



Striking the right chord with early-career researchers

A digital-first guide for academic societies and publishers

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EXECUTIVE SUMMARY

Although there isn't a clear or universal definition of an early career researcher (ECR), the term generally refers to researchers who have received their PhD eight or fewer years ago. In the [Harbingers project](#)—a longitudinal study of “digital natives”—researchers who identified themselves as ECRs were 21–40 years old, that is, millennials and Generation Z. Most of them are born digital and raised in a media-saturated world surrounded by smartphones, broadband services, and social media. Millennials are the first generation to have been raised with personal computers and smartphones, and have the ability to adapt to new technologies quickly. Gen Z has had access to the Internet and portable digital technology from a young age, and the individuals of this generation are the digital natives. The growth of online platforms and social media in their lifetime has given them the ability and power to share opinions, network globally, and question authority.



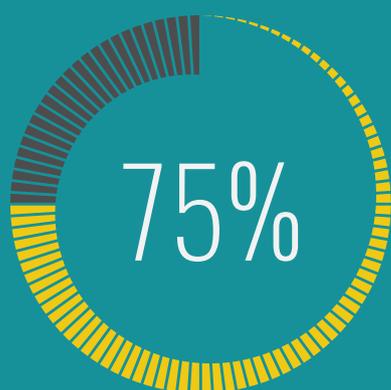
48%

In the US, these two demographics together make up **48% of the workforce** as the youngest generation starts entering the workplace.

Needless to say, both these generations have high expectations for technology and innovation. Increasingly, they [value experiences over things](#) while being progressive and socially responsible. In general, millennials and Gen Z prefer working with organizations that uphold corporate social responsibility.

2019 PORTER NOVELLI/CONE REPORT

Gen Z respondents



Will research whether an organization truly upholds the stances it publicly takes



Want companies to contribute to tackling social and environmental issues



The COVID-19 pandemic has accelerated the shift to digital for all generations, and this disruption has created many opportunities as well as challenges. For instance, the [shift to online conferences and webinars](#) has put pressure on the revenue societies generated from conventional in-person events, while [traditional textbook sales are being hit](#) by all-inclusive subscription content bundles and cloud-based services. In the face of [declining society membership](#) and [shifting publication sales models](#), societies and publishers will need to review their current strategies, reimagine their customer journey, connect with their target audience authentically, and invest in digital outreach to capture the ECR market.

ECRs make up a large portion of the academic workforce, [fueling the majority of scientific research](#). Logically, they should be the prime target market for societies aiming to maintain or increase their membership, as well as for publishers providing author education and professional development solutions. However, ECRs face a number of challenges that limit their ability and willingness to pay membership fees, subscriptions, etc. By exploring these challenges and the underlying needs of ECRs, this whitepaper will shed light on how academic societies and publishers can effectively reach and engage with this group.

GENERAL ENVIRONMENT AND CHALLENGES OF ECRs TODAY

ECRs represent the transition stage between a doctoral degree and tenured academic positions. Their wellbeing provides an insight into the health of academia. Even before the COVID-19 pandemic, ECRs faced **many challenges** such as lack of job security, insufficient funding, pressure to publish, and limited opportunities for career progression.

For example, in the US, the number of PhDs awarded in the life and health sciences has gradually increased since 1997, but the proportion of PhD graduates employed as tenured and tenure-track faculty has decreased. Consequently, many **PhD graduates have sought employment in the private sector** instead.

In an Australia-based study, **ECRs reported “loving” research** and the job fulfilment they derived from research, mentoring, and teaching as they are making meaningful contributions to society.

