



Towards Diversifying Early Language Development Research: The First Truly Global International Summer/Winter School on Language Acquisition (/L+/) 2021

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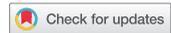
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ABSTRACT

With a long-term aim of empowering researchers everywhere to contribute to work on language development, we organized the First Truly Global /L+/ International Summer/ Winter School on Language Acquisition, a free 5-day virtual school for early career researchers. In this paper, we describe the school, our experience organizing it, and lessons learned. The school had a diverse organizer team, composed of 26 researchers (17 from under represented areas: Subsaharan Africa, South and Southeast Asia, and Central and South America); and a diverse volunteer team, with a total of 95 volunteers from 35 different countries, nearly half from under represented areas. This helped worldwide Page 5 of 5 promotion of the school, leading to 958 registrations from 88 different countries, with 300 registrants (based in 63 countries, 80% from under represented areas) selected to participate in the synchronous aspects of the event. The school employed asynchronous (pre-recorded lectures, which were close-captioned) and synchronous elements (e.g., discussions to place the recorded lectures into

KEYWORDS

Online conference;
geographic diversity;
metascience; networking

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participants' context; networking events) across three time zones. A post-school questionnaire revealed that 99% of participants enjoyed taking part in the school. Notwithstanding these positive quantitative outcomes, qualitative comments suggested we fell short in several areas, including the geographic diversity among lecturers and greater customization of contents to the participants' contexts. Although much remains to be done to promote inclusivity in linguistic research, we hope our school will contribute to empowering researchers to investigate and publish on language acquisition in their home languages, to eventually result in more representative theories and empirical generalizations.

Introduction

There have been numerous calls of attention to the lack of diversity in developmental science and language acquisition research (Kidd & Garcia, 2022; Moriguchi, 2021; Nielsen, Haun, Kärtner, & Legare, 2017; Singh, Cristia, Karasik, Rajendra, & Oakes, 2023; Slobin, 2014), which is apparent in numerous ways. For example, Kidd and Garcia (2022) highlighted the fact that only a very small percentage of languages are represented in major language acquisition journals: Considering 45 years of papers published in the *Journal of Child Language*, *Language Acquisition*, *First Language*, and *Language Learning and Development*, less than 2% of the 7,000+ languages of the world were represented, and many through only a handful of articles. Just as stark are geographically-defined participant sampling biases, as more than half of the participant samples in articles published in four leading developmental journals in both 2008 and 2015 came exclusively from the United States of America (Nielsen, Haun, Kärtner, & Legare, 2017). In fact, over 90% of participant samples were from the USA, UK, Australia, New Zealand, and Europe. These world-level geographic biases are conceptually and empirically related to the often noted underrepresentation of minorities and minoritized groups among participants and researchers, and the resulting threat to the body of theoretical and empirical research that ensues (e.g., Hartmann et al., 2013; Singh, Cristia, Karasik, Rajendra, & Oakes, 2023). Previous work has shown that a lack of diversity in research has negative consequences for our field's theory, methods, and data, as well as the people involved (Blasi, Henrich, Adamou, Kemmerer, & Majid, 2022; Christiansen, Contreras Kallens, & Trecca, 2022; Cysouw, 2011; Moriguchi, 2021; Singh, Cristia, Karasik, Rajendra, & Oakes, 2023; Stoll & Bickel, 2013). For instance, how can our theories be widely relevant when they are based on research carried out by a small and restricted sample of researchers studying limited samples? Would the same conclusions about the nature of the language learning mechanisms be drawn if more diverse researchers and participants were represented in mainstream journals?

In this paper, we report on our experience organizing an educational event aimed at contributing to the general aim of overcoming these worldwide biases in the diversity of *researchers*, which we hope has also positive effects on increasing diversity of participants (in terms of languages and origin). The *First Truly Global/L+/International Summer/Winter School on Language Acquisition (/L+)* was a free, online, 5-day, 3-timezone winter/summer school with the short-term goal of sharing expertise on early language development research among early career researchers and with the long-term goal of empowering

researchers everywhere by facilitating broader access to globally-informed knowledge and technology. The current paper provides an overview of the /L+ /2021 School, presenting quantitative analyses and qualitative information on how it was organized, who participated, and how the experience was received.¹ In the Future Considerations section at the end of this manuscript, we discuss how the short-term effects of events like our school address the long-term goal of increasing diversity.

How (online) conferences can help increase diversity among researchers

Conferences in general, and online conferences in particular, can contribute to geographic diversity in two broad ways. First, attendees can strengthen their networks through active participation in a conference. Vertical links between students or early career researchers and senior researchers can help the former obtain training opportunities and advice, and horizontal links between researchers of the same seniority are associated with higher productivity, dissemination, and funding (e.g., Cloete, Maassen, & Bailey, 2015; Uwizeye et al., 2022). In addition, attendees may see others from similar backgrounds attending and giving lectures (and constitute positive role models, Heilman, 2001), which could help combat impostor syndrome (Jaremka et al., 2020).

