Music on the Screen

Bruce Darlington

The University Of Chester

Abstract

The mid 20th Century shift from a print based epistemology to a screen based epistemology has radically altered the way music engagement must be considered in the 21st Century. The dominance of television as a mode of entertainment engagement has made the screen the most naturalised form of technological mediation. When considered from a musical engagement perspective, the screen changes significantly the way understanding of musical behaviour in relation to other aspects of modern life is viewed. This paper changes the perspective traditionally found in contemporary academic theories of music and technological interaction to allow more focus on the body as a site of interaction. This move combined with the screen based epistemological understanding of modern phenomena demonstrates a potentially new paradigm from which to develop understanding of modern interactions with music and technology.

1. Introduction

The dominant epistemology of social understanding and dissemination of information has shifted from print based media to an understanding generated through screens. The way in which music is experienced has been significantly altered by this shift. From mobile devices, to laptops, desktops, televisions and so on, the main way listeners experience music in contemporary western society is through a screen of one type or another. This has led to a shift in the way the listener engages with the music they are hearing, and this shift in understanding and experience has been little noted in academic music scholarship, making discussion of its symptoms and potential implications necessary.

2. Spotify

As I sit writing this article I have the 'premium' version of Spotify (a music streaming service) playing a mix of relaxing classics in the background. The music was not chosen by me, in as much as I had no input into the music included in the playlist (essentially a digital mix tape), and in so far as musicology would understand the term, I am not really 'listening' to the music being played. In fact I have completely failed to notice that the playlist, created by someone I have never met (and probably will never meet), has ended and the Spotify program, responding to algorithms I also have no understanding of, has arbitrarily moved onto another playlist with a very similar title. This new playlist has also been created by someone I have never met, and was selected by the Spotify program because it fits certain predefined criteria. The idea of allowing a total stranger to populate my physical CD collection is unappealing to say the least, yet I have no

problem allowing the same stranger to model my listening based around the loosest possible criteria whilst I type. In times past the entire concept of 'cd clubs' where random selections based on previous purchasing patterns were mailed out to you to see if you wanted to buy them, made me cringe, and yet the Spotify program making listening decisions on my behalf does not concern me at all. 'Why not use your own judgment and taste' would have been be my cry, and yet fifteen or so years later, here I sit, relinquishing my agency to a complex of machine code.

Beyond selecting certain criteria for Spotify to work with ('relaxing', 'classical' and so on) I am exhibiting a profound lack of interest in what music is selected for me. This lack of interest is at least twofold. On the one hand the monthly subscription cost to use Spotify is relatively inexpensive (equivalent to 3 pints of beer, or two gallons of petrol, or entry into a nightclub) and can be entirely free if the end user is prepared to endure occasional advertisements. For my subscription I can listen to music from almost any genre or subset twenty-four hours a day, seven days a week; this significantly reduces the pressure on me to consider my choices. Unlike a record, CD or MP3 album I am not 'stuck' with my purchase and can change it instantly on a whim. There is no physical artefact to return, no drive to the shops, no sales assistant to speak with. Secondly, my attention is really focused on this piece of writing, and so long as the music I have selected is not overly intrusive (a Megadeth inclusion would certainly be noticed) I am uninterested in the specifics of what is playing. I am a professional musician, and enjoy having music around me as much as possible, however the amazingly innovative arranging skills of 'well known composer' pass me by. The magnum opus twenty years and endless blood sweat and tears in its construction, has no significant impact on me.

Of course in the past I have travelled great distances and gone to considerable expense and trouble to hear excellent performances of the music I now treat with a sort of apathy; and here lies the key to comprehending modern engagement with, and understanding of, music on the screen. The mid 20th Century epistemological shift from print to screen, through the medium of television, has influenced every facet of music engagement and understanding. Even live musical events are now littered with evidence of the sort of active uninterest I am demonstrating whilst typing. People text quietly during performances of Beethoven at the Halle, people check and even engage with twitter during X-Factor finals, and people record live rock concerts in an effort to both document that specific event whilst also trying to somehow make it 'real' by moving it to an epistemological footing that they understand; the screen.

