

## OPEN PEER COMMENTARY

# Community, Equity, and Cultural Change in Open Research: A Response to Open Peer Commentaries

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We thank our esteemed colleagues who provided insightful commentaries on our feature article “(Why) are open research practices the future for the study of Language Learning?” (Marsden & Morgan-Short). Their responses very usefully illustrated and amplified points in our review, provided nuance and extension to some of our ideas, and pushed us to make stronger statements and deeper considerations of some of the facets and consequences of open research practices.

Three common and prominent themes seemed to emerge from the responses, which we identify as: Community; Equity, Diversity, and Inclusion; and Changing Culture, and we organize our own response around these themes. We note that some of the issues raised by our generous commentators

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were addressed in arguments that had originally been included in our submitted manuscript (Marsden & Morgan-Short) but, due to length considerations, had to be moved to its Appendix. That Appendix can be found in the online Supporting Information for the Marsden & Morgan-Short article and is also held on the Open Science Framework (OSF) at <https://osf.io/ru5n4>. We refer to some of those arguments in our response here.

## Community

We were pleased that one prominent theme throughout the commentaries emphasized the value of community in open research, picking up on points made by Marsden & Morgan-Short and in the Marsden & Morgan-Short Appendix. For example, Marsden & Morgan-Short noted the value of community-driven ambitions for the future of open science. In the Appendix, the sections “Improving the Number and Range of Research Participants Through Open Research” and “Improving The Range Of The Research Producers Through Open Research” argued that open research offers ways to expand our research beyond WEIRD (Western, Educated, Industrialized, Rich, and Democratic; Henrich et al., 2010) participant samples by providing innovative ways for our community to increase the racial, ethnic, socio-economic, and geographical diversity of researchers and participants.

Importantly, the commentaries significantly amplified a number of urgent issues about community. For example, Fernández Pinto and Gutiérrez Valderrama argued that scientific knowledge should be communal, and Nagle proposed that researchers should build a more equitable, open, and accessible research model collectively, as a community of scholars and practitioners. In reaching for such goals, Girolamo et al.’s community-focused commentary argued that race and dis/ability should be centered by the open science community, and Chiware and Skelly highlighted the need for our community to include an equitably resourced Global South. Hui et al. emphasized the need for (two-way) mentorship between senior and junior researchers, of benefit to both sets of researchers and to language research itself. Finally, Gundersen and Coakley provided examples of community-driven efforts in the field of artificial intelligence to establish open access journals and to conduct reproducibility workshops at conferences.

Among these excellent comments, we highlight Girolamo et al.’s challenge for open research to include “community and stakeholder involvement, particularly for individuals who have language disorders and who are racially and ethnically minoritized.” Girolamo et al. ask whether open research reflects the voices of participant communities. We support the ambition

to increase community and stakeholder voices in the open research community and highlight the exemplary work of Showstack and colleagues (Showstack, 2022; Showstack, in press; Showstack et al., 2022) as one model for achieving this goal. Showstack and colleagues' aim is to conduct accessible and community-engaged research to combat language barriers that create inequities in healthcare, which highlights access as an essential aspect of open research. Consistent with Girloamo et al.'s call for open research to reflect community voices, Showstack and colleagues' work has also created a more open space for those who participate in the research process, as the researchers have engaged community stakeholders in the coproduction of research. For example, in developing the project, the researchers held stakeholder meetings to learn about community members' perspectives and experiences. Also, in disseminating the results, the researchers shared findings not only through academic publications, but also in open and accessible forms with community members, such as in-person workshops at which additional decisions were taken about how to further disseminate open, accessible information (e.g., blog posts, videos, and policy statements) in ways that impact the community. There is much for us to learn from this approach to open research even as we consider its challenges. Showstack notes that the process is slow, requires accessible writing skills (which researchers have not always developed), and does not necessarily result in typical research outputs that are valued by the promotion and tenure system. These challenges, however, are not insurmountable, and the work can be upheld by the University Scholarship and Criteria for Outreach and Performance Evaluation model of scholarship (Hyman et al. 2010), developed to recognize all forms of scholarship equitably.