Second, international conferences can address the fact that a wide range of essential training is not always accessible in home institutions. Training on important techniques and skills such as how to do reproducible science or critique current theoretical perspectives, is often informal, done either as part of training within a particular lab or implicitly in corridor conversations, talks and lab meetings. Researchers who are not privy to these informal methods of knowledge transmission miss out. For example, many journals require authors to use reproducible science strategies (Vazire, 2018), such as pre-registration, open materials, and data archiving. As Barbot et al. (2020) argue, unless training on these strategies is provided to diverse researchers, their work may not be publishable or widely cited (see also IJzerman et al., 2021). Although conferences traditionally do not help with this, they could, minimally by exposing participants to cutting-edge research in terms of experimental methods. A similar case can be made for theories, concepts, and results, whereby conferences allow attendees to learn about state-of-the-art research, thus making it easier for them to think of innovative ideas and/or to realize how to frame their own research in a way that is better connected with this avant-garde.

Conferences are thus, at least in theory, very useful. Nevertheless, in-person conferences carry high barriers. Setting aside the environmental concerns related to conference travel (Niner, Johri, Meyer, & Wassermann, 2020), the majority of conferences take place close to researchers in North America and Europe. This taxes particularly researchers for whom the cost of travel to an in-person conference attendance may be prohibitive. Conference bursaries are a partial solution: Due to limitations in funding and the high costs of travel from abroad, only a handful of participants are funded in this way. Moreover, there are

¹Although our paper may benefit all readers who are interested in increasing research diversity, we have tailored it to two types of readers who may benefit the most from our paper: First, readers who are thinking of organizing educational events, conferences, or workshops, and want to do this in a way that will increase participant and presenter diversity, and second, researchers of all levels who are based in parts of the world that are less commonly represented in the literature. For the former, we have created more extensive documentation that will help them increase diversity (Supplementary Materials A-I). For the latter, we have tried to highlight results, experiences, and opinions that resonate with our diverse participants and volunteers, and help raise awareness about the barriers they/we face.

other barriers aside from money. For example, visa restrictions and other legal obstacles may make it difficult or impossible to attend a conference across borders. Lengthy travel means more time and energy is required from international participants than from locals, resulting in an uneven playing field. And this is even setting aside the difficulty for parents to leave behind their children for international travel or to bring them to a conference if it provides child care.

Online and hybrid meetings do not have those issues, but they do have others. One issue that is shared across in-person, hybrid, and online meetings comes from biases leading attendees from under-represented groups to feel at a disadvantage at best, and excluded at worst. For instance, nearly all international academic conferences take place in English, which gives native English speakers an advantage. They are more likely to have the confidence and the language skills to engage fully in discussions and in question-and-answer sessions. The use of closed captions (subtitles) and sign language interpretation during talks helps reduce the barrier, even if captions are in English, since the provision of simultaneous written and verbal information aids comprehension (Diao, Chandler, & Sweller, 2007). However, this does not facilitate full engagement in all aspects of the conference. In particular, even extremely fluent non-native English speakers find it more difficult to distinguish speech in noise than native speakers (Scharenborg & van Os, 2019), which puts them at a disadvantage in crowded poster sessions, for example. Online and hybrid conferences may be held in dominant timezones of high-income countries, in which case timezone inequality can remain, as scholars from under-represented geographic regions carry the burden of attending meetings at unusual hours. For example, scholars based in Asia attending an afternoon session at a North American conference may find themselves attending at 3 am, while scholars from nearer geographic regions experience less inconvenience. Notice that timezone inequality also exists in in-person conferences, in the form of jet lag.

The /L+/ 2021 School

Addressing many of the barriers noted above, the /L+/ 2021 School was a free five-day virtual research school, held in three different timezones, designed to increase access to information on language development research in monolingual and multilingual contexts. The school was designed for early career researchers and students at all levels (e.g., undergraduate, Masters, PhD), based in under-represented countries in Sub-Saharan Africa, South and Central America, and South and Southeast Asia.

In what follows, we briefly describe the organization, structure, and strategies employed in the /L+/ 2021 School to bring diverse global populations to participate. Additional information that may be of interest to organizers of other events can be found in the Supplementary Materials² (A-I). Based both on the strengths and the limitations of the /L+/ 2021 School, we also provide tips to organizers who wish to actively engage under-represented populations in their future events.

²The Supplementary Materials document is available via <https://osf.io/fbnda>

How the school was organized

Contents and format

A crucial first step was to assemble an organizational team that included members from the populations that we were trying to reach, so that the design of the school would fit their needs. These early organizational meetings and conversations with colleagues suggested that students from under-represented areas would benefit from foundational theoretical knowledge on language acquisition and research design, and were interested in learning about methods that could be applied to their own research contexts. To address these needs, we requested from experts prerecorded lectures that covered learning mechanisms, leading theoretical debates, cross-linguistic aspects, and different child age groups, as well as research on multilingualism and language impairment, in several different topics (phonology, lexicon, morphosyntax, and environment). Each of the lectures had its live discussion session (held three times a day, once in each timezone), to reflect on the lecture with other students.

In addition, the school offered five live practical sessions that focused on methods (again held three times per day, once in each timezone). Practical sessions offered were on: 1) PsychoPy for programming and running experiments (Peirce et al., 2019), 2) CHAT and CLAN for transcription and annotation of corpus data (MacWhinney, 2000), 3) R and RStudio for statistical analyses (R Core Team, 2020; RStudio Team, 2019), 4) communicative development inventories for evaluating language development (MB-CDI: Fenson et al., 2007), and 5) questionnaires for multilingual populations.

