Global Impact Opportunities For Education Research amid Changing Technology

Jenny Grant Rankin, Ph.D.
American Mensa, U.S.A.

Abstract.

Education research findings can only have maximum impact globally if those findings are shared widely and well. As technology tools and media change increasingly rapidly, the habit of higher education researchers restricting sharing to academic publications and conferences does not maximize sharing opportunities that can lead to local and global improvements. This paper includes an examination of current education research dissemination *practices* and compares them to a range of current education research dissemination *opportunities* offered today. Such opportunities covered include social media tools, reporter query services, expert databases used by journalists, branding tools, mainstream and high-exposure speaking formats like TED Talks, podcasts and other broadcasts, speaker databases, and more. Practical issues such as time management, balancing projects, and higher education institution parameters are also addressed. The paper also covers resources available to women and traditionally marginalized and underrepresented groups, which can be leveraged so that more diverse perspectives are represented in field dialogue.

Keywords: dissemination; media; policy; press; social media

1. Introduction

Discoveries can only meet their fullest potential for good when they are shared with all of those who can benefit. Yet researchers often communicate findings only with those in the same field (like education), role (such as researcher), or site (like university). Research reporters Belluz, Plumer, and Resnick (2016) surveyed scientists of varied disciplines around the world and found that one of the biggest challenges facing research dissemination today is that it is poorly communicated.

Consider what happens when researchers disseminate findings more broadly. When McGrath and Brandon (2016) shared how family integrated care (FiCare) researchers increased family engagement in Canadian neonatal intensive care units (NICUs) they published findings in scholarly journals, but they also communicated through blogs, mainstream media, project videos, a researcher website, social networks, and a range of conferences and venues. This caused most neonatal care providers to be familiar with the intervention strategy and several more trials to be conducted in Canada, the U.S., and abroad. The research's impact on youths was increased because it transcended traditional communication silos.

The education field must change increasingly rapidly to meet students' needs amid evolving technology and media, and thus related research findings must be disseminated rapidly to keep stakeholders informed. These rapidly changing tools and media also offer researchers new ways to reach wide and varied audiences faster than they have in the past. Education researchers can maximize these opportunities to produce both local and global improvements.

For example, the internet has opened countless new channels to share findings. "Every day scholarly articles receive 12,000 new mentions across social media, news, and blogs. That's one mention every seven seconds" (Elsevier, 2018, p. 1). Yet senior department members commonly instruct researchers to not write for the general public, talk at public events, speak with journalists, or use social media because these do not lead to tenure or promotions; society suffers when researchers follow that advice (Scientific American Editors, 2018). Meanwhile, interacting with the broader public can lead to more funding sources, new data sources, fresh perspectives and ideas, broader networks, and better research (Badgett, 2016; Ngumbi, 2018).

This paper shares a sampling of unconventional ways to share education research findings. In sensitivity to practical issues like time management and balancing projects, these leverage time-saving resources and strategies. To promote diverse perspectives in field dialogue, resources available to women and traditionally underrepresented groups are also incorporated.

2. Background and Methodologies

This paper reflects a sample of research compiled in two books on this paper's topic with a total of approximately 532 sources cited, though there was some overlap of a few sources: one is specifically for educators and those researching within the education field (see Rankin, 2019) and references 241 sources, and one is specifically for researchers (see Rankin, 2020) and references 291 sources. Totals are approximate, as some sources were cited in more than one chapter and/or in more than one book. See Table 1 for a breakdown of sources by topic.

Table 1: Sources Cited

Topic	Chapter in		References in		Total (Approximate)
	Rankin, 2019	Rankin, 2020	Rankin, 2019	Rankin, 2020	
Modernization of Research Dissemination	1	1	21	30	51
Social Media, Website, and Branding	2*	2*	33	32	65
Message and Press	All	3	N/A	32	32
Writing in General	3	4	30	37	67
Writing Short-Form (Articles, Papers, Etc.)	4	5	32	34	66
Writing Books	5	6	8	7	15
Speaking in General and Slide Design	6 and 7	7*	22	29	51
Speaking at Conferences and Other Events (Includes TED Talks)	8	8	6	5	11
Speaking on Air and Recordings (Includes National Public Radio Broadcasts)	9	9	24	18	42

Connecting (e.g., Networking) and Serving (e.g., Policymaking)	10 and 11	10*	32	34	66
Multiplying Impact (e.g., Exposure and Award Platforms)	12 and 13*	11*	33	33	66

**Plus supplemental guide(s).*

Since this paper is based on a collection of multiple studies and other expert feedback, with the latter including the author's own experience landing opportunities to share her research with large audiences, the methodologies of involved studies are varied.

