

PRESENTATION: BASIC MUSICAL HAPTICES

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Abstract

In this article we introduce a systematic, holistic way of experiencing music performances through touch. This method called haptices is frequently used in interpreting for sensory impaired people, but can also be applied to various other disability groups, especially in connection to therapeutic approaches. Haptices are mostly used in interpreting visual events, but here we expand the scope into acoustic events, more specifically into interpretation of music.

Introduction

Music consists of different textural elements such as rhythm, pitch, and melody. These elements can be illustrated through touch during an interactive process between two people for example if interpreters are interpreting music for sensory impaired people during a live performance or when listening to pre-recorded music.

Traditionally, haptices have been mostly used to interpret something that is visual in nature such as art exhibitions but here in this article we expand the use of haptices into interpreting something that is invisible and acoustic. In other words, we show a way of enhancing the perception of music through using haptices. Furthermore, haptices are still mostly used for interpreting visual events and arts.

The application of different haptics

Haptics as defined by Lahtinen (2008) is a system of touch-based methods that allow two or more people to interact together to improve the quality of information during a spontaneous activity. During the interaction between these two people they are able to gain a holistic experience of the performance using haptics in real time. This enables one to have a better experience of the music when it's being played or listened to in a spontaneous yet structured manner.

Different musical elements, such as rhythm, melody and dynamics, can be portrayed through touch elements, i.e. haptics. Haptics provide a method of encoding acoustic information, in this case music, through touch. They can be used to enhance the receiver's hearing. In other words they bring acoustic information accessible to people whose hearing is impaired.

From a user perspective this enables them to receive the information in higher standard and quality compared to that of language-based interpretation. It may also be applicable to a wider audience of disability groups, i.e. deafblind, visually-impaired, hard-of-hearing and profound learning disability groups. It can also include other subgroups within the therapy areas, such as the terminally ill patients. This can be used when the verbal communication becomes more difficult with family members or professionals.

Rhythm

Rhythmical elements can be illustrated by using a sequence of different taps in different tempos and/or pauses, which are produced onto a person's arm or hand. This enables the receiver to follow the flow of the music performance i.e. group or concert performance. From a hearing or a sensory impaired point of view this is a very important element to follow, which is not always easy to hear with using different hearing aids and devices. The haptical elements provide an enhanced sensory perception of rhythm. If there is a drummer in the live performance group his actions would be portrayed using the taps onto the person's arm.

Some people can interpret music based solely on visual elements as this really depends on the person's position **in relation to the live performance**. So you might be able to see what the performers are doing but at the same time you might not be able to feel the rhythm **from the music**. If you are in a big stadium, you might get the visual clues for drummer's actions in advance of the physical sensations of feeling the pulses. That's because of the distance involved between you and the performer. Also, some people may not be so sensitive for auditory information within music, i.e. non-musicians. They might then be able to pick up the visual clues to pass on to the receiver. But if you are close enough to be able to feel the rhythm of the performance you can nevertheless enhance it by using haptics.

Pitch

Pitch elements can be illustrated in several different ways using the arm as the ground for the interpretation so that the higher and lower notes occupy different areas of the arm (Lahtinen, 2008 p. 142; Lahtinen & Palmer, 2005). The basic concept of illustrating pitch elements i.e. low, middle and high tones, onto a person's arm through touch are defined by Lahtinen (2008), table 23.

Melody

Melodic elements produced by different instruments either in a group or in an orchestra can be illustrated by a defined set of handshapes that denote different instruments. For example string instruments like violin or cello are illustrated by a handshape portraying the bowing action of the players. You are depicting the general overview of the performance showing if the melody is going up or down, which also then includes the pitch elements and at the same time shows if an instrument is being plucked or bowed if it is a string instrument. If a trumpet is playing you portray this with opening and closing of fist onto the arm. Both the melody and pitch are incorporated together.

