



PRACTICE INSIGHTS

From event enjoyment to career aspirations: how inclusive science engagement shapes participant perspectives

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Abstract

Promoting inclusion in science is essential for enhancing public understanding, strengthening science literacy, and addressing structural barriers to participation. To support this goal, we organized a science fair in a suburban city near Paris (France), featuring hands-on, inquiry-based activities designed to be accessible and inclusive. The event attracted a diverse audience, including groups underrepresented in science due to gender and socioeconomic background. Participant feedback emphasized the value of active engagement and direct interaction with scientists. Our findings demonstrate that inclusive, community-based outreach can effectively foster interest in science and support broader participation.

Keywords

Public engagement with science and technology; Social inclusion; Women in science

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1 - Introduction

Engaging the public with science is essential for fostering curiosity, enhancing science literacy, and inspiring careers in scientific fields [Yawson et al., 2016]. Yet persistent inequalities shape who participates in science and who benefits from it. In France, for example, the number of girls pursuing science in high school declined by 28% between 2019 and 2021, from 94,522 to 67,890, despite no overall decline in student numbers or proportion of female students [Collectif Maths & Sciences, 2022]. Additionally, women still represent only 30% of research personnel, and just 20–30% of STEM students in higher education come from low socio-economic backgrounds [Direction de l'Evaluation, de la Prospective et de la Performance, 2021]. Similar disparities exist and are evident globally [UNESCO, 2024].

Science communication can help address these gaps by enhancing science literacy, an important impact that empowers citizens to make informed decisions about health, environment, and public policy [Fischhoff & Scheufele, 2013; Judd & McKinnon, 2021; Simis et al., 2016]. However, access is far from equal. The “Matthew effect” refers to the phenomenon where individuals with greater science capital disproportionately benefit from science engagement opportunities [Holmes et al., 2017; Merton, 1968]. Meanwhile, factors like socio-economic status, race or ethnicity, and gender contribute to exclusion [Dawson, 2014, 2018].

Inclusive science communication frameworks aim to redress these systemic issues [Dawson, 2018; Massarani & Merzagora, 2014]. However, many initiatives still rely on deficit models, assuming that the public lacks knowledge, rather than fostering a two-way dialogue or addressing structural barriers [Dawson, 2018; Jensen & Holliman, 2015]. While much attention has focused on equity in formal education, informal settings such as science festivals often reproduce exclusion [Dawson, 2014, 2018]. Barriers are commonly framed as community deficits rather than institutional ones, placing the burden of inclusion on marginalised individuals [Dawson, 2014]. A more reflexive approach requires asking whose values and knowledge are legitimized, and which audiences are left out [Dawson, 2018].

Evidence suggests that hands-on, interactive learning is more effective than traditional information delivery, especially for disengaged or underrepresented audiences [Mayhew & Hall, 2012; Schneider et al., 2022]. Nonetheless, across Europe, inclusion strategies often prioritize audience size over structural change [Danish Technological Institute & Technopolis Limited, 2015; Dawson, 2018]. For instance, during Brain Awareness Week 2024 (an international campaign promoting neuroscience), 75 events were held in the Paris region (France), with 85% being held in central Paris, while only 8% reached underserved suburbs [Semaine du Cerveau, 2024]. Moreover, fewer than a third offered hands-on activities. Such spatial and pedagogical imbalances risk reinforcing exclusion rather than addressing it.

In response to this, we organized a free, interactive science event in a low-income Parisian suburb, designed around a central question: “*How can we study a brain under stress?*”. Through hands-on, multidisciplinary activities, we aimed to meet key objectives of science communication: awareness, enjoyment, interest, opinion formation, and understanding [Burns et al., 2003]. By removing economic and logistical barriers, we sought not only to share content but also to model inclusive, replicable outreach practices.

This study examines the impact of the event on interest in science and scientific careers, with a focus on gender and age differences. Using pre- and post-event questionnaires, we

evaluated shifts in perception and aspirations. The project adopts a reflexive approach grounded in inclusion and social justice [Achiam et al., 2022; Dawson, 2018]. Our approach aims to provide practical guidance for equitable engagement and contribute to research advocating for structural change in science communication and outreach [Judd & McKinnon, 2021].

2 ▪ Procedure and participants

2.1 ▪ The event

The authors organized a one-day science outreach event during Brain Awareness Week (17 March 2024) in Fontenay-sous-Bois, a suburban town near Paris. The event was hosted in a fully accessible sports centre located in a neighbourhood with a high proportion of residents coming from low socio-economic backgrounds. Participation was free, open to all, and required no prior registration in order to reduce barriers to access. Promotion of the event was conducted through social media, websites, the city's newspaper, posters, and communications to local schools. Partnerships included national and local organizations, notably one dedicated to supporting the target neighbourhood. The event was conducted in French, and five interactive booths introduced key scientific concepts and methods through a hands-on, progressive format.

The event centred on a guiding question: *"How can we study a brain under stress?"*. A game element [Kalogiannakis et al., 2021], modelled on treasure hunts, allowed participants to collect stamps on a map at each booth.

Accessibility and inclusion guided activity design. Text was minimized in favour of schematics and color-coding, and volunteers presented content orally to accommodate varying literacy levels. Visuals featured diverse representations, prioritizing female figures when appropriate. Volunteers were instructed to avoid jargon and adapt their explanations, encouraging informal discussion to foster curiosity and a welcoming atmosphere.

The five booths included:

1. Evolution and Animal Experimentation: compared brain anatomy across species and introduced ethical considerations in animal research.
2. Genetics: explored brain cell composition and DNA, using color-coded materials to simulate gene mutations.
3. Programming and Behaviour: demonstrated how simple code can model the stress responses, and displayed videos of control vs. mutant animals. Programming instructions and outcomes were presented using color-coded cards and schematic representations.
4. Chemistry: explained hormone dynamics through colorimetric reactions, assessing stress hormone levels in model organisms.
5. Scientific Careers: co-led with an association promoting STEM careers for women, presenting diverse scientific roles.

Participants who completed all booths received free materials (books, tote bags, USBs, posters, stickers, etc.). Details on the booths are provided in appendix B.

2.2 ▪ *Participants*

A total of 126 participants completed the questionnaire. Of these, 62.5% identified as women or girls, and 37.5% as men or boys. The most represented age group was 30–65 years old (37.3%), followed by 11–15 years old (23%) and 6–11 years old (16.7%) (Figure 1). Participants with motor impairments were observed during the event.

2.3 ▪ *Volunteers*

17 volunteers were recruited for the event. 14 were scientists, and among those 12 of them were women. Additionally, they varied across a range of career stages: 3 Master's students, 6 PhD students, 1 clinical assay manager, 2 recent PhD graduates, and 2 research engineers. 3 non-scientist volunteers assisted with logistics and surveys. Volunteers were recruited via social media, local ads, and academic networks. The only requirement was fluency in French.

3 ▪ **Data collection**

3.1 ▪ *Questionnaires*

A survey (in French) was developed to collect demographic information, assess interest in science before and after the event, and gather feedback. It was available in paper format at the welcome booth and online via a QR code. Participation was voluntary and anonymous, with 126 forms collected. Some attendees declined to participate and are not included in the reported totals.

The survey was divided into two sections: a pre-questionnaire (demographics, initial attitudes toward science and careers) to be completed before visiting the booths and a post-questionnaire (feedback and perceived impact). Age categories followed the French system: under 2 (not yet in school); 3–5 (preschool); 6–10 (elementary school); 11–15 (middle school); 16–18 (high school); 19–30 years old (young adults, early career/students); 31–65 years old (working adults); and 65+ (retired).

One multiple-choice question asked participants what they valued most in science: doing experiments, discovering new things, learning about nature, or solving problems (Figure 3). We grouped these into active orientations (doing experiments, solving problems) and informational orientations (discovering, learning). This helped assess whether the event met participants' expectations. Another question asked what most influenced their perception of science. Response options aligned with the event's design: doing experiments, interacting with scientists, understanding the research process, and learning new things (Figure 8). This allowed us to evaluate whether participants connected with the engagement strategies we had prioritized.

The full questionnaire is available in appendix B.

3.2 ▪ *Analysis*

Survey responses were manually entered into a spreadsheet. Quantitative data analysis and figures were done using MATLAB R2020b. Open-ended responses were analysed

thematically through qualitative content analysis. Responses were first read in full, then categorized based on recurring themes. Each category was tallied manually. Participants under the age of 2 years were included only in the demographic analysis, as they could not meaningfully respond to the survey.

4 ▪ Results

To evaluate the impact of the event, we analysed participants' survey responses, which provided insights into demographic diversity, science-related interests, and perceptions before and after the event. The following sections detail demographics, event feedback, and changes in attitudes toward science and scientific careers.

4.1 ▪ Participant demographics and initial interest in science

Participants primarily fell into two age groups: adults aged 31–65 and children aged 11–15 (Figure 1B). Children accounted for 50.9% of participants, with roughly equal representation of boys and girls (Figure 1B and Figure 9). Among adults, women outnumbered men, particularly in the 31–65 age group (Figure 9). By contrast, teenagers from 16–18 were notably underrepresented (Figure 1B).

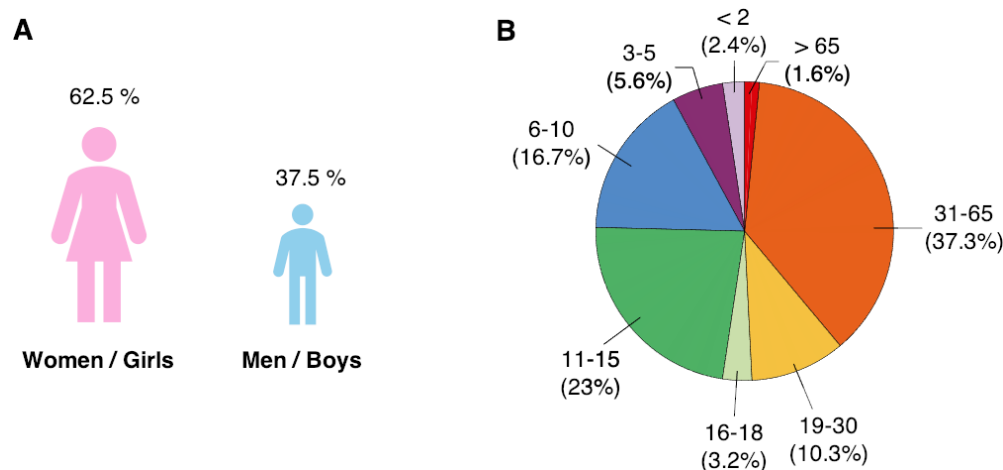


Figure 1. Participant demographics. A. Gender distribution (n = 126 responses). Participants were also given the option 'Other' and 'Prefer not to answer', but these were not selected, so they are not represented here. B. Age distribution (n = 120 responses).