Another important aspect of community building is the collective energy invested in the goals of open research. Nagle wrote "it may be time to ... [invest] researchers' collective energy in curating a set of validated and open research tools." This has indeed been, since 2012, one of the main missions of IRIS (<https://www.iris-database.org>), the repository for materials, data, analyses, and post prints in the language sciences. IRIS now contains a wide range and very high number of open research tools. Admittedly, the extent to which these tools are all validated is not always known or ideal. IRIS's quality assurance mechanism is that the materials and/or data that are uploaded to the site have been used for a peer-reviewed published article, chapter, or conference proceedings, or for an approved thesis. This mechanism, thus, draws on a peer review and evaluation system that does not *necessarily* demand high standards of reporting validity or reliability. However, to further establish validity, IRIS now asks researchers to provide information about instrument

and/or rater reliability, which is a precondition for validity. Because IRIS is (a) open to all published materials, independent of any single set of researchers selecting its contents, which could bias its contents, and (b) provides highly field-specific metadata from which researchers can create and find collections of specific materials, it provides the materials and data needed to further validate our field's tools. For example, materials tagged with "speech" and "second language" would provide filtered results of a collection of materials and data that could be fed into various validation approaches to identify and further refine the most valid and reliable research tools for future research. Importantly, the more our research community invests in IRIS (both as individuals contributing materials/data and as a field supporting the infrastructure and labor needed to sustain IRIS), the greater the potential of IRIS will be, reflecting the desired effect of Nagle's call for a collective sensibility and a commitment to reinvest in one another (for more on validity and reliability, see the sections "Improving Validity with Open Research" and "Improving Reliability with Open Research" in the Marsden & Morgan-Short Appendix).

In potential tension with a collaborative and community-oriented ethic sit the notions of capitalistic-driven and individualistic research. Fernández Pinto and Gutiérrez Valderrama's commentary argues that "open research policies might end up just incentivizing the privatization of publicly funded science" (p. 3) and that privately funded research may be exempt from open research mandates. This is indeed worth considering: Open research places extra demands on researchers (increasing time and cost) and at the same time diminishes financial worth (commercial value) because the very act of making data, materials, and findings easily available eliminates or reduces any commercial value they may have. That is, could the characteristics of "innovative" and "original," which sit at the heart of many definitions of "research," be weakened if the products of research are not protected? Indeed, copyright laws have been developed to protect researchers' intellectual property. Running counter to this, most rationales behind open research assume that researchers are more strongly driven by intrinsic interest in seeing questions addressed by their communities rather than by desire for commercial advantage. However, researchers also have a right to work for personal profit. If commercial activities (e.g., holding validated proficiency measures, effective educational or clinical interventions, or valuable datasets behind paywalls) offer more personal reward than can be offered by mainstream academia, then, as Fernández Pinto and Gutiérrez Valderrama caution, we could perhaps see some research simply evading open research mandates by going private. We think that perhaps these concerns are less relevant to language sciences than in some other disciplines. (Is most

research really privately funded in language learning research, other than a small amount of research in testing or other subdomains?). However, we agree that it is definitely valid to ask ourselves: To what extent and how should we as a community prevent privately funded research from evading mandates that enforce open research practices? To this end, different stages of research and development are likely to require different treatments. For example, privately funded fundamental research—which underpins the products (measures, interventions, or datasets)—should, we believe, be beholden to the same top-down mandates as state-funded research. Similarly, privately funded PhDs should be liable to the same requirements as agency or institution-funded PhDs. To ensure this, we believe that publication and incentivization structures are responsible for making privately funded fundamental research accountable to open research requirements. That is, editorial, governmental, and institutional policies and procedures have jurisdiction over open research practices, and to gain traction and respect in the research community, privately funded research cannot be an exception. In contrast, we do see that some products (such as measures or interventions) may, in some circumstances, need to be held under a commercial licence to sustain them (e.g., to fund further development, customer support, distribution, or technical maintenance of infrastructure). As we noted, the services behind open research practices are not cost-free. That is, although, ideally, we would also like to see *all* products of research maintained by centralized funding, we realize that this may not always be possible.

