TIDAL N+
Transformative Innovation in the Design of Assisted Living products and services

Global Disability Innovation Hub

## Tigmanshu Bhatnagar

**Profile:**
Dr Tigmanshu Bhatnagar is a research fellow at the GDI Hub. He is leading the Live Labs research, which explores new ways to facilitate user-centered design and development for assistive technology innovations.

His PhD research focused on the development of a new refreshable tactile disability technology, addressing a practical challenge of limited access to tactile information for blind students through a basic material science and user-centered design research. His interest lies in disability innovation and design.

## Transcript:

[00:00:00] So my name is Tigmanshu Bhatnagar, you can also call me Tiggy. My field of expertise is disability innovation, and I am a lecturer at University College London.

(Voiceover) Can you share why you think it is important for your research to have diverse inputs?

[00:00:13] Well, the fundamental meaning of research is to understand how the world works, and the world is different for different people, different from their backgrounds, from their places of interest.

[00:00:26] The kind of work and experiences that they have had. Therefore, diversity is key in research. It enriches the understanding of our environments. It helps us to better inform insights and therefore make better decisions that work for more people. And at the same time, it enhances us as researchers. We are better informed and more let's say, aware about the diversity of this world and the fact that we know so little about it.

(Voiceover) How have you used diverse participants or co-design in your research?

[00:01:04] So in one of the research projects where we were trying to design a refreshable tactile display, we included a diversity of people who might use such a technology. That included, uh, children from schools, their teachers who can make better use of these devices in education, but also college students who have very little resources when it comes to tactile information, all the way up to professionals who may find the use of tactile information and, being- in participating in meetings and other sort of group activities, as well as just to be on top of the information needs that they have.

[00:01:44] So this diversity of user base showcased how a technology can be useful for different people, though we, uh, though all of them could be considered as people with visual impairments, even within that category, there was a lot of diversity, uh, given the context and the backgrounds that these individuals have when working alongside a diverse range of contributors.

Can you share something you have learnt in terms of best practice?

[00:02:13] In a recent project where I was involved in interviewing humanitarians who are now beginning to work with AI or have a sort of sense of how AI is transforming the humanitarian sector.

[00:02:26] We worked with three different types of, uh, participants. These were humanitarians who have been in the field and have managed programs. There were tech experts who develop humanitarian applications using AI and also policy experts who have - who sort of provide the guide rails or some sort of guidance in order to develop and deploy these projects ethically and morally.

[00:02:53] So with these diversity of participants, it was very important. To first of all be sensitive to the diverse perspectives and have minimum bias when we are approaching the technology from a very optimistic end. It was important to allow people to share their opinions freely and openly and be cognisant of the fact that their opinions, uh, eventually through an analysis would result into a more justifiable use of how this technology is going to develop.

[00:03:30] Even if we may have a bias that we need to make use, make the best use of AI through whatever forces that are behind us, be it optimism or technical curiosity or donor funding. The pessimism against the technology that people have from a practical standpoint, therefore was a consideration that we had to be very cognisant about.

[00:03:53] And sort of like not have our own personal biases in research, but at the same time, uh, when it comes to sort of analysing these inputs, from diverse perspectives, we need to really rely on standardized methods and methodologies that have proven the test of time so that we are able to generate insights that are scientifically rigorous and robust that works on most applications that are out there and have publishable quality.

(Voiceover) What advice would you recommend to early career researchers to create inclusive settings when co creating or conducting research?

[00:04:32] Well, I'm myself an early career researcher, so it might be a bit immature when it comes to advice because I'm also still learning. But what I'm doing is just going out there as much as possible, putting myself in difficult situations. Sometimes I'm going out of my comfort zone, trying to learn from other people, having that curiosity in mind that, you know, even there's a bit of a platform where I can understand how to do research.

[00:04:57] I've done a bit of research. There's still a lot more to learn from this world. And I think just having that curiosity always perhaps is one of the most important things to go and do research for an early career researcher.

(Voiceover) Can you share any common mistakes that researchers should avoid?

[00:05:18] Yeah, there are quite a few mistakes that I wish I would have avoided. But one thing is I rather realised quite late the sort of idea of techno-solutionism, where we sort of have a technology that we are really curious and we want to build it, but we don't necessarily consider its outcomes for the people who are going to use it. So, being locked in in that sort of an approach where you have invested too much of an effort in developing a technology, but haven't really put in enough effort in understanding its practical use.

[00:05:57] That would be something that we need to avoid as an early career researcher because great, you'll have a lot of published papers and things would be quite good. There might be some awards that we win or whatever happens, the actual technology won't pass that test of actual usability. So keeping those elements in mind where we sort of involve users from the beginning to the way through the development process and utilise methods to do it properly.

[00:06:26] I think that is very important and that's one thing that I think people should avoid, not sort of going ahead in developing things without really consulting the end users.

(Voiceover) Is there anything else researchers should be mindful of when working with diverse audiences?

[00:06:40] Well, uh, yeah, diverse audiences have diverse opinions so being mindful of the, of the variety that, you know, we can engage with being, uh, confident also in engaging with diversity of people who might be, you know, maybe more senior or maybe very junior to your position, having a consistent mindset that is based on the understanding of that phenomena from the individual who's sharing it.

[00:07:12] Uh, acknowledging the power imbalance that they might associate themselves in that sort of a conversation, because depending upon the research method, these issues sort of come to light. So, for example, if you're doing interviews, uh, there might be issues if you're interviewing a very senior person where you might just comply to whatever they say, rather than contradicting or putting your points across in engaging a more sort of critical conversation.

[00:07:40] Which might be of more interest to the senior individual you are interviewing. In a case of focus group discussions, there might be people who overpower those discussions and share a lot of inputs, but there are some individuals who may not be so confident in sharing their ideas in a group. So, facilitating that properly becomes also an important aspect.

[00:08:02] And uh, when it comes to sort of conducting surveys, uh, there are established methods in order to. Ensure that the surveys are rigorous, that there's a diversity of population that has addressed the questions in a meaningful and a sensible way that we could understand the phenomenon or whatever is the point of interest better.So yeah, those are some ideas that I think.