3. Time Management and Institution Parameters

Before seizing unconventional ways to share their work, it is vital that researchers learn their institutions' parameters for sharing, such as procedures in place for press releases and communication guidelines. The sources of such parameters can also be worked with to share the load of findings' dissemination. As researchers allocate time to sharing their work, practical issues such as time management and balancing projects must be considered so research quality and production do not suffer.

Researchers should identify and then collaborate with the teams and people who can help sharing endeavors to reduce the researcher's time investment. Collaborators other than the education researchers themselves can undertake such tasks as pitching journalists, writing press releases, distributing communications, boosting social media engagements, providing handouts for appearances, and more. These include: for those based at a university or similar institution, the press office, PR staff, communications team, interdisciplinary centers, and resource information managers (RIMs); for those with primary and secondary school site connections, teachers, headteachers or principals, instructional coaches, school psychologists, school librarians, school district administrators or executive headteachers, and other stakeholders; for those who have authored books, the publishing house's marketing team or PR contact; colleagues with whom one can present (like during a conference session where both people get time to speak), co-write articles, and share opportunities (like asking a radio show's producer to book one's colleague in a future episode, just as one was booked), or collaborate on existing work duties to make it easier to carve out time to share one's research (see Hall, 2018).

4. Social Media

Scholarly communication is experiencing a revolution through social media that represents a shift toward greater visibility for research and related ideas (Sugimoto, Work, Larivière, & Haustein, 2017). For example, "circulating newly published papers [on Twitter] allows for more exposure and has been linked to increased citations. Twitter mentions are an important [means of] tracking the non-scholarly attention a paper receives" (Lee, 2019, p. 2).

Giving people (policymakers, reporters, etc.) multiple places to find one online is an advantage even for researchers who rarely post in social media accounts; it is the modern equivalent of adding one's contact information to a phone book. Researchers should maintain these free mainstream accounts, at minimum:

- Facebook (www.facebook.com) because it is by far the most used; researchers can add a "page" (for professional use) to their existing account to keep professional traffic separate from their personal sites
- Instagram (www.instagram.com) because it is the fastest growing for every single age group
- LinkedIn (www.linkedin.com) because it has the strongest professional reputation
- Twitter (www.twitter.com) because journalists use this more than any other social media tool

To save time, busy researchers can post to multiple accounts simultaneously with a single post (and/or schedule posts) with tools like TweetDeck (www.tweetdeck.com) and Hootsuite (www.hootsuite.com).

Researchers can also join academic social networking sites (ASNSs), which are social media sites designed specifically for scholars. Many ASNSs double as research repositories. Though there are many, some popular ASNSs include Academia (www.academia.edu), American Educational Research Association (AERA) Online Paper Repository (www.aera.net/publications/online-paper-repository), AfricArxiv (https://osf.io/preprints/africarxiv), ARNIE Docs (www.arniedocs.info), Banco de Dissertações e Teses da CAPES (catalogodeteses.capes.gov.br), Bepress (www.bepress.com), COnnecting REpositories (CORE) (https://core.ac.uk), EdTech Docs (www.edtechdocs.info), EBSCO Academic Databases (www.ebsco.com/who-we-serve/academic-libraries), ERIC (https://eric.ed.gov), Figshare (www.figshare.com), Guardian Higher Education Network (www.theguardian.com/higher-education-network), Humanities Commons (https://hcommons.org), Open Science Framework (https://osf.io), Publons (www.publons.com), Reddit Journal of Science (www.reddit.com/r/ science), ResearchGate (www.researchgate.net), SSRN (www.elsevier.com/solutions/ssrn), Web of Science (www.webofknowledge.com), What Works Clearinghouse (https://ies.ed.gov), and Zenodo (https://zenodo.org). See more at https://jennyrankin.com/s/ListOfAcademicProfiles.xlsx.

Social media helps break down barriers traditionally underrepresented groups face in contributing to field dialogue, as all researchers have equal access to these platforms and do not have to wait on invitations from others to contribute. To promote equity in voices being heard, researchers can add hashtags such as these to posts that amplify the work of those who identify with the groups these hashtags promote: #AcademicMama, #AcademicsForBlackLives, #BlackAcademics, #BlackProfessor, #CiteASista, #CiteBlackWomen, #DiversityinAcademia, #ECRchat, #FirstGenDoc, #ILookLikeAProfessor, #LatinaProfessor, #LGBTscience, #POCPhD, #SisterPhD, and #WomenInAcademia.