Intensity

Differences in the intensity of music are illustrated by the changes of hand pressure onto the receiver's arm (Lahtinen 2008, p 142). For example in a dramatic piece where there's a build-up of instrumentation this creates greater intensity in positioning of the hands. You can also illustrate greater intensity by using not one but two hands moving together, for example in opening and closing of hand movements. When creating a musical story as defined in Lahtinen and Palmer (2005), it is possible to portray pictorial elements, such as the sea lapping on the shore with opening and closing hand movement on to the receiver's arm. The rough sea could then be portrayed with either using two hands moving together or increasing the hand pressure of the single hand onto the receiver's arm.

Texture

As stated above, music comprises of different elements. These elements form the overall music texture. When interpreting music performance or pre-recorded music using haptics you have to pick the elements you are including in your interpretation because you cannot take it all in. In the holistic view of interpreting music the interpreter may be able to select the most meaningful, most prominent elements of the music that is meaningful for the person you are working with. For example for a profoundly deaf and blind person (no hearing, no sight), their perception of music might be more rhythm-based in comparison to someone who has partial hearing loss and partial sight loss (hearing aids or cochlear implants). In other words, the particular elements on the music texture for interpretation affect the haptics you are using. The selection of different haptics in the interpretation of a performance or a concert onto the body depends on what you illustrating.

Material and methods

When sitting or standing, rhythm can be expressed onto different body areas, such as hands, arms or shoulders. It is possible to express various elements of music through different areas of the body at the same time. This enhances a person's holistic

experience during a live performance. Additional elements can be portrayed using musical haptics, these include selection of instruments, levels of tone, rhythm, melody, pauses and dynamics. Sometimes the receiver can represent a music instrument which is being played. If there is a hand-to-hand contact, as present in a tactile sign language discussion (Mesch, 1998), the tapping rhythm can be produced directly onto the hand. In certain cases it is possible the receiver can copy individual instrument, such as a cymbal interacting with the interpreter. Different pitch elements between the frequencies of the sounds can be expressed for instance onto a person's arm, which can be broken down to different areas: for example, the low tones onto the lower arm, middle tones onto the middle part and high tones onto the higher part respectively. The dynamics can be produced by varying degrees of hand pressure onto the arm or body. During a musical performance if there is a pause, break or even silence, this can be shown through withdrawal of contact or stopping the movement. (Lahtinen, 2008, p. 143).

The methods outlined in this article form the basis to a greater music appreciation and experience using touch based approaches which can be expanded further to a more sophisticated level depending upon the person's musical experience or knowledge. These approaches may be more applicable for those people who have a sensory impairment either with the hearing or sight. However, for those people who may be fortunate to have a cochlear implant with a combined dual-sensory loss may reach to a new level not experienced before.

For example Palmer explains below:

“As a person who was born as a severely hearing impaired person, who has never heard normal acoustic sounds and using hearing aids from the age of four, the cochlear implant combined with musical haptics has enriched my musical appreciation to a higher level. In 2004 I was extremely sceptical if music would ever compete to my lifelong experience in using hearing aids. With the changing circumstances of my vision worsening over the years due to Retinitis Pigmentosa (RP) and Usher Syndrome, I rely on musical haptics to provide me with the auditive and visual clues I am missing

through my sensory losses as described in Environmental Description book (Lahtinen, Palmer & Lahtinen 2010).

Furthermore, with the addition of receiving a second implant in June 2011, my musical experience has been expanded to a more stereophonic level, equal to that of a normal sighted and hearing person. Sometimes the experience has been extremely emotional, knowing that my musical quality and experience is being fulfilled compared to before using two cochlear implants.” Russ Palmer (personal comment 18.12.2011)

Conclusions

In examining the evidence over the past three years there is a greater role for musical haptics which expands Lahtinen (2008) philosophical context using social-haptic communication with interpreters and professionals working with deafblind people. These approaches can be adapted to other client groups particularly for visually impaired people, profound learning disabilities and it has therapeutic implications for the terminally ill and the elderly especially where other communication methods may not function so well.

Further research on musical haptics and systematic analysis for other stages of using musical haptics is needed to consolidate the artistic aspects of haptics in social-haptic communication. These results have to be recorded and collated amongst other client groups as well focusing on the different human interactive processes. This illustrates how flexible and versatile the whole social-haptic communication is as it can be applied to a wide range of different client groups in professional and therapeutic areas. In this way the invisible elements become more visible in this human context.

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