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The Spectacular Suburb:

Creativity and affordance in Contemporary Electronic Music and Sound Art

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Abstract

This article examines the relationship between sound, creative practice and the representation of landscape and environment. It uses an analysis of a single sound art/electronic music event, *the Spectacular Suburb*, a collaboration between sound recordist Chris Watson and the electronic producer/musician Matthew Herbert, as a central case study. Drawing upon interview material and the author's own experiences as a curator of the event the article explores how individual sound objects are utilized subject to differing creative strategies. The article proposes a theoretical model of creativity influenced by ecological approaches to human perception. In particular, it suggests that for electronic musicians and sound artists creativity takes place according to complex affordance structures characterized by the relationship between the physical properties of sound, a highly nuanced set of socially constructed contexts, and specific technological and musical conventions.

Introduction

This article examines the central importance of the materiality of sound in understanding creative practice in electronic music and sound art. In particular it examines how the intrinsic properties of sound are at a constant intersection with differing social, technological and institutional factors. With these elements in mind, the article suggests that creativity is an essentially ecological process that is structured through the interplay of the individual and sounding object with multidirectional influences between the two. The article concentrates on a single case-study which involves two differing types of practitioner, one who primarily works in sound art and one from a popular music background, to explore how the different fields of practice that they inhabit inflect upon their perception of sounding objects. Although the article focuses on these two particular related fields of practice the issues it raises are not exclusive to these areas, and certainly have equal relevance to the wider performance/conceptual arts.

The case-study under discussion is *the Spectacular Suburb*, a commission which was initiated as part of Liverpool's tenure as European Capital of Culture in 2008. The project involved a collaboration between two practitioners from the different fields of sound art and electronic music who worked with the same sound sources to create two distinct creative outputs. Chris Watson (the UK's most well-known nature recordist) was commissioned to carry out a series of recordings at Crosby Beach – a stretch of coast to the north of the industrialized Port of Liverpool. These nature and soundscape recordings were then used by Watson as the basis of a live sound art installation. The 'raw' recordings were also sent as sound files to the internationally

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renowned electronic musician Matthew Herbert who re-interpreted them to create a new musical piece for a one-off performance. The unusual dual remit of the project allows for an in-depth comparative analysis of the creation and performance two artistic pieces whilst at the same time highlighting some more general issues relating to the perception of sound in a musical and artistic context.

The fact that the project uses recordings of 'real-world' sounds which might be traditionally understood as 'non-musical' is also useful as it allows for a concentration upon the perception of sound within the creative process. Although the apprehension of sound is present in many different modes of composition, the novelty of these found sounds allowed for a more reflective discussion of the creative process than might have been possible with sounds made by traditional musical instruments as the artists were able to isolate particular sound sources in their discussion and reflect on how these sonic materials encouraged particular creative choices. What I want to suggest is that individual sounds have intrinsic qualities which are acted upon by the creative individual and that in turn, a way of examining creativity in this respect is through an assessment of the experiential and issues relating to embodied experience. In one sense this approach is in keeping with recent critical developments in the arts and technology (Massumi 2002, McCarthy and Wright 2006, Ouozunian 2006) that have provided a return to the phenomenological. However, I also want to suggest that creative decisions made within such experiences are always firmly routed in the social. In Bourdieu's terms, the intersection of habitus (the socially constructed subjectivity of the artist) and field (the social system, rules and institutions towards which the creative act is positioned) (Bourdieu 1984) always impinges upon what is done with such raw sonic materials. The article therefore, seeks to progress work that has applied a Bourdieuian critical framework to creativity (Toynbee 2000, McIntyre 2008) while foregrounding the importance of the intrinsic physical properties of sound within the creative process.

The key issue here is that an individual sound has certain physical and acoustic properties that afford certain uses by the artist. The concept of affordance has of course been widely explored in perceptual and cognitive psychology (Gibson 1966, Norman 1988; 1999, Bertelsen 2006, Turner 2008) and this theorisation can be instructive for our purposes. The concept was initially put forward by Gibson (1966), referring to the way in which perception operates as a relational process between organism and object. Within this model there are certain actionable properties that are latent within an object or environment that may be acted upon by a human or animal. Objects thus afford a range of uses (multiple but not infinite) that are perceived by an actor but are subject to the particular subjectivities or socialization of the individual. Within musicology (Windsor 2000, DeNora 2000; 2003, Clarke 2005, Nussbaum 2007), the ecological approach has provided a way into examining the intrinsic qualities of musical material, while allowing for a plurality of experi-

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ence in relation to musical reception. Such a threorisation avoids neat and reductive prescriptions of meaning relating to a given musical text and brings to the fore the importance of understanding *the way* in which music is experienced and *by whom*. Here, music is seen as possessing certain existent qualities that afford particular uses to the perceiver in terms of action, feeling or use.

