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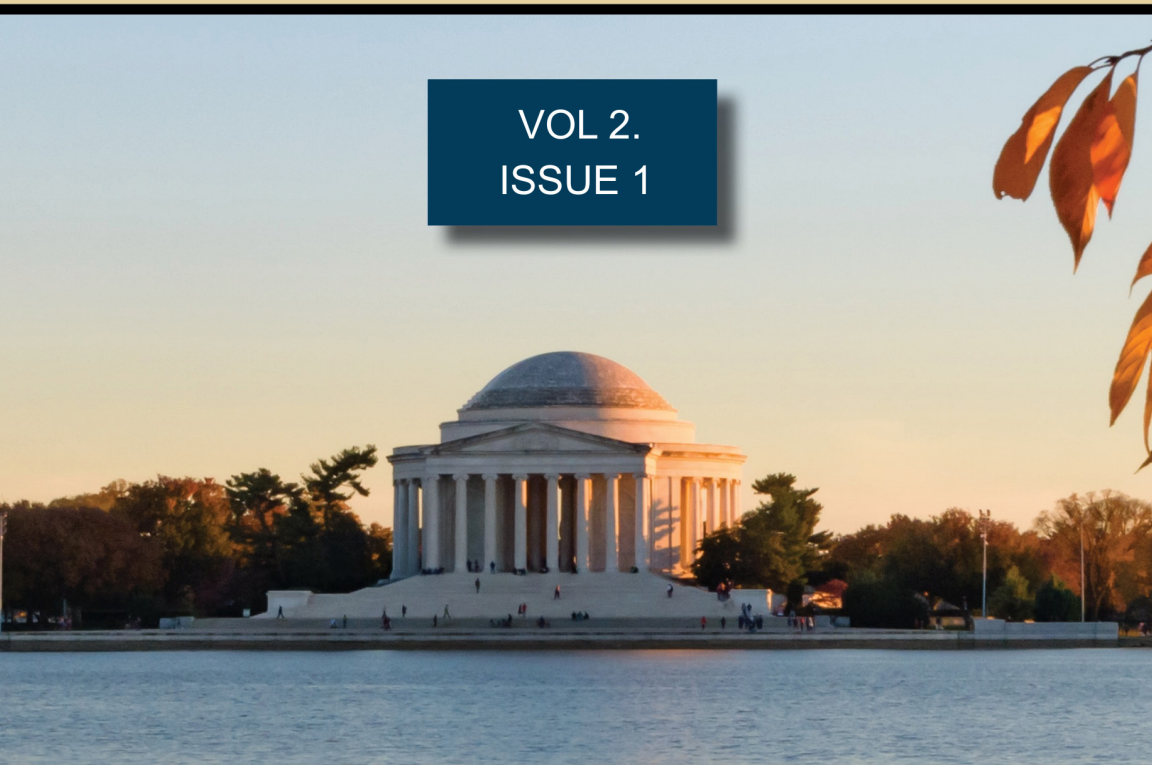

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Articles

Bias, on Bias, on Bias

Concerns Surrounding Bias with ChatGPT

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Here we are again. There is little I can do to avoid it, so I make my peace with my anxiety and prepare myself for the inevitable. As I exit my stall in the restroom and walk over to the automated soap dispenser, faucet, and paper towel dispenser, I prepare to have to test as many as possible to complete the act of washing my hands. This has been the case ever since this technology was made widely available in public restrooms. And while many may struggle with this technology because they do not understand how it works, it is literally because of how it works that I struggle to use it with my darker skin. So as always, I start with the faucet; the others you can figure out, but you need water. Eureka! The first faucet I try

recognizes my hand; I am elated. I try the soap dispenser. Again, a win! It works with little effort on my part. Ah, but the paper towel dispenser has always been the worst of the three. More often than I'd like to admit, I'm seen waving my hand around the machine like I'm trying to invoke a spell. And yet, it worked! With a slow deliberate wave of my hand, a paper towel sheet slowly dispenses, and I am now beaming from ear to ear in the women's public restroom at Reagan National Airport. The ladies waiting in line for an open stall, see me break out into a large grin and are puzzled by my show of happiness, and I understand why. They were all white.

Fighting with the automated soap dispenser, faucet, and paper towel dispenser has been the story of my life since they were introduced into the workplace. I always assumed it was faulty technology. Just one more machine that if it worked correctly, could save water and paper towel waste but only when it worked. It wasn't until articles and stories started being published about how the technology worked and how people with darker skin tones have issues using these devices (Goethe, 2019; Plenke, 2015), that I realized this wasn't about faulty technology. It was about someone creating technology for a specific group of people without any thought given to others. In learning this, I thought back on my conversations with my White colleagues about my frustrations with these devices and realized they always seemed confused about how often I complained. This "fight" (as I call it), happened often, every time I went to the restroom. Then as soon as the revelation of this information hit, I was reminded of the "veil." In one of my favorite books, the Souls of Black Folk by W.E.B. DuBois (2005), he defines the veil as a second sight. In chapter one, it reads:

> …the Negro is a sort of seventh son, born with a veil, and gifted with second-sight in the American world, –a world which yields him no true self-consciousness, but only lets him see himself through the revelation of the other world. It is a peculiar sensation, this double-consciousness, this sense of always looking at one's self through the eyes of others, of measuring one's soul by the tape of a world that looks on in amused contempt and pity. One ever feels his twoness, –an American, a Negro; two souls, two thoughts, two unreconciled

> strivings; two warring ideals in one dark body, whose dogged strength alone keeps it from being torn asunder.

In learning how these devices worked, I found I foolishly allowed myself to believe that this technology was made with my dark skin in mind. That I was not forgotten and that there was no difference between my world and my White colleagues' when it came to technology of this nature. But once my eyes were open to the neglectful ways technology ignored my existence, I found I could not unsee it.

Unconscious Bias

Countless articles started to be published outlining how BIPOC individuals struggled with recently released technology. When Xbox unveiled their Kinect system, there were reports from darker skin users that found the system did not recognize their face or movements (Ionescu, 2010). When Apple released facial recognition software to unlock your iPhone, a user in China found a colleague who was also of Chinese descent, could unlock her phone (Papenfuss, 2017). Both of these issues were quickly addressed as nothing significant; the companies making it clear that the technology they were creating wasn't biased but instead put the onus on how it was being used. And yet, when you look at the tech world and see articles about the lack of diversity in America's technology hub, Silicon Valley for example having less than 3% of its tech workers identify as Black (Ioannou, 2018; Noble 2020), you can't help but wonder if they, once again, created technology for a specific group of people without any given thoughts to others.

Worldwide Application

While I know bias exists in our society, what I find frustrating about bias in our technology is that it is often sold as an equal and universal tool (Nobel, 2018). A tool all people can use and improve daily life (Broussard, 2023). Technology such as facial recognition is widespread and is said to significantly improve efficiencies, which is why this technology is everywhere (Klosowski, 2020). However, we also know this same technology is full of bias against people with darker skin (Broussard, 2023). And while strides have been made in this area, Black

and Asian men are still 100 times more likely to be misidentified via facial recognition (Koenecke et. al, 2020). Automated speech recognition is also everywhere: it's in our phones, TVs, and gaming consoles, but even they have been proven to also hold bias (Lloreda, 2020). The application of innovative technology can be boundless. However, if that same "universal" technology is biased, it can undermine the very innovation it was meant for, and instead, reinforce bias to the most at-risk people (Abraham, 2023; Broussard, 2023).

Systematic Racism Disguised as Neutral

What I also find most deceitful about this technology is the lack of full disclosure. There is no small print on the item when you purchase or use it that says, "have lighter skin for best use." At least that way I would know what I was getting myself into. Instead, it is often packaged and sold as a way to reduce bias. For instance, hiring managers use software that weeds out applicants that are not suitable for the position. Forget the days of using initials in your first or middle name so it isn't obvious you are a woman or removing affiliations that are known to be associated with specific BIPOC groups. Using this software would remove the conscious and/or unconscious bias with hiring managers and allow for the best applicants to be highlighted. Being a hiring manager myself, I know I personally appreciate saving time on skipping an applicant that has zero experience in a position that is listed as needing five years' worth. However, software like this has been found to be full of bias – such as using algorithms to find "relevant" job seekers or using predictive technology to predict if an applicant will be successful in the position (Bogen, 2019). There is something to be said when one of the world's biggest companies had to scrap their AI hiring recruitment tool for being sexist (Dastin, 2018).

Lack of Diversity in the Development of Technology

I was speaking with a friend about my mistrust of new technology and how even though this bias is constant and prevalent in almost every facet of life, I did not believe the lack of consideration of BIPOC individuals was

malicious. And she summed up very succinctly that constantly ignoring a part of the population repeatedly in the development of technology is, in fact, malicious. And in her words, I was reminded of an interview with Dr. Maya Angelou when she said, "When people show you who they are, believe them" (Winfrey, 2000). So how can I, in good conscience, trust AI technology like ChatGPT? An AI built on the premise of being able to replicate human conversation. The same humans that remind me constantly, new technology is not made for me (Broussard, 2023; Noble, 2018). The same AI technology that has already been subject to questions about its bias (Gow, 2022). When earlier iterations of AI systems show evidence of it being used against people who look and speak like me. What is most frustrating about this is that I can see how the application of technology like ChatGPT can revolutionize the work we do as a society if we can address the bias (Silberg & Manyika, 2019). Just like I could see the impact an automated faucet and paper towel dispenser could have on the environment if it could recognize darker skin. People have already started using ChatGPT to help facilitate ideas, translate text, or write papers, and this is just the beginning. Once there is worldwide acceptance and daily uses for AIs like ChatGPT, it will be everywhere and completely unavoidable.

