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Cover Page Footnote
Dear Editors, Please accept my revised book review of Noble's _Algorithms of Oppression_. I enjoyed reviewing it, thinking about both its uses in the classroom and about the critical heritage to which it contributes. Sincerely, S Galliah Graduate Student Rhetoric, Theory, & Culture Michigan Technological University

Over twenty years ago, Google invaded the internet and abruptly changed how people locate and evaluate information. Since then, Google has grown dramatically, now owning an 89.95 percent share of the global search engine market (Statista, 2019). As a university instructor at a technological university, I am increasingly concerned about how Google and its associated products have infiltrated our education and information systems: Google Chrome is the browser for our online courses whereas the university community uses Gmail, Google calendar, cloud storage, and Chromebooks; Google Scholar is also one of the top recommended search engines by our library. It is Google's ubiquity that often makes us, even seasoned educators, take it for granted and not interrogate what Langdon Winner (1980) might label the politics of this powerful artifact, particularly its privileging of certain biases, interests, and groups. As educators, then, we should step back and critically interrogate Google's algorithms, upon which we depend for our information, our teaching, and our research.

Dr. Safiya Umoja Noble, Assistant Professor of Information Studies at the University of California, L.A., provides this critical perspective in her disquieting book, *Algorithms of Oppression: How Search Engines Reinforce Racism*, which, despite the limiting title, exposes how racism, sexism, and other social inequities are integrated into and perpetuated by the internet's architecture and language. In this text, Noble draws upon her significant academic research and twelve-year experience in multicultural marketing to target the ubiquitous yet underexamined technology of algorithmic driven software. Rather than make supposedly neutral mathematical decisions, algorithms, she argues, perpetuate prejudices and enforce power structures. Although Google search originally motivated her book, the author also interrogates the algorithmic decision making of other digital media platforms as well as the racism and misogyny built into the Library of Congress Subject Headings (LCSH). Examining these algorithms and their results is "the beginning of a much-needed assessment of information as a public good" (p. 5).

Chapter One: "A Society, Searching"

The book's six chapters either build on previous ones or extend Noble's thesis. In the first, the author recounts the unsettling experience motivating her inquiry. When the seemingly innocuous phrase "Black girls" returned a long string of pornographic results, and the author's previous online engagement was with Black feminist texts and sites, Noble decided to investigate why algorithms were driving racism and sexism to the top. Several examples from Google autosuggest and images reveal the contrasted representation of White and Black women, which reflect Google's hegemonic narratives and frameworks. She argues that rather than trustworthy and objective, Google's results are biased, corrupted by a potent combination of advertising interests, Search Engine Optimization (SEO) techniques, and their corresponding neo-liberal values.

Chapter Two: "Searching for Black Girls"

Here, Noble further charges Google for perpetuating racism while discounting its own responsibility: search is simply returning the results people *desire*. She demonstrates how Google's algorithms enforce sexist stereotypes for Asian, Black, and Latina women while

contending that this technological racialization has evolved from ideologies foundational to the web's construction: individualism, militarism, and consumption, which take whiteness and maleness as norms. Instructors could summarize her argument and then create an eye-opening lesson unveiling Google's hidden hegemony and problematic online representations. For instance, they might demonstrate how the term "Indians" in Google images returns mostly pictures of the Cleveland Indians baseball team along with its insulting, cartoonish logo. Google's equation of "Indians" with this team and its support of this racist emblem demonstrate how its algorithms categorize and monetize information while promoting white hegemonic norms.

Chapter Three: "Searching for People and Communities"

This chapter examines a case study to demonstrate how Google's search engine corroborates dangerous narratives about minorities. Noble focuses on 21-year-old White supremacist Dylann Roof, who used his findings to justify his hatred of Black people and his subsequent massacre at "Mother" Emanuel African Methodist Episcopal Church. Roof's repeated, frantic queries for "black on white crime" generated a slew of slanted, inaccurate results from White supremacist and far-right sources depicting Black anti-White violence as a disturbing, under-reported phenomenon. The author accuses Google of giving Roof the information and the ammunition he wanted—racist, anti-Black websites—rather than what he really required: accurate statistics on crime or in-depth information from critical race experts dispelling the stereotype of angry Black offenders. This case underscores how Google's simplification of complex phenomena and its impairment of critical thinking could lead to tragic outcomes.

Chapter Four: "Searching for Protections from Search Engines"

Noble extends her thesis by addressing Google's oppressive control over identity, particularly its resistance to digital oblivion when it benefits both the individual and society. After documenting cases of women who were porn-shamed, she critiques the internet for cementing our digital footprints before contrasting the protections of U.S. citizens with those of the European Union, who have "right to be forgotten" laws (p. 121-122). This struggle between freedom of information and personal privacy again leads back to Google, whose spokespeople defend its model of transparency as necessary for developing products, for recording all human activity, and for protecting people from corruption. Noble ironically notes, however, that often those who feel violated by Google's digital record are not high-profile political figures, but regular citizens hoping to reclaim their lives. This chapter reminded me, an instructor of professional and technical communication, to stress that my students regularly monitor their digital profiles to protect their online reputations.

