Seeing with One's Own Ears: Soundtrack as Interface for Theatre

Abstract: Much has been written about the primacy of the visual in modern culture. Theatre is similar to numerous other art forms in that it is heavily reliant on visual information, for instance to convey narrative, scene and context. However, this reliance on visual information can present significant access challenges for blind and visually impaired people. Audio description for theatre attempts to increase the accessibility of performances by translating the visual elements of a performance into a spoken commentary that fits between on-stage dialogue. It is now relatively well established in the United Kingdom, but has been little tested empirically, and raises a number of human and technological issues.

In this paper we describe our exploration of an ambiently diffused soundtrack as an alternative to audio description for theatre. Drawing on the theoretical basis provided by Chion and Deutsch, the soundtrack is an artificial assemblage of literal (informative) and non-literal (emotive) sounds that cumulatively acts as a kind of "interface" or way in to the performance. Similar to audio description, the soundtrack as used here attempts to supplement or replace 'lost' visual information. However, it does not present or imply a rigid interpretation, and meaning is left open to the individual. The soundtrack also provides the same auditory information to all and thus offers a more unified audience experience: it does not require some audience members to adopt specialised and potentially othering equipment.

Using Bert, a play by Dave Pitt, as a testbed for the soundtrack model, we describe the initial findings and audience feedback from two March 2017 performances at the Arena Theatre, Wolverhampton (UK), for an audience of 25 blind and visually impaired people. Informed by these findings and our experiences as composer-producer and director-theatre manager respectively, we discuss some possible implications of the soundtrack model. Finally, we outline some possibilities for future work. These include the creation of props with integrated and locally diffused sound effects, the use of virtual reality and supplementary haptic feedback to create a more accessible touch tour, and fuller consideration of the performance space in light of sometimes complex audience needs.

Keywords: soundtrack, interface, Chion, visual impairment, audio description.

Introduction

The barriers to participation faced by people with disabilities are often considered in terms of the medical model of disability or the social model of disability. The medical model is rooted in linear notions of restoration to "normality" (Fisher and Goodley, 2007) and its primary concern is the condition rather than the person. The social model of disability was a direct response to the medical model (Shakespeare, in Davis, 2017, p.196) and situates disability in the broader environment. It asserts that the main barrier for disabled people is not disability itself, but the failure of society to act appropriately (Lang, 2007).

Sensory impairments are amongst the most common types of disability, and there are more than two million blind and visually impaired people in the UK alone. All ages are affected but older people disproportionately so (RNIB, 2017). If theatre was initially vococentric (and therefore primarily aural), since 1800 it has relied increasingly on the visual to convey narrative and to set context and scene (Dalgleish and Reading, 2017; Bratton, 2014; Baugh, 2014, p. 20). However, this visual-centricity can be problematic for visually impaired people whether leading to compromised or incomplete experience, or even to exclusion.

Audio Description for Theatre

The notion of assistive technology (Ladner, in Oishi et al., 2010, pp. 25-26) has become closely aligned with the social model of disability. For instance, technology is seen to dissolve barriers related to social interaction (Kerr et al., 2002) and increase independence (Berry and Ignash, 2003).

To date, the most widely adopted attempts to make theatre accessible for blind and visually impaired audiences relate to audio description (AD); the provision of which has been a legal requirement in the UK since 1996 (Fryer, 2016, p.14). AD for theatre usually consists of three complimentary elements (Fryer, 2016, p.37):

- touch tour;
- pre-recorded notes;
- audio-described performance.

The touch tour takes place around an hour before the performance. It provides opportunity to access the stage in order to explore its dimensions and layout, and handle tactile objects such as costumes, props and furniture.

Playback of pre-recorded performance notes occurs shortly before the performance starts. This provides service users with background information but also opportunity to test the operation of equipment.

The description of a performance may be partially planned and rehearsed in advance but is delivered live so as to respond to performance nuance. A major constraint is that description must fit into the gaps between on-stage dialogue (Holland, in Díaz and G. Anderman, 2009, p.170). The description is then transmitted wirelessly to user headsets.

While four out of ten theatres have recently offered at least one audio-described performance (Cock, 2016), Fryer (2013) notes that AD for theatre has rarely been tested. In addition to the cost of equipment, describers and technical support, there are also issues of (Dalgleish and Reading, 2017): describer objectivity limiting opportunities for alternative interpretation; the need to fit between gaps in dialogue restricting the amount of detail that can be provided; the shifting of attention from on-stage to in-ear hindering immersion; the "othering" effect of AD technologies.

Alternatives to AD for Theatre

There is a substantial body of prior work directly and indirectly relevant to this paper. For instance, the use of a simple sound effect in Eugene Walter's 1922 radio drama *The Wolf* substantially predates recorded film sound (Dibbets, in Nowell-Smith, 1996, pp.211-219; Hillard and Keith, 2010, p.31). While the popularity of radio drama has declined since its 1930s heyday (Stanton and Banham, 1996, p.302), the form continues today, for example on BBC Radio 4 in the UK.

