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The Frequalise Report

A project by Music and the Deaf

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Frequalise: A project exploring the use of music technology with deaf and hard of hearing children and young people (DHHYCYP)

November 2015 - November 2016

"When listening is not enough"

An evaluation report by Ros Hawley

Introduction

Frequalise is a ground breaking project designed to enable deaf or hard of hearing children and young people (DHHYCYP) explore the potential that technology offers in creating, performing and sharing music.

Technology has had a profound impact on how music is produced and how young people engage with music.



A Frequalise session at Orangebox

There is, however, a stark lack of understanding and expertise among educators as to how deaf people can engage with music technology, and the opportunities and challenges that this technology presents to those who are deaf or hard of hearing.

Frequalise is the first in-depth project of its kind to explore how music making technology can be used to the greatest effect, both in schools and homes, around the country and further afield.

Music and the Deaf (MatD) have joined with the University of Huddersfield to work with young people from across West Yorkshire to rigorously test a range of the latest music making apps and other software. The participants have explored how effective these technologies are in allowing them to compose and perform their music, and access and develop their own musical voice.

We hope that the findings of the project will encourage a wider cultural change in attitude within and towards the deaf community, whilst improving the skills of the music education workforce in using technology to engage deaf and hard of hearing young people.

Report

Based in Halifax, UK, Music and the Deaf is a charity specialising in the development of music making opportunities for DHHYCYP. Using the experiences of Chief Executive Officer Danny Lane, himself a deaf musician, as a starting point, MatD aim to enable deaf children and young people across the region to have access to high quality music making experiences that are sensitive to the challenges often faced by deaf people in accessing music making and music performance.

Frequalise aimed to take this aspiration further through a project focusing on the use of music technology with DHHYCYP. A concurrent aim was to assist in improving the music workforce's understanding of how to ensure

best practice when using music technology with deaf and hard of hearing children and young people. Danny Lane explains from his own perspective as a deaf musician why the aim of exploring music technology with deaf and hard of hearing children and young people seemed to be an important next step:

"[I'm] Classically trained – but not comfortable with audio related technology... for example, even using machines at home, because they make noises! I'm curious - when I started the project, how do I describe it, I think it was like all my frustrations built up inside me, technology takes over conversation, is so ingrained in life. I wanted my frustrations answered. I do use YouTube quite a lot instead of downloading music. Live or filmed music for me is more accessible – I see more and more young people uploading their stuff but when I type (search) "deaf music" it's just signed song - the same, the same.... so I thought where are the deaf people composing and performing music, why am I not seeing them?"



Danny Lane, CEO of Music and the Deaf

Funding from Youth Music enabled MatD to design a project that would allow the organisation to explore the efficacy of using available mainstream music technology with young participants to see if new opportunities could be created in engaging DHHYCYP with the concept of making music. It would also test to see if the available resources on the market were engaging or suitable enough in their current design to be used effectively.

The Structure of Frequalise

Five music leaders were recruited to work alongside Danny Lane to form a team to deliver the project. These included both deaf and hearing young music leaders, with a range of skills and experience: specialist knowledge of music technology, experience of working with DHHYCYP, experience of teaching music, and use of sign language as a first language. Although the skills presented by the team members varied between individuals, they were complementary, and all leaders were united by a shared interest in music making, and an interest in exploring music technology with DHHYCYP.

The project worked with 63 DHHYCYP from the ages of 9 to 25 in 26 2-hour sessions in both youth groups and schools, covering the geographical areas of Bradford, Kirklees, Oldham and Calderdale. Most of the participants accessed full day workshops in schools. The groups and respective numbers of participants were:

- Bradford PRISM Youth Group (8 on average, 20 at a maximum, 30 including an audience)
- Orangebox Halifax (5)
- Hathershaw Technology College Oldham (15)
- Trinity Academy Halifax (8)
- Newsome High School (8)
- Ryburn Valley High School (12)

A programme of workshop activities was devised and then offered to a range of groups across the region, in consultation with professionals working regularly with DHHYCYP, including youth workers, audiologists, teachers of the deaf, SEN (Special Educational Needs) co-ordinators in schools, music teachers working with DHHYCYP in school and classroom support workers working closely with DHHYCYP. The only group outside of education that had regular involvement in Frequalise was at PRISM where numbers varied between 8 and 20. The core group

centred on 8 participants and grew each week. As part of this session, all the children who went to PRISM, plus parents and staff, watched Frequalise performances at the end of each workshop, meaning an average of 30 were enjoying Frequalise either as participants or audiences.

The project set three main outcomes:

- **To increase participants' skills and confidence to make music using digital technology.**
- **To increase participants' composition and performance skills,** and give them the confidence to share their music and new attitudes towards music-making with peers.
- **To provide direct experience to a team of professional and trainee music leaders of how best to engage deaf young people in music technology,** sharing their learning with the wider workforce via a report and film.