However, many made negative reports as well:



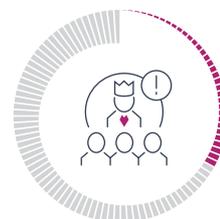
60.1%

Lack of support from institutional superiors



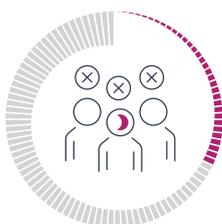
48.9%

Job insecurity



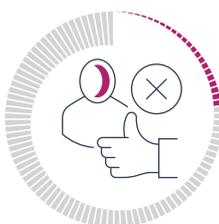
33.1%

Poor leadership and management



31.9%

Poor workplace culture



22.6%

Lack of recognition



38.1%

Lack of work-life balance

ECRs with infants and young children contending with daycare and school closures

Backorders of essential laboratory products and reagents

Non-essential lab work temporarily halted

CHALLENGES POSED TO ECRs DUE TO COVID-19



Junior faculty facing hiring freezes, ordering and pipeline restrictions, and lack of a community

Graduates and postdoctoral fellows unable to perform experiments

Capacity restrictions limiting the pace of research

Delays and potential lapses in funding

Although there have been some positive changes in the past few decades thanks to increased awareness of unconscious biases and their impact on hiring, salary, and promotion decisions, ECRs today **face a combination of old and new obstacles**. The longstanding concerns of ECRs are still not resolved: there are more PhD graduates than there are tenure-track faculty positions, institutional support is increasingly moving toward extramural grant funding, and increases in budget for funding rates by granting institutions are not growing in proportion to the growth of applicants.

As for the new obstacles, the COVID-19 pandemic has had a particularly unique and severe impact on ECRs. Lockdowns and pandemic safety measures **halted non-essential lab work** at a stage in their careers when productivity is paramount, and they continue to face delays in their work due to potential lapses in funding. **Participant recruitment in medical research studies** was slowed down or halted altogether. All these are factors beyond the control of ECRs. In addition, **female scientists and those with children under 5 years** faced the largest declines in time devoted to research during the pandemic. For ECRs impacted by laboratory closures and the lack of childcare support, the opportunity for career growth was also affected.



On the bright side, the pandemic has enabled ECRs to attend a larger number of conferences globally on virtual platforms, which is something they have been unable to do in the past due to financial or logistical issues as well as childcare constraints.

In this environment, academic publishers and societies need to reexamine whether they are catering to ECRs' needs. Overall, society membership is **declining, largely due to member dissatisfaction with career support services**—the services ECRs generally need the most. Thus, societies need to take another look at what value they provide to ECRs and how they “market” this value. It is also worthwhile to examine how ECRs discover, access, and share research, to understand how societies and publishers can adapt to meet their needs. This will be the focus of the next section.

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HOW ECRs FIND, READ, AND COMMUNICATE RESEARCH

A recent survey found [noteworthy differences in ECRs' scholarly communication practices](#) across countries. The differences were more noticeable among ECRs from China, Russia, France, and Malaysia. ECRs from the UK and the US exhibited similarities in many aspects such as a positive attitude toward open science and less reliance on external factors (e.g., number of downloads) in deciding to read a paper.

Considering millennials' and Gen Z's high expectations for technology and innovation, it is not surprising that for discovery and access, ECRs use a range of search engines and rarely start their literature search with the university library. In fact, beyond the classic citations in papers, they often obtain a reference paper from social media or their colleagues. Essentially, ECRs will use Google or Google Scholar. Discovery and access are becoming [more personal and social](#). This behavior may be impacted by changes to journal access within a library or institution. For instance, [when big deals between publishers and libraries are cancelled](#), more-established researchers may have more access to papers through their stronger networks than ECRs do. Unfortunately, this drives further inequities between ECRs and senior researchers, and may [lead ECRs to use shadow sites like Sci-Hub](#).

SEARCH AND READING BEHAVIORS



Most used platform by ECRs in medical and life sciences



Comparatively less relied upon by arts and humanities ECRs (Possibly because, in general, arts and humanities researchers rely less on journal articles)

MOBILE PHONES FOR SEARCH AND READING

Highest usage by health sciences ECRs (likely because they often look for information while working in hospitals)

Most used by ECRs in Malaysia to search and read scholarly material

Well used for scholarly search and reading by ECRs in Russia, Poland, China, and Spain

Rarely used for scholarly search and reading by French ECRs (likely due to the clear delineation of personal and professional life in France)

As smartphone ownership continues to grow, we can expect more ECRs to use their smartphones for scholarly purposes. In advanced economies, smartphones are widely used amongst young adults (18–34 years old), and even in emerging economies, this demographic [leads in smartphone usage](#). Therefore, in campaigns targeting ECRs, publishers and societies should invest in making all digital assets and content mobile-friendly.