Clearly influenced by radio drama, Fuel Theatre's *Fiction* (Rosenberg and Neath, 2016) is a touring production described as a "surreal, immersive experience taking place in total darkness." Most sound (dialogue, music and some sound effects) is binaural and played through headphones, but the house Public Address system and visual projections provide additional ambience and effects. At a larger scale, Complicite's *The Encounter* also employs binaural audio to build the world of a photographer lost in the Amazon rainforest (Fry, 2015).

Less directly related but notable is the Enhancing Audio Description (EAD) project by Mariana López and colleagues (2016). The EAD project explores how sound design can improve the experience of film and television for visually impaired people. In particular, they aim to transform provision of audio-described soundtracks "from a compliance exercise into an intrinsic part of the creative process."

Other efforts have expanded beyond the auditory modality. For instance, the use of haptics to augment audio description is explored by audio describer Louise Fryer (2013). A related device is the Animotus developed by Adam Spiers et al. (2015). This handheld object uses vibration motors to provide navigational cues, and has been incorporated into a site-specific performance of *Flatland*. However, the use of haptics to convey visual information has its roots in the concept of sensory substitution proposed by neuroscientist Paul Bach-y-Rita in the late 1960s. In order to test the concept, Bach-y-Rita et al. (1969) created a device that translated a live camera feed into haptic information on the back of a seated user.

Soundtrack as Interface for Theatre

The needs of visually impaired audiences and the limitations of AD for theatre have led us to explore alternative types of interface. There are numerous definitions of "interface", but the definition of an interface proposed by Bert Bongers (2006) – as a line that spans two domains and joins them together – is most appropriate here.

Sound is only comparative rarely employed as a primary interface: usually in an informational capacity such as sonification or auditory icons. While these techniques are a poor fit for a theatre context that has prominent affective and emotive dimensions, the broader properties of sound (and ambiently diffused sound in particular) are pertinent. These include the ability to fill space and envelope an audience, communicate multiple messages or types of message simultaneously, support multiple levels of attention, and fine spatial and temporal resolution.

These properties are integral to the film soundtrack. Although "sound film" did not arrive until the 1920s, the subsequent development of the soundtrack transpired relatively quickly. If initially a series of separate sound elements, Rick Altman (in Buhler et al., 2000, p.341) notes that by the mid-1930s, the soundtrack had become a multi-dimensional construct "capable of carrying and communicating several different messages simultaneously."

Related to this, Stephen Deutsch (2007) contends that "a soundtrack comprises of two different (but not mutually exclusive) elements: literal sounds and emotive sounds." Literal sounds are informational and help to convey physical properties and causality. They are key to the believability of the audio-visual relationship. Emotive sounds are more subjective and help to influence the mood of a scene.

A more extensive categorisation of film sound is provided by composer-theorist Michel Chion, who makes distinctions between diegetic and non-diegetic sound, and between empathetic music and anempathetic music (Chion et al., 1994, p.29). Diegetic sound emanates or is implied to emanate from the story world of a film. Examples are typically sound effects, but can also include music. Non-diegetic sound is where the sound source is neither present nor implied in the film-world. Examples usually relate to voiceovers and narration. There can also be crossover between diegetic and non-diegetic sound (Hunter, 2009). Empathetic and anempathetic music relate to two ways music and sound effects evoke emotions in film (Chion et al., 1994, p.13). Empathetic music and sound effects actively participate in the mood and emotion of a scene. Conversely, anempathetic music and sound effects are indifferent to the pace of the scene. Nevertheless, by contrasting with the visual, their juxtaposition can intensify emotion.

For Chion, sounds facilitate three different modes of listening: causal, semantic and reduced (Chion et al., 1994, p.25). Causal listening gathers information about the sound source and can enhance information available from vision when causes are visible or provide the principal source of information when the cause is not seen. It is common but also easily tricked. Semantic listening interprets codes, usually relating to language. Reduced listening (Chion et al., 1994, p.29) is focussed on the properties of sounds themselves, rather than their cause, source or their meaning.

Chion subsequently outlines additional subcategories of film sound: ambient sound, internal sound and on-the-air sound. Ambient sound relates to sound that envelops and inhabits a scene. The source of ambient sound is identifiable but not seen. Ambient sound is closely related to territory sound that helps to identify a specific location (Chion et al., 1994, p. 75). Ambient sound and territory sound are particularly relevant to the theatre context as their ability to delineate the identity and character of a place offers a potential equivalent to how AD for theatre conveys information about site and setting. Moreover, ambient sound can be layered and is able to support varied approaches. For instance, literal, site-specific information can be provided, but also fuzzier atmospheres (Eno, 1978), or more speculative imaginary environments (Chattopadhyay, 2017).