Lack of Transparency

However, I already see the signs that this technology might be full of bias. While there is a general idea of how ChatGPT was created and the algorithms it is built upon, there is no clear understanding of exactly what information went into building its response system (Ramponi, 2022). The biggest concern for me is the use of Reinforcement Learning through human feedback. For ChatGPT to respond in a way that is more in-line with the questions it is being asked, the process used to develop ChatGPT uses human intervention to rank responses that align with the user's request (Ramponi, 2022). I'm sure everyone has had an experience with a helpdesk bot on a website that could not understand the question it was being asked. ChatGPT was built to eliminate that issue by using Reinforcement Learning. In doing so, the responses provided by ChatGPT presents the user a response that matches what they were looking for. And since the questions, the answers, and the rankings used

to create ChatGPT are not public, one can only hope that they do not contain bias. In addition, even when using ChatGPT to build text for a paper, you are unable to gather the sources it used to create the text it provided when prompted. For example, you request ChatGPT to write a three-page paper on the Civil War. ChatGPT will generate three pages of text as you requested, but if you ask for the references it used to build the text, it does not provide accurate citations. In one recent case, a lawyer used ChatGPT to prepare a court filing. However, the citations used in the brief were nonexistent (Weiser, 2023). So not only do I not know what information ChatGPT used to build its responses, I also cannot confirm it is not using biased source material to build a prompted response. To address these concerns there needs to be more transparency in the creation and citations used for AIs like ChatGPT. Allowing users to know the full scope of the Reinforcement Learning process would create a framework for all future AI tools and allow for a level of peer review outside the limited scope of the creators.

The fact of the matter is that AIs like ChatGPT will be widely adopted. It is far too innovative and can provide society with too many benefits to be ignored. The issue is the bias that is most likely integrated within the AI. There is no clear way to confirm that this issue of bias, whether unconscious or not, does not exist in the creation of this technology as well as the responses it provides. And if I've learned anything from my experiences with new technology and the research done on ChatGPT, it is most likely built with bias. And while I would love to believe that is not the case, the tech world has shown me time and time again who they are, so why wouldn't I believe them?

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Don't Believe Everything You Read on the Internet

The Case for Ethical Web Writing

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Abstract

Many companies rely on unethical web writing practices, such as spreading false information or using misleading SEO techniques, to improve their visibility on the web. However, with modern updates to search engine algorithms such as those recently made by Google, these unethical practices may actually be less productive compared to ethical strategies. I explore the incentives that lead to unethical practices and outline alternative practices that are both ethical and effective.

Bio

Erin Price is head of the English department for Curie Learning, LLC, a K–12 education company, where she develops curriculum for advanced English courses. She has a bachelor's degree in English with a minor in editing from Brigham Young University and a master's in publishing from George Washington University. Erin previously worked as a senior web writer and editor for web marketing companies, magazines, and

journals. Her experiences as a writer and editor have led to her passion for ethics in writing and publishing.

Don't Believe Everything You Read on the Internet: The Case for Ethical Web Writing

There are more than a billion websites on the internet with new websites created every day.[1] The internet is most people's go-to for instant answers. Clearly, web writers have a tremendous influence over the public. Unfortunately, web writers often harm the public rather than help—sometimes accidentally, sometimes intentionally. This is due to web publishing companies that value publishing quickly and getting noticed over following ethical guidelines.

My first job as a copywriter alerted me to the web publishing world's depressing lack of ethics. Fresh out of college, I started my first copywriting job for an online marketing company. I didn't know what practices were typical and was kept shielded from many of the company's inner workings; however, every day unearthed new revelations about the company's dubious web writing practices.

While this company tried to avoid practices that were illegal, ethics were disregarded in favor of quick profits. For example, on what appeared to be neutral review websites (which were actually created by the company), we web writers were instructed to give our own company's products glowing reviews, while rating all other products as neutral. We were also tasked with writing articles under pseudonyms accompanied by attractive photos. Admittedly, these practices did lead to some financial success, but customer retention was poor, as our company did little to inspire trust. Surely, there must be a better way, I thought. Couldn't we be honest with people and still attract and retain customers?

Unfortunately, my experience is not uncommon. The "web" is accurately named, as searching for accurate information there often feels like getting snared in a spider's web of endless twists and tangles. In my experience, many companies and writers contribute to this maze of confusion, valuing profits over ethical writing practices.

However, it is possible to attract and retain customers on the web while maintaining ethical guidelines. Now that issues about web writing ethics, such as fake news, are well-known and oft-discussed topics, I

believe that many readers are becoming increasingly aware of unethical web writing practices. Many readers are skeptical about what they find on the web and are searching for internet sources they can trust. Although unethical companies can still turn a quick profit on occasion, from my observation, ethical web publishing companies have a better chance of retaining loyal customers than companies that don't value ethics. Ethics are beneficial for both the readers and the company, as research shows that "increased customer satisfaction and loyalty have a positive influence on long-term financial performance." [2] It's a well-known marketing principle that establishing trust is a crucial component in encouraging brand loyalty. Furthermore, search engine algorithms are increasingly prioritizing factors that indicate reader trust, such as how long the reader stays on the page[8]; thus, reader loyalty can boost search engine rankings and thereby help companies attract and retain more readers.

Providing an ethical and trustworthy foundation can help attract a core group of loyal readers to websites. A Pew Research Center study pointed out that a small core of "power users" return to the same news site more than ten times a month and spend more than an hour on their preferred site. Some news sites had a high number of power users; for example, power users made up 18% of users on CNN.com.[4] By prioritizing web writing ethics, websites can attract and retain these "power users" who trust their site and keep returning to it for information.

How can we be ethical and yet remain competitive in the digital space when so many companies and web writers don't seem to think ethics matter? I hope to answer this question by examining the various ethical issues web publishers face, using my own experiences and research as a guide. I then offer practical tips on how web publishers can follow ethical practices while still attracting and retaining readers. In doing so, I acknowledge that more research on ethical web writing is needed.

Web Writing and the Spread of False Information

It's easy for websites to play the game of "telephone," where information gets published on one website, then slightly changed on another website, then slightly changed on yet another website, until truth becomes fiction.

One cause of the internet telephone game is that much of web writing is done by writers paid to write as quickly as possible. I know this from my experience as a web copywriter. In the second web marketing company I worked for, I often wrote for industries I was unfamiliar with, industries as varied as dentistry and computer chip manufacturing. We worked with tight deadlines, so often, the only research we had time for was to read the top few hits from a Google search. Thus, we were using many of the same ideas from these top-ranked sites. We had to trust that this information was accurate, but if it wasn't, false information could easily be perpetuated as we posted similar ideas on another site. Likely, other web writers found our information and rewrote it for their sites, and the same ideas continued to get circulated. With the constant rewriting occurring, facts could get changed slightly until they eventually became lost in translation.

Fortunately, my company required all writing to pass a thorough editing process. If my facts seemed inaccurate or my writing was too similar to another website, my writing wouldn't be accepted—but not all web writing goes through such a strict review process. I never intentionally plagiarized or wrote false information, but I can see why it would be easy for a web writer to do so.

Sometimes the spread of false information is far from accidental and perpetuated by writers who want to create controversy or get noticed. This situation happened recently to a political candidate. One man posted something salacious about her on his Facebook page, which was liked by a modest number of the man's friends. However, the post was quickly picked up by others and posted or rewritten to other sites, which then spread to other sites, until the false rumors had spread throughout the internet. The motivation for spreading the falsehoods appears to be more that the post was "edgy" or fit within a certain political viewpoint, rather than that it was true. Nevertheless, because it appeared on multiple sites, some people assumed it must be a fact.[5] Situations like these can mislead the public and cause unnecessary harm.

How can publishers and businesses contribute to stopping these dangerous trends?

As publishers, we want to write interesting and informative content that catches the eyes of web searchers. However, as we do so, we should

follow the practices that good journalists do. We should pause and verify our information; we should check it in books, government or academic websites, or other official sources, preferably sources written by established authors or organizations with the primary goal to inform, not to hit number one on a search engine. When we research on the internet, we should take what we find with a grain of salt and always be on the lookout for opinions and biases. We should avoid plagiarism and appropriately credit other sources for their ideas—not only to avoid facing legal action, but because, according to the Office of Research Integrity, "a responsible writer has an ethical responsibility to readers and to the author/s from whom s/he is borrowing, to always respect and acknowledge their intellectual content."[6] Web publishers' efforts to use ethical journalism practices will help them attract and retain readers who are becoming increasingly skeptical of misleading web writing. Some readers may not care about these extra steps in the writing process, but if we writers and publishers don't care about uncovering and revealing the truth, then who will?

Establishing authority as an expert in the subject should also be an important goal of content websites. Companies want to be seen as an authority in their subjects, but readers may not know what qualifies as authority. Would someone turn to a well-researched, well-written website that's difficult to find on the internet rather than a blog article by an unknown author that they found as the top hit on a search engine? In many readers' minds, merely having a high ranking in a search algorithm is sufficient to grant authority. Recently, a classroom of young students refused to believe my answer that Alaska was the largest state geographically until I verified it on Google. "Google it! Google it!" they shouted at me. Google brought up a site that corroborated my answer, but why did the students trust this mysterious writer more than they trusted me, the teacher standing in front of them?

The misunderstanding of authority is a widespread problem; according to Forbes.com, "The modern confluence of a breakdown in trust in our institutions, coupled with the collapse of the gatekeeper model has meant that society has suddenly been thrust into an informational void without the proper training in how to rigorously evaluate the information in front of them."[7] The internet is a no man's

land; there is no authority figure telling us what's true and what's not. Fact-checking websites try their best to dispel internet rumors, but they can only do so much. Judging a web article's authority is now left in the hands of readers—for better or for worse, but often for worse.