Project activity was structured into 3 phases:

1. **Exploration** – including weekly sessions in youth groups and full day workshops in schools leading to the uploading of compositions online and a mid-project evaluation session with the young people reflecting on their experiences.
2. **Development: Composing, Sharing and Performing** – continuation of weekly sessions and full day workshops leading to another session of uploading compositions online.
3. **Evaluation and Dissemination** – evaluation session with a focus group of young experts and music leaders and university trainees.

Choosing Music Technology

In the early planning stages of Frequalise the team spent time exploring the potential for equipment and software that could be used in the workshop sessions. They looked at what was easily available, and free to use – the thinking being that this would offer more accessibility to participants and a likelihood that further exploration and use could easily be developed by individuals outside of the sessions. Initial preparation explored these free apps to see which ones resonated well with the students. It was decided early on that using smartphone apps was a good idea due to accessibility and, again, in the hope that students would continue making music at home. Later in the project, the focus moved on to exploring apps on iPads (including Garageband), although again this use was dependent on existing resources available to groups in their settings, and the age range within an individual group.



Danny Chadwin, Frequalise leader

Danny Chadwin, a Frequalise music leader explains:

“The reason we started using the iPads later on is that the quality of software is usually of a higher standard in Apple over Android (although the range of software available on the iPads should certainly be explored more). Garageband alone offered a greater level of musical depth than any of the free apps on the Nexus 7. In the last session I did, we had access to the desktop version of Garageband which I was very keen

to use. It should be noted that in the Bradford sessions we did have access to a couple of Apple Macs but the average student age was very low so we didn't really use them."

A full list of technology and software used in Frequalise is listed here:

- Nexus 7 Tablet - Software: EtherPad, Blip Synthesizer, Real Drum, Ethereal Dialpad, Arpio, Dmach, Moon Synth, Drum Kit, Plasma Sound, Sequencer, Drum Machine, Real Guitar
- iPads - Software: Garageband
- iPhone - Software: Bloom, Keezy
- Macs (with generic MIDI keyboards) - Software: Garageband
- Microphones: Shure C606, Shure SM58
- Bradford: Pioneer DJ Mixer, KRK Rokit Speakers



Frequalise session at Bradford PRISM Youth

Learning By Doing: observations made by the Frequalise team

It became clear very quickly that the team needed to be sensitive to a range of factors, not exclusively musical, affecting the engagement potential of DHHYP. Awareness of the range of levels of social and cultural exposure to music, alongside the navigation of any existing social and cultural infrastructures in order to reach potential participants, was important. The influence of these factors varied greatly from region to region.

Project structure: The team quickly found that they had to be flexible in their approach to session delivery and structure, whilst being responsive to a wide range of social factors that may have affected DHCYP's ability to engage with the project and with music making itself. Finding an appropriate accessible and recognisable identity for a music making project within the existing structure of social activities provided for DHCYP was at times challenging. When attached to other non-music focused sessions it was not always clear to potential participants what Frequalise was; when delivered in a standalone session, opportunities to engage with the Deaf community and potential group members became less possible.

"At PRISM, a deaf youth club where deaf young people could be targeted, the project worked extremely well, compared to setting up an exclusively deaf focused community music group or after school club. However, other activities that were on offer at the Youth Club such as futsal and cooking were distracting at first. It took several weeks before music became recognised as an activity that was natural to engage with." – Danny Lane.

In some areas the number of repeat participants fluctuated considerably and the session content had to be altered in order to cater for new visitors to the session arriving each week. Importantly, not all of the children and young people participating identified themselves being part of a deaf community, or a part of Deaf culture.

The team tried a number of models in order to give as many DHCYP exposure to the project:

- Working with both regular and irregular attendees
- Making links with established youth groups already running activities for DHCYP
- Forming new groups initiated and facilitated by educational staff during school time
- Trialling after school clubs
- Making links with remaining Deaf clubs

Exposure to music making: The team had to remodel their session structure in order to accommodate access for DHCYP whose existing exposure and conceptualisation of music making to date had been varied. This ranged from participants who played acoustic instruments and received input from a range of music agencies as a support to their musical learning, through to a number of children and young people whose exposure to music had been very limited; this in turn impacted on the confidence levels of participants, socially and musically.

Creative content: In instances where pupil attendees changed each week, it became inappropriate to work developmentally from session to session with the aim of working towards a fixed end product (performance). This meant that a rethinking of original aims and ideas took place. For example, the team modified their aim for an end of project performance into a weekly challenge, such as a sharing of work created at the end of the workshop. This resulted in an expectation from participants, family and support staff that music created each week would be shared at the end of a session; this in turn strengthened the interest and engagement of family audience members.