The relationship between ambient sound and attention is also relevant, particularly Brian Eno's (1978) concept of Ambient Music as "able to accommodate many levels of listening attention without enforcing

one in particular; it must be as ignorable as it is interesting." This potential for "disappearance" is important as, for the most part, film sound should influence or "complete" the image, but not be "noticed" itself (Dima, 2017, p. 139). If, then, more extreme use of sound to capture audience attention at important moments may appear contradictory, it is also notable that their power is rooted in their contrast with silence.

Related ideas are present in the notion of calm technology developed by Mark Weiser and John Seely Brown (1995) in response to the information overload of the Personal Computer era. In particular, they describe an attentional periphery that "we are attuned to without attending to explicitly" but "could come quickly to attend to it" if anything unusual is noticed.

Theory into Practice

The properties of ambiently-diffused sound are appealing from the perspective of an interface for theatre: it is able to carry different types of information, be simultaneously informative and emotive, grounding and evocative. There are also potential benefits to immersion that come from a single, unified sound space, and the ready availability and familiarity of equipment may reduce cost and setup time. To start to test the viability of the soundtrack as an alternative to audio description, an evaluation study was carried out. This had three elements:

- the creation of a soundtrack for Bert, a semi-autobiographical play by writer and comedian Dave Pitt;
- two performances of Bert for visually impaired audiences;
- group interviews held immediately after each performance.

The soundtrack was conceived as a series of linked ambient sound spaces that outline the environments described in the script. These atmospheres are initially literal and largely descriptive (i.e. causal); and therefore essentially disappear as sound and image appear to exist "naturally" as one. However, they slowly transform into more emotive and ultimately fantastical sound spaces that imply a drift towards a more ambiguous domain.

Figure 1. The set for the 3rd March 2017 performances of Bert.

The set for the performance is simplified to create a bold and easily readable visual outline (Fig. 1): all scenes therefore make extended use of Foley to convey what might ordinarily be visual details. To enhance the sense of three-dimensionality, Foley sounds were captured from multiple perspectives then assembled into multi-faceted objects panned around the sound field. The intention is for the sonic environment to unfold around the audience; in the periphery as well as the centre.

Two performances of Bert were held on 3rd March 2017 at the Arena Theatre in Wolverhampton. 13 participants attended the first performance and 12 attended the second performance. These include 14 men and 11 women, aged between 35 and 81 years. All self-reported as blind or visually impaired. 16 participants were accompanied by a companion who did not participate in the study.

An accredited audio describer attended rehearsals and described both performances. All participants had the opportunity to participate a touch tour half an hour before their performance started. The performances lasted 40 minutes and were structured so that participants could experience both AD for theatre and the new soundtrack. The first half of performance one and the second half of performance two featured the ambiently diffused soundtrack only. The second half of performance one and the first half of performance two featured audio description only. Both the audio description and the soundtrack used the theatre's usual systems: a wireless AD system and a six-channel (5.1) sound system respectively.

At the end of each performance participants were interviewed in a group by an experienced facilitator. The interview questions aimed to discover participants' prior experiences of theatre, and their experiences of the performance specifically.

Conclusions and Future Work

There is only scope in this paper to summarise participant responses: more details can be found in other work by the authors (Dalgleish and Reading, 2017). We were nevertheless particularly surprised that only three participants described themselves as frequent or occasional theatre-goers, and only two participants had previously used an AD for theatre service: all other participants reported very little (less than occasional) or no previous experience of theatre.

Participants complimented the quality and content of the audio description, but more than a third made comments around the perceived or actual operation of the AD for theatre equipment. For instance, one participated noted that "it took ten minutes of the play for me to be sure that all of the description was coming through", while another mentioned an echo in the description feed. The soundtrack was also positively received. However, the language used to describe the experience of the soundtrack was noticeably more emotive: one participant commented that the soundtrack was "eerie" and another described it as "atmospheric." The latter participant also noted that "It made the experience more colourful." Overall, nine participants expressed a preference for audio description, nine participants expressed a preference for the soundtrack, six participants had no clear preference, and one participant provided no answer. Interestingly, one participant commented that "the ideal would be a combination of audio description and soundtrack."

Participants did not comment about any spatial aspects of the soundtrack, and thus these many need to be made more explicit. For example, small loudspeakers could be integrated into props in order to create localised points of sound that appear to emanate from specific locations on stage.

Also unexpected was that all participants chose not participate in a touch tour. Further investigation started to reveal the issues involved. Nine participants commented that they used the time before the performance to chat to friends, or enjoy a drink. Moreover, ten participants commented that they had a mobility difficulty concurrent to their visual impairment, and that they avoided the touch tour for fear of needing to stand or move around for an extended period. While multiple disabilities are relatively common, their consequences are not often considered in terms of theatre access. We therefore believe this to be a productive direction for future work. In particular, the qualities of the architectural space that houses the performance will be more fully considered (and considered from multiple perspectives), and a combination of virtual reality and haptic feedback will be explored as a way to create a more accessible and engaging touch tour.

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