Finally, the school provided several types of live networking events. Some were opportunities sessions (on funding and educational opportunities, such as internships), and “tips and tricks”³ sessions. Others were social sessions, like meet-and-greets.

Platforms

A key ingredient of running an online international school is the choice of technology applications and platforms. Initial efforts focused on finding an event-hosting platform that could provide all necessary conditions to keep participants engaged and informed with all the contents related to the /L+/ 2021 School but also would be available, easily usable by, and accessible to, all participants across the world. A thorough comparison of a comprehensive set of different platforms considered their advantages and disadvantages regarding specific requirements (e.g., budget, accessibility, and the possibility of running the school in three different timezones, among other minor requirements). As a result, Whova⁴ was chosen as the best candidate for the event-hosting platform of the school. In addition to Whova, we wanted a dedicated platform for social interactions and networking at all levels. Following the same procedure for choosing a platform, Gather.Town⁵ was thought to be the best choice based on all of its features. Together, these two platforms were the technical backbone of the /L+/school. Furthermore, Youtube was used for

³For example, we had a session on publishing articles in journals.

⁴<https://whova.com/>

⁵<https://www.gather.town/>

posting lecture content, and Zoom⁶ for discussion sessions. Full information on each of these platforms/applications is provided in Supplementary Materials A.1.

Reaching diverse participants

To help ensure that everyone enjoyed and felt comfortable at the school, we created, and distributed to all students, a code of conduct (see Supplementary Materials B) for the live sessions (i.e., synchronous events, to be detailed below). Additionally, we issued a statement of zero tolerance for any form of discrimination and harassment.

In order to reach students from all over the globe, the /L+/ 2021 school was held in three timezones, namely UTC + 8 (Asia/Australia-friendly), UTC (Africa/Europe-friendly), and UTC-4 (Americas-friendly). During the five days the school was held, specific time slots were reserved for viewing the prerecorded lectures. Lectures were available earlier as well, to allow students who had limited time during the school to watch at their own convenience. The discussion sessions and practical sessions were held live in each timezone (i.e., three times per day; see three examples of schedules in Supplementary Materials C).

Furthermore, accessibility for a linguistically diverse audience was increased in two ways. Most importantly, all lecture recordings were captioned so that non-native speakers of English would find it easier to follow them. Further, for discussion sessions that deaf students from Gallaudet University signed up for, Gallaudet University provided American Sign Language interpretation.

People involved in the school

In this section, we describe the diversity of volunteers, the people who ran, taught, and otherwise helped with the school. Volunteers performed many roles, including organizing (being part of the team who conceived and implemented the school), participating in committees, being a lecturer or discussant, presenting practicals, and others. A full explanation of roles is provided in Supplementary Materials D. The importance of increasing geographic diversity in students may be obvious to readers, but we argue that it was equally important to diversify the volunteers. Volunteers gain visibility and experience, as well as extend their network, by becoming involved in the organization of an international school. In return, they make the school better, as their views shape the school, and they can serve as role models to the students. We describe geographic diversity (as well as diversity in career stage) for volunteers as well as students.

Volunteers

There were a total of 95 volunteers, from 35 different countries (see [Figure 1](#)). Forty-one of the volunteers were from the school's target countries⁷ (see Supplementary Materials E for explanations and a list). They were based in universities and research institutions in 22

⁶<https://zoom.us/>

⁷The target countries represented among volunteers' countries of origin were: Argentina, Bolivia, Brazil, Chile, Costa Rica, Ethiopia, Ghana, India, Kenya, Nigeria, Philippines, Senegal, Singapore, South Africa, Uganda, Uruguay and Vietnam.

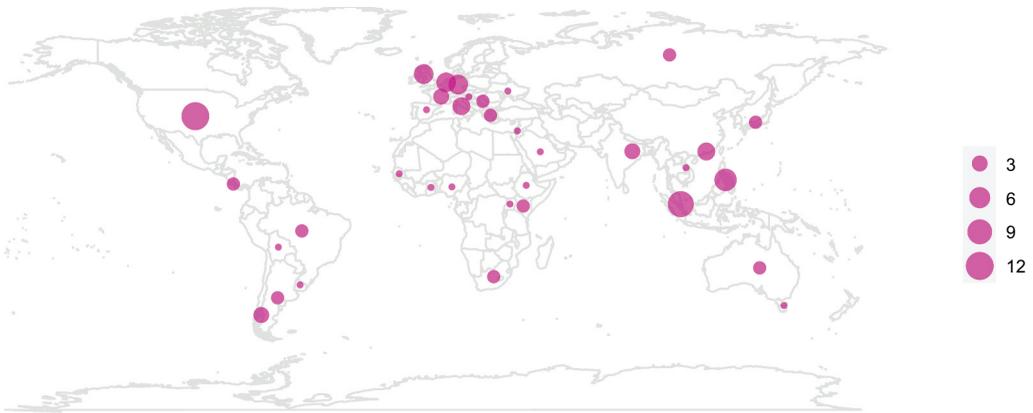


Figure 1. Map showing where the volunteers originally came from. The size of the circles indicates the number of people from a particular country.

different countries (see Supplementary Materials F, Figure SF.F1). More than a third of the volunteers were in advanced career stages (e.g., faculty members), while the others were post-doctoral researchers, students, and support staff members (see Figure 2).