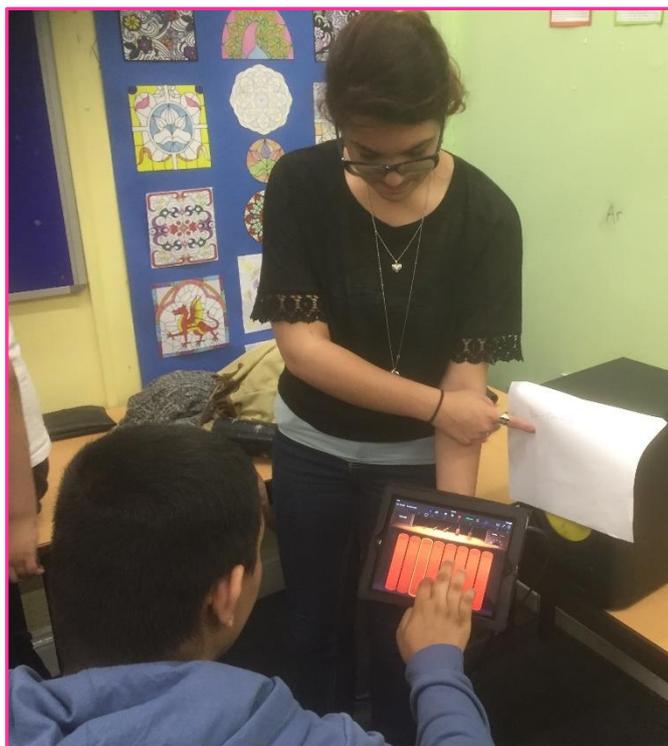
Frequalise participants experimenting with beatboxing

Parent and participant feedback: Collecting comments on post-it notes at the end of sessions was a quick and effective way to get succinct feedback directly after sessions, particularly where family members were invited as an audience to see examples of work created at the end of each week. This gave the team an insight as to how the project was being received by both group members and their families. It also boosted the confidence of music leaders, being noted as an “uplifting and valuable” way to gauge the success of the sessions. At times in some of the school based sessions some of the participants seemed to be less interested in giving written or verbal feedback – it was possible that this was because of individual confidence levels in using language, or in expressing thoughts and ideas in front of peers.

“With the post-it notes feedback, over time we could see that people were impressed with the aspect of team work.” – Frequalise leader.

Finding an appropriate level of engagement: An appropriate level of activity, partnered with assessing the best options for accessibility, needed careful thought by the team, particularly as group sizes, participants and individualised hearing needs varied from session to session. Noise levels could easily cause a conflict in focus and concentration for some participants. This had to be considered in order for the listening environment required by members of the groups due to their hearing needs to effectively provide full opportunity for frequency range, types of sound effects, rhythms and melodic content to be fully appreciated and understood. As each individual’s listening needs could be different within the session, feedback from participants to music leaders and support staff as to what they could and couldn’t hear effectively was essential in nurturing confidence, encouraging a willingness to participate and in gaining a deeper level of engagement with the music making processes on offer.

Effectiveness of technology: The team had to adapt their choice of both music technology and workshop activity in order to successfully pitch session content at an appropriate engagement level for each group. Crucially, accessibility to music and sound had to be carefully considered, and done so with the feedback of the group themselves. For example, effective demonstration of the role of resonance, vibration, notation/visual support and specific musical concepts to be explored was essential in order for ideas to be clearly understood. Pacing of an activity also had to be considered in order for the group to be able to fully access an activity in order to then develop creative ideas with it. Support from music leaders and staff was important here in addressing the differentiation of need apparent across the groups, whose hearing loss, confidence with music making, confidence with music technology and confidence in interacting with other DHH CYP was varied dependent on their personal experience to date.



Jenique Alman working with a Frequalise participant

The range of hearing loss evident across the range of project groups provided creative challenges for the music leaders, who had to observe and consult closely with groups and individuals within the groups in order to make activities using technology accessible and meaningful. Gaining feedback when new activities or technologies were introduced became crucial, in order for the project team to gain an understanding of how particular sounds, frequencies and activities were being perceived and interpreted by each individual.



Frequalise participants using iPads connected to a KRK speaker

Music leaders had to be aware of the fact that a DHCYP's experience of sound, and exposure to music, might be vastly different to theirs. For some students the tactile connection of being able to feel the vibration of sounds through additional speakers became important in order to connect in some way with the sound being made. In other instances, links to narratives or visual images assisted in developing compositional structures that could be explored in sound. For other students the type and quality of the sound being made by an app was important in being able to articulate preferences and nurture engagement.

Observing participants' interaction with the technology used in sessions helped the music leaders in learning about the effectiveness of the technology from the perspective of a young person with a hearing loss:

"The usage of the studio's KRK speakers was an integral part to this week's session, as it helped profoundly deaf members of the group to also experience the sounds through feeling the vibrations – these should be used any time audio is being produced by phones/apps."

"I felt that using samples created with zoom recorders was too complicated for the students as they had no concept of structure to create a song."