While training society on how to choose reliable sources is certainly important, I argue that web writers and publishers, too, hold a responsibility in preventing this whirlwind of misinformation and establishing themselves as trustworthy gatekeepers. Web writers wield the power of the written word. Billions of internet readers put their trust in them. That's why it's their responsibility to gather trusted sources, to verify information, to create clear and well-researched pieces—in short, to be an authoritative source, whether readers care or not. This extra work might not necessarily get a website to the top spot in a Google search, at least not right away, but it is ultimately worth it, especially when it comes to customer loyalty and retention. Remember the "power users" trusted news outlets attract?[4] Based on what I've observed about customer loyalty, I believe that many readers will appreciate the extra work web writers went through to get their facts right, and a trustworthy website will earn these readers' long-term trust. Even if some readers don't value accuracy, it's important to tell the truth in a world where truth telling is becoming obsolete.

From Clickbait to Going Viral: Web Writing and SEO

Beyond repeating falsehoods, web writing can also be unethical due to the ever-present quest to get noticed by search engines.

To attract more customers, websites want to have the best possible page ranking on search engines for relevant keywords. When determining top results for these keywords, search engines consider which pages are most relevant to the particular keyword, as well as which websites are most valuable for readers.

While search engines like Google don't reveal their exact formulas, we have a good idea about the factors they keep in mind to determine page rankings. Moz.com outlines some of Google's main categories as:

- Valuable: quality content, reader retention
- UX: accessible page layout, fast rendering
- Keyword Targeted: relevant keywords present in key places on the website
- Crawler Accessible: unique content, static URL
- Shareable: includes social media sharing options
- Multi-Device Ready: renders to different devices
- Authorship, Metadata: includes effective meta description, content is associated with author/publisher[3]

Search engine optimization (SEO) is the practice of getting a website to fit the above categories in order to rank higher on a search engine. There are both ethical and unethical ways of doing this, and search engines are getting better at valuing the ethical ways, yet unethical SEO practices still abound.

In my experience as a web writer, I've observed many unethical web writing practices. For example, some companies try to game the system by overusing keywords (known as "keyword stuffing") in hopes of improving their ranking, making the content practically unreadable (just imagine seeing the words "cheap moving company in New Jersey" in every sentence on the page). Google employees soon became aware of this misleading SEO practice, which is why their rankings now care more about value than excessive keyword use.

Yet another skeptical practice is when companies create their own backlinks. The more other sites that link to a site, the higher that site's ranking on a search engine—thus, some companies create their own hastily produced websites with the primary goal of linking back to the sites for which they want to improve the rankings. The content on these low-quality websites is unlikely to hold much value and is often inaccurate or incomplete. A similar practice, as I experienced in my first copywriting job, is when companies create seemingly neutral review websites with the purpose of giving their own products top reviews, or even fake news websites that pose as official sites. Search engines may not be able to verify these sites' accuracy and may grant them high rankings merely because they are popular or fit certain keyword inquiries; nevertheless, search engine algorithms are increasing their

ability to detect untrustworthy sites, or at least recognizing sites that don't provide much value to readers.

Speaking of value, some companies also deceive customers in terms of the value of their content. For example, websites will try to attract customers by using clickbait titles like "10 Incredible Vacation Spots You Won't Believe. The 8th One Blew Me Away!," but the actual content doesn't live up to expectations. This may work to attract readers, but notice that the top category Google looks for is "valuable." [3] If the content is actually useful, relevant, and well written, readers won't click away. If readers stay on the page for a long period of time, search engines know this is a more valuable website. [8] In other words, clicking on the link isn't everything; readers must stay and read.

The amount of words itself can be an SEO strategy. The longer the content, the longer a reader stays on the page. A longer piece also gives the writer more of a chance to incorporate keywords and ads. This isn't necessarily deceptive, but there's the risk of adding fluff or even falsehoods merely to bulk up the article. Thus, publishers should aim to publish longer articles if possible, but not merely for the sake of publishing long articles—the content itself should provide value.[8]

Now that Google and other search engines are changing their formulas to prioritize value over unethical SEO practices, using unethical practices may actually lower search engine rankings.[8] As algorithms improve, articles that incorporate unethical SEO will continually be caught and deprioritized. In addition, keeping up with the latest SEO trends causes companies to invest significant work, money, and resources to optimize their websites, only to have search engines change their formula again; companies can save time and resources by prioritizing valuable content rather than stressing over the latest SEO updates.

SEO doesn't need to be deceptive to be effective. There are plenty of SEO strategies that are both helpful and ethical, including ensuring a page loads quickly and can render on mobile and other devices, adding social media sharing options, including accurate metadata with relevant keywords, and incorporating keywords in the website copy. [3] Companies needn't get too caught up in all the nuances of SEO, though, because the best thing they can do to improve search engine ranking is prioritize content value. Other aspects of search engine optimization (SEO)

have their place, but writing trustworthy articles that people stay with and keep returning to is, in my estimation, the most important factor in search engine success; after all, quality content is crucial for a good SEO ranking. According to Moz, search engines look for content that is uniquely valuable, meaning it is authentic, avoids self-promotion, and is "described by 80%+ of visitors as useful, high quality, & unique."3 Furthermore, according to Search Engine Journal, "high-quality content is about creating pages that increase time on page, lower bounce rate, and provide helpful content for the user."[8] When websites produce well-researched, well-written web copy that answers readers' questions or fills a unique content need, they're more likely to gain readers' trust. More readers will come to the website and stay there for longer periods of time, which will naturally improve SEO: when search engines detect fewer readers exiting the page and more readers spending a longer time on the page, they will increase the website's ranking.[8]

Even if a particular article on the website doesn't reach the top of a web search, web publishers should prize the website's overall value most of all. The more valuable articles they produce, the more people turn to the website and the longer people stay on the website, potentially boosting the overall SEO ranking. I hypothesize that focusing on content value is better for improving a website's SEO than it would be to obtain a high ranking for one particular keyword.

In today's world of untrustworthy web content, people are naturally skeptical; in my experience, when readers see writing as shallow or intended to sell them something rather than to inform or help them, they quickly leave the page and don't return, which decreases the website's SEO rankings. As search engines continue to update their algorithms toward prioritizing reader retention, trying to keep up with the latest questionable SEO trends can lead to search engines punishing a website and downgrading its content. [8] In my estimation, it's safer to focus on quality content, which will always lead to higher SEO rankings through better reader retention rates. Setting SEO rankings aside, publishing valuable content is the right ethical decision as we work to regain honesty and truth in the digital space.

What Can Companies Do to Improve Their Web Writing Ethics?

How can web writers and publishing companies put these principles into practice? First, there are a few unethical web writing practices that should be avoided at all costs due to their foundation of dishonesty and deception.

- Creating websites that mimic official sites: web publishers should avoid creating fake sites that have official-sounding names and designs, tricking readers into thinking they are a reliable news source.
- Hiding intent to sell: websites should not appear neutral and unbiased when they are intended to sell something. Websites should be clear about any biases toward their own products and services.
- Using false names or identities for authors: true author identity should be revealed unless a valid reason is given for using a pseudonym.
- Publishing writing that's intended to create an emotional reaction: web writers' first goal should be to inform, not induce panic.
- Twisting research studies to fit claims: many web articles place undue emphasis on small studies or leave out any biases or weaknesses in the research process. Be clear about a study's flaws, or better yet, avoid flawed studies. Focus on established research and give credit where credit is due.
- Unethical websites may attract readers, but they won't gain readers' long-term trust.
- It's possible to avoid these practices and still attain high search engine rankings. Here are a few practical suggestions to make a website as ethical as possible, while still attracting customers.
- Collaborating as a team, outline the company's ethical writing and editing standards, and ensure that all writers and editors follow these standards. Topics for your ethics guide may include incorporating research, citing sources, and avoiding plagiarism.

- Invest in content strategy. Determine which articles and topics will most resonate with the audience and when is the best time to post them. Don't limit the website to written articles—incorporate video, podcasts, and other media. This will help attract customers and prevent writers from resorting to unethical practices.
- Ask experts to write articles and include the author name and bio with the article. This assures readers they can trust the author.
- Give authors adequate time to write quality articles that will engage readers. Don't impose unrealistic deadlines just to be the first to rank for a certain keyword.
- Prioritize research. Don't believe something just because it's been written on multiple sites, and don't be tempted to post something just because it's catchy. Verify information with trustworthy sources.
- Have an editor review all articles. An editor can ensure the writing reaches professional standards. Using tools that detect web plagiarism, he or she should also verify that no web content was plagiarized or is similar to another source.
- Avoid clickbait titles. Make sure the title accurately reflects the content.
- If incorporating keywords, the keyword should be found only about every 100 words or so. It should flow with the copy and shouldn't sound like it was "stuffed" there. Make sure to include the keyword in the title and metadata as well. (Another tip to save time and money: rather than aiming to rank for the most popular keywords, research keywords you can achieve a ranking for within a realistic budget and time frame.)
- Rather than creating websites with backlinks, offer to write articles for other high-ranking websites. Similarly, have products reviewed on third-party review websites rather than creating the company's own review websites.

Some may say that it's not possible to achieve both ethical web writing and high page rankings, but many profitable and trustworthy

institutions have already proven otherwise. Moreover, as search engines improve their ability to detect deceptive practices, high-quality sources will increasingly be prioritized.[8] Following ethical guidelines will improve the value of the content, which will naturally improve page ranking by, for example, increasing the number of page views and time spent on the page. Although prioritizing ethics may not bring rapid results, I predict that ethical publishing companies will ultimately gain more loyal customers, leading to long-term stability for their business.

I acknowledge that some of my conclusions are based on my personal experience and observations, and more research is needed in this area. I call on researchers to examine the effect of ethical web writing on readership and customer loyalty.

