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Making a difference through presentations: Let's speak, communicate, and connect!

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In our personal and professional lives, we have numerous opportunities to communicate our ideas to others. Therefore, the importance of presentation goes beyond academic success. However, efforts to improve presentation skills may be hampered by a variety of barriers, both personal and social, creating educational challenges. For example, the importance of presentation and communication skills is widely recognized among professionals in western countries, but this is not the case in some other countries. Overcoming these barriers would improve presentation skills and help individuals from diverse backgrounds effectively communicate their ideas. This would raise the visibility of underrepresented people, thereby increasing their recognition in both academic and non-academic settings, making the community as a whole more inclusive. Toward these goals, a pilot training workshop on presentations titled "Let's Speak, Communicate, and Connect!" was held at the annual meeting of the Japanese Society of Plant Physiologists in March 2024. The participants expressed great interest in improving their presentation styles and receiving feedback, highlighting the need for such training programs. In the post-workshop survey, 16 of the 17 respondents indicated that the workshop helped them improve their presentations. These results suggest that the workshop lowered barriers to presentation and allowed for improvement. Improved presentations can also benefit outreach efforts. Altogether, we believe that cross-community support for improving presentation skills not only helps members in their personal development but also contributes to strengthening connections between the academic community and society.

KEYWORDS

academic conferences, DEI (diversity, equity, and inclusion), networking, presentation skills, public outreach, public speaking, science communication, scientific presentations

1 Introduction

To promote and share knowledge, it is essential to give presentations. The importance of presentation ability goes beyond success at meetings and conferences (Morreale et al., 2000; Morreale et al., 2023). Whether it is a discussion with peers, a practical course demonstration, a lecture, or a job talk, we all engage in some sort of presentation every day. These opportunities exist both in academic and non-academic careers, and communicating data and ideas can, in turn, help to refine important points. These steps are also used, for example, when writing manuscripts, employment and grant applications, and preparing for classroom lectures. Therefore, improving presentation skills has a positive impact on other skills (Rubenson,

2021). Valuable publications and online resources about presentation skills training are available but not sufficient (Andeweg et al., 1998; Bulska, 2006; Chatwin, 2021). Practicing with a supervisor or colleague and receiving feedback helps to improve a presentation and make it more interactive (His, 2019). This is important because presentations become especially powerful when two-way communication with the audience is established. However, this can be challenging.

1.1 Engaging training programs are needed to overcome barriers to presentation

Efforts to improve presentation skills may be hampered by a variety of barriers (Figure 1A, top). Some are personal or emotional, while others arise in a social context. For example, introverts may be uncomfortable with public speaking (personal barrier) (Tierney, 2015). In some countries, educational policies place little priority on presentation skills (societal barrier). Additionally, the availability and types of learning opportunities vary by institution and country (institutional barrier). Different presentation styles and customs sometimes hinder communication across disciplinary boundaries (disciplinary barrier). For non-native English speakers, language barriers can also be problematic.

These barriers can be overcome by changing the presentation training environment to provide a motivational catalyst (van Ginkel et al., 2015). While presentation skills are basic and scientists are

expected to learn them in the laboratory or in educational institutions, presentation training can be more effective and engaging in more social settings, such as conferences and meetings (Figure 1A, bottom). There, we feel the *need* to present our research. This creates a strong incentive to improve presentation skills (motivation). Moreover, conferences are physically and psychologically separated from everyday life. This allows us to focus on learning activities (concentration). In fact, there are various learning opportunities at conferences. For example, technical seminars and hands-on workshops may be offered by volunteers or sponsors. These events are usually limited to specific topics and cutting-edge technologies but may also address general subjects, such as presentation skills. Would presentation training at a conference be effective?

2 Workshop description

To test this idea, we decided to hold a small on-site workshop titled “Let’s Speak, Communicate, and Connect!” as a satellite meeting of the annual meeting of the Japanese Society of Plant Physiologists (JSPF) held in Kobe, Japan, on 17 March 2024. We set two primary goals for this workshop: (1) to rethink the purpose and style of presentations and (2) to network. Regarding the first goal, we tend to adhere to the way we have always done things; when we prepare a presentation, we may create it from a well-worn template in our own library or our colleague’s. By incorporating new perspectives, presentations can be tailored for more effective communication. It has