Whilst these studies tend to be concerned with musical reception and use, the concept of affordance provides a useful way of examining how musicians, producers and sound artists handle sonic material within their working processes. What I want to take from the concept is that the sounding object has certain inherent acoustic constants that contain latent actionable properties. A sound's materiality; that is its specific combination of pitch, frequency range, timbre of a given sound afford a number of differing responses that may be physical, semiotic, musical etc. Thus, the term affordance within this article refers to the action consequences of perceiving a particular sound. These affordances are finite in that they are a mediation between the sound's physical properties, the habitus of the artist and the field in which they are situated. In other words the materiality of the sounding object is an immovable starting point from which creative action evolves. Drawing this approach into a Bourdieuian sociological understanding of creativity helps to map how the sounding object, the individual and the field are imbricated within the creative process. What I want to suggest here is that during individual acts of creativity these elements combine in a kind of simultaneous perceptual framework through which creative action is taken. Here, the properties of the sounding object, the generic/institutional conventions of a the project in hand, the artists' accumulated working methods and ideas about creativity are all held in immediate consciousness and overlap in the decision making process. In order to give some empirical purchase to this, the article uses the *Spectacular Suburb* project and interviews with Herbert and Watson to outline how affordance structures relating to particular sounds are the product of the materiality of sounds themselves in relation to a nuanced set of social, technological and discursive conventions.

The Spectacular Suburb Project

The immediate social context for the project was as a commissioned piece that was part of a wider arts agenda related to a specific geographical area. It formed part of a series of events by the electronic music promoters and audiovisual artists Hive Collective (of which the author is a member), funded by the UK city of Liverpool as part of the celebration of its tenure as the European Capital of Culture 2008. Under the banner of *Hive Twilight City*, we staged a series of themed events that were designed to reflect and respond to the city through electronic music and audiovisual performances and live art events.[1] *The Spectacular Suburb* was the third

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of series and involved the commission of two new sound works that were presented in a single final event. The initial inspiration for this project came from our own experiences of a specific location: Crosby beach, located five miles north of the city centre in the suburbs of Waterloo and Crosby. The beach is the first open shore adjacent to the city and is situated beside the Port of Liverpool (one of the largest working cargo ports in the UK). In 2005 Anthony Gormley's sculptural work *Another Place* was installed on the beach, consisting of 100 cast-iron, life-size standing figures modelled on Gormley's own body situated across over a mile of the foreshore. The figures are positioned looking out to sea at different distances from the shoreline and many become partially or wholly submerged as the tide comes in. The intersection of something so powerful with the quotidian arena of the suburb and the working life of the city struck us as having a great deal of potential for a series of commissioned sound works. Also the fact that this relatively wild place existed in the city provided an interesting contrast with the other projects we were commissioning throughout the year which were generally reflective of the city's industrial heritage, its shift towards the service economy and its post-industrial future.

Fig I. Anthony Gormley's Another Place at Crosby Beach looking towards New Brighton

At the outset of the commission, informal discussions took place with the artists about how the project would unfold. The project would take the soundscape of the beach as its starting point but Watson and Herbert were given free reign to respond

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in whatever way they saw as appropriate. While they would work separately on their individual pieces, they also met in the early stages of the project while the sound recordings were being made. However, despite the looseness of the brief, its very nature provided a particular set of creative limitations. Given the remit of the *Spectacular Suburb* project there were certain intrinsic elements within the sound world of the recording location that were inescapable such as the sea, wind, rain, bird and insect life, and peripheral industrial sound from the adjacent Port of Liverpool. The sonic make-up of these sounds can be understood as providing a set of invariant properties (in terms of texture, frequency, tone, pitch, length, timbre, etc.) that in this case provided a necessary starting point for creative action. As Herbert commented:

> When you work with sound... it becomes quite clear that you have very little control and actually what you get back it's, erm, quite a zen process. You have to record what's there, you can't record what you'd like to be there and you can't record what you think it would sound like. You have to work with what's there. (personal communication 13/09/08)

When encountered within the locale of the beach itself, these invariants in sound offer certain affordances that might be acted upon in various ways according to their place within the environment. These sounds clearly have actionable properties outside of the structural context of music. Particular sounds have distinct physical qualities that are perceived as meaningful or actionable depending on where, and by whom, they are experienced (see Oliveira and Oliveira 2002, 8). The sound of wind and rain might afford movement or shelter for personal safety, waves and tide might afford spatial positioning on the shore and these and other natural sounds might afford visual attention.

Of course, when taken out of their original environment (through recording and mediation within sonic art and music) such sounds become 'non-veridical' (Windsor 2000, 17) in that they do not inform the perceiver about their immediate environment. In addition, within the context of an artistic work they become aestheticised, in that they are mediated through the conventions of a particular artistic genre and thus afford a differentiated mode of listening. This does not mean that the actions afforded by sound in its immediate context do not have an affect upon the creative process. Just as work within experimental psychology has suggested that within auditory perception electronically mediated sound retains a key relationship to probable cause, spatiality and gesture (Gaver 1993), so also sonic material can retain a residue of its original affordance structure when abstracted through needs of creative action. Similarly, Tarasti's (2002, 49) application of a Piercian semiotic model notes that the uses of 'noises' in music are clearly examples of 'first articulation' in that they 'have a certain denotation on the basis of their recognition'. In other

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words the 'real world' relational properties of a sound are clearly apparent within listening. This is not to say that once a sound is mediated through recording it carries with it the same set of affordance structures, rather that they are implicit even in their mediated form. If everyday sound carries spatial and actionable properties, when such sound is appropriated within music it carries with it the residue of the relational aspect of such affordance. The implications of this difference have of course, been the subject of a central debate within electro-acoustic music since Schaeffer's (1966) original demarcation of the acousmatic as fundamental principle within the apprehension of recorded sound. The aesthetic implications of Schaeffer's theorisation have been discussed in great detail elsewhere (Wishart 1986, Emmerson 2007, Kim-Cohen 2009) and it is not my intension to rehash these debates here. Rather, it is the suggestibility of sonic material in terms of compositional trajectory that is more pertinent to the present discussion.

Fig II. Chris Watson undertaking field recordings. Crosby beach July 2008. Copyright, Mark McNulty.

Within *the Spectacular Suburb* this was most apparent in the overall thematic and affective response by the artists to the individual place. At the heart of both artistic responses was an engagement with and reaction to the physical environment in which the field recordings were made, and crucially, the specific conditions in which they were recorded. On a fundamental level the conditions during the week

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of recording presented Watson with a particular set of sonic properties which in some ways confounded his preconceptions:

> After the initial invitation I had to choose a time to come over here and I chose summertime as I thought there would be enough of a hangover of the sounds of Spring... But when I got there the weather was really hardcore... I was really interested in getting insect stuff as I was interested in what Matthew could have done with these tiny sounds but you couldn't hear them... So [through necessity] I turned my attentions to the things larger scale, the obvious one being the rhythm of the tides. (personal communication 13/09/08)

Here, the seasonal specificities of the environment (in terms of present sound and what could and could not be recorded) provided an immovable set of acoustic properties in terms of frequency range and amplitude which, through their recording, were turned into the sonic building blocks of artistic possibility. This finite sonic range was necessarily translated according to the conventions of music and sound art. At the same time, the actionable properties of the sounds in their environment (and in turn the affordance structures connected with place) provided a primary semiotic resource that fed into the overall theme of the artistic responses. In addition, both artists expressed surprise at closeness of the suburbs to the beach, and the fact that a relatively wild and dangerous place was in such close proximity to the suburbs, a fact which ultimately shaped which sounds they chose and the form of the eventual pieces. As Watson commented:

> As I spent time there that week... it's quite a dangerous place and I liked this idea of it's a place where you can go with your partner or your family or your friends to just hang out and have an ice cream... but it's a place in transition you know. That place in between the tides I think is one of the most hostile environments on Earth. So because of the conditions we decided to explore a bit more of that [within the work]. (personal communication 13/09/08)