Potential, eventual, and selected participants

To ensure that potential participants from as many under-represented countries as possible became aware of the school, we targeted our advertisements to specific geographic areas and created sample advertisements in four languages (Spanish, English, French and Portuguese). A dedicated website⁸ providing general information about the school, the lecturers, the organizers (i.e., the people initially involved in the conception and implementation of the school), the program and registration link were available in English. Advertisements were sent through international mailing lists (see Supplementary Materials G, for more information), through social media, and directly through key contact

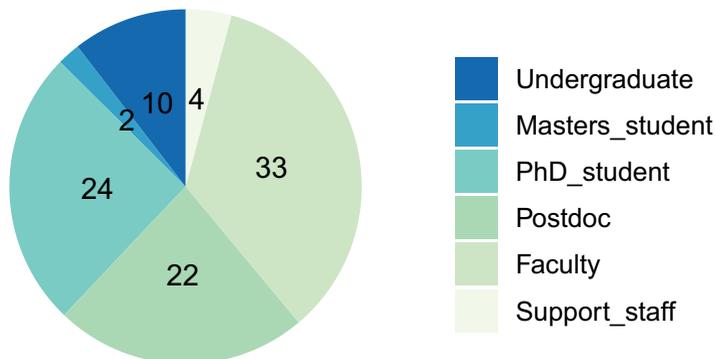


Figure 2. The diversity of volunteers in terms of university/research institute positions.

⁸<https://www.dps.unipd.it/summer-school-2021/>

persons and laboratories. Since many organizers were themselves from under-represented areas, they also emailed researchers and laboratories directly in these areas.

The 958 registrants *originally came* from 88 different countries (see Figure 3). They were *based* in 85 different countries (see Supplementary Materials F, Figure SF.F2), with 56% of the applicants being based in the target countries. More than a third were Master's students, while a quarter were PhD students, and another quarter were undergraduate students (see Figure 4). The remainder were postdoctoral researchers and other non-students.

To facilitate engaging and fruitful discussion, we limited the participants of live sessions (lecture discussions, practicals, and the various networking sessions) to 100 students per timezone (who were further subdivided as a function of their interests, resulting in groups of no more than 50 people), using a procedure explained in Supplementary Materials H.⁹ Registrants who were not selected for the live sessions were nonetheless given access to the prerecorded lectures immediately after the L+/week finished. The videos remained accessible for six more weeks. We thus distinguish registrants (everyone who registered) from selected participants (who were invited to the live sessions).

The 300 selected participants were originally from 61 different countries (see Figure 3), and were based in 63 different countries at the time the school took place, with 80% of the students being based in the school's target countries (see Supplementary Materials F, Figure SF.F2). The distribution of selected participants based on their educational level was similar to that of the registrants (see Figure 4). Master's students comprised the biggest group among the selected participants (36%), followed by PhD students (25%) and undergraduate students (25%). The remainder were postdoctoral researchers (4%) and other non-students (10%).

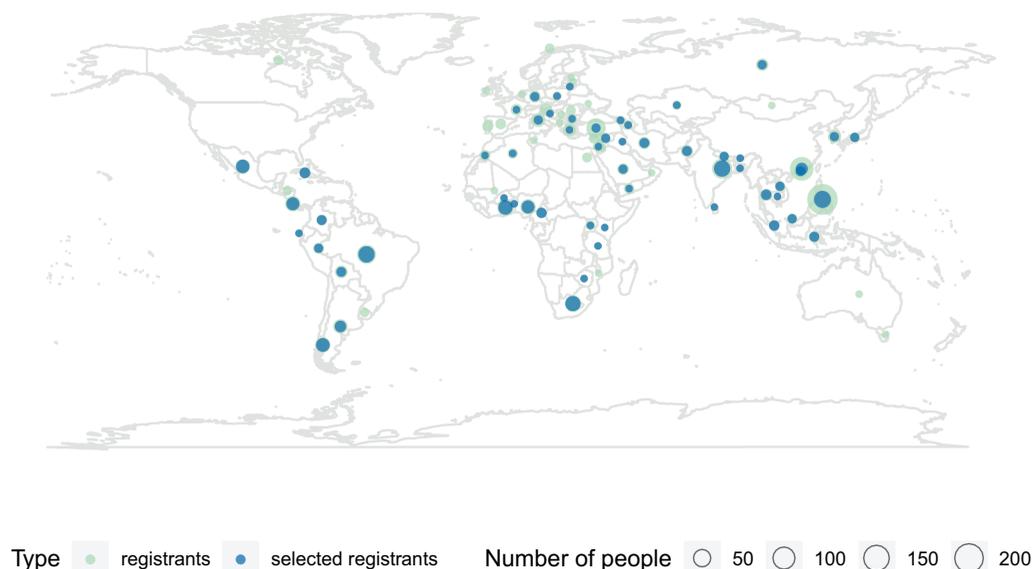


Figure 3. Map showing where the registrants (orange) and selected registrants (blue) originally came from. The size of the circles corresponds to the number of people from a particular country.

⁹We used a combination of algorithmic and human decision-making in the selection. In the future, organizers should instead consider randomly assigning registrants to live events, so as to use a randomized control design to more accurately measure the impact of these time- and people-intensive components on participant diversity. The absence of randomization is one of the reasons why we have not followed up with participants to measure effects of the school.