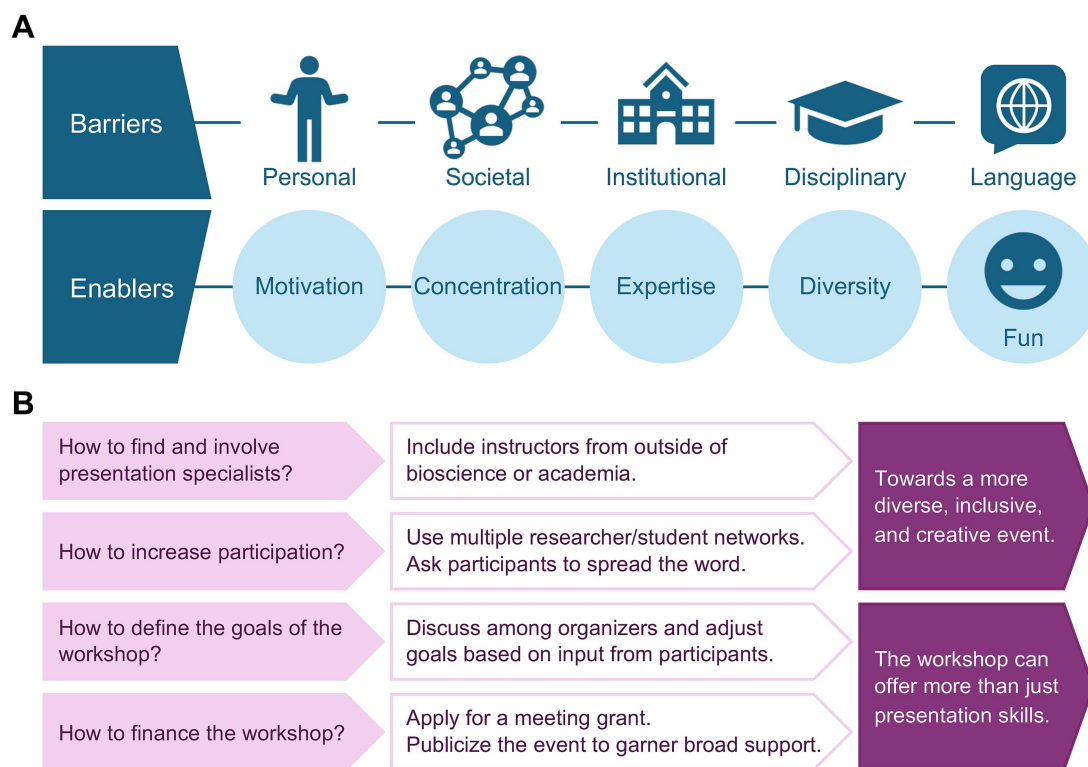


FIGURE 1

Overcoming barriers to presentation. (A, top) In addition to challenges at a personal level, there are historical and social challenges. Language barriers are also recognized and will be discussed elsewhere. (A, bottom) Conference participation can offer key enablers to overcome these barriers. (B) Key challenges for the next steps. Addressing these will make the presentation workshop more diverse, inclusive, and creative.

been noted previously that communication education can be best achieved when communication is taught by specialists in the study of communication (Morreale et al., 2000). Therefore, we invited a professional presentation trainer to teach participants how to redefine their presentations (Figure 1A, bottom, “Expertise”). Regarding the second goal, networking, because presentation is important for everyone, workshop participants can be recruited regardless of their research interests, career stages, or demographics, allowing participants from diverse backgrounds to provide feedback on each other’s presentations. This environment also offers a good opportunity to make new acquaintances and can spark fresh interdisciplinary collaboration among participants.

The JSPP (<https://jspp.org/en/>) was established in 1959 with the mission of promoting cutting-edge or interdisciplinary research by facilitating communication within Japan and between Japan and other countries. Its vision of internationalization was also embodied in 1959 with the launch of the society’s journal, *Plant and Cell Physiology* (PCP), as an international journal. Since then, the JSPP’s commitment to intellectual exchange, networking, internationalization, and diversity has continued. The background and vision of the JSPP are in line with the goals of our presentation workshop.

The Plant Science Presentation Workshop 2024 “Let’s Speak, Communicate, and Connect!” was planned and organized by Chihiro Furumizu, Yasunori Ichihashi, and Tomoyuki Furuya. Participation was solicited through four plant science community mailing lists from 10 January 2024 to 1 March 2024. On-site registration was also accepted. The workshop was held on 17 March 2024 as a satellite meeting of the annual meeting of the Japanese Society of Plant Physiologists. A total of 32 participants from 22 organizations attended the workshop.