Researchers can also add non-group-specific hashtags to social media posts to increase their exposure. Such hashtags include #AcademicChatter, #AcademicLife, #AcademicTwitter, #AcWri, #EdData, #EdResearch, #HigherED, #PhDchat, #ResearchComm, #ScholarSunday, and #SciComm.

Journalists also use social media, particularly Twitter, to find expert sources for their stories. Reporters' media-posted requests for expert input (particularly from U.K. journalists) typically contain the hashtag #JournoRequest or #JournoRequests, and sometimes #HARO or #MediaRequest.

Another important hashtag for education researchers is #TellEWA. Adding this to posts that share education-related work alerts the Education Writers Association (EWA), which uses these hashtags to find its "EWA Stories of the Week" to share with its over 3,000 journalists who specifically report on education.

5. Website and Branding

"Crafting an online scholarly identity… exposes [researchers] to a level of public engagement … that simply is not feasible through other modes of dissemination" (Stewart, 2016, p. 81). A professional website is a staple of a scholar's thorough online presence. Maintaining a website with publications, projects, biography, CV, appearances, and more offers people an easy way to interact with researchers and their work in one centralized location while promoting a single brand that helps others understand a scholar's focus areas. Some researchers use a page their institution hosts as their primary website, others use one of their social media accounts as their primary website (such as Academia or LinkedIn), and others manage their own domain. The latter offers the most flexibility and consistency as one's career progresses, such as remaining the same when affiliation changes. Options include Jimdo (www.jimdo.com), SquareSpace (www.squarespace.com, which this paper's author uses), Weebly (www.weebly.com), Wix (www.wix.com, which is freemium and thus can be used for free), WordPress (www.wordpress.com, which is the most popular), and Yola (www.yola.com).

When it comes to all online appearances (organizations' profile pages, professional website, social media, article bios, etc.) and print production (book covers, conference programs, event fliers, etc.), researchers should use the same headshot, same handle (e.g., @JennyGRankin), and similar bio whenever possible. This is one reason it is best to set up social media accounts as soon as possible, before one's ideal handle or page name is taken by other users, even if a researcher does not begin posting to the accounts right away. All content should align with the researcher's desired brand, which helps audiences understand what type of findings and insight he or she offers.

One way to understand what brand a researcher is projecting involves Twitter, which is currently the education field's most popular social media tool. Researchers can view which lists other have added them to (for those users' own reference), and the names of those lists will give researchers an indication of what they are known for. For example, a researcher who sees her name on lists like "Funny Cat Videos" can change the nature of her future tweets so that she starts showing up on more lists like "Research to Help Students". Researchers can also view Twitter analytics to see which tweets are resonating the most with their followers.

6. The Press

Media coverage influences how policymakers and the public think about issues and helps to frame which of these issues are deemed important (Coe & Kuttner, 2018). Yet true education experts are rarely consulted for stories. For example, when Media Matters studied education-specific coverage on the major U.S. cable news programs CNN, Fox News, and MSNBC during a 10-month timespan, only 16 (9%) of the 185 guests discussing education policy were either (a) actual educators *or* (b) had advanced degrees in education (Tone, Power, & Torres, 2014).

Fortunately, there are easy ways for education researchers to insert themselves into local, national, and international coverage.

Busy researchers can get journalists to come to them by adding their information, at no cost, to databases journalists use to find experts to interview or quote. These include Public Insight Network (PIN) (www.publicinsightnetwork.org), which is used extensively by TV stations and networks (like PBS), public radio stations (including NPR), commercial news organizations (like *The Washington Post*), and universities (Briggs, 2016). An important field-specific database is EWA's SourceSearch (www.ewa.org/sourcesearch), which is used by thousands of journalists who write about education.

Researchers can also sign up, at no cost, to receive emails listing reporters' calls for sources to quote. Especially busy researchers, or those who are easily overwhelmed by too many emails, should only use HotKettle Alerts (www.hotkettle.com), which filters the queries based on each user's desires. Those who want access to all queries can use Help a Reporter Out (HARO) (www.helpareporter.com, mainly for U.S. outlets), JournoRequests (www.journorequests.com, mainly U.K. outlets), and/or SourceBottle (www.sourcebottle.com, mainly Australia outlets) and can always add email inbox filters to restrict such queries to only those pertaining to them. Other options (some of which are obscure but sometimes include databases of reporters for pitching one's findings), include Agility PR Solutions (www.agilitypr.com), Anewstip (www.anewstip.com), Bitesize PR (www.bitesizepr.com), Cision Gorkana (www.gorkana.com), KITI (www.thekiti.com), MyBlogU (www.myblogu.com), ProfNet (https://profnet.prnewswire.com), and ResponseSource (www.responsesource.com). Even using only one of these can expand the reach of an education researcher's findings. More than 35,000 journalists use Help a Reporter Out (HARO) (www.helpareporter.com) to share requests with experts, and ResponseSource (www.responsesource.com) emails over 32,000 media inquiries per year.