In this way the sonic properties of the beach and the 'first articulation' afforded by those particular sounds went on to influence the wider structural and experiential properties within the final works. The idea of the tidal patterns of the beach and its inhospitable nature for humans[2] became the central structuring feature of Watson's installation and informed how the work was designed to engender a specific sensory and narrative experience for the prospective audience. Of course, the very mediation of the sound sources perhaps necessitates a version of the primary affordances of sound which deliberately maintains traces of their veridical sense. As Chattopadhyay (2012) notes 'sonic interaction with a locative environment cannot limit itself to *registering* aural information, but responds by *giving shape* to the information as a sonic construct (in the form of a soundscape) that provides the aural perception of the location' [my emphasis].

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Genre and Field

This sense of the shaping of information is always a bi-directional process in which representation is implicitly tied to what is already there. Both artistic responses of the *Spectacular Suburb* were bound by the sonic limitations of the environmental soundworld and fundamentally shaped by the sonic possibilities afforded by them. At the same time these sonic invariants were ultimately framed by the representative conventions of the artists' respective fields. Watson's installation truncated a full tidal cycle into thirty minutes played through a 12 point ear level sound system, the positioning of which replicated the physical journey from land to sea thereby representing and shaping the aural character of the environment. The installation was presented in a rectangular performance space where audience members could circulate and could hear different channels of sound through doing so. Listeners who were at the front of the performance space became progressively engulfed by the sound of the tide whilst those at the back of the space remained sonically 'on the beach'.

The sounds of the beach were an essential structuring factor of Watson's final piece but the particular method of representation was necessarily linked to the nuances of its particular cultural field. The technological mediation (through the use of a separated multiple speaker sound system) has become one of the normative representative modes of sound art. In addition, the conceptual framing of the piece was very much in keeping with the predominant aesthetics of the field. As various critics have pointed out (Ouzounian 2006, LaBelle 2008) sound installation has been characterised by a concern with spatiality and that a common strategy of sound art has used spatialisation to emphasise the 'acoustic effects produced by controlled projection of sound sources' in order to 'stimulate the spectator to understand acoustical phenomena that are not usually taken into account' (Campesato 2009, 29). Thus, we can see the particular utilisation of sound within the piece as an articulation of both the actual place, Watson's individual career trajectory and the situation of his creative practice within a particular set of institutional practices. The creative act therefore is a negotiation between source, sound, individual and a set of institutionally prescribed rules (with regard to form, medation and aesthetics).

This very specific creative and social framing is indicative of how the intrinsic qualities in sound are acted upon in nuanced and complex ways. Sounds are resources upon which action is taken, dependent upon the social and cultural positioning of the artist. This is similar to the way in which DeNora (2003, 154) suggests a complex contextual framework for listening. Particular discursive conventions, biographical associations and other contextual factors necessarily intersect with what she calls the 'features of the musical event'. Similarly, sonic material may present certain invariants, but any creative response to these properties are subject to

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an actor's position in terms of the artistic field in which they operate, generic and aesthetic conventions and their engagement with certain technologies.

Herbert's eventual 25 minute piece, performed with the British jazz guitarist David Okumu, echoed the linearity and conceptual grounding of Watson's work but responded to the brief in a way which led to a very different outcome. The first section set up a series of rhythmic patterns constructed from the sounds of human industry reflective of the beach's position on the urban fringe. The sound of a distant reversing lorry and ambient hum from the nearby wind farm was used in the development of a rhythmic core, overlayed with subtle water noises taken from hydrophone recordings before the introduction of a singular gull call on the first beat of each bar in the service of rhythmic progression. The section concluded with a gradual build in industrial hum before breaking down to introduce the second section of the piece. The second section utilised bird noises to construct harmonic and rhythmic elements. An initial sparseness was gradually embellished through the introduction of similar elements, the digital manipulation of individual samples through techniques such as beat splicing and an improvised interplay with Okomu's guitar. After a series of such sections the piece gave way to swathes of tidal noise that gradually built up from within its musical architecture, again engulfing the audience with a wall of sea noise.