"Some students commented that they couldn't feel much difference in sound when moving the phone with sfilter...[Later] students who seemed disinterested in the session at the beginning became more interested when the Etherpad app was demonstrated, and without being asked or offered wanted to try out the apps."

"The group explored using the Etherpad on Android. This app changes pitch and volume depending on where the screen is pressed. After Danny [Chadwin] had demoed and explained it the students then had a go at creating their own melodies using the app; when asked which app the students preferred [during the session] the majority said this one. One reason given was that it sounded more like a guitar – it was more like an instrument than an abstract sounding sfilter app."

"We placed a video on a projector and asked what sounds they'd imagine, i.e. – heartbeats, running sounds, thunder... we then played the video and practiced live sounds happening with the video... the session went amazingly well."



A Frequalise participant using tablets and speakers

“Students enjoyed using the SmartFausts filter app, when asked afterwards they responded positively to it, they said that even if they couldn’t hear it they could feel the pulses through the speakers.”

“In this session we recapped the horror session. We brought in instruments and the I-pad and taught the new people what they had to do. We practiced with the cymbals, thunder maker and ethereal app on the iPad. After a few practises we brought in the parents and performed for them. The performance went well and it is really impressive to see the progress made with the regular participants.”

“I didn't anticipate using the microphones for more than warm up exercises but the response was so positive that we incorporated them into the sessions more.”

“One student in the Bradford session was advanced enough to do live sound FX on the DJ mixing board which we originally only used to monitor the volume levels during the workshop.”

“We did an experiment to see if a vibration device provided access to sound produced on acoustic instruments and the iPad. All the children and staff were very surprised at tactile output that they received but it did not show the differences in pitch, and the sound quality of different acoustic instruments that were played, and the key signatures used and the change of timbre that we created. The device simply produced an alert when a sound was made. There are no devices that we know of that can represent sounds with such clarity. It’s important that we do not assume that vibration alone is the solution to accessing music, as we do not know of any technology that can truly represent sound through vibration.”

– all quotes from Frequalise leaders

Engaging with DHHYP from a range of age groups: The team found that they had to think carefully about how they engaged DHHYP from different age groups. Whilst this is also a consideration when working with hearing children, the focus of deafness added an additional complexity in that it raised questions for the team and professionals relating specifically to how a child’s previous exposure and relationship to sound and music making impacted on their openness and confidence to engage. In Bradford at PRISM, it was evident that the younger children sustained interest, but with the older children it was more difficult.



A Frequalise session at Newsome High School

The team noted that the older participants may have been put off by the association created with younger participants and in succumbing to the effects of peer pressure.

“The deaf population is a minority group within society and deaf children and young people are therefore dispersed and sometimes isolated from other DHHYP. More than 75% of deaf children and young people are now integrated in mainstream schools and are most likely not to be part of a deaf community or culture.” – Danny Lane.

Collecting feedback from staff: Careful planning around the accessibility of both activity and equipment had to be undertaken due to the specific nature of working with groups of DHHYP presenting with a differentiation in levels of hearing. The team relied on feedback from educational staff to comment on the existing school provision offered to DHHYP, and on the activities they were being offered as part of the project, to assisting with their planning and preparation. This communication demonstrated the importance for those supporting DHHYP in understanding how a DHHYP may need to access music making in order to get the most from the experience. Feedback collected from school staff demonstrates:

“Often my kids don’t access music lessons [in school] so this session is useful. They struggle in mainstream group sessions so often come out because there’s no benefit. There is a benefit to them accessing this – it’s a smaller group, better equipment, better access.”

“[in school] big groups are difficult for hard of hearing children. The high pitch of the steel pans hurt G’s ears. Small groups enable younger HI (hard of hearing) children to gain support and role models in older HI peers.”

“Sometimes it got very noisy with 2 groups practising at the same time. Some students have radio systems that will plug into the headphone socket on the iPad or keyboards. We needed to have been prepared and brought along the necessary equipment.”

“Students took it in turns to make a rap and used the microphone to make beatbox sounds. Some of the profoundly deaf students have never before produced such confident vocal sounds.”

– music teacher feedback



The Frequalise participants at Bradford Prism Youth

4. A Professional Perspective: Helen Lynch, Youth Leader

Helen Lynch, Youth Leader at PRISM Youth Group in Bradford, offered insights into the experiences of participants of Frequalise. PRISM work with a wide age range of DHHYP, from 8-18 years.

At PRISM, the younger age range of the youth group benefitted most from being involved. She observed that the older members weren't as willing to participate, and were lost from the beginning of the project, due to the venue used for sessions, which made older youth group members felt too removed from other youth group activities, which she found disappointing. The session also competed with futsal, which had been a regular favourite of the older boys, and having the Frequalise session at the same time as this became a conflict for them. She continues:

"The younger ones, however absolutely loved it. Danny (Lane) was so outgoing, this gave the kids confidence to do things – such as the final performance. It was quite emotional to see the young group of 8-11-year-olds performing in front of the whole youth club plus parents – to see they had the confidence to go out and do it; to see them making music, not from musical instruments but from other things – they didn't have to have a piano or guitar to make music."