Prior to the event, half of the participants reported strong interest in science, the other half reported weaker interest, with very few reporting no interest at all (Figure 2). Notably, female participants tended to display lower initial interest than male participants, with some women reporting no interest at all (Figure 10A). No male participant reported disinterest, and a greater proportion expressed strong than weak interest. Among children, the lowest level of interest came from those aged 6–10 (Figure 10B).

4.2 ▪ Perception of science and career aspirations prior to engaging with activities

Before engaging with activities, nearly all participants (94.6%) recognised the societal importance of science. Motivations for engaging in science were split between “doing

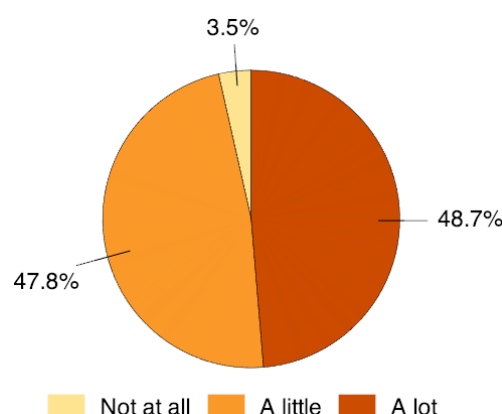


Figure 2. Participants' interest in science before the event (response to the question 'How much do you enjoy science?', n = 113 responses).

experiments" and "discover new things" (Figure 3). Children especially favoured hands-on activities, while adults leaned toward gaining knowledge (Figure 11B). Gender differences emerged: women and girls expressed equal interest in experimentation and discovery, while men and boys preferred experimentation (Figure 11A).

An open-ended question on making science more enjoyable yielded 60 responses. The most frequent suggestion (40%, $n=24$) was to include more experiments, followed by games (22%, $n=13$), use of clearer and simpler language (17%, $n=10$), and the use of videos or animations (7%, $n=4$).

Despite the broad interest in science reported, career aspirations of participants were notable. The majority of participants, especially girls and women, had never considered pursuing a career in science (Figure 4A, Figure 12A). Fewer than half of the male respondents reported the same. This was especially pronounced in children aged 6–15 and adults 31+, while teenagers and young adults were more open to science careers (Figure 12B). Strikingly, even among those who reported enjoying science, only about half had ever considered it as a professional path (Figure 4B).

When asked about preferred scientific fields, participants were most interested in biology and health, followed by environmental science (Figure 13A). Adults and older teenagers tended to favour these fields, while younger children expressed more varied interests, with mathematics being popular among the groups (Figure 13C). Gender patterns followed familiar trends [UNESCO, 2024]: women and girls preferred biology, health, and chemistry; men and boys favoured engineering, maths, and informatics (Figure 13B).

4.3 ■ *Enjoyment of the event, favourite booths and least favourite booths*

The event was very well-received: 92.5% of participants reported high enjoyment (Figure 5), and this was consistent across all ages and genders (Figure 14A–C). Even those who reported low prior interest in science reported enjoying the event, although less strongly compared to the highly interested audiences (Figure 14B).

Across activities, the Chemistry booth was the most popular (Figure 15A), closely followed by the Genetics booth which was the top choice for adults and the second most preferred by

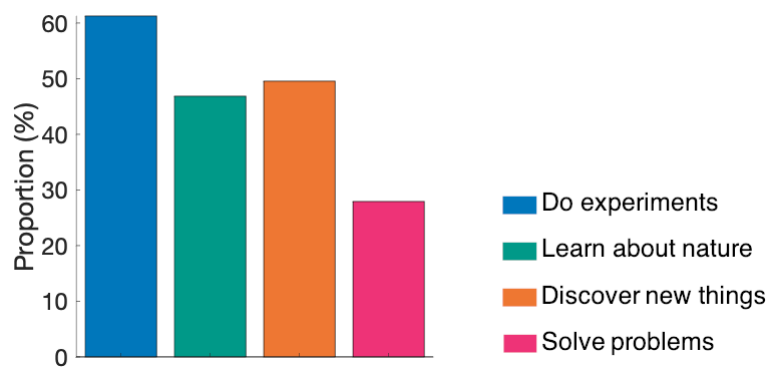


Figure 3. Participants' preferred aspects of science (multiple choice, n = 111 responses). Note: the "Other" option was available but was not selected by any participants.

women (Figure 15B-C). These booths were popular regardless of initial level of scientific interest (Figure 15D). Open-ended responses (n=53), shed light on what made booths appealing: 36% (n=19) liked their favourite booth for its interesting content or new learning, 26% (n=14) for its hands-on engagement, 11% (n=6) appreciated volunteer interaction, 11% (n=6) described them as fun, and 6% (n=3) mentioned engaging visuals.

The least favoured booth was Programming (Figure 16A), a finding shared across genders (Figure 16B). Preferences varied by age (Figure 16C). For children aged 3–5, Genetics and Scientific Careers were the least popular. Children aged 6–15 expressed disinterest in the Evolution booth, while older participants (19+ years) tended to rank Chemistry or Programming as their least favourite. Programming was also unpopular among adults aged 31–65, except among those who had already expressed interest in Informatics or Engineering (Figure 16D). Notably, fewer participants identified their least favourite booth (n=50) compared with those who named a favourite (n=105). Only 19 respondents elaborated on their choice in open-ended responses, with the most common reason being perceived complexity (42%, n=8).

Finally, when asked how the event could be improved, 39 participants provided suggestions. While 28% (n=11) felt no changes were necessary, others recommended expanding the event: 18% (n=7) requested more booths, and 15% (n=6) specifically asked for additional hands-on experiments, again underscoring the value of interactivity as a driver of engagement.

4.4 ■ *Event impact on science interest and career choices*

The event positively influenced participants' perceptions of science and research, with most participants reporting change in their views (Figure 6), and this is consistent across gender and age (Figure 17).

When asked which aspect(s) influenced their experience — among doing experiments, interacting with scientists, understanding research, and learning new things — nearly half (47%) reported increased interest in a science career, especially male participants (Figure 7A, C). The impact was strongest among children aged 11–18 (Figure 18B). Notably, about one-third of those previously uninterested in science careers said they felt more interested post-event (Figure 18A).

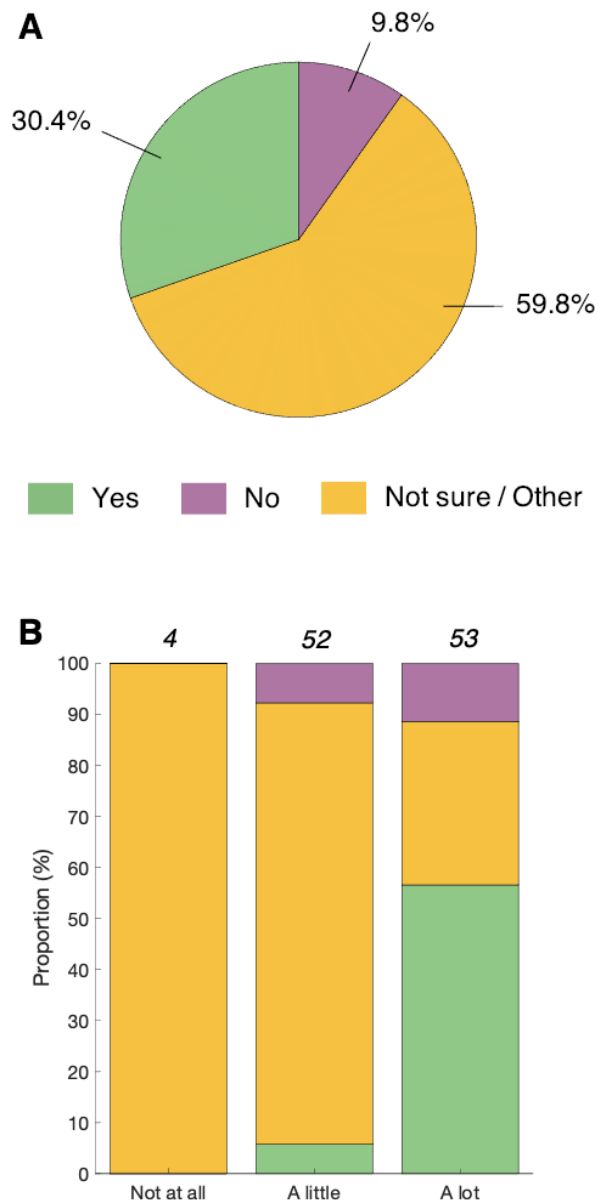


Figure 4. Consideration of a career in science (response to the question ‘Have you ever thought about having a career in science?’). A. Overall responses from participants (n = 112 responses). B. Responses based on participants’ interest in science.

The most cited factor for increased career interest was the opportunity to do experiments, consistent across genders (Figure 8A–B). Age-specific trends revealed priorities: children aged 6–10 were influenced equally by experimentation and learning about the world; 11–15-year-olds favoured experimentation; 16–18-year-olds cited both experimentation and interactions with scientists. For participants aged 19–30 and 65+, direct interactions with scientists and learning about the world were key. Those aged 31–65 valued experimentation, learning, and interaction equally (Figure 8C).

