, did you know that some news sources use computers/algorithms to generate news stories?
 - Yes
 - No
- 7) I often use smartphones and/or other smart devices such as smart thermostats, virtual assistants (Alexa, Siri, Google).
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 8) I adapt well to new technology.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 9) It is easy to access the Internet on my devices.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - Strongly agree
- 10) Keeping up with new technology is difficult.
 - Strongly disagree
 - Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 11) It is difficult to access news media using my devices.
 - Strongly disagree
 - · Somewhat disagree
 - Neutral
 - Somewhat agree
 - · Strongly agree
- 12) I am often frustrated with the complexity of technology.
 - · Strongly disagree
 - Somewhat disagree
 - Neutral
 - · Somewhat agree
 - Strongly agree
- 13) How comfortable are you with an algorithm customizing news stories you have access to, based on your browsing history, political affiliation, gender and location?
 - Somewhat uncomfortable

- Neutral
- Somewhat comfortable
- Very comfortable
- 14) Would you prefer a story written by a human or by computer software? Why?

Model-generated Articles: English

Article 1

Freetown, Sierra Leone

In early 2014, the largest-ever Ebola outbreak started up in Guinea and eventually spread to eight other countries by the following year. It challenged West Africa — and the global health order. The World Health Organization, along with the governments and health ministries of the affected countries, is coordinating the response. Key organizations, such as Doctors Without Borders and the International Federation of the Red Cross, are on the ground. But the outbreak is far from over.

On the contrary, 2015 has seen the worst of it, with more than 6,000 cases and nearly 3,400 deaths reported so far. There are several reasons for this: The virus is spreading. Officials originally thought the outbreak was in a relatively contained part of Guinea, with an isolated number of cases in neighboring Liberia and Sierra Leone. But over time, it has become clear that it's spreading.

There have been new cases in Sierra Leone's capital city of Freetown and in Conakry, the capital of Guinea. In addition, the virus has spread to Mali, where there have been eight cases that are currently being treated. This is partly because the countries are close together, but it's also because there is a high number of people traveling to and from them.

Umaru Fofana, a journalist in Sierra Leone who has been covering the outbreak, said that the ferries that connect the three countries are very popular. "They are full of people," he said. Getting the outbreak under control is a race against time. In an Ebola outbreak, the key is containment.

The virus spreads through bodily fluids. If one person has it, he or she can spread it to another person, who can spread it to another person, and so on and so on, until there is an outbreak, which means there are more cases than health officials can handle. Stopping Ebola before it spreads to other people is the only way to halt an outbreak. But the longer it takes to halt the outbreak, the more likely it is that the virus will spread.

Article 2

News Bureau

President Barack Obama, after a day of withering criticism over the government's handling of the Ebola virus, said Thursday he may name a point person to oversee the administration's response and is open to a travel ban but isn't planning one. "We're going to make sure we're crossing all the T's and dotting all the I's," Obama said after a meeting with his Cabinet. "We're going to make sure we're monitoring this in a systematic way." In an interview with NBC News, he said: "I may consider additional restrictions on travel. But we want

to make sure we're not issuing restrictions that don't make sense."

The administration has come under increasing criticism for a response that has included canceled flights, incompetent officials and a public health system that seems ill-prepared to handle Ebola, which has killed 3,400 people in West Africa. The White House said Obama's meeting with Cabinet officials was intended to "ensure the administration is doing everything we can to protect our fellow Americans."

Obama, who canceled campaign events Wednesday to focus on the government's response, said he was frustrated by how long it took officials to realize the Dallas patient's travel history was a danger. "The fact that we were able to stop this from becoming a widespread epidemic — so far — is really something that we should celebrate," he said. Obama said he made a point of thanking the doctors, nurses and other health care workers who have been working to treat and contain the disease. "We're happy that our doctors and nurses are going to be able to return to their families and friends," he told reporters.

Obama said the only person who is sick with the disease is the "one individual who is being treated in Dallas," Thomas Eric Duncan. "We have managed to keep him isolated from the rest of the population," he said. "But I think we all understand that even a single case of this is unacceptable." Obama said the U.S. should take the disease seriously but not panic, and he said the country is well positioned to handle it. "We're going to make sure that we're doing everything we can," he said. He said he's had "a lot of confidence in the ability of our professionals to handle this."

The administration's response to the Ebola crisis became a political liability for Democrats after it was revealed that Thomas Duncan, the patient in Dallas, had been sent home from a Dallas-area hospital with antibiotics, despite telling a nurse he had recently come from Liberia.

Article 3

The White House came under fire Friday from critics who said the president has not addressed the Ebola threat enough. "The president has not held a single meeting of the Cabinet to discuss Ebola," said Rep. Tim Murphy (R-Pa.). "It is really starting to get an air of incompetence and lack of seriousness about this," said Senator John McCain (R-Ariz.), who called on the president to appoint a point person to coordinate the administration's response to the disease.