Listening to this piece can one can clearly situate it in relationship to Herbert's personal trajectory as an artist. It is a synchretic actualization of differing institutional practices and aesthetics. The work loosely drew upon the narrative structure that has been identified within electro-acoustic music (Wishart 1996) whilst its overall progression was in keeping with the dynamics of a rock performance or DJ set. Its rhythmic structures, uses of washes of timbre to create 'builds' and 'breakdowns' were clearly reminiscent of electronic dance music. Each of these elements demonstrates an approach to the original sounding object (the initial field recordings) refracted through the multiple prism of the artist's own experience. From a background in drama school (where he became interested in the history of the sonic arts and various strands of art theory) Herbert went on to initially make his name in techno before becoming known for conceptually driven projects which blended musique concrete with more pop music sensibilities. He has gone on to become a successful pop producer and film composer.

Each of these biographical elements and interactions with differing musical fields are central in constructing the individual creative space (Toynbee 2000), that is the particular socially constructed terrain, in which the artist operates. Toynbee (2000) sees creativity within popular music as being a product of the intersection between the artist's habitus of socially constructed subjectivities and the historical fund of practices, that is, the textual forms and codes that make up the field of works. This 'creative circle' acts as a synchronic model for trying to explain creative choices.

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Individual decisions are made according to a 'space of possibles' (Bourdieu1993, 64), a set of objective potentialities where, dependent the habitus of the individual, certain choices are more likely than others.[3]

Taken as part of an ecological approach these observations are highly useful as they allow for an examination of how the materiality of sound intersects with subjectivity and field. If the creative field and the historical fund of practices permeate the decision making process throughout the production that goes towards a final artistic work, this has fundamental consequences for how sonic material is handled, that is, the way in which the properties of individual sounds are experienced and put into action. The intrinsic qualities of sound become positioned within a wider (internalized) understanding of form and artistic convention. The creative possibilities afforded by the invariant properties of the sound become subject to a process of constant mapping across a projected framework of what a resultant work might be, how it is distributed and who the audience might be.

Fig III. Matthew Herbert and David Okomu performing at the Spectacular Suburb event.

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Technology

Of course, the use of these sounds within the creative process is always mediated through the tools at an artist's disposal (such as recording, microphone, virtual studio technology and digital audio workstation (DAWs) technologies). The intricacies, interfaces and possibilities of these technologies provide a kind of perceptual frame that connects the individual with the sounding object in a structured way (see Prior 2009, Duignan et al 2010). In essence, choices that are made in the light of an artists' accumulated knowledge about what will work in a final piece is always mediated by the technology available. To take the example of field recording, whilst the recordist can only work with the sonic environment they might experience in a particular location in a particular timeframe, the act of recording is far from being a neutral process. Selection of what to record has to be understood in a matrix of a developed understanding of both technology and the creative possibilities those technologies may elicit. For example, Watson commented how he has honed his technique over the years leading to a finely tuned balance between ear and technology:

> I've become much more selective... I used to go and record for hours and then realised that I had to listen to it for tens of hours... [Now] I'm very careful where I put my hydrophones or geophones or microphones... I use my microphones and headphones... like acoustic viewfinders. [For the project] I spent the first two days just listening before I did any recording and then was very selective and careful. I mean there's still quite a wide ratio between what I record and what gets used. But it's now doable, I don't record hours and hours. I consider it more. (personal communication 13/09/08)

For Watson the immediate apprehension of individual sounds in situ was simultaneously positioned in relation to technical knowledge in a very nuanced sense. The ordinary and perhaps (usually) unnoticed elements of the soundscape were apprehended in relation to how they might intersect with a very specific piece of specialist technology (and the creative possibilities of that technology). For example, he related how the sounds of the human-made structures (such as aero and radar towers) of the environment suggested both technical and aesthetic possibilities and that he immediately recognised that 'some of the techniques I had with contact microphones on the metalwork of these things generated, to my ears at least, these amazing and very musical harmonic tones' (ibid.).

Similarly, Herbert commented that his assessment of the materiality of sound was constantly mediated by the types of technologies used in his everyday creative practice. His predominant way of working is through the use of samples and field recordings as the basis for building VST instruments. His accumulated knowledge of such technologies meant that the possibilities of the physical properties of sound

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were always relayed back this particular personalized framework. He noted that his orientation had led to a very fast and almost intuitive way of working:

> You kind of ride roughshod over it and you can even look at the waveforms and see like spikes or something like that. Chris sent 27 files and on average they're about 2 minutes each and it's like pretty much an hour's worth of recording. When you've an hour's recording to do and to pick samples from there and to create instruments from those samples there's such detail required in making the instruments themselves that you've got to get on with that in order to enable you to actually express yourself musically... when it comes to making music out of them you end up looking for very tiny little moments from which to pick out and amplify (personal communication 13/09/08).