Helen gives an example of why in her experience, the achievements of the group were so important:

"The beats and rhythm games were brand new for them, at first they couldn't do it, they were foreign to them. As a hearing person in a hearing world these [activities] are very normal. Parents think, 'My child is deaf, they wouldn't do that [make music]', and in the school context, it can be the same."

For many of the participants, accessing acoustic musical instruments can be a barrier to participation. For her, the Frequalise focus on music technology helped to change perspectives about what music making could be:

"It was great for the group to see that music isn't just all musical instruments. Using apps and tablets is maybe easier for them to access and use to make rhythm, sound and music. The profoundly deaf used speakers [to access vibration], and enjoyed the fact that people came to see them. Confidence rubs off – to perform makes it ok to behave in an outgoing way, [they] can lack confidence because of their hearing impairment. Because they are in mainstream they can feel less confident, because they miss things. In Deaf school, it's more 'all together' – Deaf people as role models – this has been lost. Deaf role models are not as easily available."

Helen makes the point that in the move from primary to secondary education, the opportunity for DHHYP to build musical skill gets lost. She gives an example of two participants of Frequalise who had started to learn to play instruments at primary school, coinciding with attending Frequalise sessions. With the start of secondary school, these instruments have not made the transition to the new school with them and they do not have access to them anymore.

"Being in mainstream is an issue here – it's just presumed they won't be doing music because they are deaf. It's not always the teacher of the deaf who makes the decisions about accessing music in the curriculum. Decisions get made FOR the children, as music is not seen as relevant to deaf children. Specialist input is important, to advocate for development – for a child having the opportunity to access music."

5. A Music Teacher Perspective: Hazel McDonald, music teacher, Trinity Academy, Halifax

Hazel acknowledges that there are important considerations when teaching music to mixed hearing and hard of hearing groups. She states that large groups can be difficult for hard of hearing children, and that individuals may show sensitivity to pitch and volume levels. Hazel will adapt her teaching in order to accommodate hard of hearing pupils, reducing group size and volume levels as required. She also highlights the value in bringing together pupils from across the school, or from other schools to work together:

“A smaller group enables hard of hearing children to gain support and access to role models of other hard of hearing peers. Pupils don’t get chance to work between schools. In teaching, music overall needs continuity. The benefit of meeting other hard of hearing pupils is that they’re not on their own. School is so big, so it’s hard to know who else is hard of hearing – some pupils like to keep it concealed. With music, anyone has access.”



Frequalise Session at Trinity Academy

6. Music Leader Perspectives: Mohsin Ahmed and Danny Chadwin



Mohsin Ahmed testing music technology at Orangebox

Two of the Frequalise music leaders were interviewed as part of the evaluation.

Mohsin, a Deaf music leader, has had a long standing relationship with MatD, and has developed his skills in music making and workshop leading as a direct result of his exposure to MatD projects.

Mohsin wanted to be involved in the project because of his previous experiences working with Danny Lane, who he described as a role model for his musical development. He wanted to come back to inspire other young deaf children and young people. Mohsin had *“quite a lot experience of workshops but music tech completely new; music – yes, but acoustic – physical, not technology.”*

Danny Chadwin became involved after receiving an email at Huddersfield University. He has an interest in care work, and in using his music making abilities in doing something that feels good and important; he states that music can feel somewhat luxurious within the university environment, and that this project would give him an opportunity to explore working in music with young people. Danny has had some experience of working with groups, such as children with disabilities, but Frequalise was a new opportunity, although the *“teaching technology aspect made me more confident because I know this well.”*

The participants’ engagement during sessions clearly was a motivating factor for the music leaders. It was *“Great to see the progression of children gaining confidence... coming out of [their] shells as the project developed”*. The variety of activities offered in sessions provided a variety of experience for them to observe: *“Lots of levels of learning, pulse, beat, rhythm and beatboxing were all taught...”*

Mohsin and Danny explained that there were *“so many moments, memories and enjoyment”* during Frequalise, and highlighted several positive outcomes for participants:

“confidence, working with others, performing in front of others, using voices - [pupils said] “fantastic, I liked beatboxing”, “I liked it but was a bit shy... thank you!!”, “Brilliant!! I like feeling the music through the speaker”, “Blues music very popular, rap most popular.”



Mohsin working with Frequalise participants at Bradford PRISM Youth

Both music leaders were able to reflect on the sessions and identify key moments that had had an impact on their own learning:

“I showed the kids an app, it struck me how quick they were into it, struck me how the kids went up to the speaker, and were experimenting and you could see the kids curious to learn about parameters – I saw inspiration – they may not have known pitch or frequency but they were into it, showing each other!!”