The workshop agenda was:

1. Opening remarks.
2. Self-introduction—ice breaker.
3. Mini-lectures.
 - 3.1. Why speaking skills? What’s the goal?
 - 3.2. Why do we feel uncomfortable speaking in public?
 - 3.3. Three steps: Think, Communicate, and Show.
 - 3.4. How to appeal to your audience.
4. Hearing sessions.
5. Flash presentations.
6. Closing remarks.

Agenda item 3.3 included vocal exercises. The workshop was moderated by Aska Takeuchi (Alba Edu Inc.) and ran for an hour and a half.

Given the experimental nature of the workshop, the organizers recruited local Japanese-speaking participants. Therefore, Japanese was used in the workshop and in the pre- and post-workshop surveys.

3 Methods

3.1 Pre-workshop survey

Surveys in this study were designed to be anonymous so that participants could more readily express their candid opinions. The pre-workshop survey was conducted using an online questionnaire.

The survey form was designed not to collect personal information about the respondents, and it clearly stated that the results obtained would be published in the form of a meeting report. A link to the form was sent to 34 registrants on 2 March 2024; a total of 25 anonymous responses were collected by 11 March 2024. The list of questions in the questionnaire is provided in [Supplementary file 1](#).

3.2 Post-workshop survey

The post-workshop survey was conducted using an online questionnaire. The survey form was designed not to collect personal information about the respondents, and it clearly stated that the results obtained would be published in the form of a meeting report. A link to the form was sent to 32 participants on 21 March 2024; a total of 17 anonymous responses were collected by 31 March 2024. The list of questions in the questionnaire is provided in [Supplementary file 2](#).

3.3 Statistical analysis

Self-perceived presentation skills (Figure 2A) were tested for association with (i) access to feedback (Figure 2G) and (ii) access to institutional training opportunities (Figure 2H). For each analysis, a contingency table was created by crossing the three-level self-rating (“Like it,” “Not good at it,” and “Neither”) with the corresponding response categories. Because several expected cell counts were less than five, associations were assessed using the Fisher–Freeman–Halton exact test implemented in R (`stats.fisher.test` with `simulate.p.value = TRUE`, $B = 1 \times 10^6$). The effect sizes were expressed as Cramér’s V (`vcd:assocstats`). The statistical significance was set at $\alpha = 0.05$.

3.4 Limitations

There are several limitations to this study. First, while the feedback obtained from the pre- and post-workshop surveys was valuable, the number of respondents was insufficient to allow for quantitative and statistical analyses of the survey responses. Second, given the small number of registrants ($n = 34$), the organizers decided to limit the demographic data collected to a minimum (i.e., name of institution), in an effort to preserve the anonymity of the respondents. Therefore, it was not possible to describe and discuss sample demographics in detail. Third, the pre- and post-workshop surveys were not designed to allow intercomparison of results. Therefore, it was not possible to evaluate the effectiveness of the workshop quantitatively. Nevertheless, considering the value of the insights gained that can be used to improve future events, we believe that the contributions of this study outweigh its limitations.

4 Results

Feedback from the workshop participants was positive overall. In the post-workshop survey, 16 of the 17 respondents indicated that the workshop helped them improve their presentations. There were