3. Screens

Working at a computer I am interacting with a screen, watching television in my lunch break I am with the screen, even walking through the town centre of Lisbon on my holidays there is a giant screen set up to deliver weather and important news updates (although their level of import is lost on me as I speak no Portuguese). Like many in the modern developed world, I understand many of the events in my life through the screen. It follows naturally that events traditionally far removed from the active uninterest model, such as music, where the need for

focused attention is traditionally conceived to be very high, are relocated into the new dynamic experienced with the screen. The specifics of what I am doing at any point in time do nothing to break this mode of engagement. Like breathing, which is done continuously and with very little attention from me, the screen is so embedded in contemporary society that its engagement patterns bleed through the psychological membranes that traditionally separate disparate activities This shift is unconscious, and like breathing difficult to actively monitor, as evidenced by the fact that I am embarrassed by the description of my lack of attention to the music I am not listening to.

In the academic literature there are endless examples of people 'listening' to music, with little to no consideration of the screen based hierarchical structures they are really engaged in [see 1, 2]. Studies discussing listening to headphones [1, 3], collectors listening patterns [4], economics intangibility and disembodiment [5], music and neuroscience [6], and so on, often provide highly robust and useful arguments and data, but there is a general lack of investigation into the screen based epistemology that dominates the current digital world. The smallest of shifts in theoretical understanding of phenomena can send qualitative or quantitative studies down radically different and hitherto little considered routes.

Music in modern society is engaged primarily through some sort of technology, and more specifically screen based technology. Smart phones, 'touch' based MP3 players, 'touch' based computers, televisions and so on all facilitate an engagement with music through technology and all employ screen based interfaces. This type of interface and the modes of engagement it generates creates a significant deviation from the way music was experienced during the era dominated by print based artefacts as opposed to screen based artefacts. This shift in epistemology is felt throughout society, as changes are experienced in the way many of the most regular and mundane tasks are presented and understood. It is this ubiquity of screen-based interactions and understandings that have most influenced how music is conceptualized in modern society. Levels of required and given attention for screen based activities are generally very different from print based ones, and even periphery activities are affected by the pull of the screen.

4. The Body

Combined with the reintroduction and prioritization of the body and materiality in social theory [7-13], the way screen based technologies influence sites and modes of engagement and interaction creates new understandings of modern phenomenon. Popular music scholarship in general uses the term consumption rather than listening in order to better facilitate discussion of wider issues (such as industrial law, sales, copyright); however I am suggesting the term engagement here, so as to better ground the experience of music *in* the body with technology.

In order to understand the relationship technology has with the body, and thus the technologically mediated experience of music we must understand this relationship through grounding in the body. There are significant moves being made toward a re-embodiment of understanding in the social sciences. However whilst

establishing contrary trajectories to traditional Cartesian mind/body paradigms, theorists frequently create newly digitized self's that are paradoxically disembodied through technology [see 14].

As Michael Bull accurately discusses, it is the body that experiences state changes through headphone listening [1], and DeNora [15] is correct in her assessment of identity construction through music and the body. Rather than re-imagining the body through technology, it is a better move to reinterpret the actions of the body through technology and its dominant modes of engagement.

This argument, although close in nature to several of the Posthuman and New Materialist theories in contemporary circulation, makes no claim to a genetic or evolutionary scientific basis. The concept of 'cultural bodies' [9] and multiple subjectivities are ones that will be at the very least eluded to, however they are distinctly different from certain other readings of such ideas.

At no point is the technology under discussion, be it modern digital screen based or print based, ascribed any form of 'life' or agency other than that brought to it by human interaction and experience. Several authors argue strongly for just such attribution [11-13] however the closest this argument comes to any sort of Deluzian metaphysics is in acknowledging the constructs of certain of his disciples as helpful. For example 'process' as a concept developed by Massumi [7] is clearly highly Deluzian in nature, but can still prove highly instructive and move an argument along, so long as the limits of its Deluzian heritage are explicit and understood.