### **Equity, Diversity, and Inclusion**

A second theme that was befittingly amplified throughout the commentaries was that of equity, diversity, and inclusion. On this theme, in the Marsden & Morgan-Short Appendix, we discussed why open research has the potential to diversify our community (see the sections on improving the range of research participants and producers referred to above). At the same time, Marsden & Morgan-Short noted that epistemological and linguistic biases work against scholars outside an Anglophone center and argued that “the field must maintain equity as a central goal” in implementing changes to incentivization structures (p. 8). We also cautioned about the harm that publisher “big deals” can incur on small, fragile open access initiatives (including, but not restricted to, the Global South), and we described how this phenomenon can perpetuate global inequality. Finally, we made recommendations about how to better move forward with open access given our conclusion that open access must surely be “what is most urgently needed to achieve better equity in the global knowledge economy” (p. 30).

The emphasis on equity, diversity, and inclusion was substantially extended throughout the commentaries. Nagle states that through open research, teams of researchers can work together “to collect, aggregate, and analyze data, yielding findings that are more inclusive and representative of the diverse populations.” Girolama et al. recognize the potential of open research to advance equity in our field, but they also argue that this will not happen without proactive planning (see Girolama et al., 2023, for an example of this work with BIPOC [Black, Indigenous, and People of Color] from clinical populations). Steinhardt et al. caution that changes in research practices brought about by open research should not devalue epistemological perspectives that may not align with certain open research practices and should not further social and economic inequalities, which are especially clear in the Global South. Chiware and Skelly point out particular challenges of the Global South, noting that scholars are ready to adopt open research but that they have also seen open science as limiting because of multiple barriers, such as inadequate research infrastructures, technology limitations, limited funding, lack of policy, limited access to top-ranked journals, and high costs for open access publishing. They issue a strong call for researchers, intergovernmental bodies, practitioner communities, and members of the public to work together to achieve equity and social justice in open research practices across the globe.

With open access being one of the most pressing issues in regard to equity, we highlight Al Hoorie and Hiver’s commentary on the postprint pledge, as one open research practice that provides free and equitable access to research (see also Marsden & Morgan-Short Appendix, pp. 17–18). This pledge asks researchers to commit to posting the peer reviewed, accepted version of a manuscript that has not been copyedited or type-set by a publisher to a public repository. This practice is permitted by most journals (although some publishers impose an embargo period, such as Wiley’s two-year embargo, though one year for *Language Learning*). If widely adopted, postprints would allow researchers, practitioners, and the community to access research reports that are very closely matched with their final published reports (70% of which are estimated to still be behind paywalls; see Al-Hoorie and Hiver’s commentary). Indeed, the infrastructure for postprints already exists; for example, IRIS hosts postprints to support this initiative. Thus, we strongly encourage researchers to adopt the postprint pledge.

At the same time, our field cannot be complacent in regarding postprints as a solution to achieving comprehensive and fully inclusive open access, as postprints run alongside the default commercial publishing model. As we and others have argued before, the current system of open access publishing may