Chapter Five: "The Future of Knowledge in the Public"

Moving beyond Google in this chapter, the author implicates the field of library science for embedding dominant narratives in its information organization. In particular, the Library of Congress Subject Headings (LCSH) reveal the vantage point of patriarchy, heteronormativity, Christianity, and whiteness; for instance, the all too recent subject headings "The Jewish

Question" and "The Race Question" privilege a White perspective in which race is a *problem*. Rather than neutral, Noble argues that *all* digital search engines structure discourse, representation, and knowledge and therefore reproduce social relations—dangerous effects for those students who see algorithms as neutral, blindly relying on them for information and guidance.

Chapter Six: "The Future of Information Culture" and the Text's Conclusion

Developments making it more urgent to address Google's domination of information—the corporatization of the news media, threatened net neutrality, and Google's huge digitization book project—open the call to arms of the concluding chapter. Noble appeals for public policies that will question big data optimism, stall Google's growing information monopoly, and regulate the filtering practices of commercial search engines. Here, she critiques the complacent neoliberal solution for the lack of women and minorities in technology fields—more education and opportunities—which places the responsibility of progress on individuals rather than on those institutions subjugating them. The power relations built into all aspects of the internet, such as Google's transformation of its users into both surplus labor and commodities, are also addressed. In the conclusion, "Algorithms of Oppression," she presents the story of Kandis, a Black hairdresser whose representation and business were both undermined by Yelp's biased advertising practices and searching strategies, to stress that the gift of technology in our lives comes with the high price of social inequities (p. 171). The epilogue, which analyzes the startling presidential victory of Donald Trump, the growth of the fake news landscape, and the normalization of White supremacist sentiment, makes a demand for information that will expand democracy rather than threaten it, for resources that will protect the marginalized instead of fertilize hatred.

Criticisms and Recommendations

The weaknesses of this book lie less in its argument and more in its organization and tone. That is, the text's foreshadowing, context, and repetition often make for a rich but difficult, recursive reading experience. As well, the plethora of subjects and theoretical perspectives informing this book occasionally result in some unwieldly chapters. Chapter One, for instance, which fleshes out the context, theoretical and methodological approaches, the operation of search, and Google's information monopoly, is somewhat overwhelming and fragmented, containing content also resurfacing in the next chapter. In a few places, Google is identified not with the search engine, but with the entire internet itself, creating a confusing conflation. Lastly, Noble's polemic tone might alienate those more conservative, technophilic readers who really need her message.

These are minor complaints, however. Noble's significant emotional and intellectual stakes in this topic, as a Black woman and scholar, make for a dynamic and refreshing read. And in the several micro-arguments and theoretical perspectives comprising this book, she contributes to a rich critical heritage while furthering her Black feminist technology studies perspective. This text elaborates on Harvey's critique of neoliberalism (2005) as well as other political economic analyses of media deregulation and of corporate media's information control (McChesney, 1999;

Schiller, 1996). That is, Noble enforces how the internet, similar to old media, is dominated by a few elites. She speaks as a Black feminist, recalling hooks' scathing indictment of neoliberal capitalism's repeated "misrepresentations and hyper sexualization of Black women" (1996, p. 33); and she aligns herself with recent Black feminist technology critics, such as Peterson (2014), who has named racism as "the fundamental application program interface (API) of the internet" (as cited in Noble, 2018, p. 4). In short, this book empowers the reader to follow multiple critical and theoretical leads.

This book's range also makes it suitable for diverse classrooms and contexts. Scholars in new media concerned with the ethics and politics of software applications as well as the impacts of big data on democracy and the global public sphere might study this text alongside Nissenbaum and Introna's earlier essay (2004) on the politics of search engines; O'Neil's *Weapons of Math Destruction* (2016); and Vaidyanathan's *The Googlization of Everything* (2011). Noble's text would also be suitable reading for an ethics of technology course because of its exposure of Google's politics and its critique of the minimal diversity training of those working on its algorithms. Cultural studies scholars might also appreciate Noble's account of how search engines create representations and discursive structures as well as how her text acted as an intervention: it forced Google to tweak its algorithms so that sexist and racist search results are not *immediately* generated. Lastly, those in library science and instructors of first-year composition, such as I, might use this book to introduce students to the affordances and constraints of search engines and to Google's impact on our research practices. Adapting Noble's examples, instructors could generate in-class activities to facilitate student understanding of how search engines privilege certain ways of seeing and knowing.

Conclusion

Rather than author an incomprehensible, overly theoretical book, Noble guides the argument by summarizing theories at key places, which minimizes the jargon, allows multiple entry points for readers, and makes her book accessible to wider audiences. Thus, nonacademic readers, such as those in book clubs, will also appreciate this broad, approachable text, which would nicely complements Ronson's 2016 investigation of digital humiliation, *So You've Been Publicly Shamed*.

Algorithms of Oppression is an essential, disturbing read examining the socio-politics of our search patterns and their according results; it is a book probing the dark side of the internet, what the author calls the "most unregulated social experiment of our times" (p. 6). In short, Dr. Safiya Omuja Noble discloses the practices of Google's search engine while disrupting the ideal that the internet is a democratic, egalitarian, post-racial space.

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