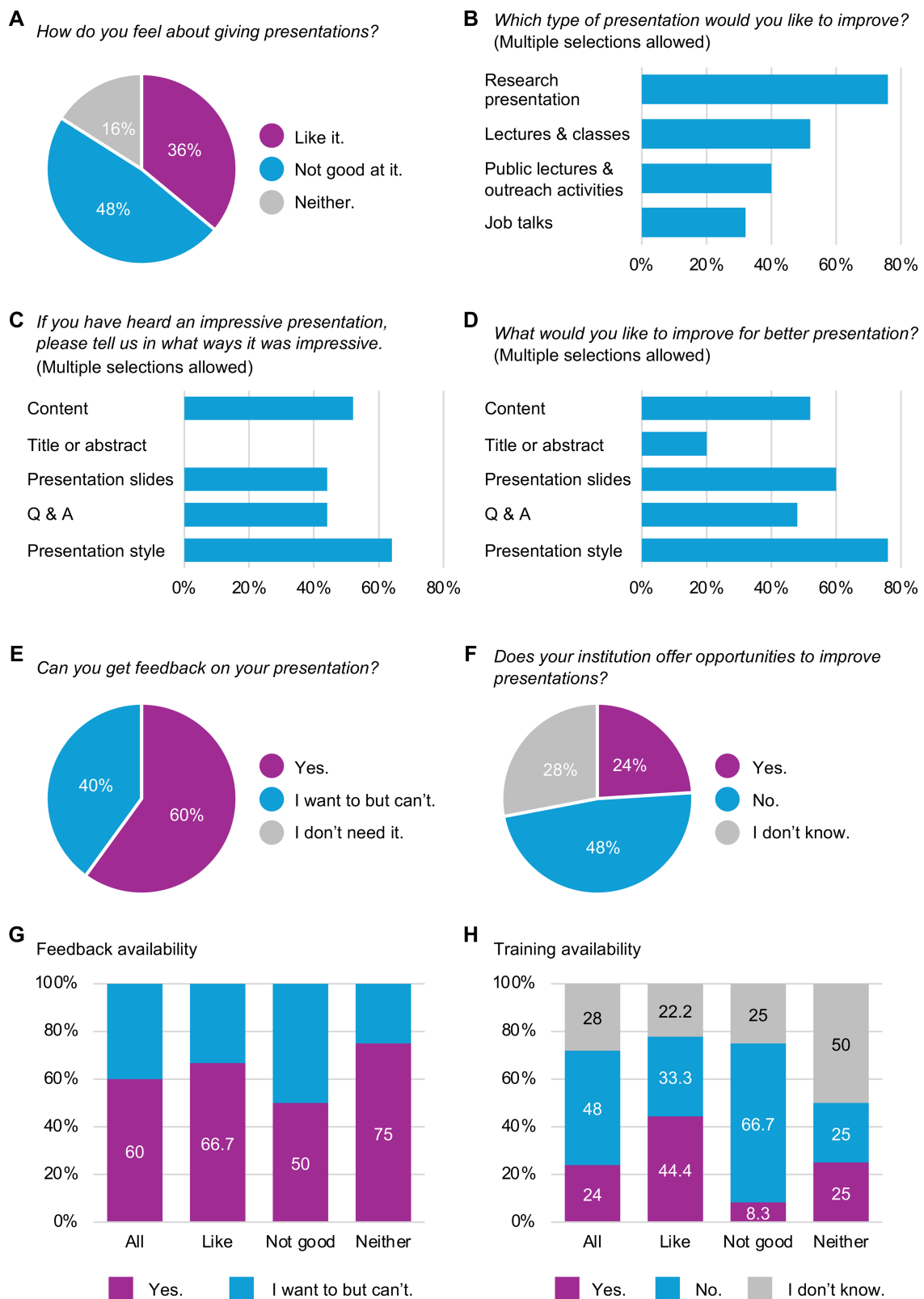


FIGURE 2

(A–F) Summary of the pre-workshop survey results. An anonymous online questionnaire was created and completed by 25 of the 32 participants. Excerpts from the survey are shown. See [Supplementary file 1](#) for the list of questions. (G,H) Breakdown of the responses in E (G) and F (H) based on the responses in A (“Like,” “Not good,” and “Neither”). The leftmost column (“All”) shows the results for all respondents. There was a significant association between self-rating of presentation and reported training availability ($p = 0.049$, Fisher–Freeman–Halton). The goal is to continue similar surveys at future events to monitor changes in participants’ interest in presentations and to tailor the events to their needs.

requests for similar events to be held in the future, not only at this meeting but also at other conferences. These responses confirmed the need for presentation training programs at academic conferences. The specific findings from the workshop are described below.

