AHRC MUSIC AND DISABILITY NETWORKING GRANT

Provocation 2: Accessible Instrument Design Beyond Techno-Solutionism

This document reflects ideas from the second event held as part of the AHRC Music and Disability Networking Grant in May 2024. This event facilitated discussions around accessible instrument design beyond techno-solutionism. The attendees consisted of early-career researchers, academics, music charities and adapted instrument users. There were three sessions throughout the day during which attendees were presented with questions to provoke discussions in small groups. The event culminated in a summarising discussion between all four groups, the ideas of which are displayed in this document.

SESSION 1:
WHAT IS MEANT BY TECHNO-SOLUTIONISM?

During this session, attendees were encouraged to explore the concept of techno-solutionism and generate definitions.

- **Techno-solutionism can be thought of as "designing for" rather than "designing with".**

  Techno-solutionism jumps straight to oversimplified specifications for technical systems rather than considering the many facets, complexities, and possible approaches to a broader design problem. Furthermore, design alone cannot solve problems; design efforts should be coordinated with social, economic and pedagogical considerations.

- **Attempting to simplify or "fix" something for disabled people can be patronising.**

  Techno-solutionism is often expressed in language as a top-down approach to "make it easier" to do something. But simplicity or ease are not the same thing as accessibility. Most musicians, disabled or otherwise, do not want a simple button press to "solve" their music making needs.

- **In talking about techno-solutionism, it is important to identify what we mean by the "solution".**

  What problem is the designer solving? Is it to play music? If so, there is a need to consider the full context of what kinds of music, for whom and within what communities, and what the conventions and expectations of those communities might be. Music cannot be defined down to simplified technical parameter spaces.

- **Conflation of novelty with accessibility is a problem.**

  This is sometimes seen when companies or individuals contact disability organisations with a device already created and seek an endorsement.

- **The "bad keyboard" test:**

  many novel musical instruments essentially do the same thing as a piano keyboard or other familiar object, but in a less effective way. With any novel instrument, it is useful to consider whether the same music could be produced more easily or effectively with standard tools.

- **Genuine accessible solutions are unlikely to be created in just a couple days.**

  Instruments take time to build. "Quick fix" mentality, sometimes seen in hackathons, is more a part of the problem than it is part of the solution. Instead, community building is an important aspect of hackathons and other design sessions, and enduring relationships should be considered at least as important a goal as technical artefacts.

▪ **Bespokeness is a double-edged sword.**
There is not one universal solution to what every disabled person wants. Disability can be a product of industrial capitalist society excluding people who do not fit certain normative criteria, thus bespoke designs can be more inclusive. On the other hand, bespoke instruments are expensive and their longevity may depend on the continuing availability of the maker, which may be limited by other commitments, constraints of funding sources, or academic pressures toward continuing novelty over sustained commitments.

▪ **Details matter.**
Sometimes otherwise promising systems are hampered by minor design decisions that could have been improved with more input from disabled people. For example, screen readers with overly slow speech waste time and seem to imply that people with visual impairments take longer to comprehend than others.

▪ **Documentation is an important part of design.**
Manuals, tutorials and other documentation should be considered an important part of the design process. Manuals that describe things in a technical way rather than a practical way can be off-putting, especially for neuro-divergent musicians.

SESSION 2:
MOVING PAST TECHNO-SOLUTIONISM

In this session, attendees discussed alternatives to techno-solutionism and the issues that instrument designers might come across.

- **A key to moving past techno-solutionism is to think about processes rather than technologies.**

  What is the process by which communities and individuals are first engaged in a design conversation? How are the distinct but sometimes overlapping goals of designers and musicians considered? How and when is consent obtained? How are outputs of design processes sustained after the initial efforts or initial funding concludes?

- **Design processes, especially in academia, carry risks of siloing and abandonment.**

  Pockets of funding come and go, encouraging short-term design activities without longer-term commitments and trust-building with communities. Funding and publication routes for academic work can be organised in disciplinary silos which hinder knowledge sharing. Relatedly, the design of assistive technologies can push disabled people into silos of experience rather than including them into wider community activities.

- **Disabled voices should be included from the start of a project, and consent and goals should be reviewed periodically.**

  Gaining contacts and trust within a community of practice can be slow and difficult, but needs to be done early. It is not sufficient to approach a community after 80% of the project has been completed. It is important to ask not once, but regularly, what musical experiences the design collaborators are seeking, while recognising that not all musical ideas can be expressed in the abstract beforehand: sometimes the most rewarding outcomes result from unexpected discoveries or creative repurposing of tools. Regular conversation throughout a process, rather than just at the beginning, is needed to identify these opportunities.