“A Student with ADHD managed to cope for [the] whole session”

“We’ve seen their confidence grow over the course of the project...”

“Lots of communication and collaboration.”

Development of leadership skills evolved over time. Although there was an enthusiasm to be involved from the start, confidence levels grew as the project developed. Both music leaders articulated their satisfaction at becoming more involved in leading sessions. This gave the music leaders a sense of being more empowered as a team, and of feeling more useful to the project when this began to evolve:

“When something is new you can be really anxious with not knowing what the outcome will be...”

“From the start I was nervous, not because of deaf issue, but because new of teaching (sic)...”

“.....when I was teaching and leader - that was the best part for me.”

“I’m good at tech, Mohsin is good at understanding the Deaf perspective, and communicating to the group.”

“The more I learn the more I do it the more I get confident...”

Helen Mitchell, a trainer who has worked with MatD, also stresses the importance of creating opportunities to develop music leaders who understand the needs of DHH/CYP:

“It’s imperative for deaf young people to have the same creative opportunities as their hearing peers. And the experience making music can have both in a learning capacity and for social, emotional and cultural benefits is life enriching. Being able to express oneself creatively is vital.

Often the lack of these offerings in music delivery comes down to low confidence in music leaders to be able to deliver activities to the right level, achievable for all participants.

This is why the right mentoring and training to equip leaders and instil confidence to adapt their work to suit any participant is so important.

The impact this will have on deaf young people will be huge”.

Skills gained through Frequalise



Mohsin Ahmed leading a workshop at Bradford PRISM Youth

Mohsin and Danny identified the following skills as a result of being part of Frequalise:

- Teaching skills
- Working with young people
- Working with Deaf young people
- Presenting to larger groups
- To be able to shift from playing (performing) to teaching
- Learning to work as a supportive team member
- Learning to recognise and acknowledge the skills of others
- Learning to use music technology
- Learning to appreciate the Deaf perspective
- Learning to communicate effectively to the group

Future Frequalise

In their evaluation, Danny and Mohsin highlighted a number of points to be considered in planning for future projects:

- A **pathway of progression** focusing on music leader development, enabling progression to independent leadership
- **Leadership exchange and reflection opportunities** between music leaders – *“when we all led bits it felt good.”*
- **Basic teaching and workshop leading lessons** (using links to other music organisations such as YMAZ for example)
- A specific **practical preparation day** on the music technology for all the team together
- **Training** to explore the specific skills music leaders will be developing during a project
- **Pre-project planning** – this was useful in familiarising what they were going to be doing in sessions, whilst maintaining an understanding that there has to be flexibility, is important to learn
- A **wider range of music technology** could be explored
- **Focusing on the right people** to take part, who are enthusiastic for music is important *“...[we] would rather have smaller number but those who really want to explore music making and technology.”*
- Sometimes there was lots of waiting as a result of aspects of the technology – **groups could be split** into different activities to avoid this in future
- **More iPad and headphones** at the ready to use to cut down on noise levels
- **Further research** on the compatibility of hearing devices with music technology resources.



A Frequalise project planning session at the University of Huddersfield

7. Conclusions



A Frequalise participant experimenting with vocalising through use of a microphone

Frequalise found that using music technology enables positive opportunities for DHHCYF who may otherwise not have access to music making to learn, explore, develop and gain confidence as young musicians and future music leaders. Specifically, the project highlighted development of the following skills in participants:

- Use of voice and exploring vocalisation
- Development of sequencing skills
- Increased knowledge of IT
- Raised awareness of music theory through use of educational music software
- Independent, user led creativity and composition skills
- Confidence as music makers and music creators

Outcomes

As result of Frequalise, the following outcomes have been identified:

- **Wider access** to music making activities, and specifically in using music technology, offered to DHHCYF in the region
- **Increased numbers** of DHHCYF participating in music making, and music technology activities
- **Increased confidence** in music making and composition during the Frequalise process
- An increase in the **visibility of deaf music leader role models** for younger DHHCYF
- **Development of the skills** of young music leaders, both deaf and hearing, in working with DHHCYF using music technology
- Creation of a **network of professionals** in the region who understand of the needs of DHHCYF in being able to access and gain confidence in making music through using music technology
- **Increased confidence** across all project members in addressing the needs of DHHCYF when accessing and using music technology
- **Wider awareness** within the region and outside of it, of the **benefits of music making** for DHHCYF and the potential to increase not only skills in music making, but also in supporting the development of wider social and educational skills, as part of participation in projects such as Frequalise
- **Wider awareness** within the region and outside of it, of the **value of using music technology** to engage DHHCYF as music makers, and the potential role played by music technology in supporting a DHHCYF's potential to be a music maker/leader of the future
- A **pilot trialling** of the Frequalise listed apps and software specifically in relation to use by DHHCYF

MatD believe that music technology should be viewed as a revolutionary way of working with deaf children, and wish, through Frequalise, to inspire further use of music technology by other DHHYP and their support agencies across the UK and internationally.