4.1 Presentation training outside of research and educational institutions is needed

In response to our open calls, participants indeed came from various institutions throughout Japan and ranged from undergraduates to faculty members. Before the workshop, the participants were asked several questions (Figure 2; Supplementary file 1). As expected, some participants liked to present, while others found it difficult (Figure 2A). The participants were interested in improving their presentations for various occasions (Figure 2B). This result is in line with the importance of presentation in different settings, as noted above. When asked whether they had heard an impressive presentation and what was impressive about it, more than half of the participants answered that they were impressed by the content or style of the presentation (Figure 2C). Consistently, more than 70% of the respondents indicated that they would like to improve their presentation style in addition to their content and slides (Figure 2D). Face-to-face interaction is more helpful in finding and experimenting with different presentation styles than learning alone. Besides, 40% of the respondents indicated that they would like feedback on their presentations but had no one to get it from (Figure 2E). Nearly half of the respondents indicated that their institutions did not provide them with opportunities to improve their presentation skills (Figure 2F). To examine whether the availability of feedback and training is related to respondents' perception of making presentations, we broke down the responses based on what they answered in Figures 2A,G,H and tested for association using contingency tables. To test association between self-rating of presentation and feedback availability, a 3×2 table was generated from the responses by the 25 respondents ($n = 9$ "Like it," 12 "Not good at it," and 4 "Neither" in Figure 2A). The Fisher–Freeman–Halton exact test indicated no significant association between presentation self-rating and perceived access to feedback (Figure 2G; $p = 0.59$). The effect size was small (Cramér's $V = 0.10$). On the other hand, in a 3×3 table from the same 25 respondents described above, there was a significant association between self-rating of presentation and reported training availability (Figure 2H; $p = 0.049$, Fisher–Freeman–Halton). The effect size was moderate (Cramér's $V = 0.34$). The participants who rated themselves as "Not good at presentations" most frequently reported a lack of training opportunities (8/12, 67%). These results confirmed the need for presentation training outside of research and educational institutions.

4.2 The workshop helped participants rethink the purpose and style of presentations

One of the two primary goals for this workshop was to rethink the purpose and style of presentations. The workshop program, designed by instructor Aska Takeuchi, consisted of mini-lectures and communication exercises between participants. Ms. Takeuchi founded

Alba Edu Inc. to help children and young people improve their presentation skills and pave the way for their future success. In her lectures, Ms. Takeuchi emphasized the importance of thinking and clarifying the concepts that the speaker wishes to communicate when preparing a presentation. Some participants commented that it was a good opportunity to review their own presentation methods, which they had been devising by themselves. Under her guidance, we also worked on voice training. Not only was this helpful, *it was fun!* The physical exercise helped participants to relax and focus on the subsequent training (Figure 1A, bottom, "Fun"). Another goal, networking, cannot be evaluated immediately and will be explored further.

5 Discussion

Altogether, this workshop demonstrated its potential to lower barriers and enable improved presentations (Figure 1A). We suggest that structured presentation training should be incorporated into scientific meetings and institutional programs (Bradke et al., 2023). In the pre-workshop survey, 24% of the respondents indicated that their institutions provided them with opportunities to improve their presentation skills (Figure 2F). However, these were mostly feedback at lab meetings rather than coaching by professionals in the communication education field. This situation probably reflects, at least in part, Japan's educational administration, which has not systematically taught public speaking. However, we would also like to point to the unique and invaluable nature of academic society meetings as ideal venues for promoting presentation training, bringing together students and professionals with diverse expertise and careers across institutions. In the lab, it is sometimes difficult to step back from our own research because we become so immersed in our work. Training in a more diverse environment would help us refine what we would like to say, receiving feedback from a wide range of perspectives (Figure 1A, bottom, "Diversity").

In support of this view, our survey results showed that the self-perceived difficulty in giving presentations was significantly associated with the availability of formal training opportunities (Figure 2H; $p = 0.049$, Cramér's $V = 0.34$). In particular, 67% of the respondents who rated themselves as "not good at presentations" reported that they did not have access to presentation training. This suggests that the lack of presentation training may disproportionately impact those who already feel less confident, potentially perpetuating a negative feedback loop. Meanwhile, no significant association was found between feedback opportunities and presentation confidence (Figure 2G; $p = 0.59$, Cramér's $V = 0.10$). This indicates that informal feedback alone may not be sufficient to support those struggling with presentations. These findings further highlight the importance of structured, inclusive training environments, such as those provided by scientific society workshops, as a means of reaching individuals who are underserved by traditional academic settings.