Reporters also look for online press pages (also called media pages or press kits) as evidence that researchers are media-vetted and quote-worthy. Desired press page content includes contact information, a "One-Sheet" that contains the researcher's key information on a single page, short biography, link to a complete CV, list of media appearances with links, headshot, social media links journalists can use to tag researchers when promoting stories in which they are cited, and book details if the researcher is a published author.

7. Speaking and Writing

Though many researchers prefer one over the other, speaking and writing are inextricably tied when it comes to knowledge dissemination: each mode of communication provides added opportunities and exposure for the other. For example, if a researcher abhors public speaking and is only interested in writing, speaking engagements could nonetheless expose him or her to people who can facilitate more sharing opportunities, lead to keynote/plenary presentations and other appearances that introduce more readers to his or her work, and more.

Busy researchers can land speaking engagements with little effort by adding their information to free or freemium databases that event organizers use to find presenters. Some of these are designed specifically to promote diversity on speaking panels and event lineups, such as 500 Queer Scientists (www.500queerscientists.com), Experts of Color Network (https://insightcced.org/tools-metrics/experts-of-color-network), Gage: 500 Women Scientists

(http://gage.500womenscientists.org), Women Present (www.womenpresent.com), Women Talk Design (https://womentalkdesign.com, also for other underrepresented genders), and Women Who Keynote (https://womenwhokeynote.com). Mainstream speaker databases include Chartwell Speakers Database (www.chartwellspeakers.com), Free Speaker Bureau (www.freespeakerbureau.com), and SpeakerHub (www.speakerhub.com). Researchers who authored books can use publishers' event outreach tools, such as ASCD Resource Speakers (www.ascd.org/about-ascd/Affiliates/Affiliate-Community/Resources-$-Forms/Resource-Speakers.aspx) and Routledge Consultants (www.routledge.com/posts/education-consultants). Agents are also an option, such as through Coleman (https://experts.colemanrg.com), Executive Speakers Bureau (www.executivespeakers.com), Geniecast (https://geniecast.com), Royce Carlton (www.roycecarlton.com), or Washington Speakers Bureau (www.wsb.com)

Presenting online is an excellent way for nervous speakers to get started. Education conferences that were always online (pre-COVID) are especially inviting, as some only show presenters' slides (and not a video feed) as the presenter speaks. Traditionally online education conferences include Discovery Education Network (DEN) Fall VirtCon (www.virtconlive.com), District Administration Web Seminars (www.districtadministration.com/webseminars), Ditch That Textbook Digital Summit (http://ditchsummit.com), E-Learn World Conference on E-Learning (www.aace.org/conf/#elearn), EdgeCon (https://njedge.net/edgecon2021), EduPassions Conference (www.edupassions.org), Future of Educational Technology Conference (http://fetc.org), Global Education Conference (www.globaleducationconference.com), K-12 Online Conference (http://k12onlineconference.org), Learning 2.0 Conference (www.classroom20.com/page/2012-learning-2-0-virtual-conference), Learning Revolution Conference (http://learningrevolution.com/page/learning-revolution-conferences), Library 2.0 Conference (www.library20.com), Online Educa Berlin: International Conference on Technology Supported Learning and Training (www.online-educa.com), OZeLIVE! Australia's Edtech Conference (http://australianeducators.ning.com), and Technology Information Center for Administrative Leadership School Leadership Summit (http://admin20.org/page/summit). Since applying to give a TED Talk requires submitting recordings of previous speaking engagements, these events' recordings can be used if other video footage is not available.