In an internet world where clickbait and going viral seem to matter so much, ethical web writing matters even more. Unethical web writing is now a well-known issue, and disillusioned readers yearn for accurate information coming from organizations that earn their trust and respect. Be the company that stands out by offering content your readers can trust, and the results will come back to you in terms of company reputation, reader retention, and customer satisfaction.

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COVID-19 and the Acceptance of Preprints in Health Sciences Publishing

Dustin Sullivan, MPS

Abstract

Background

A "preprint" is a scholarly or scientific manuscript shared online by its authors in its pre-peer reviewed form. The paper is posted on a preprint server before other researchers have had a chance to review its methods and claims through peer review. Preprints are posted by the authors before, or sometimes simultaneously with, submission to traditional peer-reviewed scholarly journals. Preprints have gained increased visibility and influence in life and health sciences publishing during the COVID-19 pandemic, and there are signs that life and health sciences publishing is approaching a tipping point in preprints' acceptance among healthcare workers. Is life and health sciences publishing seeing an evolution of attitudes regarding the use of preprints as a result of COVID-19, or will preprints remain the domain of the hard and social sciences?

Purpose

This paper examines the history of preprints in scientific literature, including the differing use of preprints by discipline and the ethical challenges presented by their acceptance. The results of a survey of healthcare workers, in which attitudes toward preprints and the influence COVID-19 has had on healthcare workers' opinions were measured, are presented.

Methods

A cross-sectional survey was conducted using a web-based survey tool. This article also draws upon the author's experience in the publishing industry. The author's recommendations are based on both the survey results and personal experience.

Findings

Of the respondents, 65% disliked preprints, and 35% were in favor of their use. Notably, the favorability of preprints was positively influenced by the COVID-19 pandemic among those already accepting of preprints; the pandemic has increased their belief in the value of preprints. Consumers of healthcare research were more open to preprints than the researchers themselves.

Conclusions

Although preprints do not seem set to become standard practice in scholarly life sciences and healthcare publishing, clearly there are signs of their increased use and acceptance: the growth of preprint servers in the past few years, the number of survey respondents indicating more acceptance of preprints due to COVID-19, and the dramatic increase in preprint submissions starting in the first half of 2020—all indicating preprints' growing relevance. Publishers can learn from the rapid developments of the past few years and take steps to make preprints, as well as traditional journal publishing, work for the benefit of all.

Author Bio

Dustin Sullivan, GW Publishing Alumnus, 2020, is publisher at Sigma Theta Tau International Honor Society of Nursing, where he manages Sigma's peer-reviewed journals as well as their professional and academic book publishing program. Over the last 27 years in publishing, he has held many roles including author, technical editor, rights manager, acquisitions editor, and publisher. Prior to joining Sigma he was a senior acquisitions editor at Pearson Education.

1. Introduction

Traditional medical journals can take months to publish accepted manuscripts, requiring time to obtain peer review (from multiple reviewers), approve, edit, and publish articles. There was pressure to speed medical research to publication as the spread of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) reached pandemic status in early 2020. As the disease caused by the novel coronavirus, COVID-19, affected people around the world and befuddled healthcare workers, the need for information about the virus and how to best treat infected patients was paramount. As emergency departments and intensive care units filled with patients ill with COVID-19, there was great urgency to radically speed up the article publishing process or bypass some of the traditional checks built into this process.

In late February of 2020, as publisher of two peer-reviewed nursing journals, I started hearing from nurse researchers who were pleading for me to skip through the normal publication process and post their manuscripts right away. Some journals hastily developed streamlined approval and review timelines to answer the frantic call by researchers to make their work available as soon as possible, leading to some successes but also some very public failures (a few of which will be discussed below). Other researchers looked to another option for their papers, a process in use for decades in hard sciences and social sciences but only in its early stages for medical research: preprints.

Under normal circumstances, as a publisher, I would not hear directly from these nurse researchers. While nurse researchers often contact journal editors to discuss their research, they normally do not

push, particularly the publisher, for their manuscripts to be fast-tracked or to skip peer review entirely. My prior experience working with journal editors and nurse researchers, as well as other publishing professionals, led me to believe the medical community (or at least nurse researchers) were not in favor of using preprints and preferred the normal peer review process. I was, however, aware of a small but growing segment in the medical community that was starting to experiment with preprints. Would the COVID-19 pandemic accelerate this growth and foster greater acceptance of preprints in healthcare? Were the emails from these nurse researchers demonstrating a change in beliefs brought about by the pandemic or merely indicating fear of a new viral foe?

I developed a brief survey for nurses and other healthcare workers to determine if opinions towards preprints were changing in the medical community—and if COVID-19 influenced these opinions. I made the survey open to all healthcare workers, not just the researchers who would be writing these papers, in an attempt to measure both the supply (researcher) and demand (article consumer) sides of the manuscript equation.

This paper provides some background on preprints, including some recent controversies; outlines some of the ethical challenges inherent in posting unreviewed or unverified research; presents the findings of my survey of healthcare workers; and attempts to draw some conclusions for medical researchers and publishers.

2. Definition and History of Preprints

Origins of Preprints

Preprints originated after World War II as physics researchers shared copied manuscripts via sneakernet (i.e., "walking a copy across the hall") and other low-tech methods of distribution that included the postal service (Garisto 2019). Perhaps the most straightforward definition of a "preprint" is from the Committee on Publication Ethics (COPE), which defines it as "a scholarly manuscript posted by the author(s) in an openly accessible platform, usually before or in parallel with the peer review process" (COPE Council 2018, 2). In even simpler terms, a preprint is a scholarly or scientific manuscript shared by its authors before other

researchers have had a chance to verify the veracity of its claims or the quality of its underlying research and methodology through peer review (a process designed to ensure quality and prevent bad manuscripts from being accepted). In today's online world, the "openly accessible platforms" are websites and databases referred to as "preprint servers," and preprints are posted by the authors before, or sometimes simultaneously with, submission to traditional peer-reviewed scholarly journals.

In addition to speeding up the initial posting process, submitting manuscripts to preprint servers before submitting them to traditional journals (or submitting to both simultaneously) offers several advantages to researchers and consumers of scientific papers, according to Kimberly S. Thompson, MLS, Ruth Lilly e-Repository Manager at Sigma Theta Tau International (Howard 2019, 6:40-8:00). According to Thompson, preprints have the following benefits:

- They share the research with a potentially large number of people in a highly visible manner.
- They facilitate broad (and often public) discussion with the manuscript authors.
- They lead to revision and possibly collaboration with other research teams.

These statements are echoed by the European educational think tank Knowledge Exchange: "Early and fast dissemination, increased opportunities for feedback and openness are seen as the main benefits of preprints" (Chiarelli et al. 2019, 7).

Use in Disciplines

When the first online preprint server, arXiv (pronounced like "archive"), was launched in 1991, "paper preprints had been entrenched in the culture of physics for decades." Still, even as recently as October 2019, only about two percent of the 30 million peer-reviewed articles in PubMed, a search engine of life sciences and biomedical content maintained by the National Library of Medicine and the National Institutes of Health, were originally disseminated as preprints (Garisto 2019).

As noted, physics was the first discipline to take advantage of preprints, followed in large numbers by other physical sciences (e.g.,

chemistry, engineering) as well as social sciences (e.g., economics, history). Preprint server examples found today include arXiv (physics), SocArXiv (sociology), RePEc (economics), ChemRxiv (chemistry), engrXiv (engineering), LawArXiv (law), and PaleorXiv (Paleontology), and bioRxiv (biology).

Currently there are more than 60 preprint servers available around the world, and life sciences and health have made more use of preprints in recent years. In a period from 2016 to 2019 referred to as the "second wave" of preprints, more preprint servers were started than had even existed in the previous 25 years (Johnson and Chiarelli 2019). This second wave included more medical and nursing research topics, including perhaps most notably medRxiv for health sciences, launched in mid-2019.

3. Ethical Challenges for Health Sciences Preprints

The phrase, "First, do no harm," despite popular colloquial attribution, is not in the Hippocratic Oath, nor is it present in any standards or code of ethics held by the medical profession. (It might also surprise some to learn nursing students do not recite that oath at graduation, although some nurses do recite a "Nightingale Pledge" at graduation that is loosely based on the Hippocratic Oath.) One translation of the Hippocratic Oath does have something close, however: "I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous" (Shmerling 2015).

Despite the absence of this exact sentiment in the ancient oath, elements of that thinking persist in modern oaths, such as the Declaration of Geneva, the Canons of the American Medical Association, and the International Code of Medical Ethics (Annas 2017). The International Code of Medical Ethics almost seems to speak to the existence of preprints in one section, stating, "A physician shall recognize his/her important role in educating the public but should use due caution in divulging discoveries or new techniques or treatment through non-professional channels" (World Medical Association 2018).

But are preprints the type of "non-professional channels" this code is referring to? And again, what about times of pandemic? Can the

COVID-19 pandemic be likened to wartime, when the urgency of the moment requires more risk-taking and less aversion to failure? Harvard professor Robert H. Shmerling, MD, provides a practical interpretation: "The fact is that when difficult, real-time decisions must be made, it's hard to apply the 'first, do no harm' dictum because estimates of risk and benefit are so uncertain and prone to error. But it *is* a reminder that we need high-quality research to help us better understand the balance of risk and benefit for the tests and treatments we recommend" (Shmerling 2015).

Potential for Harm

Despite the perceived advantages to preprints as noted earlier and the rush to launch new preprint servers over the past four years, some fundamental questions remain about preprints in the life sciences and health disciplines that do not usually apply to the physical and social sciences. As summarized by Knowledge Exchange, "The main concerns over preprints are the lack of quality assurance, media potentially reporting inaccurate research and journals rejecting articles if a preprint has been posted" (Chiarelli et al. 2019, 7). Ignoring the possibility of journal rejection (which is an editorial, not ethical, decision), the concern can be summed in the following equation: no peer review plus wide dissemination plus misinterpretation by the media equals incorrect (and potentially harmful) information shared with the public.