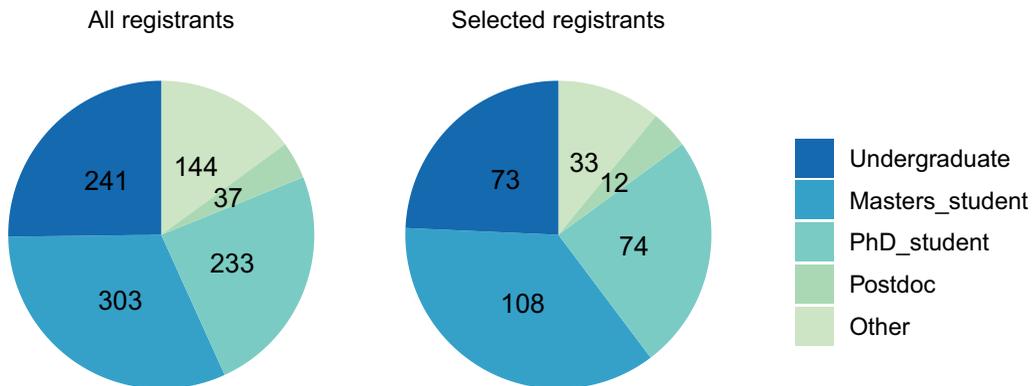


Figure 4. The diversity of all the registrants (left) and selected registrants (right) in terms of their educational level.

Reflection on diversity

Among volunteers, focusing for a moment the team of organizers included a diverse range of people, many of them from underrepresented countries. Seventeen members out of 26 organizers were originally from the school's target countries. Even though the majority of organizers were based in the US and Europe at the time of the school, our recruitment strategy worked well to reach out to potential attendees from geographically underrepresented areas, as shown by the diversity in countries found among registrants. Moreover, the number of people from underrepresented countries in an organization team directly impacts participation from those regions: For example, there were three organizers from the Philippines, which we think had a direct effect on the fact that there were 204 registrations from that country. One concrete pathway toward greater diversity is to include prior attendees as organizers: about two thirds of the people who answered a questionnaire requesting feedback after the event expressed interest in working in the organization committees in the future. This suggests that future iterations of the summer school could benefit from further expanding diversity among organizers.

That said, all of the content was provided in English, which is in itself a bias that may reduce diversity. Such a bias could be corrected by inviting presenters to use more languages, and employing subtitles to allow translation into major languages. A potentially lower-cost alternative is to keep the program in English, but hold discussion sessions in several major languages, by inviting researchers from different geographic regions to hold live sessions (see footnote 11).

Feedback from attendees

The best intentions do not suffice to make an impactful school. To this end, it is important to bear in mind how the school was perceived. After the school, attendees were invited to give feedback through a Google Form.

Out of the 300 selected participants, 164 provided feedback. Among them, 99% indicated that they enjoyed taking part in the school (Figure 5). Specifically, the respondents found the events to be interesting and informative: lectures 100%, discussions sessions 83%, and

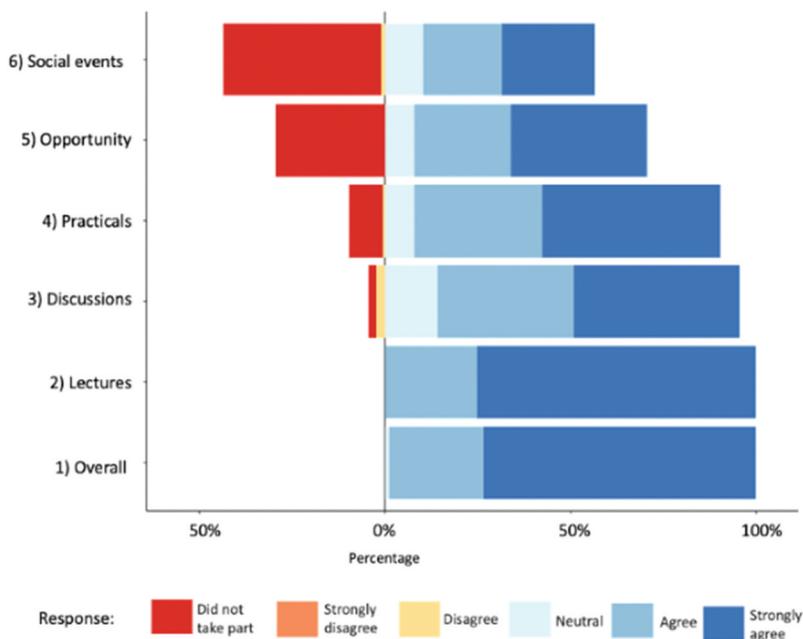


Figure 5. Collated responses from 164 participants to the evaluation questions regarding the school as a whole as well as the separate elements of the school. The precise wording of the items was as follows: 1) Overall, I enjoyed the school; 2) the lectures were interesting and informative; 3) the discussion sessions were useful and informative; 4) the practical sessions were useful and informative; 5) the opportunities sessions were useful and informative; 6) I took part in the live social sessions (e.g., speed dating) and enjoyed them and found them useful.

practical sessions 90% (see Supplementary Materials D for measures of student engagement via Whova and Youtube). Among attendees that participated in the opportunity sessions, 89% found the sessions interesting and informative. And among those participating in social sessions, 78% enjoyed them. Moreover, about 60% of respondents were interested in joining the organization team for future editions of the school.