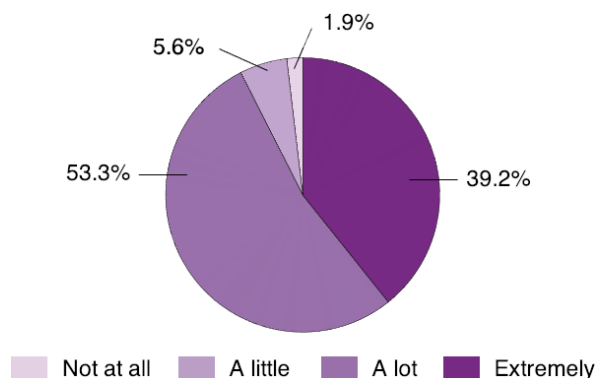


Figure 5. Enjoyment of the event (response to the question ‘How much did you enjoy the event?’, n = 107 responses).

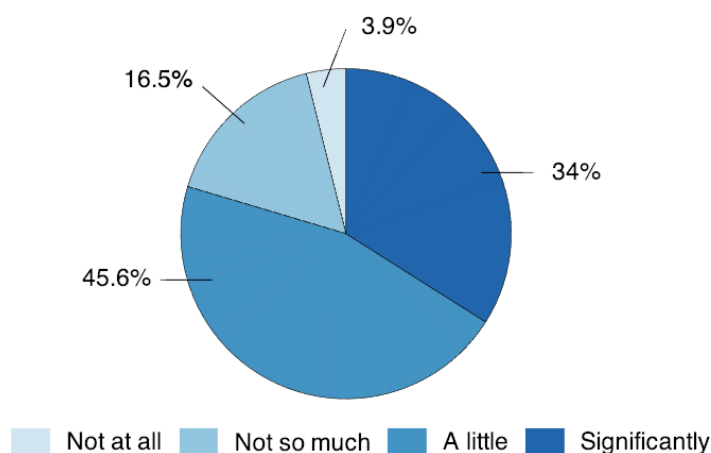


Figure 6. Impact of the event on participants’ views on science and research (response to the question ‘Did attending the event change your perspective on science and research?’, n = 103 responses).

5 - Discussion

Our project evaluation shows that hands-on, interactive outreach events can positively influence young people’s perceptions of science, at least in the short term, and stimulate interest in scientific careers. Participants consistently highlighted the value of direct experimentation, which promoted active involvement and discovery rather than passive observation. Open-ended responses reinforced this point, with many citing enjoyment in conducting experiments or engaging in playful, game-like activities. Because attendance at the event was voluntary, this represents a free-choice learning context, where participants choose to engage with science. Such settings are known to enhance motivation, autonomy, and enjoyment, offering a complementary learning experience to formal, school-based science education [Dunlop et al., 2018; McComas, 2014]. These findings align with research showing that interactive workshops reduce negative emotions such as anxiety while enhancing curiosity, enjoyment, and career interest among young learners [Muñoz-Losa & Corbacho-Cuello, 2025]. Similarly, science outreach labs that incorporate experimental activities have been shown to foster not only motivation and interest but also cognitive gains in conceptual and procedural knowledge [Molz et al., 2022]. Together, these outcomes support broader calls for outreach that nurtures curiosity through active participation and adapts to diverse levels of science capital.

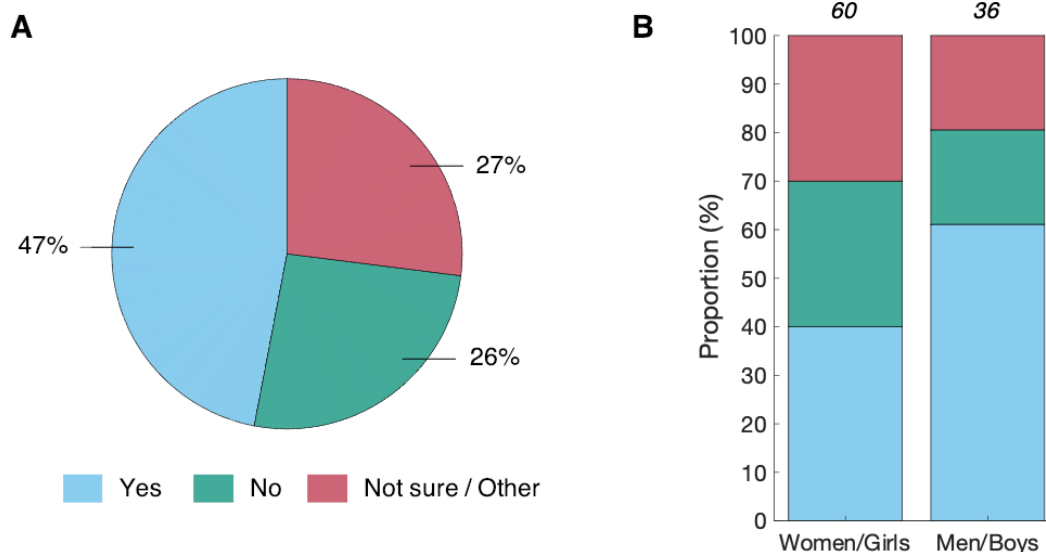


Figure 7. Increased interest in pursuing a career in science (response to the question ‘Do you feel more interested in pursuing a career in science after attending the event?’). A. Overall responses from participants (n = 100 responses). B. Responses by gender.

Equally important was the opportunity for participants to interact with scientists. While independence in hands-on activities was appreciated, many valued the guidance and expertise of STEM professionals, who provided both inspiration and credibility. The presence of diverse role models across gender, career stage, and scientific field also helped make science feel more accessible and relatable. This was particularly significant for female participants, who reported weaker initial interest in science and lower likelihood of pursuing scientific careers — patterns that reflect well-documented gender disparities [UNESCO, 2024]. It is necessary to highlight that nearly all participants (94.6%) recognized the societal importance of science, yet many — especially women and younger audiences — did not envision themselves as contributors to it. This points to a critical gap: appreciating science at a societal level does not automatically translate into perceiving personal inclusion within it. Representation plays a vital role in bridging that gap. The strong turnout of women and girls at our event was therefore a noteworthy success. The diversity of our volunteer team, especially the high proportion of female scientists, likely contributed to this engagement, consistent with findings that representation is central in shaping aspirations [Dawson, 2018; Nguyen & Riegle-Crumb, 2021] and that science communication fields often attract more women [Rasekoala, 2019].

Participants’ comments on their favourite booths reinforced these themes: they appreciated active learning in informal, welcoming settings, enhanced by visual materials and personal exchanges with approachable scientists. The event’s open design drew attendees across age groups, but this also required balancing activities to match varying levels of scientific understanding. Although not formally quantified, most attendees came in groups — families or friends — contributing to a welcoming, social atmosphere. Notably, fewer participants came from the 16–18 age group which is a critical stage in the French education system when career choices are made. This gap may stem from weaker group-based attendance among teens and from communication strategies that relied on platforms reaching older audiences. Future outreach should therefore target teens more directly, through

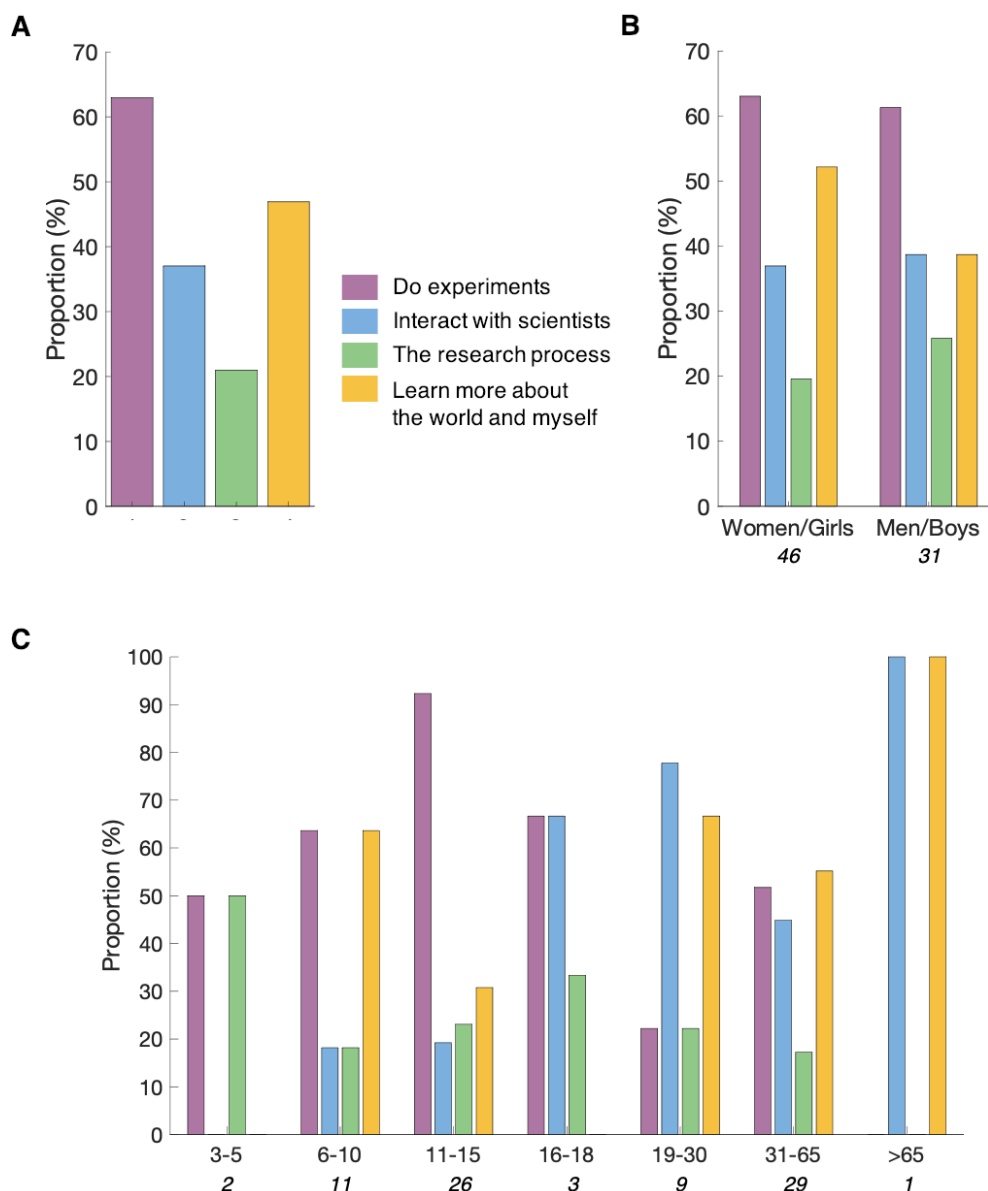


Figure 8. Aspects influencing increased interest in a science career (multiple choice question). A. Overall responses from participants (n = 81 responses). B. Responses by gender. C. Responses by age group. Participants were also offered the option 'Other' but none chose it.

collaboration with high schools and the use of platforms they frequent. Understanding motivations for attendance, particularly among less science-inclined youth, could further refine recruitment and engagement strategies. At the same time, it is also important to highlight the overrepresentation of women aged 31–65, which may reflect broader social patterns, such as mothers accompanying children, and may underscore how the local setting facilitates attendance by women with limited availability due to unequal distribution of domestic responsibilities.