Ethically speaking, is it wise to have open discussions and reporting on early research when there is a possibility of harm caused by sharing information that has not been peer reviewed for safety or even effectiveness (Tierney 2019)? To put it in more practical terms, if an astronomy preprint has the location of a protoplanet slightly wrong, other research may be affected, but otherwise, there are few (if any) dangers to the general public. However, if a preprint describing a pharmaceutical treatment for COVID-19 includes incorrect dosing, patients could suffer or even die.

Prior to the COVID-19 pandemic, the journal *Clinical Orthopaedics and Related Research* summarized the risks rather directly:

> We believe that the benefits proposed by advocates of medical preprint servers can be better achieved in other ways, and that medical preprint servers pose serious health and safety dangers to the patients for whom [we] are supposed to be caring… Preprint servers may be perceived by some (and used by less-scrupulous investigators) as evidence even though the studies have not gone through peer review; the public may not be able to discern an unreviewed preprint from a seminal article in a leading journal… For the vast majority of medical (and especially surgical) diagnoses, a few months of review of a study's findings do not make a difference; the pace of discovery and dissemination generally is adequate. (Leopold et al. 2019)

Publicity and Media Attention

During pandemic times, there are many healthcare providers who would argue that the typical "pace of discovery and dissemination" is not at all adequate. However, the additional media interest in medical topics during a pandemic increases the stakes and could amplify the impact of highly-publicized research errors (Bastian 2020). Poorly designed studies and otherwise bad research could "go viral" and obscure good research. Unreviewed preprints could end up misleading millions of readers, even if the authors themselves never intended their results to be widely publicized before publication (and review) in a traditional medical journal (Sheldon 2018).

While my intent is not to demonize journalists, the COVID-19 pandemic has produced multiple examples of studies that have been widely publicized on news websites and social media prior to receiving scientific scrutiny. A preprint posted early in the pandemic, for example, claimed to have found commonalities between the genetic structure of the novel coronavirus and the HIV virus (Pradhan et al. 2020). Although the paper was retracted, the retraction did not come with nearly the same amount of publicity as the initial paper.

In the most egregious examples, results have simply been misinterpreted by reporters, leading to some outrageous conclusions. *The*

Economist published an article suggesting that a recent study concluded that smoking may have benefits that protect patients against COVID-19 (*The Economist* 2020). While absurd on the surface, the article detailed how statistics in the research showed something in cigarettes (nicotine?) led to smokers having lower rates of death than non-smokers. This was disproved by further scrutiny by a researcher experienced in assessing causality in observational data, but his counterpoint was published on a website that receives far less traffic than *The Economist* (Wilson 2020).

Additionally, several newspapers published headlines full of optimism related to work on a potential COVID-19 vaccine. *The Washington Post* (Johnson 2020) declared "Moderna's coronavirus vaccine shows encouraging early results," making the article one of their most widely-read articles on the day of its posting. The "early results" referred to in the headline were not from any published studies, however, let alone a manuscript posted to a preprint server. They were merely included in a corporate press release that failed to provide any of the underlying data that led to the rosy assessment. While preprints certainly cannot be blamed for this, this situation shows the eagerness of reporters to find and share information regardless of its accuracy.

These problems have been noted and in at least one case brought to light by government officials. In Australia, Chief Scientist Dr. Alan Finkel created the Rapid Research Information Forum with the Australian Academy of Science to ensure that questions about COVID-19 are answered by experts who can interpret the data and keep bad science from circulating widely (Davey 2020). In a sense, they created a government-run peer-review service.

Peer Review to the Rescue?

Scholarly publishing has a time-tested (albeit imperfect) way to ensure quality and prevent bad manuscripts from publication: peer review. Peer review is a fundamental process for both commercial and open-access journal publishing. The COPE Council (2017) notes, "Peer reviewers play a role in ensuring the integrity of the scholarly record" (2), while the Association of University Presses (AUP) remarks that peer review "provides feedback that is both stringent and fair, enables an author to strengthen a work in progress, and adds value and meaning to the

work that is ultimately published." AUP has even developed a detailed list of peer review best practices for member organizations (AU Presses Acquisitions Editorial Committee 2016), and many publishers have developed their own stringent peer review guidelines.

Peer review can prevent bad research from being published as well as point out fixable mistakes in otherwise good research. As noted earlier, in health sciences publishing, a bad study could lead to injury or death for patients, But some see a more practical side of peer review: preventing wasted time. As noted by *Journal of Nursing Scholarship* editor Susan Gennaro, PhD, RN, FAAN, implementing the science behind studies and research requires effort and time, and bad science can waste a lot of time and affect good patient care, even if no people are put in mortal danger. As Gennaro remarked in an interview about preprints, "To spend time doing an intervention that doesn't help… hurts" (Howard 2019, 38:34-38:41).

Publishers' Reactions to COVID-19

With healthcare providers scrambling for new treatments for COVID-19 patients and researchers dropping everything to study the novel coronavirus and COVID-19, publishers have tried to adapt and find ways to speed articles to publication. Publishers started with areas they can control, such as naming conventions and language, communication between editors and authors, and the pace of the editorial process (Wallace 2020).

Some publishers have created special sections on their publishing platforms focused on manuscripts that have been reviewed and edited, but not yet laid out or otherwise prepared for publishing. This approach can shave weeks off time to publication, as many of the production systems (layout, proofreading, HTML conversion) have been slowed by work-from-home requirements around the world. At least 94 journals, societies, and publishers also committed to making their COVID-19-related research, data, and publications freely available (Groth 2020). Others have worked to accelerate the peer-review process itself, some pushing turnaround times of 24 hours, which is, of course, significantly faster than the typical days or weeks required before the pandemic.

With each part of the publishing process accelerated, something must give. Unfortunately, in some cases, the failures have been in the research itself and the ability of the peer-review process to identify errors before article acceptance. The trade-offs between speed and efficacy have been noted and criticized, sometimes publicly, particularly with two studies related to a controversial treatment involving hydroxychloroquine and azithromycin. In the first case, a study rushed to publication showing the effectiveness of this treatment was widely reported around the world (and even called a "game-changer" by the then-president of the United States). Unfortunately, this study contained many flaws that were not reported, and it was ultimately retracted by the authors. Of this study, Dr. Michael Erdek of the Johns Hopkins Berman Institute of Bioethics and School of Medicine wrote, "Premature publication of definitive recommendations based on inappropriate conclusions grounded in scant, hastily-acquired data serve only at best to confuse and at worst mislead at a time when tensions are high and need for help is great" (Erdek 2020).

There have been other COVID-19 publishing retractions, but work on hydroxychloroquine has been especially politicized. It is noteworthy, therefore, to also mention a second study involving hydroxychloroquine that was also retracted. In this case, the original (widely publicized) study found that hydroxychloroquine was dangerous to COVID-19 patients but was retracted because the authors could "no longer vouch for the veracity of the primary data sources" (McGinley 2020).

With these major retractions occurring even within peer-reviewed journals, it is no wonder that interest in preprints has grown among health sciences publishers. Indeed, some in publishing are beginning to notice that preprints are getting lots of attention and are being noted in policy discussions, mainly because of the speed to publication—and despite fears around data accuracy (Majumder and Mandl 2020). Preprints are now being recognized by researchers as a way to make an instant difference in the fight against COVID-19 (Growth 2020), and some mainstream publishers are rolling out their own preprint servers, such as Wiley's expanded use of their Authorea platform's Under Review badge for COVID-19 preprints.

4. A Survey of Health Care Providers

Increased adoption of preprints by the publishing world does not necessarily mean there is an increase in acceptance of preprints by healthcare workers. As a publisher of two nursing journals, I have been part of the ongoing debate about the use of preprint servers in medical publishing. In November 2019, Sigma Theta Tau International released a podcast containing interviews with a nurse researcher, our (Sigma Theta Tau International's) journal editors, publishing professionals (including myself), and our society's repository manager. While I have come across some support for preprint servers within nursing (included in a few of the voices on the podcast), anecdotally, I spoke with many nurse researchers in 2019 and earlier who were against their use in health sciences publishing. But that was before COVID-19.

I wanted to see if I could discern any prevailing attitude changes among the consumers of scholarly papers in the health sciences, so I created a brief survey to assess healthcare workers' current opinions of preprints to try to determine if those opinions had changed since the onset of the COVID-19 pandemic. Respondents to the survey included healthcare practitioners, educators, administrators, consultants, entrepreneurs, editors, and students (some of whom are researchers themselves).

Methods

This cross-sectional survey was conducted using a web-based survey tool. Initially a convenience sample was recruited among personally-known healthcare workers and their colleagues, and the survey was soon thereafter promoted on several popular social media and professional networking sites and through word of mouth.

Survey Tool/Questionnaire Design

The survey was hosted on SurveyMonkey, and the URL was made available via direct contact, email, Twitter, LinkedIn, and Facebook. Hashtags for known medical groups, such as #NursesWhoTweet, #MedTwitter, #nurse, #Nursing, and #Healthcareworkers, were used to help target the posts to the right audience.

Given the demands on healthcare workers during the pandemic, this survey was designed to be short and easy-to-complete. While additional detail could be helpful at identifying sub-trends and discerning more granular information about specific occupations and attitudes, I determined my best chance at getting respondents was to value their time and only ask broad questions while avoiding too much detail.

Ethical Issues

Survey participation was voluntary and self-selected, and all data were collected anonymously. Respondents were not tracked , and the intent and purpose of the survey were explained in text preceding the questions. Respondents were asked to identify their general profession to confirm their employment in the field of healthcare, but verification of responses was not possible.