Similarly Katherine Hayles [8] 'informatics' and 'intelligent machines' are, as she acknowledges, remarkably useful metaphors which may lead to changes in the focus of scientific investigation; which in turn may lead to new understandings of phenomena via a quantifiable and rigorous scientific method. However they are, for now, simply metaphors, designed to allow entry into new modes of understanding. Similar to this paper, they present the familiar in a new light in the hope of requisitioning other cultural entities and experiences. The trajectory of future research and understanding is the overall aim of such moves.

Above all, I am trying to be as clear as possible that the subject matter and arguments to follow are to be understood in terms of grounded lived reality. They are not radical flights of fancy into deep metaphysical waters, but are merely attempting to provide a new critique of very common phenomena in the hope of developing new understanding.

5. From Print to Screen

The shift from a print based society to a screen based society was one of the fundamental changes to occur in the 20th century. Although there is no fixed date when this shift occurred, the expansion of the British Broadcasting Corporation from radio to television in 1936 (with various other European countries to follow suit in the 1960s) can be seen as highly influential. This movement has 'irreversibly

shifted the content and meaning of public discourse, since two media so vastly different cannot accommodate the same ideas' [16, pg.8]. This leads Postman and others to claim that the second half of the 20th Century must be understood through the medium of Television. This means more than simply 'people spend more time watching television than reading books'; it is a challenge to the basic methods and assumptions behind how people understand the society they live in. Delivery of information, use of language and modes of engagement are all influenced by the technology a society uses to function effectively on a day-to-day basis. The change from print based media to television and more recently screen based new media devices, directly affects how people perceive and interact with a vast range of phenomena.

Television reaches a wider audience than any of its print based counterparts, however as Schoenbach and Lauf are quick to point out, large viewing numbers do little to guarantee that television is having an influence over how viewers think on certain issues [17]. It is not an influence over how audiences may think on a particular subject that is of interest here, it is how audiences have become adapted to engagement with the screen through vast exposure to television. Because television viewing is so commonplace in our society, society has learned to experience things through the screen. With an average viewing time of 4.3 hours per day and over 25 million television licenses purchased in 2012 [18] television has become the dominant mode of entertainment in the U.K. specifically and the developed world in general.

In simple terms, modes of engagement and understanding are like any other practice. The more things are experienced and understood in a certain way, the more that method of engagement comes to be natural and relied upon. For example, Sir Michael Wilshaw, Head of Ofsted, the schools regulatory body, claimed that 100,000 primary school leavers were not reading to the required standard for their age [19]. The statistics he quoted from are somewhat in question amongst certain groups, however even were the figure reduced by a third, the number is still very high. It is unlikely that the children who are not meeting national literacy targets would be unable to operate a television efficiently; especially given an average viewing time of between one and three hours per day revealed in an 11,014 strong study of five year olds viewing habits [20].

6. Technological Determinism

It is important at this stage, with the influence of television in people's lives and the effect that influence can have firmly established, to tackle a more controversial issue before moving on. The idea of technological determinism is one of the most controversial in new media and technology studies. In short it is the concept that media bring about social change, that technology is causal and has influence in and of itself. Marshall McLuhan is the name most strongly associated with this type of thinking [see 21] but echoes of his thinking can be found in the writing of many scholars [16, 22, 23]. There are of course many offshoots of technological determinism (technological suppression theory for example) however the core is as stated.

Raymond Williams was a vehement critic of such theories, claiming that media devices were abstracted from their social contexts in order to make the theory work [24]. Echoes of his thinking can be found in the writing of new materialists and some posthumanists [8], who argue for a more socially driven theory of things with less emphasis on the isolated agency of objects. Despite the seductive aspects of this stance, particularly for music and technology, the position adopted here will be closer to the reading of McLuhan as expanding the sensorium, advocated by Bolter and Grusin [25].