be further entrenching the local and global inequities that we find in our field. For example, a 2020 metascientific analysis across 11 fields of research that examined who is publishing open access articles (Olejniczak & Wilson, 2020) showed that researcher characteristics, such as male gender, employment at a prestigious institution, and being at a more advanced career stage, increased the likelihood of a researcher publishing open access. This, combined with the citation advantage that is commonly, but not always, found for open access articles (Langham-Putrow et al., 2021), suggests that those scholars who already have greater access to resources and job security may benefit the most from open access, in particular if citations are considered for decisions related to hiring, promotions, tenure, grants, and awards. In addition to platinum journals (free to publish, free to read), other efforts can help to address this issue, such as equity workshops to find “pathways to sustainable and inclusive OA [open access] publishing without the need for any researcher-facing charges” (Legge, 2023) by reframing the conversation to focus on “open equity” versus “open access” (Hill, 2023) and by acknowledging issues beyond funding that need to be addressed (Landis et al., 2023). However, we must be aware of the publishing landscape, largely consisting of an oligopoly of publishers that, according to one analysis, charged an average of \$1,989 to publish gold articles and \$2,905 for hybrid articles and generated \$1.06 billion in revenues from these articles (Butler et al., 2023), which assumedly contributed to reported profit margins as large as 37% in 2017 (Aspesi et al., 2019). Urgently, both bottom-up researcher initiatives, such as the postprint pledge, and top-down institutional and organizational initiatives, such as open access mandates imposed by funding agencies or via institutional incentivization, need to be aligned, as called for in Laasko’s commentary, to change this landscape. One strong option would be for our professional organizations to host platinum open access journals, with membership fees reducing the need for (large or any) article processing charges thus obviating noninclusive publisher deals.

Clearly, though, equity in open access along with other open research initiatives (e.g., IRIS, OSF [<https://osf.io/>], and open software, such as jamovi [<https://www.jamovi.org/>]) will by no means fully address the global injustices in research (see also Marsden & Morgan-Short, pp. 29–30). As highlighted by Chiware and Skelly’s commentary, there are communities that cannot access research for much more fundamental, socio-economic reasons (e.g., lack of electricity, hardware, or education opportunities). Marsden & Morgan-Short could have more fully articulated such imbalances between the Global North and the Global South specifically, as claimed by Chiware & Skelly (p. 3), and

thus we appreciate the focus on equity among the commentaries and the opportunity to highlight it further through this response.

The lack of equity in the global-knowledge economy, particularly for researchers in emerging economies, has been one of the driving concerns leading us to cofound with communities of colleagues open research endeavours, such as IRIS and OASIS (<https://oasis-database.org/>), and community outreach groups, such as Bilingualism Matters Chicago (<https://bilingualism-matters.northwestern.edu/#!/home>). But, as Steinhardt et al. note, we also observed that resources are needed to support open research practices (e.g., to support the data and materials infrastructures), and these resources are clearly likely to be less available in certain regions or institutions. The situation is circular: Over time, the advances in understanding, which result in technical enablers such as the Internet, hardware, and software, could be more equitably produced, accessed, and used, if we were better at open research practices at the initial point of creating those advances in understanding. Thus, we further challenge all, but especially established researchers, large professional organizations, and wealthier institutions and funders, to support the provision of resources that are needed in the Global South and other underresourced communities, always with an eye towards avoiding (further) harm done to these communities.

More generally, our community can adopt a definition of open science in which diversity, equity, and inclusion are inherent, such as “the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility, and equity” (The White House, 2023). This definition builds on the definition of open research adopted by Marsden & Morgan-Short, which focused on transparency and accessibility. Of course, no single definition or initiative can address all challenges. It is by working in concert at many levels that we can hope to instigate changes that we are confident are for the better.

### **Changing Culture: Top-Down and Bottom-Up**

An important theme emerging from several commentaries relates to aspects of research culture that should undergo change and the importance of aligning policy (top-down mechanisms) and practice (often bottom-up initiatives and practices on the ground). In the section “A Coevolution of Open Cultures, Infrastructures, and Behaviors: Concluding Remarks With a Sight on the Future,” Marsden & Morgan-Short discussed a range of initiatives that are changing research cultures. Also, Marsden & Morgan-Short mentioned the importance of incentivizing cultural change harmoniously between grassroots



(or community-driven) initiatives and top-down policy and infrastructure. The commentaries added multiple layers and ideas about how research cultures might change and the opportunities and pitfalls that these changes may engender. We highlight and elaborate on some of the commentators' key points.