Frequalise Findings

The Frequalise evaluation has highlighted a number of key findings which contribute to models of best music practice for this population of children and young people. MatD believe that as well as assisting in overcoming the social challenges faced by DHHYP, music technology can offer alternatives and potentially more to deaf children in terms of music making and personal development compared to other ways of making music, and that the findings should be taken into account by any organisation wishing to set up high quality, accessible music making activities for DHHYP.



Frequalise participants and leaders at Hathershaw College

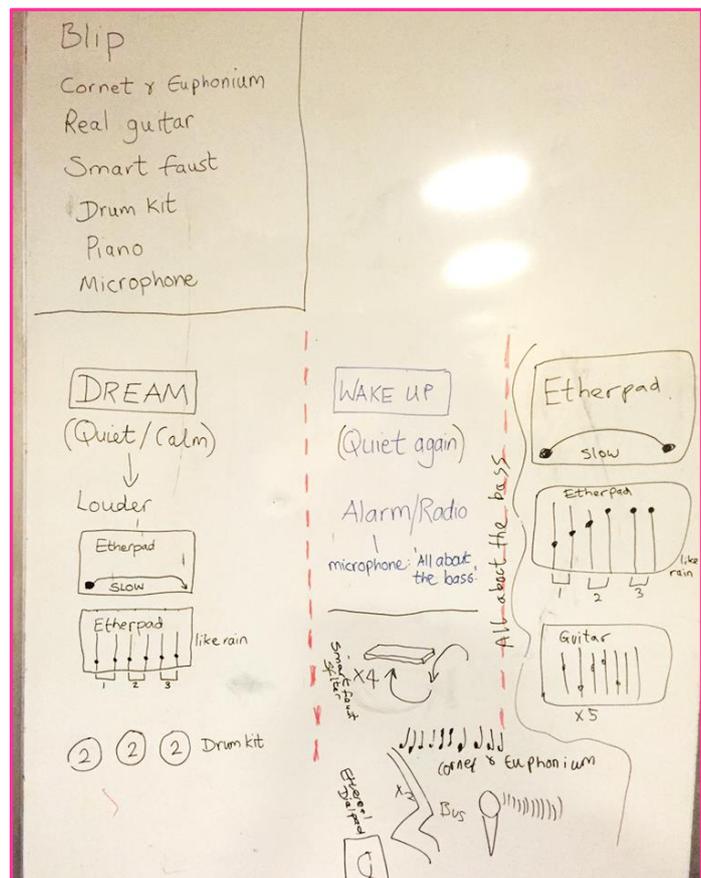
The Frequalise experience has highlighted the complexities encountered when setting up a project directly aimed at offering music making opportunities to DHHYP. It was noted by the Frequalise team and its professional partners that a prior lack of access to creative music making can be a barrier to engaging older participants, who have had a longer time span of *not* being exposed to creative music making activities. This is in contrast to their younger peers, who were more ready to explore new creative opportunities, even if not initially confident, as part of the project. This finding needs to be considered in the context of a range of factors that impacted on the potential to engage with the project, such as choice of venue and previous association with other activities, effectiveness of support, competing sessions running concurrently with Frequalise sessions and the influence of peer pressure.

Using music technology has offered DHHYP taking part in Frequalise the opportunity to explore music making and composition in an accessible and inclusive way, and offered an alternative to the route of acoustic instrumental music learning, which for some might be less accessible due to a lack of exposure to music making in earlier stages of learning, financial restrictions, or availability of instrumental teachers with the appropriate skills and experience needed in order to teach a child or young person with a hearing loss. That said, the team were able to explore just how effective specific technologies were for this population and are now in a position to feedback to the makers of music technologies used in order to improve their effectiveness for DHHYP. This future dialogue is welcomed by MatD.

“According to the World Health Organisation ‘360 million people worldwide have a ... hearing loss’. Digital music could potentially be created and shared more widely with this population through the internet if there was a suitable platform that presented music in a range of accessible and interactive formats.” (Danny Lane)

Accessibility

- **Access** to music making opportunities for DHHYP is often inconsistent, and dependent on existing infrastructures within a geographical area, existing relationships with music making organisations, strength of support networks working within the musical and deaf communities and levels of effective communication between potential partner groups or organisations.
- **Perception** of music amongst the deaf community and key agencies surrounding the DHHYP impacts upon a DHHYP's opportunity and confidence to make music.
- **Gatekeepers** (Teachers of the Deaf, support workers, SEND coordinators) play a vital role in guiding and supporting a DHHYP in being able to confidently explore music making and access music making in a relevant, informed and meaningful way.
- **Levels of musical skill and confidence** in staff, support workers and family members effect the quality of musical experience accessed by DHHYP.
- **Understanding** the benefits of music making DHHYP participants impacts upon the quality of the musical experience of a DHHYP.
- **Communication** between existing music networks can be further optimised to facilitate a best practice experience of a DHHYP