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ECRs are keen on sharing research but encounter time- and publisher-related restrictions in doing so. In principle, [ECRs are less worried than their mentors or senior researchers](#) are about losing any competitive edge by sharing research. While ECRs may be concerned about sharing unpublished papers and interim results because of competition, publishers' copyright restrictions are the main barrier to uploading full text copies of published papers on social media. Publishers and societies can accommodate ECRs' beliefs about sharing research by creating bite-sized content that ECRs can safely share on social media.

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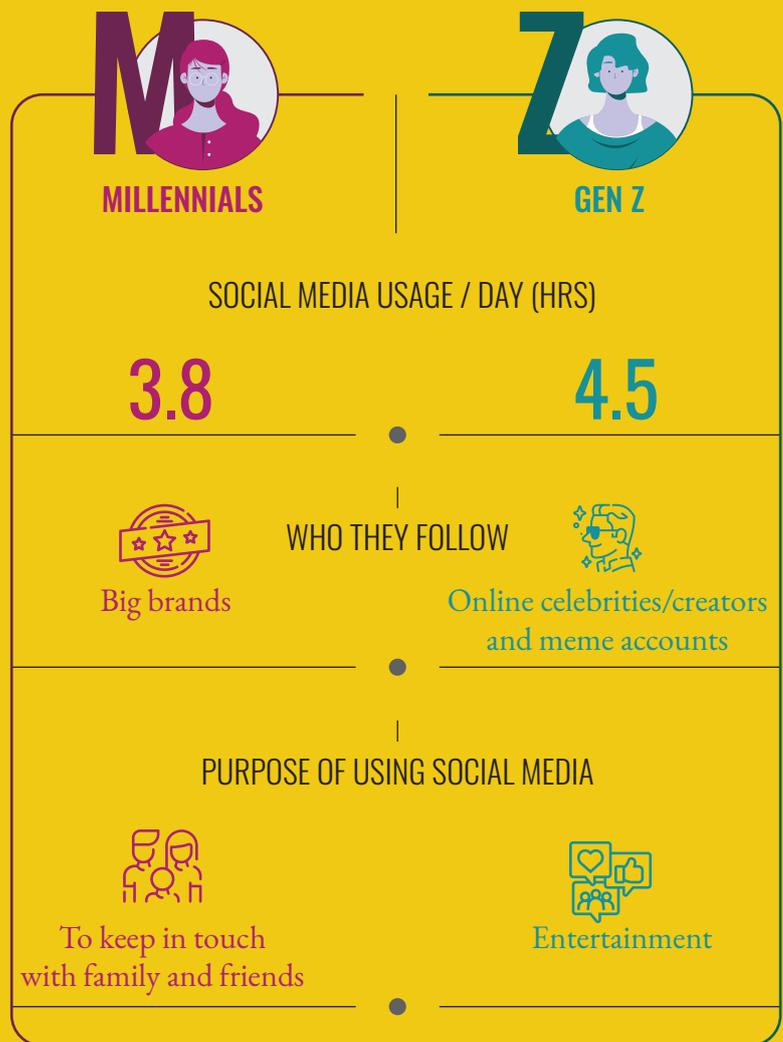
ECRs also want to proactively share their research beyond the academic community. However, many hesitate to do so because of time constraints and a [lack of self-belief](#) about their ability to communicate science to nonacademic audiences. ECRs lack experience and expertise in tailoring their communication styles to suit different audiences and channels.



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They have limited opportunities to observe and get direct feedback from peers and [mentors](#). Therefore, ECRs would benefit from programs to enhance their communication skills. Alternatively, publishers and societies could partner with marketing agencies to support ECRs, particularly non-native English speakers, in curating content and publicizing their work.