Analysis

There were 16.8 million healthcare workers in the United States as of May 2018, although the Bureau of Labor Statistics includes administrative and non-practitioner jobs in their industry count (Kaiser 2018). The 118 responses to this survey were enough to provide a 95% confidence level in the results with a 9% margin of error using Survey Monkey's provided calculator (SurveyMonkey n.d.). Outside the statistical magic making those numbers seem somewhat reasonable, how can we suppose that 118 responses can possibly express the sentiment of almost 17 million people? We cannot, not entirely at least, which is why the recommendations presented in this manuscript are made using what the 118 responses *along with* my personal experience in publishing (the last 9 years in publishing for nurses). However, the survey responses were consistent enough to tell us what, with some context, moving forward might look like.

5. Survey Questions and Findings

Question 1: What is your opinion regarding the use of preprint servers for medical and nursing research manuscripts?

Two responses were offered for this question:

- I fully support the use of preprint servers to disseminate important medical and nursing research findings as quickly as possible.
- I am against the use of preprint servers to disseminate medical and nursing research due to the potential dangers of posting un-vetted findings.

The results, shown in Figure 1, backed up the anecdotal reports I gathered in the summer and fall of 2019: 65% of respondents chose the second option, "I am against the use of preprint servers." This question goes directly to the heart of the matter and perhaps squashes any thoughts that preprints are going to become a standard in medical publishing anytime soon. Taken another way, however, 35% of respondents in favor of the use of preprints for medical research might very well be enough to support a healthy preprint ecosystem and provide a solid base for future growth. It seems clear that such growth will not happen right away, but it is worth watching for and, perhaps, repeating a similar survey in the future to see if this grows occurs.

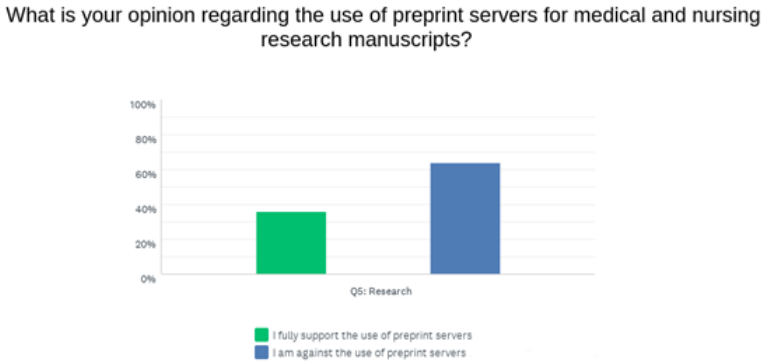

Figure 1: Responses to Question 1.

Question 2: If asked Question 1 in late 2019 (before the emergence of COVID-19), would you have answered in exactly the same way?

Two responses were offered for this question:

- Yes, my answer would have been the same as it is now—my opinion has not changed.
- No, my answer would have been different than it is now—my opinion has changed.

Eighty-six percent of respondents stated their answer would have been the same now as before COVID-19; their opinions have not changed as a result of the pandemic (Figure 2). Frankly, I expected the pandemic would have had a greater effect on healthcare providers, but it appears they are largely sticking to their original opinions (for and against) with very little movement.

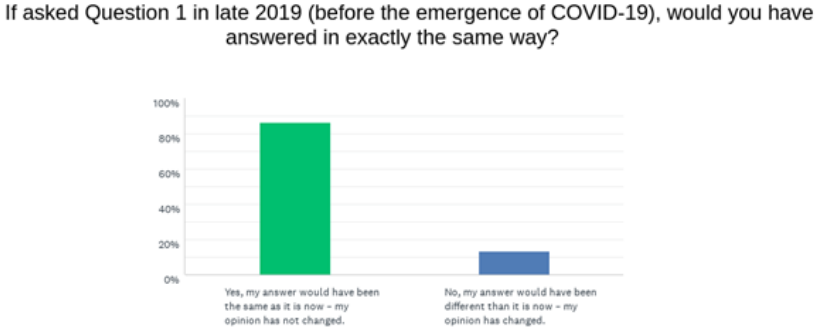

Figure 2: Responses to Question 2.

Question 3: To what extent has the COVID-19 pandemic shaped your opinion?

As shown in Figure 3, this question offered a Likert scale of responses ranging from "Strongly in favor of preprints" to "Strongly against preprints," with five total options. Given the responses to the prior question, I expected most of these responses to be neutral, and in fact a strong plurality—48% of respondents—were not swayed by COVID-19. Twenty percent either strongly or moderately moved

against preprints, but 30% moved in favor of preprints. Even if the respondents were not ready to support the use of preprints at the time the survey was administered, it appears there may be some softening of opinion brought on by the pandemic.

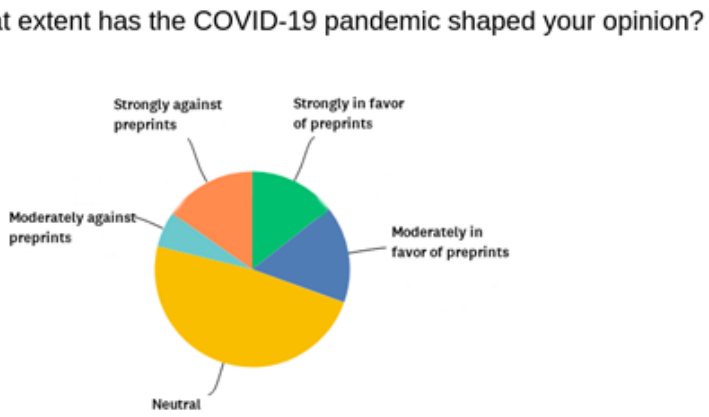

Figure 3: Responses to Question 3.

Question 4: What is your role in healthcare? (optional)

This question was made optional because it is not necessarily critical to understanding the opinions of healthcare worker; however, it sheds some light on whether respondents might be consumers of medical research or creators of this research.

Shown in Figure 4, 46% of the respondents were in clinical practice (article consumers), 39% were teachers (likely consumers), 31% were in research (content creators), and the final 22% were "other." Within "other," roles were mainly healthcare administrators, consultants, and editors (or other medical publishing professionals), which could also be put in the article consumer category.

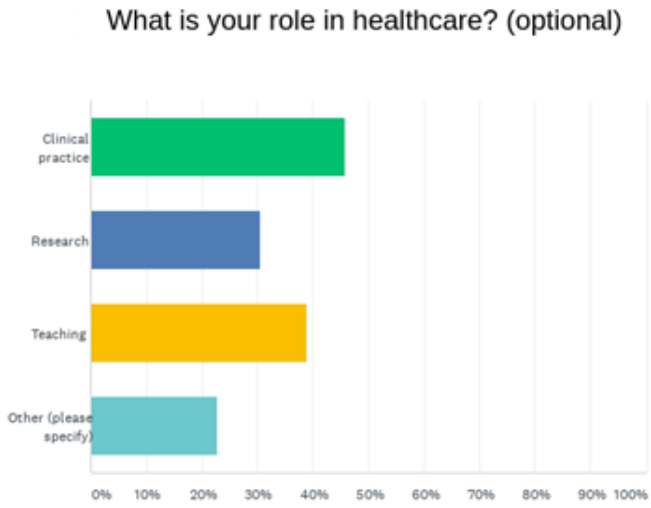

Figure 4: Responses to Question 4.

6. Limitations

This article outlines several commonly perceived advantages and disadvantages of preprints, but the survey was not detailed enough to determine which of those factors influenced respondents' opinions prior to the COVID-19 pandemic. While the survey results indicate that the majority of researchers (64%) were not in favor of preprints before COVID-19 and remain against them, it is unknow what made them dislike preprints originally.

Additionally, from a design perspective, the survey was limited by self-selection. While attempts were made to solicit responses from a wide range of healthcare workers, there were many factors limiting participation. Results may be skewed by lack of participation by certain groups who may have seen the survey but chose not to participate.

Furthermore, the intentionally brief nature of the survey was itself a weakness. The survey was only able to scratch the surface of the respondents' opinions and was not able to allow particularly detailed analysis.

Most notably, the survey does not distinguish between types of manuscripts posted to preprint servers. Some respondents might indicate

their acceptance of pure research preprints (analyzing protein chains on the surface of SARS-CoV-2, for instance) while at the same time being against preprints discussing treatments and patient care. Without being able to distinguish between the two types of papers, respondents were forced to indicate their strongest feelings with no nuance.

These limitations could explain a discrepancy between responses to this survey and the large increases in preprints since the beginning of the pandemic. As discussed earlier, this survey's respondents who identified themselves as researchers were far less likely to approve of the use of preprints. Given the dramatic increase in the number of preprints submitted since March of 2020 (Fraser and Kramer 2020), however, clearly not all researchers feel that way. Without being able to distinguish among types of researchers (those researchers doing "hard science" analysis compared to those researching treatment options), I can only speculate that my survey responses consisted mainly of those researching treatment options—those less likely to approve of preprints—and contained fewer hard-science researchers who have already made great use of preprints. (This assumption would match the type of researchers in my professional network, many of whom specialize in patient care and treatment, who were likely to see and share the survey invitation.)

7. Conclusions

Interestingly, of those who responded in favor of preprints, 78% of them said their answer would have been the same before the pandemic. However, 66% of those respondents said COVID-19 had still influenced their opinion strongly or moderately in favor of preprints, implying that the disease has made their belief in the value of preprints *stronger than pre-pandemic*.

Of those who responded against preprints, 91% have not changed their minds since the pandemic, and 58% of them said COVID-19 had no influence on their thinking. They did not like preprints before, and they do not like them now.