To re-read McLuhan without engaging in his technological determinist stance brings us quite close to where we need to be in order to understand music on the screen. The idea that 'We need not be afraid of McLuhan's "formalism," as long as we remember that technical forms are only one aspect of technologies that are simultaneously social and economic' [25, pg.77] should allow us to move on. In both its composition and performance music is clearly social as well as technological, and so long as this is kept in mind there is little chance of running into the barriers to authenticity that many writing around this topic encounter. An academic who will feature extensively later on sums up this kind of position succinctly when she writes 'computers evoke rather than determine thinking' [26, pg.27].

7. Pretty Lights

Music on the screen is not a completely new phenomenon. It has its roots some way back in the 20th Century when digital MP3 players, smart phones and the Internet were inconceivable in their current form and popularity, and the tablet pc was the stuff of Star Trek sci-fi. Personal semi- portable (they were quite large) 'Boomboxes' were invented in 1970s Japan as a method of recreating the sound quality available on a home stereo system whilst on the move [27]. They came to frequently include sets of coloured lights (initially green), which were designed to symbolize the oscillating frequencies or volume levels of the music being played. The Crown 'SZ-5100 S' (See Figure1) is a typical example from the early 1980s, which includes a graphic representation of the music being played, via coloured bars of light in its upper left corner.

Figure 1: Crown SZ-5100 S

Tellingly, this concept has not been abandoned in the 21st Century, but merely updated to something like the Santo boombox in Figure 2. This newer model includes various modern technologies not available in the 1970s or 1980s. According to its blurb, the 'Santok SMC1000 Stereo Boombox with SRS is an iPhone or iPod docking station that comes with a high resolution VFD display with a sound sensitive graphic equalizer.' [28].

Figure 2: Santok SMC 1000

These two boomboxes demonstrate quite neatly that the concept of music represented in technological visual form, is firstly, not new, and secondly has not lost its appeal in the forty years since it first was made available on devices such as these. The idea of music on the screen, music as something to be looked at and engaged with in the same way as television programs has had a long time (in terms of the pace of technological advancement) to become deep seated in society. Since the move to playing music on computer systems became mass marketed and accepted practice, these types of visual indicators have been staples of music programs across platforms. VLC player, Windows Media Player, Apple's iTunes players, and many other programs developed by smaller companies all include so called 'visualizers'. These can vary wildly, from more complex versions

of the Boombox interface, to the highly developed 'swirling lights' or 'tunnel of light' visualizations, which come with fullscreen features and a myriad of customization options.

Music is displayed on the screen alongside word-processing programs, the Internet, databases, spreadsheets books and photographs. Traditionally the mode of engagement required for interacting with a spreadsheet in an office environment, or photographs of a family holiday would have been radically different from the mode of engagement entered into with music. Whether listening at home, or attending a concert, the mind would be aware of the music being played, and crucially, it would have made a choice to cease one activity to engage fully with another. The idea of doing accounts at home whilst listening to music is not unrealistic at all, however both tasks would be separated, if by nothing else than by the distinction in physical artefact and tactile engagement. The act of putting on a record, compact disc or the radio, and then returning to the accounts book serves to separate out the two activities. Each is distinct; each requires different skills and fulfils a different purpose. The idea of working on account spread sheets whilst attending a live music event seems at first to be comical; however music on the screen has enabled just this type of crossover to become highly feasible.

In the above example, the spreadsheet program exists on the screen, and music exists on the screen. Both are activated and manipulated by similar sets of physical movements (mouse, trackpad, or multi-touch gesture), both are visually represented on the screen and both can run simultaneously. The individual is engaging in distinct activities but through the same medium and with virtually identical physical protocols for activation and cessation.