In general, although millennials and Gen Z are heavy users of social media, they tend to use it differently. A recent social media report found that Gen Z spend much more time daily on social media than millennials do (4.5 vs 3.8 hours). Gen Z tend to follow online celebrities/ creators and meme accounts more than millennials do. Millennials on the other hand are more likely to follow big brands than Gen Z. Gen Z visit social platforms mainly for entertainment, followed by keeping in touch with family and friends. While the COVID-19 pandemic and lockdowns have increased digital consumption across generations, Gen Z were more likely than millennials to increase their social media activity.



Any meaningful change in sales and business development may not come simply with a switch to new digital channels; it will call for a deeper change in the interaction cycles with customers.



— Nimesh Gosalia,
SVP, Global Academic and Publisher Relations,
Cactus Communications

Accordingly, publishers and societies need to thoroughly review their communication strategies and messaging, and amplify their efforts with the right mix of digital and social platforms.

ECRs' USE OF SOCIAL MEDIA

Social media has been useful for ECRs to showcase their research and improve networking and collaboration opportunities. It also provides them with greater visibility. Publishers and societies are well aware of ECRs' superior social media skills (in fact, the American Heart Association offers opportunities like [blogging and live-tweeting](#) specifically to ECRs). While older researchers relied on university media services or journal press releases, today's researchers use Twitter to share their findings with a broader audience. Promoting research on Twitter is correlated with [higher citation counts](#).

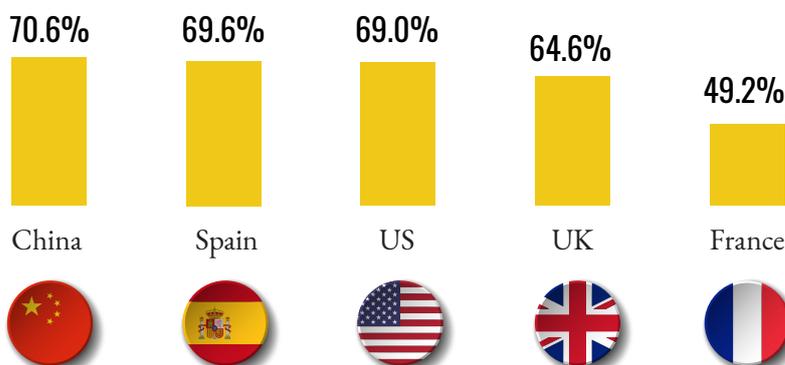
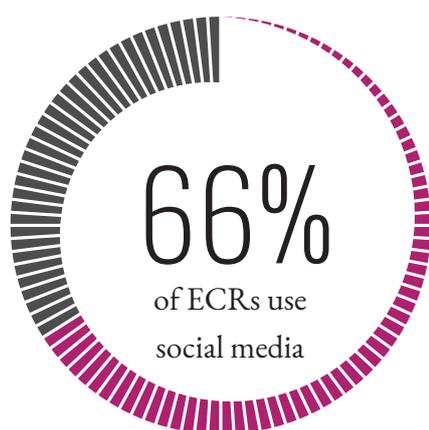


Articles in Annals of Thoracic Surgery that were tweeted about received ~3 times as many citations as those without tweets.

ECRs assign more importance than older researchers to [academic social networks](#) and [following other researchers](#) through blogs or social media.

HARBINGERS PROJECT

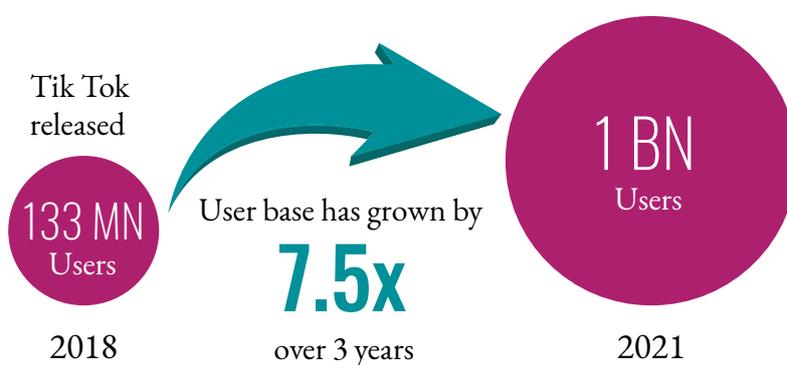
ECRs' use of social media for scholarly communication