Although this quantitative feedback was overall positive, many participants did not participate in the opportunity sessions (70% participated) and social sessions (56% participated). This might be because participants simply did not know about the events, or participants regarded lectures, discussions, and practical sessions as the main events and networking sessions as secondary. As creating social networks vertically and horizontally was one of our key aims, we could have better promoted networking sessions by repeatedly advertising them, giving more details in the advertisement, explaining their benefits and importance, exploring alternative formats (e.g., small-group mentoring; sessions held in different languages), and holding longer and more frequent sessions.

Most of the respondents ($n = 133$) also made suggestions via open questions in the form. A total of 151 suggestions encompassed several different topics, which we summarize next. The most common negative feedback was that the event was too short. The second most commonly reported challenge pertained to scheduling issues. The third largest issue

reminds us of the importance of not assuming that everyone has a broadband connection and ample memory space to install and run apps. Finally, respondents provided useful comments regarding improvements for future editions.

Duration and contents

Most attendees who mentioned duration asked for the event to be longer and/or to provide more or longer sessions (33 out of 34 comments). These same attendees mentioned difficulties keeping up with the contents of the event, especially the practical sessions (13 comments). Although the event was focused on introductory-level courses, three students still felt the need for even more basic-level content and more time to learn. In contrast, two participants suggested including more advanced courses for people in their final years of a PhD or who already have some background in the school's topics, and several others provided requests on specific topics.¹⁰ Participants also commented on the duration of the discussion sessions (one hour), stating that there was usually not enough time to address all of the topics proposed by the discussants (eight comments). These comments indicated that people have vastly different levels of preparedness. We could address this diversity of experience by providing participants with preparatory learning materials, making lecture sessions longer, or creating multiple streams for different levels of expertise. The latter idea was considered and rejected at the planning stage because it incorrectly presupposes that there are enough people working in a given field *and* at a given level of expertise in low-income countries to fill multiple streams. However, in the future, smaller group mentoring or informal discussions based on expertise level could be explored, particularly as it would also make discussions less intimidating.

Other comments on duration were focused on the non-content events. Specifically, some participants suggested including more networking sessions and opportunities for the students and volunteers to get to know each other before and during the event (four comments), as well as the inclusion of poster sessions where participants could present their own work and get feedback from others (three comments). Although we included opportunity sessions that directly discussed funding opportunities and academic soft skills, some comments asked for sessions on how to write a paper or résumé in English, prepare for submissions to grants or scholarships, and other similar issues (four comments). In response to these comments, we could have longer or more frequent networking sessions. However, the school ran three times a day, with content repeated in three timezones and the days were already very long for some volunteers (starting early in the morning and ending late at night). Longer, more intensive days might be possible in the future by building up a larger network of contributors and having increased financial resources. The same issue would be faced if we wanted to make the school itself longer, for instance by breaking up the school into two 5-day events.

¹⁰Some participants suggested including different subjects such as courses on experiment building and data analysis (three comments), lessons on different theories or models of language acquisition (one comment), and more content on sign languages (two comments) and language disorders (five comments).

Scheduling issues

Although we made an effort to accommodate as many participants as possible by providing events in three different timezones, which was largely praised by participants, there were still difficulties with the schedule. The most common reason given for not participating in some sessions was due to overlapping duties outside of the summer school (26 out of 61 responses). Two students also reported having trouble understanding their own schedules. A minority of scheduling issues were directly under our control: overlapping sessions, specifically, the networking sessions and practical sessions in some timezones (two comments). When asked for suggestions, 12 students indicated opening up the live sessions in other timezones for students who did not originally sign up for them.

The fact that personal activities clashed with school time reveals a conceptual limitation in virtual schools: When we physically attend a conference or a school, we cancel all of our recurrent appointments and accept that absence. In contrast, it seems appealing to just fit a virtual school with our recurrent calendar. We could address this issue in the future by one or more of the following: 1) providing a multi-localized option for attendees to physically attend if this is the key barrier; 2) find ways to make time for the school (e.g., provide funding for child care or to substitute for missed work); and 3) hold the school asynchronously or in evenings/weekends, if missed work is the main barrier. The first option involves finding a space for attendees in a given country to meet physically to follow the school and thus only works if there is more than one person attending in a given location.¹¹ In this edition of the summer/winter school, participants were requested to enroll for one timezone only. Therefore, student numbers could be maintained across all sessions without having unbalanced attendance within the three timezones. This strategy seemed to lead to schedule clashes for some participants, although we did respond to individual requests for timezone “hopping” positively. Future iterations of the school could provide clearer guidance to participants about how to request attendance in an alternate timezone in the event of a personal schedule clash.

Issues with internet connection and apps

A major issue was a slow or intermittent internet connection: 21 participants said they were unable to attend sessions due to this. Some participants reported having difficulties installing and/or using the apps chosen for the event (10 comments).¹² Moreover, some participants also reported missing sessions or parts of sessions due to the apps being too heavy for their computers and/or due to internet connection issues (three comments). Future editions could provide participants with financial support to upgrade their internet connection during the conference (such as buying internet packets for their phones) in countries where this is feasible, and providing online help on how to download and install apps beforehand. However, this will not help those participants who do not have access to a computer (who likely did not even register to our school), so ideally materials will be easily viewable through smartphones too.