These alignments of technology to ear can be thought of as a developed form of what Schmidt Horning (2004) calls aural thinking. Schmidt Horning points to the evolution of aural thinking by studio engineers who tacitly garnered a new skillset relating to listening as recording technologies evolved. These individuals developed the ability to detect and appraise sounds 'embedded within a dense matrix' (2004, 714), to evaluate what sounds or frequencies to screen out or keep, to understand how they will fit into a final recording in terms of the perspective of the listener and to appraise the overall aesthetic feel or 'aural architecture' of a recording. Whilst Horning is primarily concerned with recording personnel engaged in capturing the individual performances of musicians, the importance of developing aural thinking for electronic musicians and sound artists in the contemporary creative environment is even more acute. Sound synthesis, step sequencing and the selection and manipulation of samples constitute the core function of central technologies such as VST and DAWs. Hence, a tacit assessment of frequency, tone and end product is crucial in the compositional and production process for electronic music producers and sound artists. Producers have to learn to make fast and seemingly instinctive assessments of sonic materials: sounds which are then judged against their knowledge of a particular creative domain in a process whereby their prespective uses are cross-referenced with technological possibility.

Discursive Conventions and Creativity

At the same time, artists carry with them complex socially constructed notions *about* creativity that also have a key effect upon how they take creative action. Again this can be related to the intersection of habitus and field (Bourdieu 1977). For Csikszentmihalyi (1988, 327) one of the defining criteria of creativity is that 'any attribution of creativity must be relative, grounded only in social agreement' within particular cultural fields and is intrinsically routed in progression and innovation. What I want to suggest here is that the internalization of such discourses by

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artists creates a creative tension that acts as a yardstick in their productivity and ultimately effects how the materiality of sound is put into action. The drive to go beyond the merely generic, to produce work which is more than the sum of institutional and audience expectation, has fundamental material effects upon what artists actually do.

For example, in interview, Herbert moved very quickly from describing how significant elements of sound are identified as creatively interesting to how the process of organizing those sounds as music is subject to a broader idea of creativity within his given field. He commented that he found drawing direct rhythmic or harmonic or melodic inspiration from source materials as 'one of the most banal processes because it has a habit of appealing to my most conservative side, which is that you hear something that makes sense to you so you want to contain it to make a piece of music and you end up repeating familiar patterns' (personal communication 13/09/08). He went on to say that this was 'something that constantly depresses me about myself and my choices'. However, he immediately followed by explaining that a key part of his working process was to 'fight against these impulses' through the choices he makes. This reactive approach to the immediate 'musical' affordances of sound is significant. It is illustrative of how a socially constructed creative tension can act as an arbiter within the process, intersecting with the space of possibles (Bourdieu1993, 64), the affordances of sonic objects and how they are acted upon. Creative tension works in guiding the artist towards a mixture of the generic and immediately understandable, and less likely choices which mark out the work as original and maintain a sense of progression for the artist. All artists have to traverse a line between novelty and recognition. At the heart of this tension is the (prospective) listener. As Bourdieu has pointed out, even the most avant-garde of artists recognizes that their work must resonate with an audience even if this must be an 'alter ego' or ideal listener who is able to recognize the 'autonomy of the creative intention'(1971, 165). For Bourdieu the 'creative project is the place of meeting and sometimes of conflict between the *intrinsic necessity of the work of art* which demands that it be continued, improved and completed, and *social pressures* which direct the work from outside (1971, 167). It is in this way that such a creative tension forms part of the immediate apprehension of the sounding object and informs the way the creative decisions relating to sounds are mapped and monitored during the compositional process.