"The Dream" Score composed by Bradford PRISM Youth participants

Practicality

- **Adaptations** to improve accessibility are needed in planning both acoustic and technology based musical activities for DHHCYP
- **Group size** effects the quality of both the learning *and* listening experience for DHHCYP
- **Listening environments** need to be adapted to enable positive listening experiences, paying attention to volume levels, potential for distraction, quality of auditory experience and quality and accessibility of technology used
- **Deaf awareness** training for music leaders and music organisations plays an important role in making music activities more inclusive for DHHCYP
- **Music training** for staff, specifically related to the experience of Deaf and hard of hearing music makers, will improve the quality of music making opportunities for DHHCYP
- **Resources, experience and knowledge** made available and shared between organisations enables staff to have a better understanding of the music making experience of a DHHCYP
- **Availability of equipment** for sessions affects the quality and content and potential of music making activities offered.

Musicality

- **Types of hearing aids** worn by a DHHCYP affect the musical experience for a DHHCYP
- **Playback adaptations** assist when composing music and in developing participants' understanding of others' compositions
- **Interactivity** within technology software enables a tangible musical experience to take place which can be more accessible for a DHHCYP.
- **Music technology** offers new and engaging pathways into music making for DHHCYP, who may not have had exposure to music making in the past, and can be an alternative, accessible option to more traditional acoustic instrumental learning
- **Availability** of good quality acoustic instrument and sound samples and technology equipment is particularly important for this population in order to create a meaningful musical experience
- **Consideration** needs to be taken by music leaders as to how participants share and listen back to the music they have created or performed in order to get the best quality auditory experience possible



A Frequalise participant at Trinity Academy

8. Recommendations

Finally, as a result of the Frequalise findings, this report makes a number of recommendations aimed at improving musical experiences for DHHCYF in the future:

- Further training for educational support staff, in using music technology with DHHCYF
- Further training and awareness raising for non-educational support staff in using music and music technology with DHHCYF
- Establish further connection between music agencies across the region in order to share existing knowledge and expertise and, as a result, improve access to and quality of music making opportunities for DHHCYF
- Enable new dialogue between MatD and music technology providers to take place in order to achieve further, improved accessibility and quality of experience for young DHHCYF
- Use Frequalise findings as a starting point for exploring further potential for research into the benefits of using music technology with DHHCYF
- Sharing of Frequalise findings not only nationally but internationally through existing deaf/music networks
- Further structuring and development of the music leader pathway in order to maximise the identification and development of potential for young deaf, hearing and hard of hearing music leaders throughout the project structure and in consultation with partner organisations.

References

(in alphabetical order):

Ahmed, Mohsin: *trainee leader*

Alman, Jenique: *trainee leader*

Chadwin, Danny: *trainee leader*

Lane, Danny: *project leader*

Lynch, Helen: *Bradford PRISM Youth*

McDonald, Hazel: *Trinity Academy, Halifax*

Mitchell, Helen: *workshop leader and BSL interpreter*

Various children and young people who participated in the project who attend Bradford PRISM Youth, Halifax Academy, Hathershaw College, and Newsome High.

Various teachers from Halifax Academy, Hathershaw College, and Newsome High.

Thanks and Acknowledgements

Music and the Deaf would like to thank Youth Music for providing funding for Frequalise.



Music and the Deaf also extend their thanks to MED-EL for their generous support of the project.



We would also like to thank

- Danny Lane, CEO of Music and the Deaf and project leader (<http://matd.org.uk>)
- Frequalise Project Manager Ros Rowe
- The University of Huddersfield
- Dr Elizabeth Dobson, University of Huddersfield
- Danny Chadwin, Mohsin Ahmed, Jenique Alman, Ian Souch and Jake Dickman from the University of Huddersfield
- Bradford PRISM Youth Project (<http://prismyouthproject.org>) and leader Helen Lynch
- Matthew Benn, Calderdale Council
- Newsome High School, Hathershaw College, Trinity Academy Halifax and Ryburn Valley High School
- Orangebox, Halifax (<http://orangeboxhalifax.org>)
- Ros Hawley, project evaluator (<http://www.rosfishmusic.com>)
- Ian Medley and Paradigm Creative (<http://paradigmcreative.co.uk>)
- Elizabeth Bojas, presenter and BSL interpreter (<http://reflectbsl.co.uk>)
- ABS Print UK Ltd (<http://abs-print.co.uk>)
- BSL interpreters Sheryl Gale, Keren Seabrook and Waryam Singh
- All MatD staff, and others who have assisted in the planning and facilitation of Frequalise