¹¹An example is the localized versions of the Cognitive Science Society 2021 meeting <https://csekemp.github.io/cogscimeetups21/>

¹²The number of people commenting on this, split by platform, is: Whova app (4), Zoom (2 stating the app was blocked in certain countries), Gather.Town (1 relating incompatibilities with an operating system), Padlet (1).

Suggestions for improving the sessions

Some respondents suggested ways to improve the lectures, discussions, and practical sessions. Some suggested that lecturers and discussants could have covered a wider linguistic diversity in the studies they have discussed (five comments). Two commenters asked for more lecturers from underrepresented areas (e.g., Africa or Latin America). For future editions, we can, for example, ask presenters to include examples from various languages across the globe so that participants from our target area can better relate.

Some respondents suggested didactical tools such as including quizzes after each lesson so that participants could practice what they have learned (four comments), visual aids and step-by-step instructions in the practical sessions (one comment), and study/reading material accessible beforehand to help prepare for the sessions (four comments). Quizzes after or during lectures will help listeners maintain attention, especially in online conferences, where attendees could be easily distracted. Preparatory learning materials will help construct knowledge before and during lectures and practical sessions.

There were some comments on the discussion sessions, of which we think the most noteworthy is that eight comments mentioned the difficulty of discussing with people from different language backgrounds, including second language speakers of the dominant language spoken at the school, which was English.¹³ Regarding discussion sessions, it is often the case that some of the participants are active, and others remain silent during the discussion. This tendency might be more prominent when participants do not know each other and have different backgrounds. Experienced discussants could manage this situation and maximize the exchange of opinions and knowledge through well-planned facilitation. This time, discussants were sometimes chosen based on their availability, and some discussants were not very familiar with some subjects/topics. To boost the effectiveness of discussion sessions, discussants could have more time to engage on the main topics for the discussion beforehand. We can also create clear instructions on how to lead discussion in general, which could benefit discussants who have less teaching experience.

Other comments

Participants were also provided with a space to include other comments at the end of the form. Sixty participants filled this space, mostly to thank and congratulate the volunteers. The aspects mostly praised by participants were the learning and networking opportunities the school provided (52 comments) and the organization of the sessions (27 comments). Some participants mentioned the prospect of starting long-term collaborations with other participants in the event and the creation of groups of students/researchers with common interests and backgrounds. At least three interest groups were later created by volunteers and participants: the Latin American Network for Language Acquisition Research (LatinLAR),¹⁴ the Language Acquisition Group – Africa (LAG-Africa),¹⁵ and a Discord group of students and researchers from the Philippines.¹⁶

¹³Other respondents reported having trouble maintaining the discussions in the breakout rooms without the aid of a more experienced discussant (three comments), and that the discussions be more focused on the topic of the lecture (two comments).

¹⁴To join, check their website and fill out the form <https://www.latinlar.com/>

¹⁵To join, click <https://chat.whatsapp.com/KGlzlmJyIO9DQTG9nSiKjk>

¹⁶To join, click <https://discord.gg/Qm2pq6V3vn>

Future considerations

Online and hybrid conferences that are inclusive: tips for organizers

Based upon our reflections on the school's successes and failures, we present 10 tips for future virtual school organizers who wish to organize geographically diverse academic events.

- (1) Form a diverse and inclusive organizing team.
- (2) Consult the organizing team members on how to best advertise the conference in their country/area (e.g., mailing lists, social media, website).
- (3) Integrate participants' demands when selecting content (e.g., by asking local professors and students).
- (4) Prepare synchronous and asynchronous learning materials to support learners at different levels, with different learning needs, and different technical requirements.
- (5) Make sure to avoid schedule conflicts by offering separate and flexible time slots for three different timezones.
- (6) Disseminate clear instructions on schedule, contents, and online platforms, and provide online help where necessary.
- (7) Ensure that participants can gain access to chosen online platforms and recognize that access to some platforms is limited in certain countries.
- (8) Consider low internet bandwidth and regional service accessibility.
- (9) Make sure that discussants have facilitation skills that promote discussions.
- (10) Create a detailed feedback questionnaire that solicits suggestions for future improvement.