5.1 Value of holding presentation training workshops at multidisciplinary conferences

The presentation workshop was held as a satellite meeting of the Japanese Society of Plant Physiologists (JSP). Currently, the JSP has

approximately 2,000 individual members in Japan and is the largest academic organization in the field of plant sciences in Japan, with members overseas as well. The 65th annual meeting of the JSPP, held in 2024, attracted more than 1,700 participants and featured approximately 500 presentations. JSPP members and conference participants come from a wide range of research fields studying diverse photosynthetic organisms, including biochemistry, molecular biology, cell biology, genetics, physiology, ecology and more recently developed fields such as genomics and systems biology. The multidisciplinary environment highlights the need for presentations that promote mutual understanding between different research fields and areas of interest. Particularly in physiology, clear communication is required across all levels, from molecular to organismal, making presentation skills especially vital for fostering integrative thinking. Initiatives such as this workshop can serve as valuable educational interventions that complement formal training and support the development of such skills. Indeed, the high evaluation of the presentation workshop by the participants underscores the importance of implementing presentation training programs at conferences. Such integration would not only enhance individual skills but also foster a culture of continuous improvement and inclusion. To maximize their impact, future workshops will need to continuously adapt to participant feedback and ensure that they meet the evolving needs of the scientific community. This way, we can create a more dynamic, inclusive, and communication-rich environment that benefits both individuals and the broader society (Moreu et al., 2021).

5.2 Challenges and future directions

Reflecting on the first workshop and listening to the participants, we identified several challenges for the next steps (Figure 1B, left). First, there is a need to collect experiences and opinions about presentations on a larger scale to better understand the obstacles and needs so that we can adjust our presentation training programs accordingly. It would be beneficial to conduct a large survey on scientific presentations in Japan, separate from the workshop, to collect data that is less biased toward the demographics of respondents and their availability and willingness to participate in the presentation workshop. In future events, pre- and post-workshop surveys will be designed to allow intercomparison of results so that the effectiveness of the workshops can be evaluated quantitatively. A follow-up survey would also be useful for identifying changes in behavior and assessing long-term effects. In addition, the organizers are considering inviting experts in communication education research to improve the design of the workshop and its accompanying surveys.

Additional challenges include finding and engaging presentation specialists, defining workshop goals, and securing funding for the event (Figure 1B, left). Addressing these challenges is crucial for the continuous improvement of our training programs. A solution we see emerging is to expand the network of people involved in organizing the events beyond our own specialized research fields (Figure 1B, center). For example, presentation instructors can be recruited from any background, as long as they are informed of the presentation issues we face and the presentation practices in our respective fields. To increase participation, we would begin with grass roots efforts; spread the word through networks of researchers or students and through the participants themselves. As the number of participants grows, more

input will come from them, allowing the workshop goals to be adjusted more appropriately. A larger number of participants would also create a positive forward loop that would advance the presentation training program and allow for greater social impact. It is also important to find a source of funding for the event to sustain it. In addition to applying for a meeting grant, publicizing the event widely would increase the chances of garnering support. Collectively, these efforts to invite more people to the event will make it more diverse, inclusive, and creative and will create opportunities to meet and network with people from unfamiliar fields (Figure 1B, right). Importantly, the process itself is a lesson in presentation; make every step count.

5.3 Perspectives

Presentation training can increase participants' confidence in expressing their ideas publicly. By communicating our ideas through more effective presentations, our voices can become powerful enough to change a society. A society can, in turn, grow healthier and more creative through the lifelong development of community members (Golle et al., 2022). This is important to gain public trust and support. In addition, better presentations can not only support personal and career development but also contribute to outreach efforts and help the public better understand basic and applied sciences (Morreale et al., 2000; Houtman et al., 2021). Therefore, facilitating training in presentation skills is a win-win cooperation between a society and its members. We hope that sharing our ideas and experiences from our first presentation workshop in this article will stimulate relevant discussions and encourage similar activities. At its heart, *to present is to make a difference*.

Author's note

The second presentation workshop was designed for presentations in English and was held as a satellite meeting of the annual meeting of the JSPP in Kanazawa, Japan, on 14 March 2025. To develop this workshop into an annual series, the third meeting is planned for March 2026. In future events, pre- and post-workshop surveys will be designed to allow intercomparison of results so that the effectiveness of the workshops can be evaluated quantitatively. In addition, the organizers are considering inviting experts in communication education research to improve the design of the workshop and its accompanying surveys.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author/s.

Author contributions

CF: Conceptualization, Funding acquisition, Methodology, Investigation, Visualization, Writing – original draft, Writing – review

& editing; YI: Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

her late mother, Harumi Furumizu, a devoted teacher of the deaf with a passion for communication that overcame barriers.

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Conflict of interest

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2025.1465227/full#supplementary-material>

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