The choice of location, at the intersection of two of the city's lowest-income neighbourhoods, was intentional as we aimed to promote accessibility for audiences typically

underrepresented in science outreach. While direct socioeconomic data were not collected, the context suggests that the event lowered participation barriers by offering free entry and situating activities within a familiar and closely located environment. Gender data, on the other hand, was explicitly tracked in surveys. Therefore, our design adopted an intersectional perspective by addressing two key barriers to inclusion in science: gender and socioeconomic status. However, the French legal and ethical framework restricts the collection of data on race and ethnicity (Loi N° 78-17 Du 6 Janvier 1978 Relative à l'informatique, Aux Fichiers et Aux Libertés, 1978), limiting our capacity to assess how these intersecting barriers shaped participation. Future work should explore ways of incorporating ethically and legally compliant forms of anonymized self-identification to better capture and respond to participants' lived experiences of exclusion [Dawson, 2014, 2018].

At the same time, the location itself may have fostered a sense of belonging, as participants were surrounded by peers “like themselves”, and this is a known facilitator of inclusion in science spaces [Dawson, 2014]. Yet, by relying solely on feedback from attendees, we risk overlooking the perspectives of those who did not participate and thereby unintentionally reinforcing exclusions [Dawson, 2018]. To move toward genuinely inclusive practice, future initiatives should involve communities from the outset, incorporating the voices of both participants and non-participants in the design and evaluation of outreach activities.

Our approach also highlights inclusion as a process, not only an outcome. As Quick and Feldman [Quick & Feldman, 2011] argue, outreach benefits from iterative, collaborative relationships. While our intervention was short-term, repetition over multiple years and systematic incorporation of feedback could deepen relationships and enhance inclusivity. We measured short-term engagement outcomes regarding participants' engagement towards science following Judd & McKinnon's definition — attitudes towards science, aspirations, self-efficacy, and interest in future scientific activities or careers [Judd & McKinnon, 2021]. With this, we observed positive effects, but long-term impact was not assessed. This is a common limitation in short interventions, and future studies should address this gap, though even short-term evaluations provide valuable insights into inclusive practices [Dawson, 2014].

Other limitations also warrant attention. We did not provide multilingual materials, which may have excluded participants without dominant linguistic capital. Similarly, accessibility for disabled participants was not systematically addressed. Future events could improve inclusion through multilingual and multisensory formats (e.g., translations, Braille, large print, sign language interpretation, sensory-friendly design). Science capital as an obstacle to participation could also be more carefully addressed, at least for some booths, as open-ended feedback suggested that the “least appreciated” booths were not disliked per se, but inaccessible due to assumed prior knowledge.

Taken together, our findings suggest that low-cost, community-centred outreach can play a meaningful role in fostering science aspirations, promoting equity in STEM, and strengthening science literacy. Even a single, localised event, when designed with inclusivity and engagement in mind, can positively shape perceptions of science and scientific careers. Given its adaptability and affordability, this model could be replicated and scaled to inspire diverse communities globally.

6 - Implications for future practice

Our findings reinforce the value of designing hands-on, interactive experiments as an effective way to enhance science engagement. Such activities not only enhance enjoyment and understanding but also spark curiosity and shift perceptions of science, particularly among young audiences. Future initiatives should therefore prioritise discovery-based formats that allow participants to be active learners, rather than passive observers, creating a more inclusive and meaningful engagement with science.

Direct interaction with scientists also emerged as a critical component. Participants consistently valued the importance of these exchanges, indicating that access to role models plays an important role in inspiring career aspirations. To maximize impact, future events should ensure the inclusion of scientists from diverse backgrounds — including gender, age, and discipline — making science careers appear more attainable and relatable. For girls and young women in particular, encountering relatable role models can help make science careers feel more attainable.

Equally important is the systematic collection and integration of participant feedback. Post-event insights provide valuable guidance for improving accessibility, relevance, and impact. A reflexive approach that centres the voices of participants, especially those historically excluded from science, can help co-construct more inclusive formats. By embedding feedback into planning, events can evolve iteratively, becoming more responsive to community needs.

By combining inclusive design, diverse role models, and iterative feedback processes, science outreach can become a more equitable, community-centred practice. Even short-term events can lay the groundwork for long-term change when designed with intentionality, responsiveness, and inclusivity.

7 - Conclusion

This project evaluation demonstrates that a single, hands-on, community-based science outreach event can meaningfully promote short-term interest in science and scientific careers, especially among young participants. Carefully-designed interactive activities, presented in accessible language and framed around curiosity and discovery, offer an effective model for inclusive engagement.

Designing events that welcome a broad public requires deliberate attention to accessibility, representation, and local context. In our case, the diversity of the scientist team, in both identity and discipline, played a crucial role in the event's success. Representation matters: seeing relatable scientists can help participants, especially those from underrepresented groups, envision themselves in scientific roles.

The location and structure of the event also played a key role. Holding the event within the heart of the community, free and accessible to all, enabled participation from individuals who might otherwise not attend such initiatives. While our study focused on gender and socio-economic background, future outreach efforts should expand to include other factors of exclusion, including race, disability, and language.

We encourage science communicators to adopt inclusive, participant-centred approaches that prioritise accessibility, representation, and interactivity. These strategies can not only be cost-effective and scalable, but also capable of meaningfully expanding the reach and impact of science communication efforts. With iterative development and attention to structural barriers, outreach events like ours have the potential to contribute to a more equitable and inclusive scientific landscape.

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A - Supplementary figures

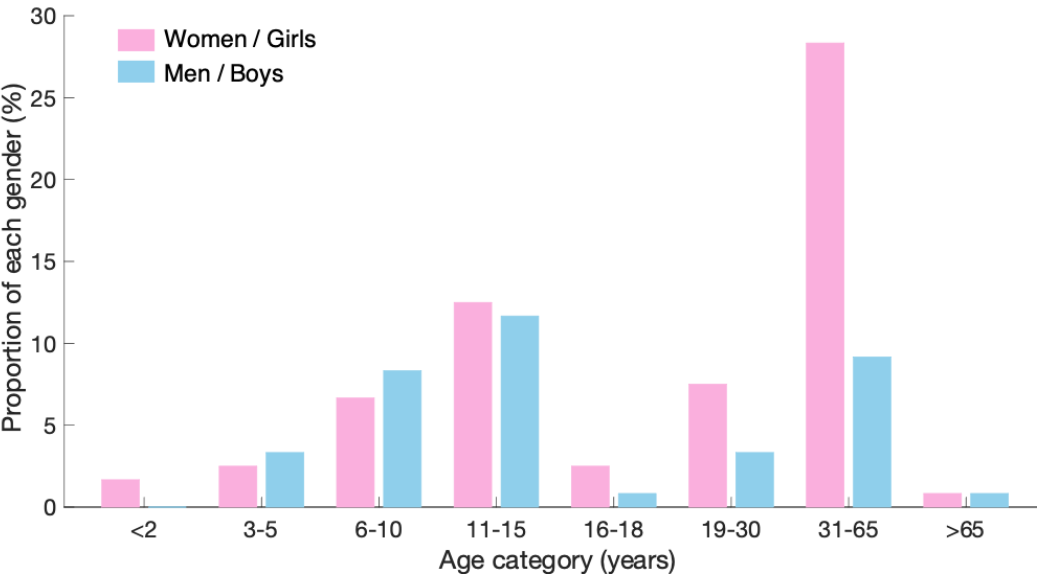


Figure 9. Participants gender breakdown by age group (n = 120 responses).