On Thursday, Obama canceled a meeting with top congressional leaders to attend a fundraiser in New York City, a decision that sparked outrage among Republican critics. The White House said Obama's meeting with the congressional leaders, arranged last weekend, was already set to be replaced by a gathering of the National Security Council.

In addition, spokesman Josh Earnest said Obama, Vice President Biden and senior advisers have been in "constant communication" with lawmakers on Ebola. "The president has not held a single meeting of the Cabinet to discuss Ebola." Rep. Tim Murphy (R-Pa.)

The administration has also drawn fire for a decision not to cancel Obama's trip to New York for the United Nations General Assembly, which begins Sept. 28. "I cannot think of a more inappropriate time to have this conference," said Rep. Candice Miller (R-Mich.). Miller, who chairs the House Homeland Security Committee, said the president should cancel his trip. "The president needs to stop campaigning and stop fundraising and work on this," she said.

The White House has dismissed those calls, saying the risk of contracting Ebola in the United States is low. The United Nations has not yet released details about the president's schedule. The administration is also under fire for its response to the deadly virus in West Africa, where the disease has killed nearly 3,400 people, according to the World Health Organization.

On his trip to Africa last month, Obama announced a 100-million plan to fight Ebola and a 750-million initiative to help countries battle other infectious diseases. But Congress has yet to approve the money, and critics say the president should have sought a special appropriation months ago. "We're not spending it fast enough," said Rep. Tim Murphy (R-Pa.), who called on Obama to convene an emergency spending session.

Article 4

The worst Ebola outbreak in history has put a number of countries in West Africa in lockdown, led to the deaths of nearly 700 people since February and brought new reports of doctors, including Americans, contracting the virus they are attempting to contain. The situation is undeniably scary. But how does it affect the rest of the world? In general, we're pretty safe from Ebola. The virus is not airborne, and it only spreads via contact with bodily fluids. Ebola is not easily contagious, and even when an infected person shows symptoms, the disease is quick to burn out.

What this means is that, provided you don't fly to a West African country and then return to the United States, you're not likely to contract Ebola. The virus hasn't spread outside of the region, and there are no known cases of Ebola-infected people entering the United States.

The only people who need to be concerned are those living in West Africa, as well as health care workers who have been treating Ebola patients. Health care workers are at risk because they are working directly with the virus. And while the health and safety of these workers is of the utmost concern, the recent cases of three American health care workers who contracted Ebola while treating patients in West Africa demonstrate the lengths people will go to to help others.

"I'm committed to helping these countries establish and maintain strong public health infrastructures," said Dr. Rick Sacra, who contracted Ebola while working with the medical humanitarian group SIM in Liberia, in a statement. "We have to learn from this epidemic and make sure that we have the best training, equipment, and procedures to safely care for patients with Ebola." But don't let these recent cases of U.S.

health care workers contracting Ebola convince you that you should avoid the countries currently dealing with the outbreak.

As noted, the virus is not airborne, and it only spreads via contact with bodily fluids. That's why the CDC says it is safe to travel to the countries where Ebola is spreading. "There are no changes to CDC's current recommendations for the U.S. regarding travel to countries with Ebola," according to a statement from the CDC. "As always, CDC recommends that U.S. residents practice good health security by avoiding contact with blood and body fluids and by washing hands often."

Model-generated Articles: Spanish

Article 1

El Instituto Nacional de Salud de Estados Unidos anunció que esta misma semana una vacuna experimental contra el ébola podría ser probada en seres humanos para ver su efectividad. "En dos semanas confirmaremos si es segura y efectiva", dijo el doctor Anthony Fauci, director del Instituto Nacional de Enfermedades Infecciosas de EE. UU. (NIH).

Un estudio con animales sugirió que la vacuna podría funcionar. El investigador principal de ese estudio, Pablo Tebas, dijo que, hasta ahora, es la única vacuna que ha pasado los ensayos con animales.

Los investigadores dijeron que la vacuna podría ser comercializada en unos pocos años. "Este es un proceso largo y duro y vamos a pasar por una serie de etapas", dijo Fauci.

El virus del ébola ha matado a más de 1.350 personas en cuatro países durante la peor epidemia de la enfermedad del siglo 21. La mayoría de los casos se han registrado en Guinea, Liberia y Sierra Leona y el virus ha afectado a otras naciones africanas como Nigeria, Senegal y Camerún.

Hasta el momento se han confirmado tres casos de Ébola en Senegal, donde el virus ha matado a 1.848 personas en West Africa. El Ministerio de Sanidad de Senegal dijo que una mujer de 60 años, cuyos parientes murieron de la enfermedad el mes pasado, fue diagnosticada con el virus el miércoles. Se le practicó una biopsia cerebral y se le pidió que permaneciera en el hospital.