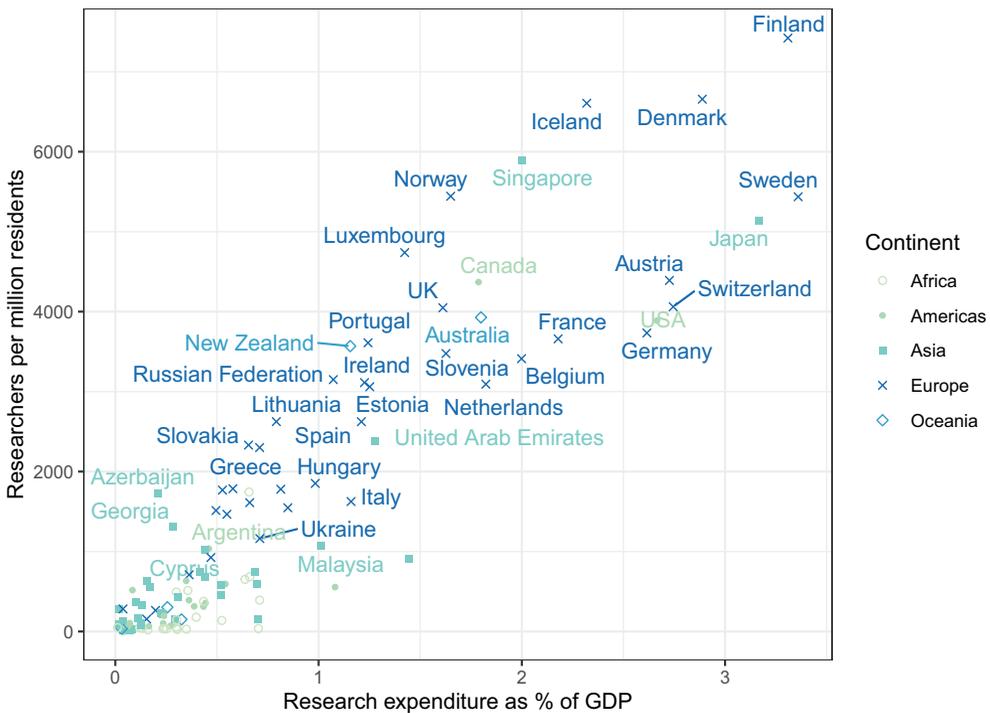
Beyond online conferences: understanding and addressing the roots of low diversity

We discussed at length how online conferences like our school can contribute to increasing researcher diversity. Previous work has highlighted complementary solutions, such as online data collection, which allows participants who have access to a smartphone, computer or tablet to participate even if they do not live close to a babylab. Sheskin et al. (2020) argue that online research could be a way to increase diversity (of researchers, participants, and research questions) in developmental science. An example of an international collaborative approach is ManyBabies-AtHome, a global initiative that, according to Zaadnoordijk et al. (2021), can assist in overcoming methodological barriers and promote a more diverse developmental science that is not limited to English for English participants. The creation of a central hub of research (something like <https://childrenhelpingscience.com/> or <https://www.movingresearchonline.info/>), with unified online research tools (experimental software, recruitment, etc.) may also be beneficial.

Other issues demand additional solutions. One dimension that has been discussed is the low diversity in editorial boards (in accordance with previous research on underrepresentation of minorities in the US; e.g., Hartmann et al., 2013; Syed, Santos, Yoo, & Juang, 2018). This impacts developmental research in a number of ways. To begin with, despite having the best intentions, action editors may not notice or act upon potential biases exhibited by reviewers, such as requiring that non-mainstream data samples follow the existing mold of Western research (Draper et al., 2022; Moriguchi, 2021). Moreover, the

absence of minority editors could lead potential candidates to feel like impostors about applying for such jobs, and for current editors to not think of minority researchers as potential candidates, via known effects of unconscious stereotyping (Dewidar, Elmetekawy, & Welch, 2022). Attacking this issue requires making conscious efforts to debias editorial boards (Moriguchi, 2021).

Even if editors are diverse, reviewers may not be, and there, too, biases emerge. It seems that researchers studying under-represented languages have to prove the value of studying non-majority languages, which is not expected of studies on English. This is especially the case if the phenomenon has already been studied in English. Some researchers feel that reviewers doubt research quality when, in non-blinded submissions, there are no authors from high-income countries (Draper et al., 2022; Lees, 2021). Some reviewers worry that authors from low-income countries are not following “correct” research practices. For instance, in some research areas in Brazil, it is common practice to collaborate with a researcher from the US (or Europe) if one would like to have a higher chance of getting their research published. Recent papers suggest several other sources of bias including requirements of “control” groups (Manalili, 2021; Singh, Cristia, Karasik, Rajendra, & Oakes, 2023). Here as well, solutions may be conceptually straightforward, including raising awareness in the scientific community and adopting measures to debias reviewers.



While we are excited about such prospects, we worry that they still do not attack several root factors explaining diversity in scientific productivity across countries. When thinking why most published research comes from North America and Europe, it is important to consider that there are vast disparities in access to funding across countries. The visualization captured in [Figure 6](#) shows that countries that spend a higher percentage of their Gross Domestic Product (GDP) for research and development tend to have higher numbers of researchers (controlling for population size); and the more researchers there are in a country, the more publications are observed. Moreover, these differences in funding have other repercussions: A reality is that developmental scientists in low- and middle-income countries are professors, medical doctors, or other full-time professions, and have to use personal time to carry out their research (Acharya & Pathak, 2019). Perhaps researchers in high-income countries can better advertise international funding (particularly funding that covers teaching releases) so that individuals from other countries can better benefit from it, and engage in positive international collaboration (Singh, Cristia, Karasik, Rajendra, & Oakes, 2023). However, this is not an ultimate solution, which will certainly be very hard to achieve.

Conclusion

Based on our experience and on the feedback we have received, future editions of the/L+/school will aim for greater geographic diversity among lecturers and greater customization of contents to the participants' contexts. Although much remains to be done to promote inclusivity in linguistic research, we hope our school will contribute to empowering researchers to investigate and publish on language acquisition in their home languages. We hope the present report will inspire others to pursue similar initiatives, and to integrate them with strategies aimed at increasing diversity in developmental science.

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