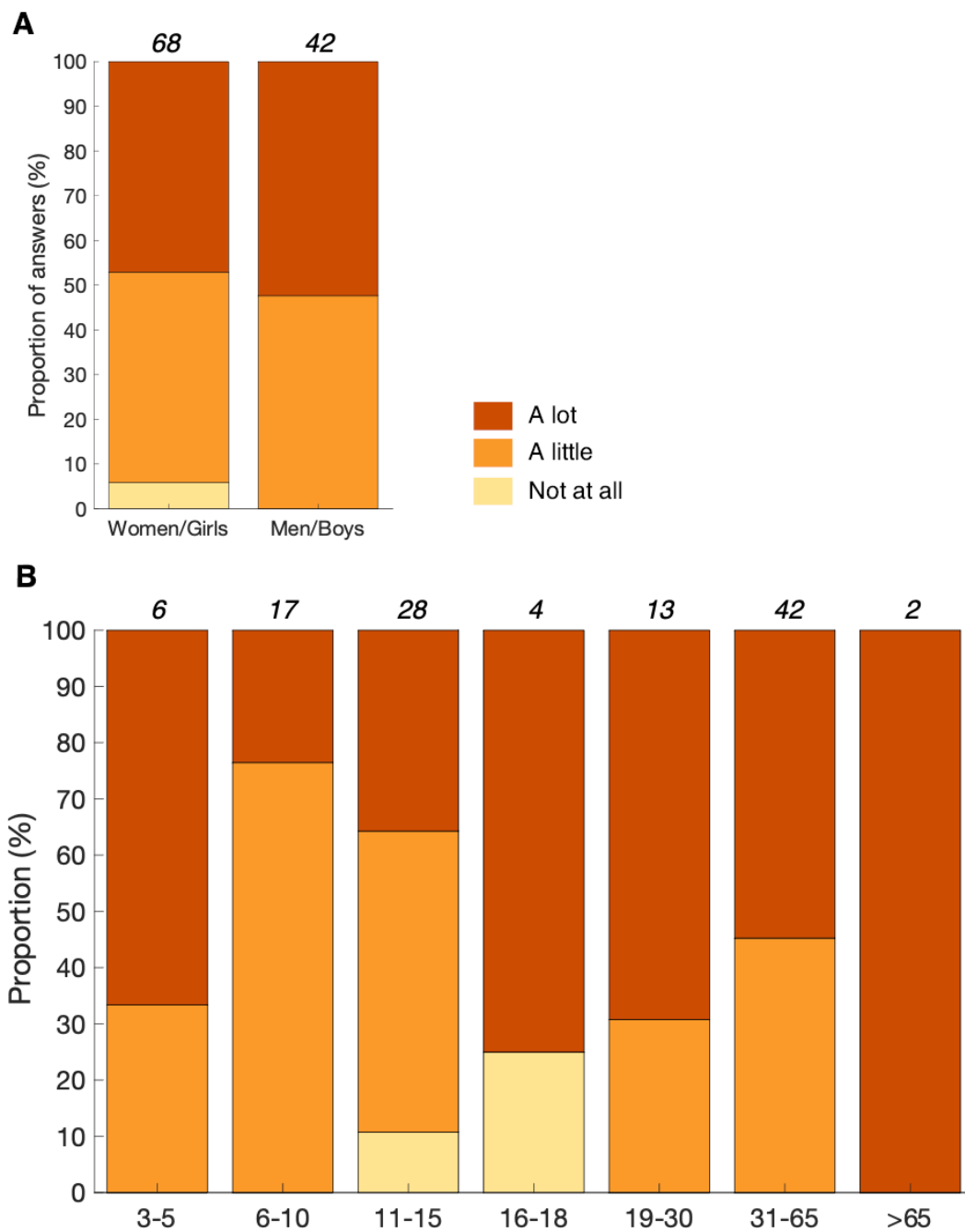


Figure 10. Participants' interest in science before the event by gender and age (response to the question 'How much do you enjoy science?', n = 113 responses). A. Interest levels by gender. B. Interest levels by age category.

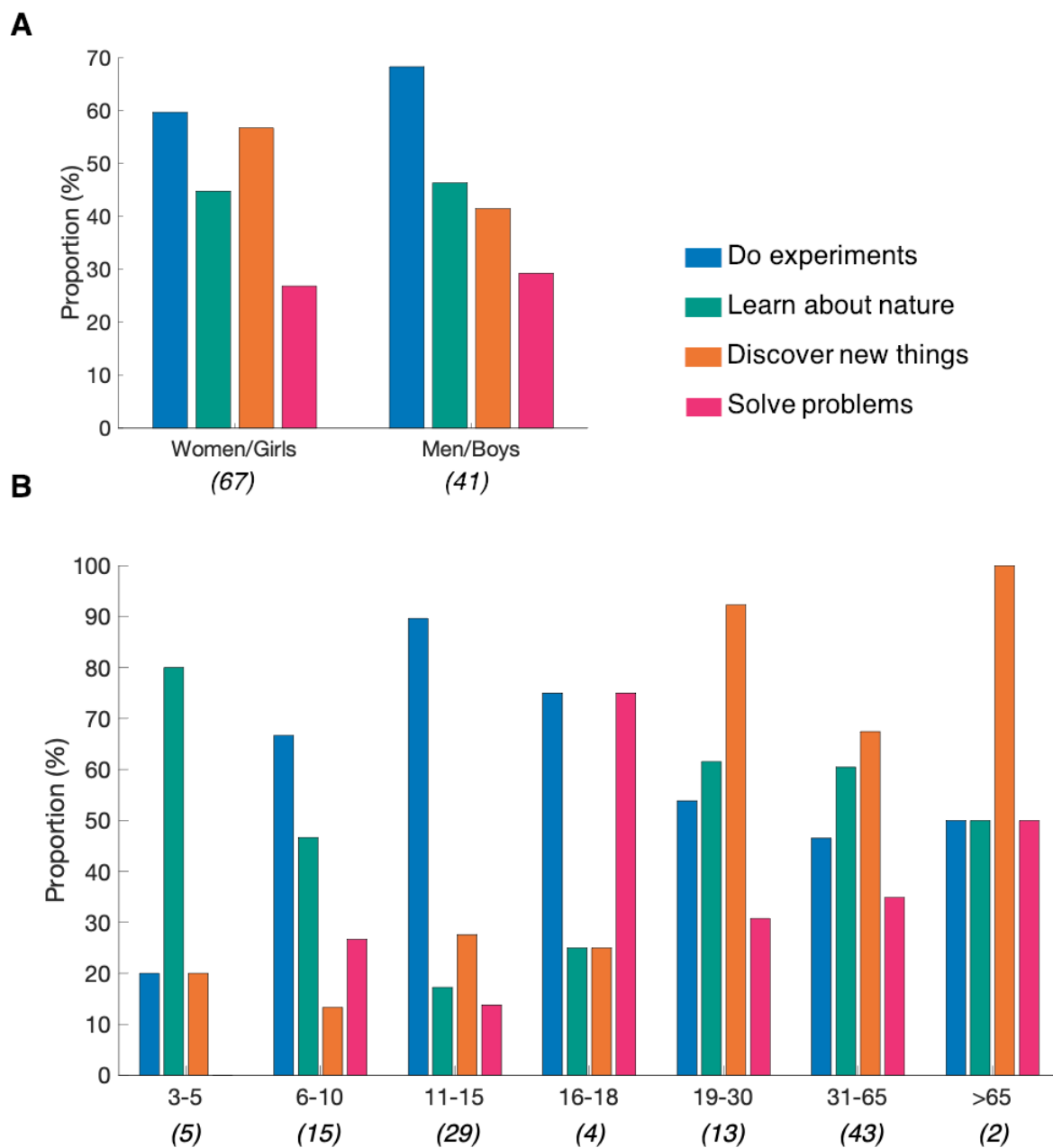


Figure 11. Participants' preferred aspects of science by gender and age (multiple choice, n = 111 responses). A. Preferences by gender. B. Preferences by age group. Note: the "Other" option was available but was not selected by any participants.

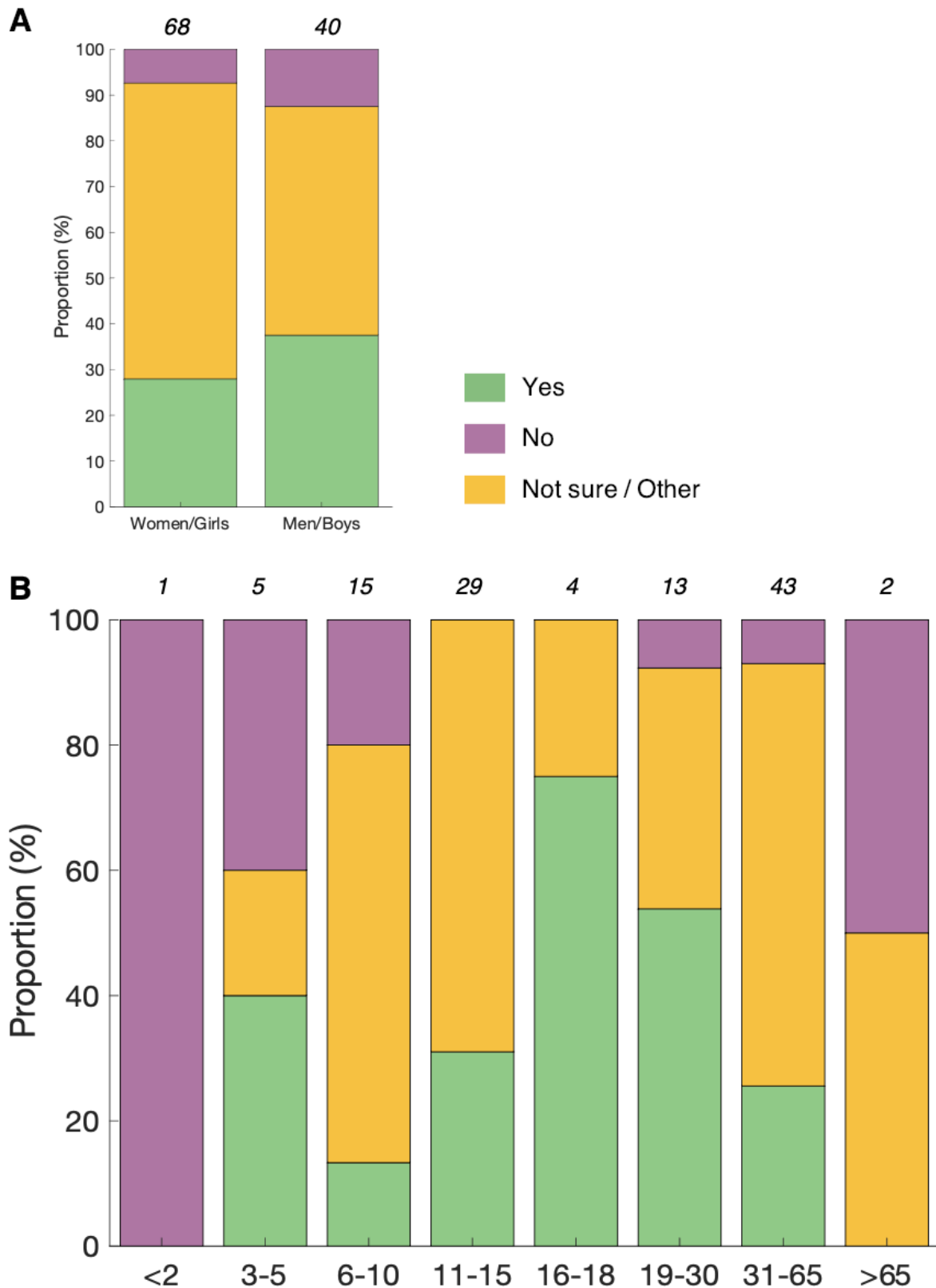


Figure 12. Consideration of a career in science by gender and age group (response to the question ‘Have you ever thought about having a career in science?’, n = 112 responses). A. Responses by gender. B. Responses by age group.