ECRs across countries mainly use social media to stay up to date and network. French ECRs use social media mostly to retrieve information and PDFs. Further, health sciences ECRs use social media to promote their research and share news more than ECRs in other fields do.

The top two social media tools and platforms ECRs listed as beneficial were [ResearchGate](#) and [Twitter](#), both of which were ranked far ahead of Facebook and LinkedIn. It's worth noting, however, that the study included platforms such as Google Scholar, Publons, and ORCID that would not generally be viewed as social media. In general, millennials and Gen Z use YouTube and Instagram heavily but millennials use Facebook more than Gen Z. On the other hand, Gen Z use Snapchat and TikTok more. TikTok, a video-sharing social media platform, was the [most downloaded app in 2020](#). The global version of the app was released only in 2018 but the number of users grew from 133 million in 2018 to 1 billion in 2021. Over 63% of the users are below 30 years old; and outside of China, TikTok's largest markets are the US, Indonesia, and Brazil.

RISE OF TIK TOK



>63% of the users are below 30 years old

TikTok's largest markets outside China



Therefore, publishers and societies targeting Gen Z ECRs should include TikTok in their social media mix, by engaging with ECRs who are already TikTok influencers in the science communication sphere. One caveat is that TikTok users do not self-identify as researchers/scientists in their profile, so it is currently difficult for publishers and societies to use TikTok to specifically target ECRs in campaigns related to membership, subscriptions, etc.

TikTok can be a powerful tool for helping ECRs in their goal of building public awareness of science or even empowering ECRs as scientific thought leaders in their communities.

SOCIAL MEDIA USAGE AMONG ECRs IN CHINA



In China, WeChat is the most popular social media mobile application amongst the public and ECRs. Chinese ECRs rely heavily on WeChat to keep themselves updated about the research community and use it to follow and disseminate scholarly content. Similar to LinkedIn, Twitter, and Instagram, WeChat allows users to share user-generated content with subscribers. Generally, Chinese ECRs prefer to read [article summaries in Chinese on WeChat](#) rather than the original articles. These WeChat posts summarize the main ideas and critical findings of a study, besides including the authors' names and affiliations, the title of the paper, and the journal of publication.

[Chat groups on WeChat](#) are also popular in Chinese academia. They offer an opportunity for researchers to circulate ideas and questions among other researchers in the same field. The chat group enables them to crowdsource solutions to technical questions as well as solicit future collaborations.

Other social media channels used include QQ, Weibo, and LinkedIn. Although Google, Facebook, and Twitter (and [recently, LinkedIn](#)) are blocked in China, ECRs in China still use them frequently (via virtual private network or proxy servers) to network with their international peers.

An example of the power of WeChat in China is how *The BMJ* tried to [penetrate further into the Chinese research community](#). The journal decided to repurpose their key articles and optimize them for WeChat.



Within 3 months, the number of followers on *The BMJ's* WeChat account increased by

>14%

HOW SHOULD ACADEMIC PUBLISHERS AND SOCIETIES EFFECTIVELY ENGAGE WITH ECRs POST-COVID?

As digital consumption by ECRs continues to increase, publishers and societies will need to invest more time and resources in digital solutions. They need to review existing communication strategies to effectively convey and connect their organization's brand value to ECRs, focusing on social and mobile-friendly campaigns.

In a global study of how [millennials and Gen Z used technology during the COVID-19 pandemic](#), 43.9% of the respondents stated that they would share content that appears “scientific.” Given the widespread misinformation related to COVID-19, this international study also investigated whom and what millennials and Gen Z trust. The study found that although they rely on multiple sources for their COVID-19 news, mainstream national media (and their social channels), search platforms, and international news media are ranked the most trustworthy.