- **Technology means more than just digital technology.**

  Aside from the tools of engineering, technology could also include supporting materials and repertoire. No technology by itself is an unmitigated good, and it shouldn't be assumed that the most advanced technical tools are always right for every problem.

▪ **Design processes should consider the separate interests of both designers and musicians.**

Designers, disabled or otherwise, need not be mute facilitators of ideas from others. Nor should the designer be artificially separated from the musician playing the instrument. Asking what the designer wants, as well as what other musicians in the process want, will help forge shared goals and translate aims and outcomes. Similarly, reflexivity – considering the positionality and perspective of the designer/researcher – is an important part of the process.

▪ **Consider autonomy in design outcomes.**

For example, how will a new instrument be transported to its site of use? Who will set it up and how? How much independence does it allow to a disabled musician?

▪ **Wider networks of stakeholders are often crucial to the success or failure of design efforts.**

In traditional musical settings such as orchestras, gatekeepers can determine what instruments, performance techniques or access arrangements are permissible. In environments such as care homes, networks of caregivers are important to make any technology usable and to facilitate communication.

▪ **Consider ethics throughout the process.**

Ethics is an ongoing process, not a pro forma tick box at the start. Consider the ethics of consent, the ethics of care and the ethics of sustainability, all within a wider context of different communities and stakeholders.

SESSION 3:
RETHINKING INSTRUMENT DESIGN IN RELATION TO DISABILITY STUDIES

This final discussion involved positioning instrument design in the field of disability studies, encouraging attendees to explore the barriers that one might encounter when doing so.

- **Problematic power dynamics pervade the field of accessible technology, particularly in academics.**

  It is important to be clear and transparent about who participates and who receives credit for work related to disability and technology. Many research projects related to disability are led by non-disabled academics who receive the funding and the academic rewards associated with the project. Disabled collaborators are often paid comparatively low hourly rates for their expertise if they are paid at all, and their names are not always attached to project outputs. There is considerable literature in Disability Studies around these dynamics. Research projects should consider these issues from the outset, before formulating a funding bid, to involve more disabled voices at the highest levels of project planning and delivery, and to treat outputs as co-authorship rather than a researcher/participant model. These issues also extend to paper authorship, intellectual property and university REF submissions.

- **Many different forms of participation are possible.**

  Balancing the previous point, not everyone has availability or interest in being deeply involved throughout the duration of a project. Always ask potential collaborators how they want to be involved and how they want to be compensated or credited.

- **Instruments, and products generally, can be accessible without being specifically designed for disability.**

  Some instruments like the trumpet and three-hole pipe are already playable with one hand. Other instruments like the piano were made accessible to one-handed musicians through repertoire rather than changes to the physical form. Accessibility is a spectrum that ranges from naturally accessible tools, to ones which can be readily adapted and refashioned, to bespoke designs. Surprisingly, there are public policy issues that stand in the way of "already accessible" technologies: for example, VAT would be charged on an instrument which by nature is accessible to disabled musicians, whereas VAT would not be charged on a device specifically adapted for accessibility.

- **Turning technical limitations into financial limitations could hold promise within a broader funding and policy ecosystem that supports those costs.**

  Long-term funding and public policy changes that underwrite the costs of bespoke or small-batch accessible technologies could help widen access to them. However, without that support, the cost of bespoke technologies will render them out of reach for many disabled people.

- **Proxy respondents can support accessible design projects if their input is used with care.**

  Examples of proxy respondents include teachers, parents or carers, as distinct from the disabled person who is an intended user of a technology. In some cases, such as working with children, proxy respondents may be appropriate design collaborators, but it is important to consider the power dynamics and issues of autonomy and ethics from such arrangements. Proxy respondents will always have partial perspectives at most.

- **Open access and design documentation are important to produce sustainable knowledge and avoid duplication.**

  There are many accessible instruments in regular use, and more still which have been designed but which may have fallen out of use. The OHMI competition has produced a compendium of such instruments, but more work could be done to build and maintain an open database of designs which could be used by musicians, designers and researchers.

- **Hackathons could be replaced or supplemented with adapt-athons or sustain-athons.**

  Rather than targeting the design of novel technologies within a short time window, group events could focus on making existing technologies more widely accessible or sustainable for others.

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If you would like to know more about the network, please contact Dr Victoria Kinsella-Hadjinestoros:

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