

**Improving upon the listening experience of deaf musicians:
Using digital technology to enhance enjoyment and
critical self analysis**

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ABSTRACT

Hearing impaired musicians commonly complain about poor sound quality whilst playing their instrument, or listening to music through hearing aids. Hearing aids are designed to enhance the communication skills of hearing impaired people and the accurate reproduction of speech is paramount. Music, however, differs significantly from speech as an acoustic signal, both in terms of its physical properties and in the perceptual abilities that it requires of a listener. These differences may explain why so many hearing impaired musicians report being dissatisfied with speech-based hearing aid fittings when listening to or playing music.

This small scale evaluation research project is an investigation into the appropriateness of current hearing aid design and fitting practices, as well as alternative amplification methods, for maximizing the listening of a hearing impaired musician. A single case study of a student flautist is utilised to provide an illustration. Triangulation is achieved by the collection of quantitative data and the qualitative thematic analysis of a series of interviews conducted in order to explore the relationship between the acoustic signal and the lived experience of music. Findings suggest that hearing aids programmed to maximize speech discrimination provide both an uneven level of amplification across frequencies and compression settings that are inappropriate for listening to a music signal. The student reported an improvement in her discrimination of the flute signal when the hearing aids were re-programmed with an even level of frequency gain response across the operating bandwidth of the hearing aids. Also, capturing the flute signal using professional capacitor microphones; processing the signal using computer based DSP software and listening via headphones, rather than hearing aids, resulted in a reported significant enhancement of the listening experience for this deaf musician. The results from this small scale study suggest that it is possible to improve the listening experience of hearing impaired musicians. Therefore, there appears to be the need for further more extensive research to ensure that the hearing impaired achieve optimum access, not only to understand speech, but also to enjoy music.