TikTok has also been useful in public health education. Many medical professionals have used TikTok to share videos to disseminate facts and dispel myths related to COVID-19.

VIEW COUNTS OF SCIENCE-RELATED HASHTAGS ON TIKTOK



An example of a successful TikTok-focused communication strategy is [UNICEF's campaign in the Middle East and North Africa](#) (MENA) to combat both the spread of COVID-19 and misinformation. A mixture of content pieces was used together with social listening and monitoring tools. In this campaign, the partnership with TikTok was particularly successful in reaching MENA's Gen Z users on a large scale. In yet another example from the US, the [Covid Campus Coalition](#), a student-led organization, used TikTok and Instagram to combat misconceptions surrounding COVID-19 vaccines. The organization shared accurate and timely information about existing and emerging COVID-19 vaccines, tailoring content for college students.

Aside from an increase in digital consumption, it is important to note that millennials' and Gen Z's [sense of social responsibility and brand purpose](#) has also grown stronger in the new normal. Lockdowns and restricted living have increased their discontent. [Euromonitor's 2020 Lifestyles Survey](#) found that millennials (46%) and Gen Z (48%) will be more engaged in their community in the next 5 years. As their lives have been disrupted by the pandemic, they are getting frustrated. They are [holding themselves and others accountable on social issues](#) and will shun companies and employers whose actions conflict with their personal values.

Publishers and societies will need to connect to the values and priorities of ECRs, such as open science, carbon neutrality, and research sharing, through authentic and publicly verifiable action plans.

Publishers and societies should also consider ECRs' mental wellbeing and career-related uncertainty and stress. By showing ECRs that they care about both ECRs themselves and the world at large, societies and publishers will gain stronger brand awareness, which will ultimately drive membership, conference attendance, readership, and revenue.

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Another important opportunity for ECR engagement is virtual conferences. Researchers in a [2021 Nature poll](#) expressed a strong preference for virtual conferences in the post-pandemic era despite "Zoom fatigue." In fact, 74% of the respondents stated that scientific meetings should continue to be virtual or have a virtual component after the pandemic ends. Younger respondents, especially students, appreciated the lower cost of virtual conferences. Accessibility is cited as the main benefit of virtual conferences, as researchers can attend these meetings without compromising their teaching workload or having to find childcare. However, overwhelmingly, the biggest drawback is the lack of networking opportunities. Therefore, moving forward, publishers and societies should consider a hybrid approach to conferences, identifying tools and technology to organize breakout sessions that enable researchers to network in-person and virtually. A career support/advancement component to virtual conferences is likely to be appreciated

by ECRs, especially if it includes opportunities to build contacts with senior researchers and potential collaborators. Moreover, both societies and publishers can seize the opportunity to provide ECRs resources on navigating virtual conferences, such as tips on effectively presenting papers online or improving their virtual body language.



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CONCLUSION



As ECRs constitute a large pool of global talent, engaging them should be a key focus of every publisher and society. Marketing efforts should start by defining the target audience—by region, career stage, or discipline—and thereby the marketing and social media mix. Societies and publishers have to reimagine ECRs’ journey from awareness to advocacy to identify various touch points. Needless to say, all publishers and societies will have to shift campaigns and map them into ECRs’ diverse and multichannel digital world. They should ensure that the messaging is authentic and that their brand resonates with ECRs’ values and beliefs. As engaging with ECRs is not a one-off effort, publishers and societies will need to be consistently proactive on social media, creating brand experiences and content pieces that encourage organic communication.

Partnering with a trusted agency will help alleviate the pressure on the internal team to understand specific markets and ECR behaviors. It will also enable publishers and societies to launch into the market quickly and efficiently.

Is your organization trying to engage ECR members, but with limited success? Impact Science can partner with you to refine your marketing strategy and develop engaging content tailored to this demographic, suitable for a wide range of social media platforms.

To know more, visit
<https://www.impact.science/contact-us/>

or scan the QR code below

