

Communicating science to the visually impaired

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Special note: Today is Global Accessibility Awareness Day
Twitter hashtag: #GlobalAccessibilityAwarenessDay, #GAAD

Is science communication accessible?

1. Case study: focusing on visually impaired (VI) community, science communication via written or audio resources, previous IPPOG presentation
2. Project participants: blind individuals and science communicators (all based in India)
3. **Science communication (meaning from Wikipedia)**: practice of informing, educating, raising awareness of science related topics and increasing the sense of wonder about scientific discoveries and arguments
4. **Accessibility (meaning from Oxford languages)**: the quality of being able to be reached or entered/the quality of being easy to obtain or use/the quality of being easily understood and appreciated
5. Science communication that relies on videos, experiences of able bodied individuals is often not accessible for visually challenged community
 - a. Simple example: momentum conservation explained with the help of billiards
 - b. Simple example 2: many of our VI group members didn't know how mosquito looks like.
6. Level of exposure to science that visually impaired individuals have is often (not always) different to that of able bodied people
 - a. Vision impairment includes a partial as well as complete vision loss, experiences vary

Project and outcomes

1. We took a variety of science topics e.g. what is Corona virus and how it spreads? Or what is dark matter and what we know about it or why do mosquitoes bite me more than my friends?
2. Developed a set of written/audio articles, shared them with VI participants, got feedback and improved on our articles
3. Major takeaways:
 - a. **Pedagogy** while explaining scientific concepts is very important specially for a VI person as the learning curve is generally steeper compared to sighted individual
 - b. **Choice of analogies** is critical, they should be simple, descriptive and relatable and tactile e.g. compare corona virus appearance to strawberry
 - c. **Accessibility develops curiosity:** Once explained in an accessible way, a lot of interesting questions and discussions came through via online meetings, emails etc.
 - d. **Simplifying doesn't mean stick to simple:** Explaining science in simple words is not the same as explaining only simple science in other words dealing with non-trivial scientific concepts is very welcome
 - e. **Supplementing sci-comm with tactile resources** (e.g. as developed by tactile collider) is highly welcome, better if these are made of affordable low cost materials rather than speciality materials

Few action items

1. Enable access

- a. Make your social media accessible, use CamelCase in hashtags, provide descriptive alt text for your gif and images on social media. [This twitter thread](#) can be helpful. There are dedicated social media accessibility workshops e.g. [this](#).
- b. Make your websites accessible, check for VI friendly colour schemes, offer large font option, text only option, provide Alt Text for images, check if websites are screen-reader friendly

2. Enable content

- a. Introduce tactile analogies e.g. explain momentum conservation with a balloon on a string, minimise dependence on videos, improve on your descriptive skills, educate yourself about experiences of disabled communities so you can incorporate them in your science communication

3. Enable creativity

- a. Most of the tools used by particle physics community are not easily accessible for VI community e.g. ROOT isn't compatible with screen readers
- b. Can we develop accessible tools for data processing, alternatives to plots

4. Identify requirements of other types of disabilities e.g. hearing impairments