To stress the importance of this point we can consider the series of electronic games under the 'guitar hero' (and recently 'band hero') brand. These games involve the gamer interacting with a plastic replica electric guitar in order to push one of several coloured buttons at cued times in famous songs which are playing via the games console. The plastic instrument has no strings and is incapable of producing musical notes on its own. The entire game could easily be accomplished with a more traditional console controller, however by shifting the controller to a shape that engages many of the desired qualities of rock music, the game changes the way participants perceive their activities. Miller [29] labels engagement with 'guitar hero' as a 'schizophrenic' performance. He argues that the games feel like making music because the 'affective experience of making music is so bound up with embodied performance.' [29, p.424]. Players understand that they are not really playing guitar, just as they are not creating 'new music' as such, however the new mode of musical interaction Miler identifies is exactly the mode of interaction that can be seen throughout modern musical engagement. The main failing of Miller's piece is in not identifying and exploring this wider trend.

Music for many only exists on screen and as part of something else; a music video, a television advertisement, a motion picture, or a game. In his analysis of the music used in the computer game 'bioshock' Gibbons identifies the new ways music is being employed within the fictional world of the game. It is employed both

ironically, in its capacity as a reminder of a pre-dystopian United States, and as a narrative function of the plot, where lyrics are deliberately positioned to be misread as a part of the game world [30]. In both the bioshock and guitar hero family of games, it is possible to see the new ways people are being encouraged to view music on the screen. Music is embodied in the technology of a plastic controller, which players feel allows them access to some level of performance or creative engagement, but which could not be confused with a traditional instrument. Music is placed strategically throughout a simulated dystopian world, where it is interwoven with the content and narrative of the game so tightly that conceptual separation may not occur to some players.

The fact that many activities are now conceptualized, initiated and completed entirely online, with no physical artefact, aside from the medium of a computer or ICT device, only serves to re-enforce this blurring of traditional boundaries. Computer programs, films, television shows, books and music (including albums and live concert performances) can all be purchased through dedicated internet sites run by Google, Microsoft and Apple. Having to enter a music retailer such as HMV would previously have provided a solid distinction from sitting at a desk in an office environment. Now much may be accomplished online. The physical space of events is becoming less and less important to individuals and is one of the reasons that the theories of music usage proposed by some are not far reaching enough. Spotify for example claims over 24 million active users in 2013 [31], whilst HMV announced its intention to enter administration with the subsequent closure of 66 stores in the UK [32].Bull [1], DeNora [15], Simun [33], Williams [34] and others have argued for changes in music engagement through technology; however the core assumption of separation which has always existed in the humanist paradigm is losing strength and must be reconsidered

8. Dissemination

Like the television, ICT devices that place music on the screen have proved incredibly popular. Although some sources are reporting a slow in sales of MP3 players over 2010/11 [35], which is potentially explained by the convergence of technologies, the available overall figures up to that point are still huge. Up to the 2nd quarter of 2012 it is reported that Apple had sold 46.5 million iPod touch units, in addition to 86 million iPhones and 34 million iPods; with Samsung selling 21.25 million smartphones in the U.S alone between 2012-2012 [36]. Without delving into endless statistics, it is clear that not only are MP3 players popular globally but so are smart phone multimedia devices.

It is the devices where convergence [37] takes place that are the most important for this study as it is these devices that place music into the same arenas as traditionally non-related activities and subjects. Playing games or writing correspondence to friends have traditionally been very different activities from engaging with music, but these devices are causing a loss of distinction in peoples perception, largely through the screen interface. An excellent example of this is to return to the medium of television. So-called 'smart' televisions include built in radio receivers, Internet capability and a whole host of features ordinarily not found in

television sets. Sales of these 'smart' televisions have increased 211% over the last two years and show little sign of flagging [18]. The effect of this technological convergence is to change the nature of the experience drastically. Surfing the Internet on a smart television feels completely unfamiliar when compared to doing so on a computer. Neither does it feel like watching television. The experience lies somewhere in-between the two, in a new mode of engagement which is thus far unexplored.

The same dislocation of familiar experience occurs throughout modern ICT device usage. Given their remarkable multimedia capabilities, smart phones are particularly susceptible to the phenomena. The amount of 'apps' (usually small device or platform specific programs designed to perform tasks limited in range compared to traditional computer programs) available for smart phones means that as well as music, these devices can store and activate almost any modern media format. Photographs, films, books, mindmaps, spread sheets, maps, tickets for events or transport, and so on can all be accessed quickly; and most importantly, through the exact same interface as music. There are even apps to allow a 'smartphone' to function in a similar fashion to a credit or debit card; which significantly blurs experiential boundaries as generally conceived.