Giving a TED Talk allows findings to reach thousands of people in mere weeks. The multiple TED avenues for those in the education field include:

- TED or TEDGlobal (https://speaker-nominations.ted.com) or less-regular TED events like TEDFest (www.ted.com/about/ conferences)
- TEDx event (www.ted.com/tedx/events), many of which become TED Talks
- TED Institute (www.ted.com/about/programs-initiatives/ted-institute)
- TED Prize (www.ted.com/participate/ted-prize/nominate)
- TED Fellow (www.ted.com/participate/ted-fellows-program)
- TED Residency (www.ted.com/about/ programs-initiatives/ted-residency)
- Get invited
- TED-Ed lesson (http://ed.ted.com/nominate_an_educator)

Note that if one gives a TEDxTalk it can *become* a full TED Talk if/when it is selected to be aired on the TED website. For those working directly with students, there are also multiple avenues to get minors involved in TED clubs and speaking.

Busy researchers who want to write books yet do not have the time for full manuscripts can have similar impact by partnering with others. Researchers can join another's book project by writing a single, quality chapter (it will look like a journal paper in content, style, and length). For example, visit IGI Global (www.igi-global.com/ publish/call-for-papers) or similar site, click "Books Seeking Submissions", and submit. Becoming a published book author in this way can allow the researcher to set up an author page on Amazon (via https://authorcentral.amazon.com), Barnes & Noble (via titles@bn.com and https://help.barnesandnoble.com/app/answers/detail/a_id/3611/kw/author), Goodreads (via www.goodreads.com/author/program), and other book-related sites where new readers can discover academics' work. This approach can also make it easier for researchers to break into full-length manuscript publication to reach new audiences.

Free lists of 2,000 speaking and writing opportunities to share one's research can be found by clicking "Support Material" after visiting https://bit.ly/2ONL88j (or goo.gl/qNWR2g if one would prefer lists that are one year older but specific to the education field). All lists are free. They contain application websites, deadlines, locations, and more for academic book publishers, academic journals and other short-form writing outlets, awards and other honors, calls for input and other ways to serve, conferences, news networks, organizations, podcasts, radio shows, and additional opportunities to share one's findings.

8. Multiplying Impact

As researchers use evolving technology tools and media to share work with the goal of helping students and the field, the findings will gain greater exposure if each share (such as an op-ed written for a newspaper, a media appearance discussing education policy, a lecture series available to the public, or other endeavor) is, essentially, shared more.

For example, consider a researcher who starts a podcast to share findings and related strategies with students, parents, or educators. That researcher can submit the podcast to British Broadcasting Corporation (BBC, via www.bbc.co.uk/programmes/p04t00bl), Canadian Broadcasting Corporation (CBC, via http://www.cbc.ca/radio/podcastnews/cbc-podcasts-pitch-guide-1.4830131), and National Public Radio (NPR, via www.nprstorylab.submittable.com/submit) so it can be picked up for national broadcast across U.S., U.K., & Canada. CBC Radio podcasts (just one of CBC's offerings) reaches three million listeners per week (CBC/Radio-Canada, 2020), BBC Radio (just one of BBC's arms) reaches 34.85 million listeners per week (BBC, 2017), and NPR reaches 37.7 million listeners per week (NPR, 2018). Thus, sharing the podcast with those who can share the outreach even further would have a significant impact of the number of people who heard what the researcher had to share.

Researchers can set up, at no cost, Google Alerts (www.google.com/alerts) and Talkwalker Alerts (www.talkwalker.com/alerts) to receive emails anytime one's name, book title, paper title, or other research-related term is mentioned on the web. Researchers can then connect with people and groups who are following the research and/or doing similar work. The collaborators discussed in section three of this paper, social media discussed in section four, websites and branding discussed in section five, and press discussed in section six can also help spread the word to direct additional audiences to outreach.

9. Promotion of Diverse Voices

Students, the field of education, and society at large benefit most when important findings are shared widely, not just those from select groups. Yet some people experience more obstacles than others when sharing their findings locally or globally. For example, bias against women, People of Color, and LGBT+ community members is evident in invitations to contribute in scholarly arenas, nominations for awards, invitations to conferences, forming professional collaborations, and other avenues essential to academics' platforms (Holmes, O'Connell, & Dutt, 2015), as well as in workplace slights, indignities, and denigrating messages that cause harm professionally (Sue, 2010). One way education researchers can help combat the impact these obstacles have on the field is to use the strategies and resources shared in this paper to amplify and make way for diverse voices in academia and beyond, whether those voices include their own and/or (through allyship) others'.

10.Conclusion

Education research findings can only have maximum impact globally if those findings are shared extensively. Technology tools and media are changing increasingly rapidly, so the best ways to meet students' needs are evolving in response, whereas the habit of education researchers restricting sharing to academic publications and conferences does not capitalize on modern sharing opportunities necessary for maximum local and global improvements. Social media tools, reporter query services, expert databases used by journalists, branding tools, mainstream and high-exposure speaking formats like TED Talks, podcasts and other broadcasts, speaker databases, and more can be leveraged in practical ways to increase findings' benefit to students.