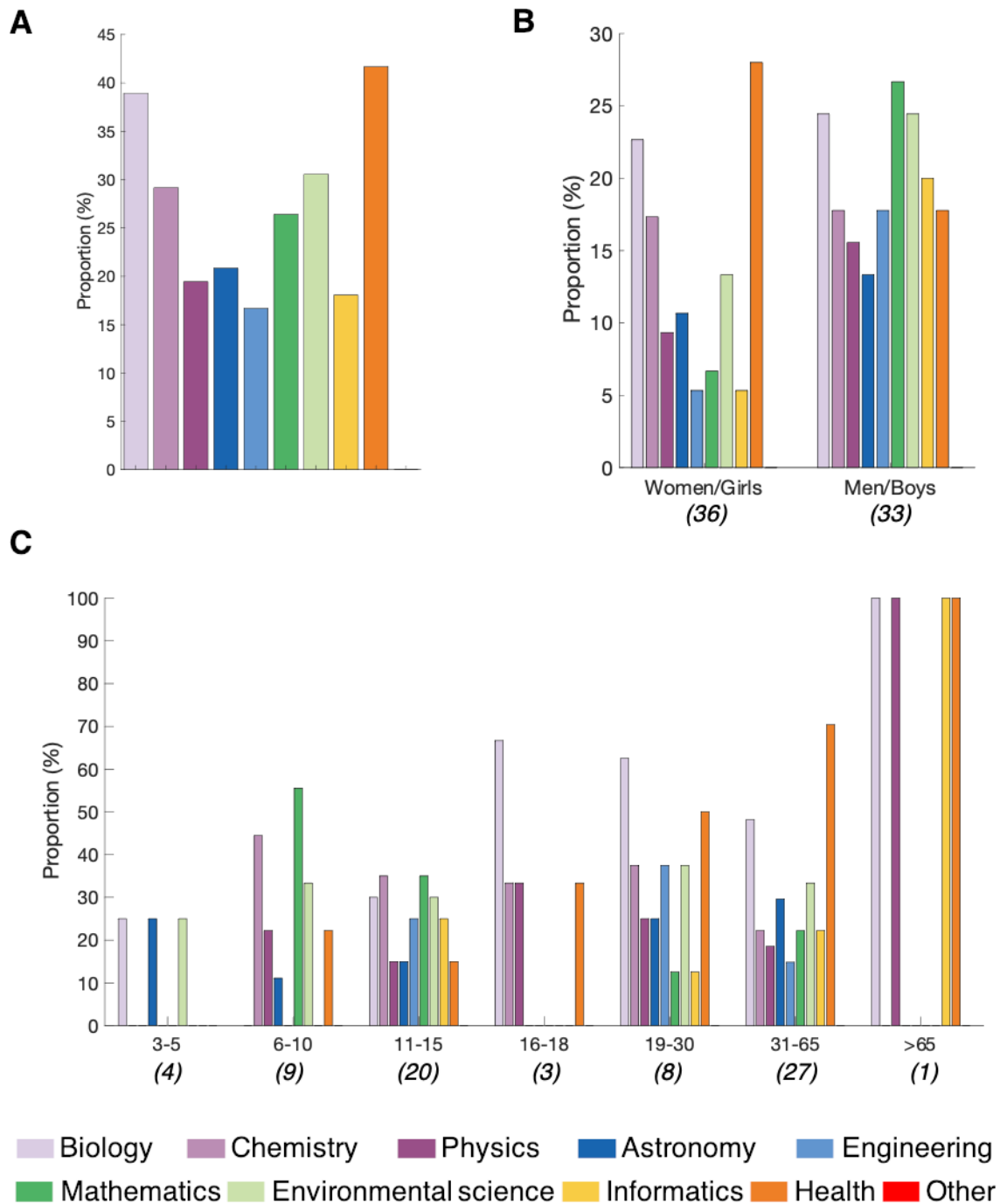


Figure 13. Preferred scientific domains (multiple choice). A. Overall preferences among participants (n = 72 responses). B. Preferences by gender. C. Preferences by age group.

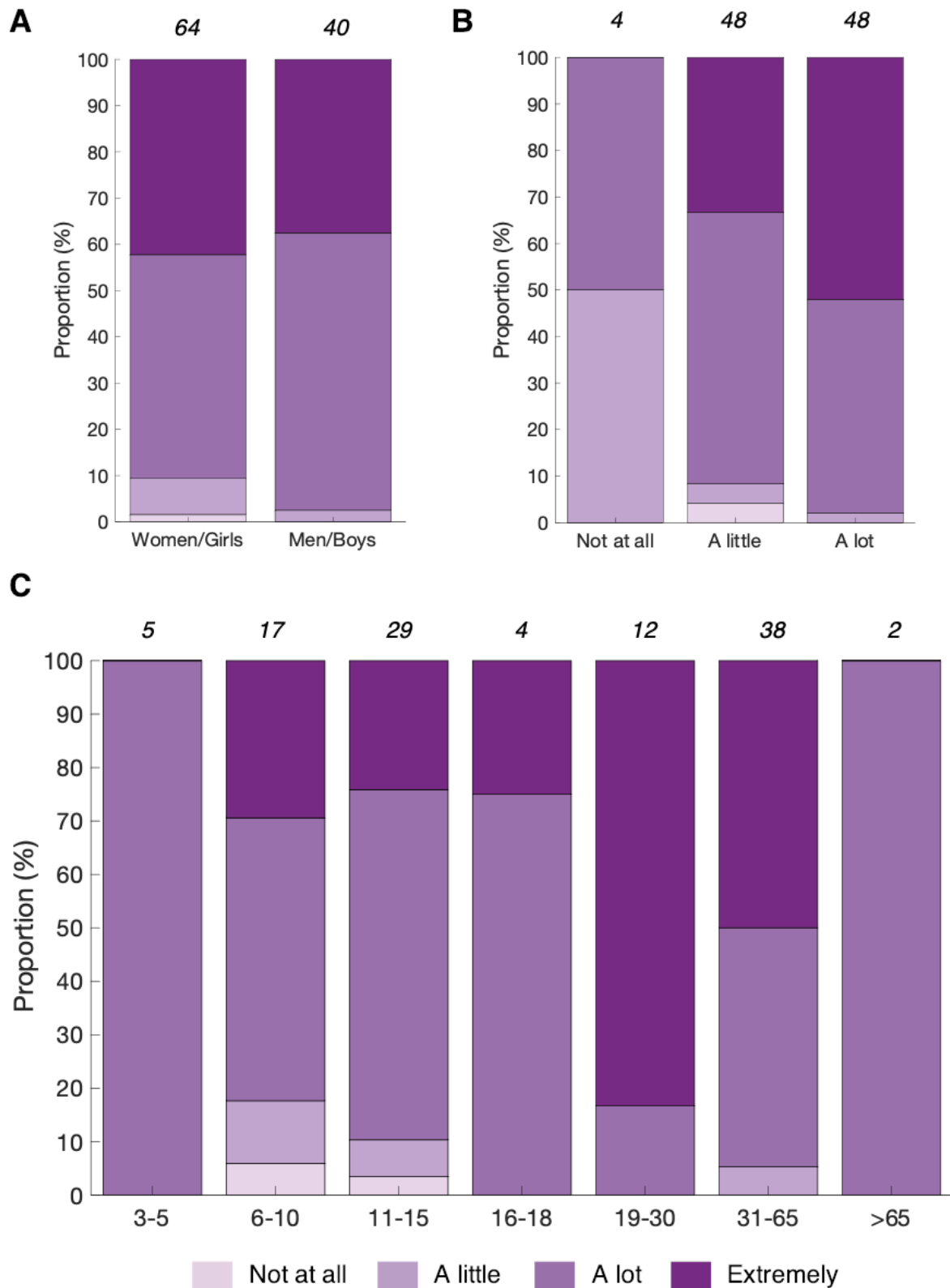


Figure 14. Breakdown of enjoyment of the event (response to the question ‘How much did you enjoy the event?’, n = 107 responses). A. Ratings by gender. B. Ratings based on pre-event interest in science. C. Ratings by age group.