9. Music on the Screen

Examining music on the screen is no different from examinations of everyday life and its interactions with technology undertaken by several scholars. Through ethnographic research Sherry Turkle examines the way people come to see themselves 'differently as [they] catch sight of [their] images in the mirror of the machine' [38, p.9]. Living life through the screen of modern ICT affects many aspects of interaction, perspective, relationships, work patterns and almost every other facet of modern life. By understanding a little more of Turkles' most applicable arguments, it should become clear that music must be examined using a similar theoretical stance.

Turkle discusses they way 'always on' technology such as mobile phones are disrupting the established behaviours and perspectives of several areas of daily life amongst different groups of individuals. For example management consultants are identified as having lost the interaction that they used to engage in whilst waiting for taxi's or at the airport waiting for a flight due to their preoccupation with multimedia devices [39, p.40]. This loss of interaction is at least partly to blame for their loss of 'instincts' in the competitive world of corporate business (*ibid*). Similarly Turkle describes a conference she attended:

> 'I had travelled an exhausting thirty-six hours to attend a conference on advanced robotic technology held in central Japan. The packed grand ballroom was Wi-Fi enabled: the speaker was using the Web for his presentation, laptops were open throughout the audience, fingers were flying, and there was a sense of great concentration and intensity. But not many in the audience were attending to the speaker. Most people seemed to be doing their e-mail, downloading files, and surfing the Net. The man next to me was searching for a New Yorker cartoon to illustrate his

upcoming presentation. Every once in a while, audience members gave the speaker some attention, lowering their laptop screens in a kind of curtsy, a gesture of courtesy.' [39, p.39]

Turkle is focusing here on the way people can be 'alone together'; present and not present at the same time due to virtual interfaces, however similar trends can be identified in music engagement.

Attending to music, in a similar way to the mode of engagement Turkle finds at the conference she mentions, is one of the base assumptions of musicological theory. Whether discussing the musicality of Cage or the sociological trends of the Beatles, it is a given that a certain amount of concentration and attention is provided on the part of the listener. If however, the listener is reacting to music as though it were a screen-based event like television, what does this do to their attentiveness? Surfing the web or checking emails whilst in a lecture theatre is considered proof of inattention by Turkle, so the same criteria can probably be applied to music engagement. My 'active uninterest' patterns from earlier rear their ugly heads for a victory lap.

Given the proliferation and acceptance of television as the main form of mass communication and idea dissemination (as we have already seen), given the shift towards interacting with the most mundane of daily tasks as mediated through a screen, and given the number of concert recordings available on the briefest of searches of YouTube, does the screen make it real?

The term 'live concert' returns 2,1400,000 search results on YouTube (as of 18/1/2013), a significant number of which are fan made, technically illegal, recordings taken on ICT devices such as the iPhone. These recordings are posted in a 'not-for-profit' capacity by individuals who are usually fans of the artist whose concert they were attending. There are several articles examining the idea of 'bootleg' or non-official concert recordings, either audio or video, but none account for what the act of recording does to the experience of the individual doing the recording [40, 41]. Whilst virtual communities are important to investigate, as these articles do, what is of the upmost importance for this article is to ask the question 'when an individuals attention is focused on recording a live music event, are they still engaged in that event through a traditional understanding of 'engaged'?

Anecdotally, tourists may offer some light on the theoretical perspective necessary for this line of investigation. Whilst on holiday and enjoying the sights, sounds and smells of a new city it is not unusual to see an individual absorbed by the act of recording the experience on a digital video recorder. They are seeing all of the same things as everyone else, but it is all mediated through the camera lens. Two questions which are directly applicable to this study of music arise as a result of this relatable situation: 1) is the person as engaged in their environment as someone who is not operating a complex and technically demanding piece of technology? And 2) is the experience only 'real' for them if they mediate it through the screen? To answer the first question requires consideration of a variety of specialized topics such as multitasking, neurobiology, affective studies, psychology and so on. As such it is completely beyond the scope of this article; however question number two is situated exactly where we need to be.