Thus, creativity is never 'merely' a case of pure 'self-expression', but is always socially situated and nuanced according to particular fields of production and consumption. Indeed, Hebert's comments provide an acute example of the way in which such social pressures underpin ideas surrounding what it means to 'be creative' per-se. As Frith (2012) has recently persuasively argued, the notion of creativity itself is a culturally relative construct. He notes that creativity is a distinct product

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of 'societies in which there is a particular sense of selfhood and the valorisation of the new. Creative freedom is not something that people naturally aspire to, as part of their humanity... in capitalist societies musicians are *constrained* to be creative, both culturally and as a matter of political economy'. This does not mean that such social constructions are any less powerful in spurring and guiding the experience of creativity. Rather, this situation within wider societal and cultural norms is one of a series of embedded relationships that characterise creativity more generally. This reveals something about the processes of working with raw sonic material for electronic music artists. One the one hand working with an open field of sound recordings in some way implies a freedom in terms of the timbral/textural palette. On the other, the boundaries of the genre in which one works, together with an accumulated understanding of the field of production, provides both a creative starting point and a creative spur that the artist struggles to transcend: a creative tension that drives the creative process.

Creative Consciousness

This tripartite of field, technology and discourse provide an experiential context in which the affordances of sonic materials surface. As we have established, individual sounding objects provide a primary material which give rise to differing socially dependent compositional trajectories. In short, sounds have a number of intrinsic properties which can be acted upon in differing ways. This has clear parallels with common mental processes that have been identified with the creation of music. For example, Sloboda's (2007) work on classical composition suggests the cognitive process of composition involves a gradual working out of a finished musical work from a primary individualating factor. For instance, a particular melodic factor might act as a starting point which is gradually worked into the wider structural 'rules' of a given form to produce a finished piece. Of course, in order to have the possibility of being worked into such a whole, sounding objects have to be perceived in a particular way. Being creative with sound requires an attuned perceptual response to sonic material. Within such an attunement, sounds are perceived in terms of their physical acoustic, material properties and in relation to the individual's habitus/relationship to field *in the moment*. As Clarke (2011, 200) notes, the act of perceiving music involves a coincident mixture of primary ('direct, dynamic, unreflective') and higher order ('self-conscious, autobiographical, referential') consciousness. Within the creative process both of these aspects of individual perception are centrally active in how sonic materials are put into action. The 'feel' of a sound might relate to its material qualities (such as amplitude or pitch) as they interact with the perceiver's body physically, but sounds simultaneously hold structural and semiotic possibilities.

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This attuned state can be thought of as one of concentrated attention whereby sonic materials are monitored in terms of their actionable qualities within a wider compositional framework. Interestingly, Herbert described the creative process as requiring a state whereby his relationship with sonic materials is one of 'openness'. He described the *Spectacular Suburb* piece as being a product of the individualating features and latent musical possibilities of the sonic materials in hand:

> All the harmony was all generated from... [the beach] a very simple tonality that was taken from the waves and the second [section] was taken from slowed down seagulls. So I didn't actively go out and look for these things it was just there already and it's a process of listening in a certain way. Being open is a central part of the process. (personal communication 13/09/08)

Of course, these musical affordances were not intrinsically *within* the sounds themselves. They were in effect, a product of Herbert's own higher order perception of those materials. Nevertheless, they were experienced as a unified whole. Later, Herbert reiterated the point reflecting that the way in which he worked was often being lost in 'a weird journey' which involved being totally 'open to suggestion' but ultimately 'acknowledging that it's an entirely subjective process' (ibid.). Both this idea of 'openness' and 'listening in a certain way' suggests a specialised occurrence differentiated from the everyday perception of sound: the kind of demarcated, differentiated experience that Dewey (1980) attempted to extricate from everyday perception as the aesthetic experience or simply 'an experience'. Such experiences have a qualitative unity as they are focused towards given outcomes. Furthermore, the idea of openness goes beyond an overtly rational assessment of the materials in hand towards the instinctive, the suggestive and intuitive, qualities which are often taken as synonymous with creativity itself. This is in keeping with Csikszentmihalyi's (1988) much cited concept of flow whereby the creative individual's mind is so attuned to a set of finely tuned processes towards a particular task that it is *felt* as self-perpetuating, auto-directed and immersive.