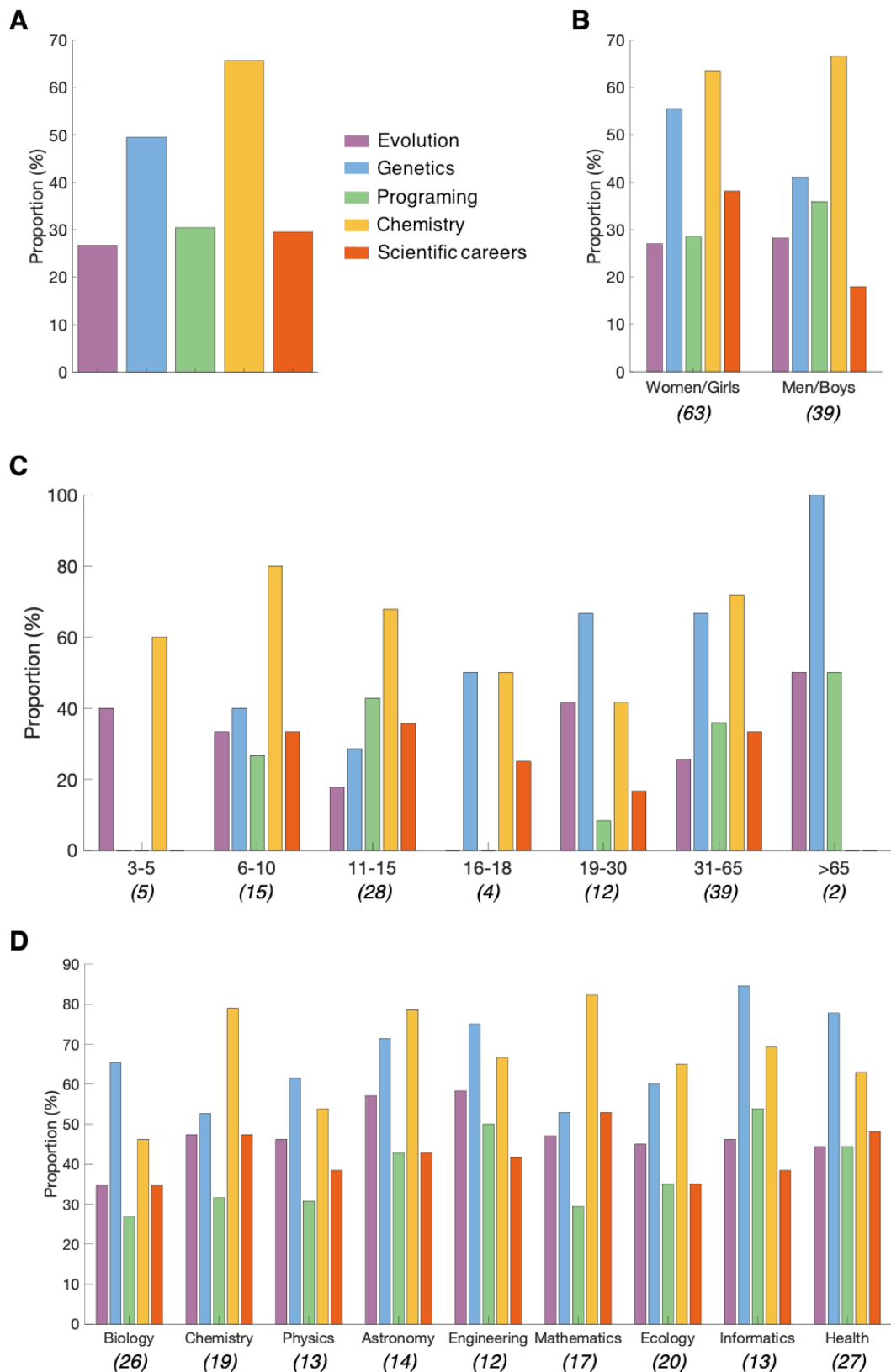


Figure 15. Favourite booths at the event (multiple choice). A. Overall favourite booths among participants (n = 105 responses). B. Favourites by gender. C. Favourites by age group. D. Favourites by preferred scientific domain.

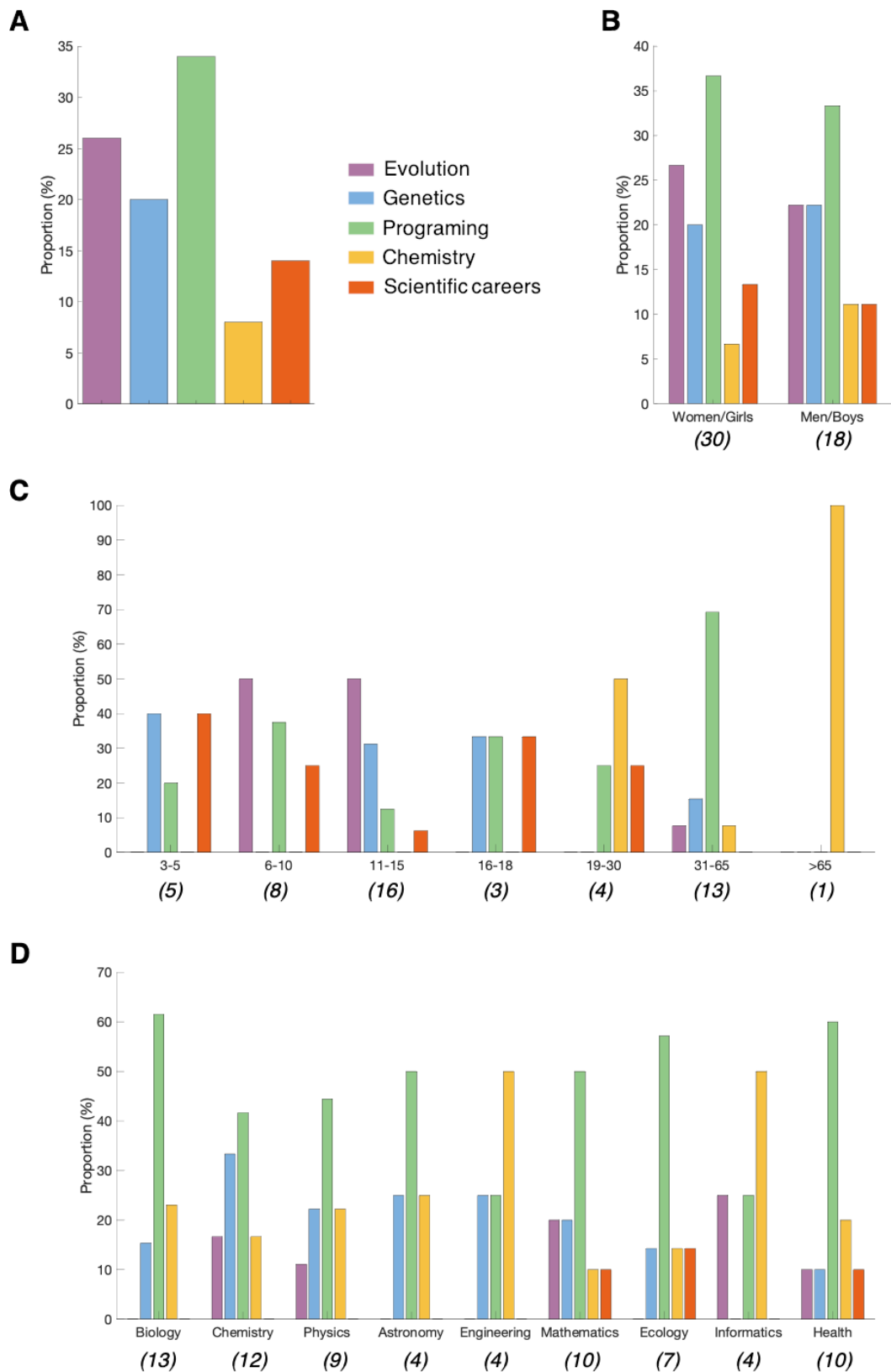


Figure 16. Least favourite booths at the event (multiple choice). A. Overall least favourite booths among participants (n = 50 responses). B. Least favourites by gender. C. Least favourites by age group. D. Least favourites by preferred scientific domain.

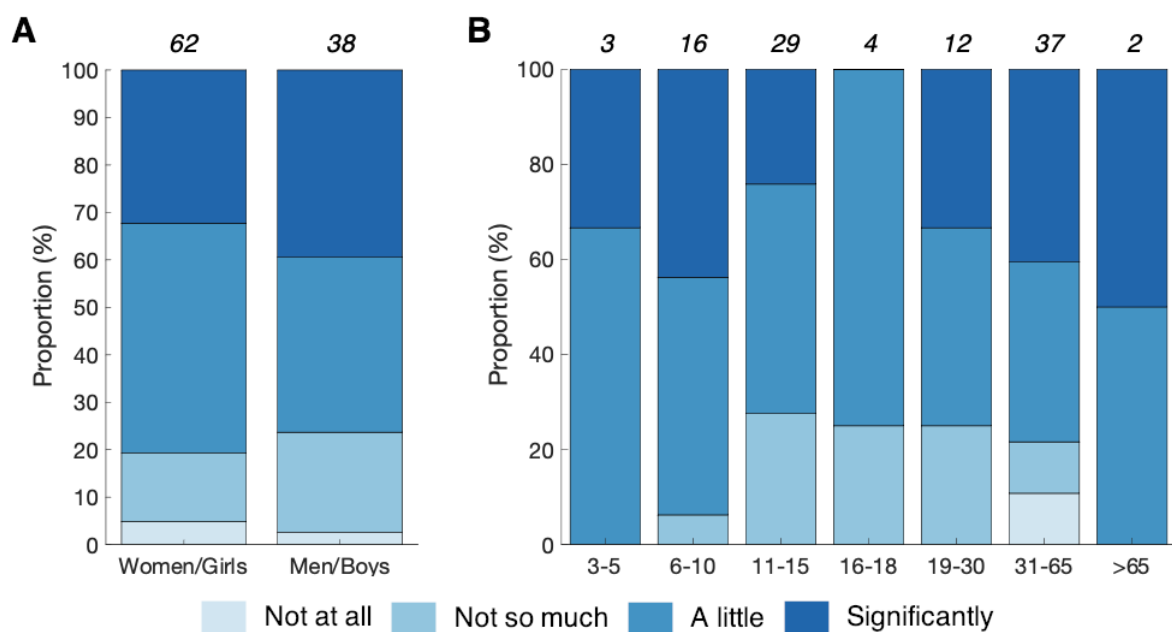


Figure 17. Impact of the event on participants' views on science and research by gender and age (response to the question 'Did attending the event change your perspective on science and research?', n = 103 responses). A. Responses by gender. B. Responses by age group.