Simulation is not a new concept in the social sciences or cultural theory, but is usually not applied to music due to the 'direct' nature of music interaction. However when mediated through the screen and placed into a similar mode of engagement as television, books, and workplace-based activities, the question of simulation becomes more urgent. For a working definition it is logical to turn to the most widely quoted (often misquoted) writer of simulation, Baudrillard. He identifies three levels of simulation: 1) Simulation as an obvious representation of the real (like a painting), 2) Simulation which blurs the boundaries of reality and fantasy (such as the map in Borges' fable), 3) Simulation as the 'hyperreal' where real events and artefacts exist, but are based entirely on fantastical ideas that never actually existed (such as the Disneyland fairy tale castle) [42].

The crucial element to understand before discussing any potential relationship music may have with simulation is that these things are real. They are not simply flights of fancy or topics for discussions, but are objects that actually have an existence. The castle at Disneyland in North America clearly exists, despite being a third order simulation. Failure to attend this fact leads to woolly discussions of simulation and fundamentally flawed theorizing [43]. Turkle comes close to the way music interacts with the idea of simulation when she writes 'these days we see the world through the prism of simulation' [44, p.5]. Unfortunately Turkle, like many investigating technology, does not apply her theories to music; instead focusing on wider topics in the relationship between society and technological advancement.

The idea of simulation is applicable to the concertgoer who records the event on a multimedia ICT device. Through television and other screen based sources western subjects experience much of their lives as simulations. The weather reporter on the news is not really standing in front of a giant moving map of the U.K; the pitch in football or rugby events does not really have tactical plans laid out over it; the characters in soaps do not exist in the traditional sense, however all of these are accepted as a given value of real. The screen creates simulations of various levels every day. Even typing now, I am not putting ink onto paper. Through very clever programming and extremely intelligent design the computer is conspiring to convince me that I am working on paper, but I am not, and instantly the problem deepens because I believe it is the computer as some sort of subjective entity that is doing this. Because so many aspects of modern life are simulations presented through the screen it is not surprising that the concert goes feels the need to experience music as a mediated screen based simulation.

The argument could certainly be made that the event they are attending is real, however with technology acting both visibly and invisibly to create the live 'event' is that a tenable position to maintain? Are the vocals 'live'; and even if they are being performed in 'real time' they are almost certainly travelling through a vast array of technological mediation to produce reverb and delay, to effect the equalization, perhaps to correct the pitching of some notes. Recording this event simply adds another layer of simulation to an already largely simulated event. The concertgoer can better understand this by placing it onto a similar epistemological level as the rest of the events in his/her life.

10. Conclusion

The shift from a print based epistemology within society to a screen based one was the facilitator in eventually allowing music to be understood in the same way as traditionally screen based elements. The interface of the screen encourages a re-materialization of music into the body by shifting listeners notions of music away from the abstraction usually associated with it; back into a mode of engagement linked to a physical artefact, the screen. Technological understanding is such a major part of modern societal behaviour that music was bound to be affected, however the manner of the affect and the implications which may be drawn from it are more far reaching than anticipated by many scholars.

Music is understood in the same mode of knowledge construction as a television program or a social media site on the Internet, and through this understanding the levels of attention listeners infer as being required by music change. So too do the methods and spaces of music interaction change. Music is no longer a distinct site where the listening subject meets the musical abstract object. Music is embodied in the technology it is housed in; but more importantly it is embodied within the listeners body. The technology used to experience music is so invisible in certain of its aspects, whilst being highly demanding in others, that it becomes a part of the subjects existence, and with it so to does music. It is this line of questioning that will provide future projects with legitimacy and impetus, but for now the investigations into music through the screen are only just beginning.

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