It is in this concentrated state that the creative possibilities of sound emerge. For instance, Herbert's described his working process as a search for the extraordinary:

> I think this a real aspect of working with sound. For me it's a constant journey between the ordinary and the extraordinary. Like I love ordinary sound ... But then of course you look for the extraordinary whereby you get... in a moment like tonight that you get a bird call at exactly the same moment that you get an industrial warning noise from over there so you get like this stereo of two different sounds going from two different sides and you get like this artificial harmonic, this extraordinary moment that happened. (personal communication 13/09/08)

Of course for most people the particular amalgam of sounds within the recording that Herbert describes would be far from extraordinary. It would be a fleeting

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part of our everyday soundscape that would most likely be ignored or would even fail to register. However, to the attuned ears open to creative possibility, within the heightened state of the demarcated creative experience, they become remarkable in terms of their potential. This particular tuning of the selective ear is, again, located at the intersection between field and affordance. The possibilities of a given sound always have to be refracted through what the producer already knows and how it will work within a given track or project. Prolonged exposure to and practice within the conventions of a creative field means that sonic affordances are subject what Leonard (2010) refers to as a wider 'creative consciousness'. In her analysis of oral histories with songwriters she notes how, through their situation within a given artistic field, the artist is constantly open to ideas and is subject to moments where everyday experiences are collected, collated, edited, given significance and assessed as to how they might sit within a given structural context (Leonard 2010, 169-170). For the digital musician/producer sonic affordances are similarly situated within an openness to creative possibility of the seemingly everyday refracted though a developed set of working strategies which are used to 'harness the products of mental play' (Negus and Pickering 2004,154).

Conclusion

This article has outlined an ecological approach to creativity. It has attempted to provide a model which accounts for the intersection of the material, the social and the subjective within the decision making processes that are central within the compositional process. Indeed, both the works produced for the *Spectacular Suburb* project and the processes that led to their realisation are illustrative of the multi-directional relationship between individual, culture and object. The ecological account outlined here is intended to place equal emphasis on each element of the creative process rather than isolating one singular factor as holding precedence over another. Indeed, the article has described how for artists working within the timbral traditions of electronic music and sound art, the creative process is essentially relational. It has suggested that the affordance structures relating to particular sounds are the product of the materiality of sounds themselves in relation to a complex matrix of technological, social and discursive conventions which fundamentally underpin how sound is put into action. The materiality of sound has perhaps surprisingly been absent from studies of musical creativity. The use of field recordings by the artists in this discussion clearly foregrounds materiality of sound itself within the creative process. However, across a wide variety of genres and practices the intrinsic qualities of sound provide the fundamental palette for creative work to begin. The timbral aspects of an acoustic instrument, the waveform of syn-

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thesiser patch and the particular frequencies of a given chord or snatch of melody all have a physicality affording differing creative directions.

The approach outlined within this paper thus offers a way of further developing an understanding of the *experience* of creativity within the sonic arts. As I have suggested here, the overlap between the physical properties of sound with field, discourse and an understanding of technology provides a perceptual space in which its individual factors combine in an instantaneous moment. Of course, as the biographical examples given in this paper have hinted at, this space is individually distinct and always subject to an artist's particular intersection of habitus and field: it is attuned and layered over time. Such attunement is highly important in the perceptual loop that constitutes creative consciousness. The immediate apprehension of the object within the creative act is fundamentally affected by the individual's biographical trajectory. An immersion within distinct cultural fields and technological amalgams (that is distinct and personalized uses of technology) gives rise to very particular modes of perception. These individualised perceptive elements go to make up the experience of creativity, a state marked off from the everyday that has very particular affective qualities.

Notes

1 The project was funded by the Heritage Lottery Fund through Liverpool Culture Company. Previous events had included a sound art/live art event in a local shopping centre where shoppers were invited to interact with the seemingly passive soundscape of their environment through portable electronic Theremin style instruments wired through the bodies of performers, an interactive concert with the German electronic producer Alva Noto, commissions of new work from various artists each responding to differing soundscapes within the city and an opening party featuring Shackleton, Jah Wobble, Jaki Leibziet of Can and Philip Jeck amongst others.

2 The beach has some hazardous areas of sinking sand that are revealed by the tide. Watson and Herbert encountered these sands when exploring the beach during sound recording.

3 This position is broadly in keeping with the production of culture perspective which suggests that artistic works and cultural products are fundamentally shaped by the institutions in which they are produced, validated and distributed (Becker 1982, Negus 1992, Born 1995, Peterson 1997). Work within psychology Csikszentmihalyi (1988) and sociology (Toynbee 2000, McIntyre 2008) sees the creative nexus as centred on the relationship between the domain (the knowledge system a creative individual uses), the field (the cultural spaces, peer group and institutions centered around the domain) and the individual agents who operate within these cultural spaces.

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