Educating College Students about Digital Footprints and Internet Algorithms
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Background
Despite being active Internet users, students may lack awareness that they are leaving a digital footprint when searching for information online and how sharing information online may put their privacy and futures at risk. Companies use this trail of data for various purposes including targeted advertising, algorithm development, and artificial intelligence. Students also lack awareness of how algorithms personalize search results and create filter bubbles. Algorithms filter what users see in their social media feeds (e.g., Facebook, Instagram), search results (e.g., Google), as well as advertising/shopping recommendations.

Objectives
To enhance college students’ awareness of how online information is collected, stored, and used by the Big 5 companies and how algorithms influence users’ online experience. We also asked students about parental concerns about children’s digital footprints and their views on how the Internet contributes to political polarization.

Participants
College students, recruited through the subject pool at a large, urban public university (N = 326, Mage = 19.73, SD = 2.62, 61.0% female), completed an online survey via Qualtrics.

Method
In an online survey via Qualtrics, participants:
1. Watched one of two instructional videos (Fig. 1 and 2) and viewed slide decks with additional info (not shown).
2. Completed pre/posttest multiple-choice questions on online information sharing and storage, Big 5 companies controlling the Internet, and algorithmic filtering, plus open-response questions about algorithms/filter bubbles.
3. Responded to open-ended questions about parental concerns over children’s digital footprints and how the Internet contributes to political polarization at posttest.

Coding of Open Responses
We adopted a keyword approach to code responses to questions about the students’ knowledge on algorithm and filter bubbles, parental concerns over children’s digital footprints, and how the Internet contributes to political polarization.

Results
Students knew 1.6 of the Big 5 companies at pretest. The Digital Footprints condition made gains at posttest, averaging 3.1 out of 5 companies. The Digital Footprints condition made gains on multiple-choice questions about footprints; neither condition made gains on algorithm questions.

Overall on open-ended questions, both condition showed gained in how algorithm and filter bubble influence users’ online experience. Students in Digital Footprint more expressed parental concerns over children’s digital footprint due to reposting/sharing content. Students in Algorithm condition showed more awareness on how the Internet influences political views and contributes to polarization.

Conclusions
Given college students’ ubiquitous Internet use, our findings suggest that students may benefit from direct instruction to foster their understanding of digital footprints and the role of algorithms in personalizing search results. Future work should ensure that all students are aware how large corporations collect and profit from their data and help students link their understanding of data use to issues that are of personal concern (identity theft, targeted misinformation & election manipulation).