Translation: While those opposed to preprints outnumber those in favor 65% to 35%, this pandemic experience is making the "believers" believe even more strongly. Will this lead to increased advocacy for preprints and a push for their acceptance? As mentioned previously, this

group could be big enough (35% of healthcare workers as extrapolated from survey results, previous caveats about statistics notwithstanding) to support a strong preprint community and having their opinions strengthened by the pandemic could cause their influence and advocacy to grow.

What could be working against this, however, is the tepid support for preprints among researchers—the creators of content for preprint or traditional publication. 64% of researchers in my survey were against preprints; they have not been swayed by COVID-19 (89% have the same opinion as before the pandemic), and 75% of them were neutral or moved against preprints since the start of the pandemic. As noted, I suspect they may be a particular type of researcher worried about patient care.

It seems there is a disconnect between those who consume research (who comprise the majority of those approving of preprints) and those who create the research (who largely do not like preprints). How will this disconnect between supply and demand play out? My opinion is that researchers will want to go where their work is most likely to be read and disseminated. For now, that is, and will likely remain, with traditional peer-reviewed journals. But if article consumers continue to nurture medical preprints, they may eventually start to win over the researchers as those preprint platforms gain more acceptance.

8. Recommendations for Publishers/Preprint Servers

Although preprints do not seem set to become the norm in scholarly medical publishing, there are clear signs (the growth of preprint servers in the past few years, the number of survey respondents indicating more acceptance due to COVID-19, and the dramatic increase in preprint submissions starting in 2020) indicating their continued presence and acceptance. With that in mind, I have come up with three recommendations that address some of the ethical issues facing publishers.

1. More Clearly Identify Preprints

While many preprint servers include disclaimers noting the lack of peer review, journalists will continue to quote preprints covering trending topics, and not all of them will pass along those preprint disclaimers to their readers. While the owners of preprint servers cannot police outside reporting based on their manuscripts, the existing warnings could very easily be made more prominent. Some are posted using red fonts, which is a start, but many disclaimers are barely distinguishable from the article abstracts. Perhaps applying a "DRAFT" watermark to web pages and PDF versions of preprints might be an easy-to-implement yet highly-visible design change to increase visibility of the preprint designation.

Clearly marking preprints can go a long way in maintaining credibility of the sites that host them as well as the practice of posting preprints in general. As recommended by COPE, "Preprint servers should mark content clearly to indicate it has not undergone peer review" (Tierney 2019, Slide 11). There should be an increased emphasis on the "clearly" part of that statement.

2. Assess the Success and Sustainability of Accelerated Peer Review—and Peer Review Itself

"Many journals have deployed new processes to expedite the review of COVID-19 papers. This situation will present some interesting case studies in how long a journal can sustain an 'emergency' process" (Cochran 2020).

News of some journals implementing 24- to 48-hour turnaround time for peer review is impressive. Sustainability is clearly a concern, as many journals have been finding it increasingly difficult to attract and maintain peer reviewers even before the pandemic. Keeping these reviewers working on turnaround time measured in days rather than weeks will likely lead to reviewer fatigue and burnout, exacerbating existing strains on the peer-review system.

The quality of this expedited peer review should be closely watched as well. As has been noted, several high-profile peer-reviewed articles were retracted early in the COVID-19 pandemic. Even traditional peer review can suffer from lack of rigor and thoroughness unrelated

to COVID-19. "[A] lot of peer review reports are skimpy—even when there are glaring problems with the manuscript" (Bastian 2020). If publishers want to maintain a quality distinction between preprints and traditional journals, the value of the product of traditional journals must consistently exceed that of preprints.

3. Be Open to Supporting the Use of Preprints

This may seem like an odd recommendation given the number of survey respondents who came out against preprints, but as previously noted, in a field as large as healthcare, 35% of workers potentially in favor of preprints could be more than enough to support a thriving community of medical preprints. Publishers should continue to watch, and more thoroughly measure, attitudes towards preprints. If the sentiment of researchers and research consumers continues to move in favor of preprints, it would behoove publishers to find ways to support the use of preprints, such as backing or partnering with existing preprint servers, creating or acquiring their own preprint servers, or finding creative ways to integrate the use of preprints into the normal article workflow. There has been some movement in this area (Wiley's use of Authorea to support COVID-19 papers is one example; linking preprint articles with their final published version is another), and more work can be done to create "official" paths from preprint to publication.

Allowing for the potential publication of manuscripts that have been submitted to preprint servers instead of automatically disqualifying them is a simple first step. This could include applying more editorial scrutiny to these manuscripts if it helps readers and editorial boards feel confident that problematic manuscripts will never be published. Examples of editorial scrutiny could include requiring additional peer reviewers to weigh in on manuscripts that have been posted to preprint servers. Creating a peer review "A-team" of high-performing reviewers who have received some training around preprints could be another option. These extra steps could be employed to reassure journal editors and readers that manuscripts coming from preprint servers are up to the quality standards of the journal. Such reassurances could go a long way in overcoming some of the negative feelings surrounding preprints, particularly among researchers. It needs to be noted that these options

would require significant effort from the publisher and journal staff, which could be daunting given the challenges they are already facing finding enough qualified peer reviewers for their existing manuscripts. These efforts would need to be deliberate and have the full support of the publisher if they are to succeed.

An alternative, called "refereed preprint," has been used in life-sciences publishing through the publisher-supported website Review Commons (PLOS 2019). This process assigns peer reviewers prior to journal submission, giving journal editors an additional insight into the quality of manuscripts before assigning their own set of reviewers.

A particularly forward-thinking solution was undertaken by the Royal Society back in 2017 with their assignment of a Preprint Editor whose job was to find existing preprint manuscripts and encourage submission to their journal, Proceedings B. (Russell et al. 2021) This "pre-scrutiny" could help legitimize preprints with the introduction of professional editors to the publication process.

Established publishers have the knowledge, tools, and expertise to solve many of the problems that have been identified with preprints, but if publishers refuse to engage with preprints in any way, there is nothing being done to improve the quality of research within preprints. If publishers underestimate preprints, they may end up ceding this area to upstarts and other companies looking to disrupt the journal space.

9. Author's Comments, February 2023

Since 2020, submissions to preprint servers have continued to grow—along with their acceptance. A comparison of recent nursing manuscript submissions to preprint servers like MedArxiv to two or three years ago clearly shows this growth. Similarly, the acceptance of preprints by most major publishers has also grown. Spring-Nature, Wiley, and Elsevier have bought or started their own preprint servers (Schonfeld and Rieger 2020), and many publishers have policies allowing preprints to be considered for publication in at least some of their journals. A few years ago, this was more controversial and less common.

The survey was conducted, and this article subsequently written, over the summer of 2020 when the world was still very much in the early throes of the pandemic. When I was asked to revise the manuscript

for publication in late 2022, I reread the piece and reviewed the survey results to look for any detail that needed to be updated for publication in 2023. While it was not possible to redo the study or host a follow-up survey, continuing to work with nurses and other healthcare professionals over the past two-and-a-half years gives me confidence in its original results. While this confidence is based only on anecdotal evidence, my interactions and discussions with nurses lead me to believe that while many healthcare providers remain cautious or even skeptical regarding preprints, a sizable number of nurses are warming to them.

I similarly have confidence that my original references remain relevant and accurate. Preprints' primary weaknesses remain largely as outlined above, and my recommendations for how publishers can respond to these weaknesses are unchanged. I believe publishers can improve our existing journal publishing processes while also working to reduce some of preprints' deficiencies and even making room for them in our publishing programs. As noted above, the largest publishers are already doing just that.

Preprints will likely never replace scholarly journals, but as long as scholarly journals continue to struggle retaining qualified peer reviewers, for instance, there will be a desire for alternative publishing platforms with which researchers can share their work quickly. Publishing accurate information is an ethical imperative, particularly in the health sciences sector of the industry. Preprints have shown great promise along with some troubling weaknesses—weaknesses we as publishing professionals have the ability to eliminate or at least significantly minimize by applying our expertise. Scholarly publishing can only be improved by our efforts in this area.

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Guidelines and Submissions

Instructions for Authors

GW Journal of Ethics in Publishing

The GW *Journal of Ethics in Publishing* is an open-access, online journal managed by students in The George Washington University Master of Professional Studies in Publishing program.

Scope of the GW *Journal of Ethics in Publishing*

The journal's scope is broad and we welcome research articles, case studies, conference presentations, and commentaries from students, scholars, librarians, and media and publishing professionals.

The following list includes relevant topics, but is not exhaustive:

- EDI (equity, diversity, inclusion)
- Accessibility in publishing
- Work to ensure peer review, authorship, editing, and publication metrics are equitable and free of bias
- Institutional efforts to increase diversity, for example, within the Association of University Press (AUPress), Society for Scholarly Publishing (SSP), and other publishing institutions
- Open Access
- Open Science
- AI services, including but not limited to ChatGPT, plagiarism checkers, image checkers

Innovative forms of scholarship, such as video or audio recordings, podcasts, or narratives, are also encouraged.

All submissions are subject to peer review and should include:

- Article or presentation (as an attachment). Articles of any length are welcome.
- An abstract of your article (250 word limit) that summarizes the paper to include the hypothesis and outline the argument.
- Optional: A narrative biography of each author (125 word limit per person).

Article Types and Section Policies

Article Types

The GW *Journal of Ethics in Publishing* accepts the following categories of articles:

- Research Article and Case Studies.
- Applied Ethics.
- Invited Editorials and invited or unsolicited commentaries.
- GW Ethics in Publishing Conference presentations

Reviews of books, websites, digital projects, and other web resources with a focus or considerable aspect of ethics in publishing.

Research Articles and Case Studies (Peer-reviewed)

Research articles and case studies present original findings resulting from qualitative, quantitative, or mixed-methods research should be submitted for this section.