Este es el segundo caso de ébola que se confirma en Senegal y probablemente no será el último, dijo el Ministerio de Sanidad.

Article 2

Monrovia, Liberia

Una mujer de Liberia murió de ébola en la más reciente ocasión en la que el virus se ha reavivado. La mujer de 30 años murió este jueves, dijo el Ministerio de Salud de Liberia, uno de los tres países más afectados por la epidemia más grande de la historia del virus.

La mujer murió en un hospital de la ciudad de Monrovia, dijo el Ministerio de Salud. Su deceso contaba con el diagnóstico de ébola de un laboratorio. Este es el sexto caso de ébola confirmado en Liberia.

Los funcionarios han dicho que este caso de ébola se originó en una pareja que viajó a Liberia de Sierra Leona, donde supuestamente se infectó con el virus. En el caso de la mujer, la pareja que viajó a Liberia se examinó y no se encontró ningún signo de la enfermedad.

En los últimos meses, científicos han estado trabajando con la esperanza de desarrollar una vacuna para el ébola.

Aunque mucha gente ya había sido vacunada en países africanos afectados por la epidemia, los funcionarios señalaron que el nuevo caso de ébola en Liberia demuestra que la protección de la vacuna es limitada.

"Las personas afectadas por ébola tienen un riesgo de rastrear el virus a otros, y es por eso que todavía hay que vacunar a los que están expuestos al virus", dijo el doctor Ernesto Ruiz-Tiben, un portavoz de la Organización Mundial de la Salud.

Ebola se transmite por contacto directo con el flujo de sangre de una persona infectada. La enfermedad se propaga ampliamente en las zonas rurales, donde los servicios de salud están muy subdesarrollados.

Article 3

El presidente de Estados Unidos, Barack Obama, renovó los llamados al Congreso para aprobar \$ 6bn (£ 3.8bn) en ayuda de emergencia para combatir el brote mortal del ébola en África occidental.

Obama pidió que el dinero sea aprobado inmediatamente en una reunión con el líder de la mayoría republicana, el senador Mitch McConnell, y el líder de la minoría demócrata, Harry Reid.

El presidente advirtió que el ébola "está amenazando la estabilidad y la seguridad internacional" y que "la respuesta no puede esperar". El ébola ha matado a más de 2.400 personas en Sierra Leona, Liberia, Guinea y Nigeria.

El jueves, los tres presidentes de África occidental dijeron que el brote del ébola había superado los límites de sus gobiernos y se había convertido en una "prioridad global".

El presidente de Liberia, Ellen Johnson-Sirleaf, dijo que el pago por la ayuda de emergencia es "urgente".

Obama agregó que está en contacto con los líderes de las naciones involucradas y los está instando a que intensifiquen los esfuerzos para curar a los enfermos y prevenir que el ébola se propague.

El ébola se transmite por contacto con la sangre, los fluidos corporales y los restos mortales de una persona infectada. La enfermedad causa fiebre alta, mareos, dolores musculares y sangrado excesivo.

Article 4

Oficina de Noticias

La aparición de un brote de enfermedad por virus del Ebola (EVE) en África Occidental en 2014 está poniendo a prueba a los tres países implicados (Guinea, Liberia y Sierra Leona), cuyos gobiernos colaboran de forma intensiva con la OMS y otros asociados para reforzar una serie de medidas destinadas a controlar el brote. Se han establecido centros de control y respuesta en los países afectados, que entre otros objetivos,

facilitan el tratamiento de los enfermos y el seguimiento de los contactos de los enfermos.

La OMS y sus asociados tienen un amplio programa de trabajo en curso para respaldar efectivamente a los gobiernos y ayudar a prevenir y controlar futuros brotes de esta enfermedad. Los tres países han formado equipos de respuesta, que incluyen médicos, epidemiólogos y especialistas de los servicios de salud, quienes trabajan con las comunidades locales para desarrollar estrategias y enfocarse en los grupos de alto riesgo.

Una de las medidas de control del brote consiste en proteger a los trabajadores de la salud, los partidarios, los parientes y las personas que ayudan con los que han tenido contacto con los enfermos. Esto incluye a los equipos de atención primaria, que son los más expuestos al virus.

Los equipos de respuesta han desarrollado procedimientos de seguimiento de los contactos de los enfermos para identificar y controlar a las personas que corren riesgo de contraer la enfermedad. Aunque las medidas de control aún son temporales, las tres agencias se prestan asistencia mutua para poner a prueba las medidas en espera de que se puedan instalar los servicios de control de brote.

El objetivo es que los países cuenten con los servicios de salud necesarios para controlar el brote de enfermedad por virus del Ebola.