First, we are delighted that the perspectives of early career researchers were represented in the commentaries (Hui et al.). We applaud their initiative for undertaking, driving, and refining open research; they consider the benefits of open research for themselves and rightly refer to how they may steer and influence more senior scholars. We add that senior scholars are duty-bound to support early career researchers in this new era and model behaviors where possible. Established academics direct programs and sit on institutional committees and panels and so can influence the infrastructure in which less experienced colleagues must thrive. For example, senior researchers can facilitate open research by designing graduate education so that open practices are (at least partially) integrated into program requirements and do not require additional efforts, where possible. They can incentivize high quality data, materials, and metadata curation, as called for by Marsden & Morgan-Short, by not only asking that these research outputs be cited on curriculum vitae, with permanent identifiers such as Digital Object Identifiers (DOIs), but by also actively rewarding this practice. Similarly, Hui et al. refer to facilitating and rewarding replication research. (The link between open research and replication can sometimes remain implicit—so we restate it here for emphasis: More and better replications could happen in an environment with more open research practices, and replication studies can themselves produce open research outputs including cumulative datasets across sites.) We can protect early career researchers who engage in high-quality open replication research by ensuring such efforts are given appropriate recognition. A final way in which senior researchers could support early career researchers' engagement with open research is by submitting to (platinum) open access journals, thus perhaps increasing these journals' impact. This may help address the hegemony that commercial publishers have over impact indices so that more platinum journals are considered high impact, to which early career researchers can submit their work with lower risk to their career progression.

We strongly agree with Nagle that “it is worth considering how researchers can further systematise and incentivize [open research] on a larger scale” (p. 3). One author's direct experience tells us, without any doubt, that IRIS and OASIS—although already working at a fairly large scale—need support on an even larger scale. We believe that our professional associations, in

collaboration with journal editors, should be the curators of such repositories, which hold the work of thousands of scholars, independent of journal, publisher, and country, for the benefit of current and future generations throughout the world. We have the digital capabilities that are not too expensive to ensure that these resources constitute a core service provided by professional associations. For example, international professional associations (such as the American Association of Applied Linguistics, perhaps in collaboration with others) could host major open research initiatives, such as repositories like IRIS, OASIS, and even an open access journal.

Examples of changing cultures can be found in other fields and adapted to suit our own needs. As Gundersen and Coakley describe, the artificial intelligence research community has been establishing a flourishing and comprehensive set of open research practices since the early 1980s, and a number of these initiatives could be adapted to language research. For example, the idea of “reproducibility challenges” within the time frame of a single conference could be adapted, whereby a conference workshop stimulates (a series of) studies to be completed by the *next* year’s conference. Similarly, we could adapt the idea of producing replication reports alongside published studies in order to suit our longer time frames, by journals committing to publish replications of studies that they themselves have published (pending quality controls). Gundersen and Coakley also advocate open multi-site efforts, which are beginning to happen in our field but involve complex logistics and design features to accommodate the demands of collecting and analysing (often messy) data from human participants. Finally, Gundersen and Coakley’s notion of “degrees of reproducibility” could perhaps be adapted to constitute a useful framework to address our field’s concerns that methods and/or analyses often need to change when a study is replicated (as knowledge has advanced since the initial study was conducted).

To better understand and align top-down with bottom-up processes, meta-scientific research is needed—across all disciplines, as Laakso argues—to investigate the effectiveness and sustainability of different kinds of open research practices. Bottom-up systems tend to be discipline-motivated, grassroots initiatives. Discipline specificity brings various benefits, such as rich, field-relevant metadata and active support networks that promote usage. However, top-down infrastructures (from funders, governments, institutions) are usually unlikely to require researchers to support these discipline specific, grassroots systems, instead mandating the use of systems that are bound to specific funders, nations, or institutions. Fortunately, however, journal editors are well-placed to proactively support and even insist upon the use of discipline specific ini-

tiatives. And a small number already do—requiring, for example, submission of open accessible summaries to OASIS and/or materials, data, or code to, for example, IRIS. We believe that editors and professional associations are uniquely positioned to broker between top-down and bottom-up practices, as they can flag and nurture discipline-relevant open scholarship practices.