They should include an abstract of no more than 250 words, with an abstract structure that summarizes the sections in the article outlined below.

They should generally include a conclusion and recommendations, with 3-5 items (arranged in a bulleted or numerical list) describing the implications of the article's findings for publishing, library, media, or scholarly communication practice. Authors should emphasize how the article is relevant to readers of the publishing community and how its conclusions will influence and impact best practice.

Research articles should generally include the following sections (primary sections and subsections may vary by paper):

- Introduction
- Method
- Results
- Discussion
- Conclusion

Scholarly research articles and case study submissions should be between 3,000-6,000 words, though exceptions will be considered.

Applied Ethics (Peer-reviewed)

Applied Ethics projects explore ways that publishing, library, media, and scholarly communication students, professionals, scholars, and others contribute to their communities, including local, regional, or global publishing communities or other communities on aspects of publishing.

Applied Ethics projects may vary considerably, depending on the project and actors, but include work in:

- **Advocacy:** publishing, library, media, and scholarly communication professionals contribute to many causes, which may include diversity and inclusion, accessibility, censorship, literacy promotion, and other ways to promote knowledge and understanding.
- **Engagement:** Enhancing participation on issues of the public good, working to close the gap between the number of people affected and the number taking action on issues such as online piracy or accessibility in publishing, etc.
- **Volunteerism:** Efforts of individuals and organizations dedicated to making the publishing ecosystem, literacy, librarianship, and scholarly communication better through volunteer opportunities.
- **Organization:** Efforts to organize and engage communities such as using publishing to develop community goals, developing a community newsletter, and so on.

Applied Ethics articles should include an abstract of no more than 250 words, with an abstract structure that summarizes the sections in the article outlined below.

These articles should generally include a conclusion and recommendations, with 3-5 items (arranged in a bulleted or numerical list) describing the implications of the project's goals and results for publishing, library, media, or scholarly communication practice. Authors should emphasize why the article and project should be of concern/interest to readers of the publishing community and how its conclusions will influence and impact best practice and the community.

Applied ethics articles and projects may vary, but should generally include the following sections (primary sections and subsections may vary by paper).

- Introduction
- Goals and scope of project
- Actions and/or Methods
- Discussion and Implications
- Results and Impact
- Conclusion/Recommendations

Include a brief biography of each author at the end of the article, including your name, institutional/professional affiliation, and a brief description of your expertise in the relevant field.

Applied ethics articles and project submissions should generally be between 3,000-6,000 words, though exceptions will be considered.

Invited Editorials and Commentaries (Peer review dependent on case, will be disclosed in publication)

Commentaries may examine issues within publishing and use sources to support the argument are also welcome even if they do not include new data. Authors are welcome to submit commentaries.

The Editorial Board will invite editorials from publishing, library, and scholarly communication professionals, researchers, scholars, and others to comment on their work in ethical publishing practices and in advancing the field.

If you have an idea or suggestion, or would like to be considered for an editorial or commentary, please contact Editor-in-Chief, Lois Jones.

GW Ethics in Publishing Conference presentations (Peer reviewed)

The GW Ethics in Publishing Conference is presented annually and complements the GW Journal of Ethics in Publishing. Presenters are invited to submit articles based on their conference presentation or slides. Conference videos are available for the 2020 and 2021 conference.

Reviews (Reviewed by editorial board)

The GW *Journal of Ethics in Publishing* invites you to submit reviews of books, websites, digital projects, and other web resources with a focus or considerable aspect of ethics in publishing.

Reviews should generally be between 500 - 1,500 words, though exceptions will be considered, especially for reviews of multiple titles or resources.

Reviews should include the following aspects in a review, as relevant to the book, website, or project:

- Citation: Include the title, author(s) or editor(s), publication date/year, publisher, pages, format, unique identifier (DOI, ISBN, or URL). When citing a website, include the URL as well as the date that the website(s) was accessed.
- Authority: Relevant background or expertise of the author(s), creator(s), or editor(s)
- Audience: Potential or expected community of interest or audience for the book, website, or resource.
- Content, Quality, Usefulness, and Impact: Goals of the book or resource and whether the author(s) or editor(s) achieve their goals; whether the book or resource advances the field; qualities of accessibility and other aspects; organization; importance of the resource for the intended audience.
- Your Bio: Include a brief biography of yourself at the end of the review, including your name, institutional/professional affiliation, and a brief description of your expertise in the relevant field.

The Editorial Board may solicit authors and items for review, but we welcome your proposals or suggestions for reviews. Please let us know if you have a book, article, or website that you would like to review. You must let us know if you have any conflicts of interest or connection to the authors, editors, or publishers of the work that you intend to review and publish.

Style Requirements

Manuscript Text: Double spaced and include page numbers.

Title Page: List all authors, affiliations, and conflicts of interest that a reasonable reader would think appropriate to know prior to reading the piece

Section Headers: Bold and centered, left-justified and underline

References/Citations: The GW Journal of Ethics in Publishing uses The Chicago Manual of **Footnotes and References:** https://www.chicagomanualofstyle.org. Hyperlinks to articles or other references should also include date of last reference (i.e. Accessed December 21, 2019).

Masking: No identifying information in the manuscript, only on the title page

Tone or Voice Usage: Not prescribed. This can differ based on subject or style of submission. As long as this is internally consistent to the piece, then the author is free to use what they find most appropriate.

Figures: The GW Journal of Ethics in Publishing also requires that all published articles meet basic digital accessibility standards for visual resources. Papers accepted for publication that include images, charts, videos, or other visual assets must include alt-text (or long descriptions) for each visual asset, as well as appropriate captions. For more information on the basic principles of describing visual resources for accessibility in arts and humanities publications, please visit DescribingVisualResources.org (https://describingvisualresources.org/guidelines/basic-principles/).

More Information

See also the journal's Call for Papers and Peer Review Guidelines.

Submit your article using this Call for Papers Submission form.

Questions?

If you have any questions about the GW Journal of Ethics in Publishing, please contact Lois Jones, Editor-in-Chief at lijones@gwu.edu.

If you have any questions about the GW Journal of Ethics in Publishing, or the GW Ethics in Publishing Conference, please contact John W. Warren, Director and Associate Professor, Master of Professional Studies program, at jww@gwu.edu.

Peer Review Guidelines

The *Journal of Ethics in Publishing* welcomes articles, case studies, and conference presentations from students, professionals, and scholars on a range of topics, including: EDI (equity, diversity, inclusion), accessibility, peer review, open access, sustainability, publishing metrics, and any other aspects of ethics in publishing. All submissions are subject to peer review.

Peer review is a fundamental element of scholarly communication that provides valuable guidance to authors in the development and improvement of their submissions and protects journal integrity.

Peer reviews should focus on adhering to the following values: equity, openness, respect, and quality. Final decision for publication will be made by the Editor-in-Chief after considering peer review from multiple reviewers.

GWJEP uses double-masked peer review, so neither the author nor the reviewer know each other's identity unless indicated in advance. Manuscripts are confidential and only shared for the purposes of peer review.

PEER REVIEW GUIDELINES:

Before you review: When you receive a request to review, you should first assess the **time commitment**, your **applicable expertise,** and if you have any **conflicts of interest.**

A conflict of interest can be financial, such as if you benefit from a product, service, or company that is mentioned in the submission. Other conflicts include personal or close professional relationships with the author(s), which could impact your review of the manuscript, either positively or negatively. If you are unsure if something constitutes

a conflict, you should contact the editor or include this information in your review.

If you would like to volunteer to review for the journal, please contact us.

Review Questions

Please provide a few sentences in each section below, as applicable. Although the review may be critical, personal attacks are never appropriate in peer review. Instead, focus on opportunities to improve the submission.

In the final section, provide your recommendation to the editor. Note if any subject matter within the article is outside your field of knowledge, or if there is anything else that you want to disclose to the editor.

Overall

- What are the strengths of the manuscript?
- Does the article contribute to the scholarly field? For example, is it original, is it valid, and does it contribute to the understanding of ethical issues in publishing?
- Are the author's arguments clear, logical, and concise?
- Is the article well-written and well-organized? Are there sections that could be improved?
- Is there a consistent use of style (Chicago, APA, MLA, etc.) throughout?

Introduction

- Is the premise or purpose of the submission clear?
- If applicable, is relevant literature reviewed and synthesized across themes, methods, or findings, rather than by author?
- Are the authors' assumptions clarified and addressed?

Methodology

This section will only be relevant for research articles.

- Is the methodology appropriate and comprehensive?
- Do you know who studied, when the study took place, and how research was conducted?
- Has the study taken into account diversity and inclusivity as part of the design?
- Did the author address limitations of the study design, such as the participant sample used?

Conclusion

- Is the conclusion logical and appropriate to what has come before in the body of the article?
- Is there sufficient evidence presented in the text for the conclusion?

Discussion

- If applicable, does the manuscript provide a clear summary of the findings of the study at the end?
- Does the author make convincing connections between findings in this study and the field?
- Are implications for this topic and future research or practice discussed?
- Do recommendations clearly stem from the results?

Recommendations for publication (select one):

1. **Accept, no revisions needed:** Paper is well written and a significant contribution to the literature. No improvement needed.
2. **Revise, minor revisions requested:** Well-written, well-organized with some minor edits to arguments, research, or analysis.

Additional including formatting, grammar, or style suggestions required.

3. **Revise, major revisions requested:** Paper is promising, but requires multiple major revisions, such as more research, depth, or analysis. Several sections require rewriting in order to improve clarity, flow, or arguments. Revised manuscript may undergo peer review again.
4. **Reject for publication:** Manuscript seems unable to conform to acceptable standards even after revision, or is not within the journal's scope.

Optional section:

Please use the area below for any comments to the editor that will not be provided to the author.