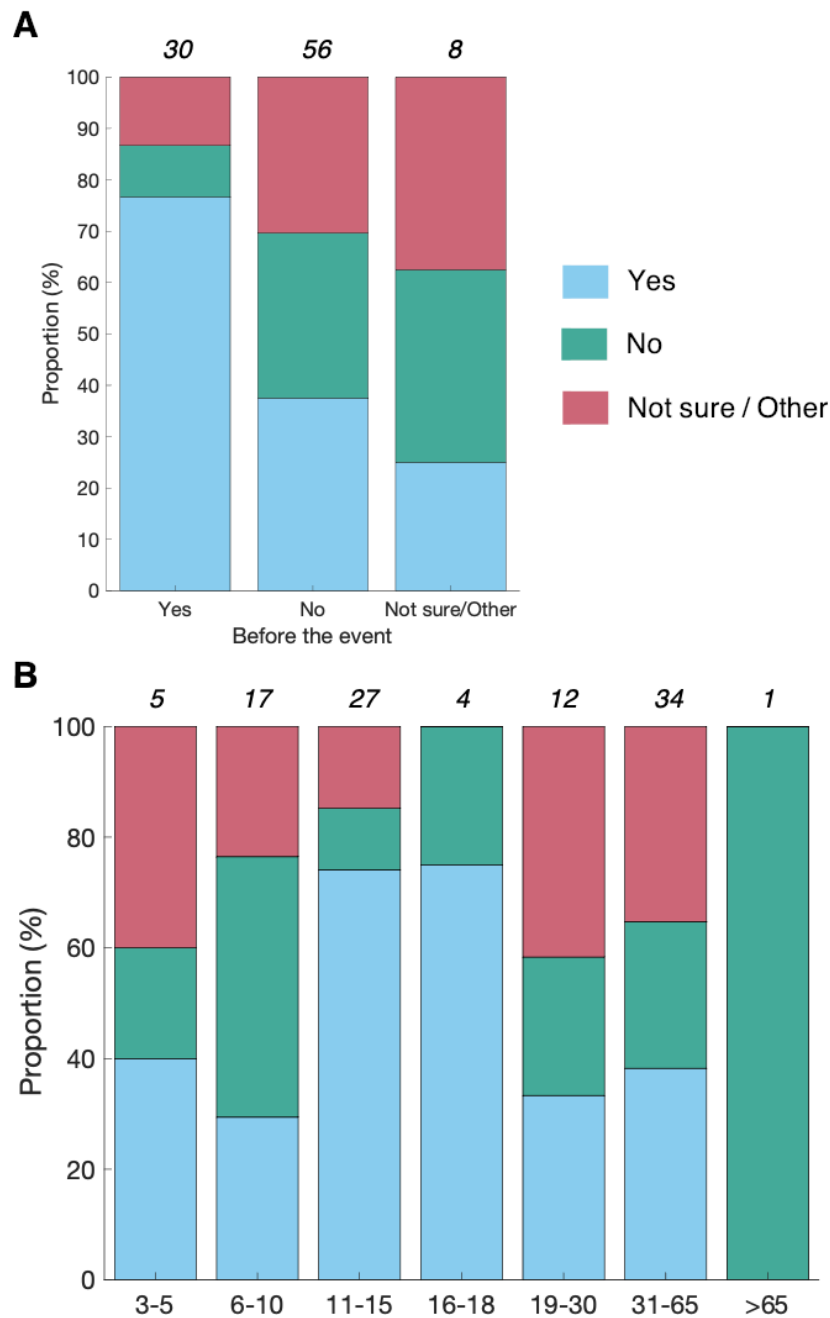


Figure 18. Breakdown of increased interest in pursuing a career in science (response to the question ‘Do you feel more interested in pursuing a career in science after attending the event?’, n = 100 responses). A. Responses based on pre-event career considerations. B. Responses by age group.

B - The survey (translated)

Before the event:

1. How old are you?
 - 2 and under
 - 3-5
 - 6-10
 - 11-15
 - 16-18
 - 19-30
 - 31-65
 - 65 and above
2. What is your gender?
 - Boy/Man
 - Girl/Woman
 - Other (Please specify):
 - Prefer not to say
3. Do you think science is important for the world?
 - Yes
 - No
 - Not sure / Others
4. How much do you enjoy science?
 - Not at all
 - A little
 - Somewhat
 - Very much
5. What do you find most interesting about science? (Select all that apply):
 - Doing experiments
 - Learning about nature
 - Discovering new things
 - Solving problems
 - Other (please specify):
6. Have you ever thought about having a career in science?
 - Yes
 - No
 - Not sure / Others
7. Which domain of science are you most interested in?
 - Biology
 - Chemistry
 - Physics
 - Astronomy
 - Engineering
 - Mathematics
 - Environmental Science
 - Informatics
 - Health
 - Other (please specify):
8. What would make science more fun for you? (Open-ended)

After the event:

1. How much did you enjoy the event?
 - Not at all
 - A little
 - Very much
 - Extremely
2. Which booth(s) did you prefer?
 - Evolution
 - Genetics
 - Programming and behaviour
 - Chemistry
 - Scientific careers
3. Do you want to tell us why? (open ended)
4. Which booth(s) did you like the least?
 - Evolution
 - Genetics
 - Programming and behaviour
 - Chemistry
 - Scientific careers
5. Do you want to tell us why? (open ended)
6. Did attending the event change your perspective on science and research?
 - Yes, significantly
 - Yes, somewhat
 - No, not really
 - No, not at all
7. Do you feel more interested in pursuing a career in science after attending the event?
 - Yes
 - No
 - Not sure / Others
8. If yes, what aspect of the event influenced your interest? (Select all that apply)
 - Hands-on experiments
 - Interacting with scientists
 - The research process
 - Learn more about the world around me and myself
 - Other (please specify): _____
9. What could be improved in future events like this one? (Open-ended)
10. Any other comments or suggestions? (Open-ended)
11. If you would like to receive the results of this survey after the event, leave us your email address:

B.1 ■ Responses to the questionnaire

The full spreadsheet containing responses to the questionnaire is available at the following link: https://zenodo.org/records/15720591?token=eyJhbGciOiJIUzUxMiJ9.eyJpZCI6ImUwYjQ4ZmJmLTJjMzgtNDM5YS05MWFjLTdjY2Q4MTRiODlhNyIsImRhdGEiOnt9LCJyYW5kb20iOiI5NTlmZDIzYmI5OTg5YjMxNWQxMzZkMGJlMGJlNDczMCJ9.eFN5ICLVRbv2qxCSaLWUCMeSGMcY4pJnbNmL3fIfeFjhaKe55f0Af7tqHR5nQD_UF2BEz4guPGYobI7sbTzxRg.

B.2 ■ *Description of the different booths*

Evolution booth: the Evolution booth focused on exploring brain models across different species. Participants examined the similarities in brain structures to highlight the conservation of key functions, while also learning about the unique adaptations specific to each species. Using visual aids, participants were introduced to three species commonly used in neuroscience research — mouse, zebrafish, and *Drosophila* — and compared them to humans in terms of DNA conservation, brain size, and life cycle. The booth also included a discussion on the necessity of animal experimentation in neuroscience.

Genetics booth: the Genetics booth aimed to introduce participants to the fundamental concepts of DNA and its role in the brain. The structure of DNA was explained, highlighting its double-stranded nature. Participants were introduced to the four nucleotides (A, T, C, and G), with paper pieces color-coded for younger participants to represent each nucleotide. The base-pairing rules (A with T, and C with G) were demonstrated, and participants used the paper pieces to assemble complementary DNA strands.

Next, participants explored DNA mutations through hands-on activities, where they could manipulate the nucleotide pieces — removing, adding, or replacing them to create different mutations. They were then introduced to the concept of genetic engineering, learning how scientists can modify DNA sequences to investigate gene functions. In the context of stress regulation, participants were tasked with choosing a mutation to introduce into a hypothetical gene involved in stress control, allowing them to test how a mutation might impact the gene's function.

Programming booth: the programming activity involved using paper pieces to arrange instructions, creating a simple and interactive programming experience. Participants played a game where a bunny character needed to move across squares to reach a carrot. Stress response was simulated through a conditional loop: if a fox was present in front of the bunny, the bunny would stop; otherwise, it could take one more step. To demonstrate an “abnormal” stress response, the bunny exhibited excessive stress, and the game rules were altered so that, regardless of the presence of a fox, the bunny was unable to move forward. Following the programming game, participants watched videos of an animal species of their choice (mouse, zebrafish, or *drosophila*). These videos depicted a control versus a mutant animal responding to a stressful stimulus, with the mutant displaying an exaggerated stress reaction.

Chemistry booth: the chemistry booth consisted of pipetting solutions changing colours depending on the pH. Red cabbage juice was used, as it changes colours depending on pH. Adding lemon juice gave it a reddish colour, water did not change the colour and detergent made it look purple. The reddish solution was used to mimic blood, then either a control solution consisting of water or a solution consisting of detergent was added to this fake blood. This was used to mimic a stress hormone dosage. If the solution changed colour, it indicated abnormally elevated levels of stress hormones. Participants pipetted all solutions themselves using 2mL plastic pipettes, in 2 mL Eppendorf tubes. Participants were then able to take the tubes with different coloured solutions home. To make it as if they were in a chemistry lab, participants were given protection equipment to wear (lab coats and protective glasses).

Conclusion booth: at the conclusion booth, participants were encouraged to fill the second part of the questionnaire. If they had gone through all booths and collected stamps, they could then choose 3 rewards among the different goodies offered. The different goodies

included books on science (mostly for kids), keychains and stickers on scientific fields, posters on famous women scientists (from Nevertheless podcast Posters), a booklet on scientific discoveries from Connectome in Science, tote bags from scientific institutes, flash drives and notebooks. Finally, they could go through a photobooth with a science theme.

Bonus booth: the bonus booth consisted of colouring materials and printouts with additional information on the brain from the Société des Neurosciences (French Society of Neuroscience).

B.3 ■ Concise list of material needed for the event

- Food for the volunteers
- Office supplies: stamps, pens, scissors, tape, nametags
- Embellishment: coloured tablecloth, balloons, ribbons
- Evolution booth: models of the brain across species, visuals about the different species and their brain
- Genetics booth: model of cells and their organelles, visuals about the different nucleotides and DNA structure
- Programming & behaviour booth: video projector, gamified visuals to conceive a small program with a loop
- Chemistry booth: lab coats, protective glasses, 50mL tubes, 2mL tubes, plastic pipettes, tube holders, red cabbage, lemon, detergent
- Conclusion booth: goodies
- Bonus booth: visual material and posters offering more information on the brain, colouring materials

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