Another way of strengthening discipline-oriented grassroots initiatives is by larger infrastructures endorsing and collaborating with smaller infrastructures. For example, the Center for Open Science (<https://www.cos.io/>) endorses repositories that meet certain criteria, meaning that journals can display kitemarks (badges), flagging open research practices that use approved repositories. Also, the Center recently started collaborating with domain-specific or community-led projects via its Collections initiative. Although such collaborations require some resources, they hold the promise of leveraging both the benefits of field-specific relevance and sustainable support from very large open research infrastructures. However, we strongly agree with Laasko's concern about how the spawning of efforts within disciplines ("the distributed environment") can dilute the impact of discipline-specific efforts. Indeed, since IRIS began, various smaller initiatives have developed (e.g., those cited by Nagle for second language speech); each can have a slightly different unique selling point, but, to us, the need to pull together—by pooling funding and effort—is paramount, especially given the fragile context- and person-dependency of all such initiatives.

Related to the challenge of sustaining grassroots-driven change, Laasko makes timely observations about the vulnerability of institutional and individual efforts. Kindly, Laasko observes that IRIS and OASIS have "exemplarily" drawn on support from contributors (researchers) and funders. However, continued funding for existing core infrastructure is exceptionally rare (versus funding for new developments, which is more forthcoming). As such, individuals and their institutions cannot be responsible for permanently sustaining the digital architecture behind large repositories and databases. Indeed, IRIS and OASIS—the two bottom-up initiatives that Laasko refers to—will, in fact, be vulnerable, unless action is taken. We believe, as noted above, that now that these resources are established, it is the professional associations' responsibility to adopt and curate these assets for the benefit of the communities that they serve.

A final, but perhaps the most important, cultural change is that of research assessment. Senior scholars are in prime position to influence research assessment of all types as they contribute to panels and committees that evaluate

the quality and quantity of research products for promotion and funding. Thus, we reiterate Laasko's hope that the Coalition for Advancing Research Assessment (2022) improves alignment between policy and practice by not only diversifying ideas for assessment that promotes open practices but by enabling tangible steps to change funder and institutional infrastructures. Such changes are necessary if incentivization of individuals is to play a genuine role in shifting cultures. The importance of incentives was also foregrounded by Steinhardt et al. and was noted in Marsden & Morgan-Short's introduction about rationales and the section "Addressing Speed and Costs Barriers." It seems that existing personal incentives, such as increased citations alone, have not yet substantially increased participation in open research practices. Thus, incentivization measures used in research assessment need to be established and monitored carefully to check their effectiveness and to ensure that they do not have unintended consequences. For example, a sudden blanket requirement for all materials and data simply to be made open is not feasible and may disadvantage certain epistemologies or research topics; instead, the general principle "as open as possible and as closed as necessary" (H2020 Program, European Commission, 2016, p. 4) is more appropriate, useful, and inclusive.

### Concluding Remarks

We reiterate our belief that open research practices are a necessary part of the future of language learning research, as they bring a myriad of benefits to the quality and quantity of research and to the scope of participants, (co)producers, and consumers. We also reemphasize our cautionary note that open research practices per se are not sufficient to address a range of challenges, for example: (i) the likely limited or slow impact of open research on fundamental issues such as sound theoretical reasoning and methodological appropriateness; (ii) the laborious rate of change that can be expected without radical top-down investment and mandates; (iii) the importance of evaluating, via metascience, both the need for and the effectiveness of open research endeavours in order to ascertain the positive and negative impacts of interventions; (iv) the limited and very gradual impact of open research on issues such as socio-economic and linguistic inequities (from local to global, especially for the Global South); and (v) the need for increased responsibility from our professional associations to ensure that sustainable, comprehensive, and inclusive efforts are made. Nevertheless, we are hopeful that with a cautious, step by step approach, and carefully managed expectations, progress towards a sustainable open research culture is feasible and will bring large and tangible benefits in the long term.

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