Acknowledgment

This paper reflects a sample of research compiled in two books on this paper's topic with a total of 531 sources cited. These works would not be possible without the research of those monitoring technology's impact on knowledge dissemination and expert's feedback on how to leverage tools to share findings for the good of society.

References

Badgett, M. V. L. (2016). *The public professor: How to use your research to change the world*. New York, NY: NYU Press.

Belluz, J., Plumer, B., & Resnick, B. (2016, September 7). The 7 biggest problems facing science, according to 270 scientists. *Vox*. https://www.vox.com/2016/7/14/12016710/science-challeges-research-funding-peer-review-process

Briggs, M. (2016). *Journalism next: A practical guide to digital reporting and publishing*. Lost Angeles, CA: Sage.

British Broadcasting Corporation [BBC]. (2017). *Record BBC Radio 6 music listeners and increased BBC digital radio audiences*. https://www.bbc.co.uk/mediacentre/latestnews/2017/rajar-q3

Canadian Broadcasting Corporation [CBC]/Radio-Canada. (2020, October 22). *Canadians turn to CBC/Radio-Canada during the pandemic*. https://cbc.radio-canada.ca/en/media-centre/canadians-turn-to-cbc-rc-during-the-pandemic

Coe, K., & Kuttner, P. J. (2018, January 11). Education coverage in television news: A typology and analysis of 35 years of topics. *AERA Open, 4*(1). https://doi.org/10.1177/2332858417751694

Elsevier. (2018). *Get noticed: Increase the impact of your research*. https://www.elsevier.com/__data/assets/pdf_file/0014/201326/GetNoticed_A4_factsheet_2017.pdf

Hall, L. A. [Teaching Academia]. (2018, November 26). *One Simple Trick for Publishing More & Getting Tenure* [Video file]. www.youtube.com/watch?v=tNcpX18r7Zw

Holmes, M. A., O'Connell, S., & Dutt, K. (2015). *Women in the geosciences: Practical, positive practices toward parity*. Washington, DC: Wiley.

Lee, J. M. (2019, February 8). How to use Twitter to further your research career. *Nature*. https://www.nature.com/articles/d41586-019-00535-w

McGrath, J. M., & Brandon, D. (2016, August). Scholarly publication and social media: Do they have something in common? *Advances in Neonatal Care, 16*(4), 245–248. https://doi.org/10.1097/ANC.0000000000000319

National Public Radio [NPR]. (2018, March 28). *NPR maintains highest ratings ever*. https://www.npr.org/about-npr/597590072/npr-maintains-highest-ratings-ever

Ngumbi, E. (2018, July 3). We should reward scientists for communicating to the public. *Scientific American*. https://blogs.scientificamerican.com/observations/we-should-reward-scientists-for-communicating-to-the-public

Rankin, J. G. (2019). *Sharing your education expertise with the world: Make research resonate and widen your impact*. New York, NY: Routledge/Taylor & Francis.

Rankin, J. G. (2020). *Increasing the impact of your research: A practical guide to sharing your findings and widening your reach*. New York, NY: Routledge/Taylor & Francis.

Scientific American Editors. (2018, February 1). Universities should encourage scientists to speak out about public issues. *Scientific American*. https://www.scientificamerican.com/article/universities-should-encourage-scientists-to-speak-out-about-public-issues

Stewart, D. (2016). Crafting an online scholarly identity. In M. Gasman (Ed.), *Academics Going Public: How to Write and Speak Beyond Academe*, (pp. 71-85). New York, NY: Routledge, Taylor & Francis.

Sue, D. W. (2010). *Microaggressions in everyday life: Race, gender, and sexual orientation*. Hoboken, NJ: John Wiley & Sons.

Sugimoto, C. R., Work, S., Larivière, V. & Haustein, S. (2017). Scholarly use of social media and altmetrics: A review of the literature. *Journal of the Association for Information Science and Technology, 68*(2017), 2037–2062. https://doi.org/10.1002/asi.23833

Tone, H., Power, L., & Torres, L. (2014, November 20). Report: Only 9 percent of guests discussing education on evening cable news were educators. *Media Matters*. https://www.mediamatters.org/research/2014/11/20/report-only-9-percent-of-guests-discussing-educ/201659