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Frisk, Henrik; Yoshida, Miya

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# New Communications Technology in the Context of Interactive Sound Art: an empirical analysis

HENRIK FRISK† and MIYA YOSHIDA‡

†Malmö Academy of Music, Lund University, Box 8203, S20041 Malmö, Sweden
‡Malmö Art Academy, Lund University, Box 17083, S20010 Malmö, Sweden
E-mail: henrik.frisk@mhm.lu.se, miya.yoshida@khm.lu.se

In this article we discuss the notion of 'interaction', 'participation' and 'the public' in artistic work, specifically within the context of the exhibition *The Invisible Landscapes* (curated by Miya Yoshida, Malmö Konstmuseum, 2003) and *etherSound* (created by Henrik Frisk), a sound installation displayed in that exhibition. In this work the audience is invited to participate in the creation of new sound events by sending text messages from their mobile phones. Thus, our discussion is focused on the space and the mode of participation opened up by new communication technology. Based on our experiences of that project, we introduce and explain what we believe are relations of creative production and a different kind of creativity that may emerge from active interaction. We also attempt to describe what we believe an implementation of active public participation can lead to.

We are combining two modes of thinking in this article; one is inspired by a discourse of cultural theories and the other by reflection on our experience of the event. The latter is, by definition, rather subject centred and expansive based on individual observation. We examine and analyse the phenomenon of 'participation' whilst playing *etherSound* as a process of creative production, and seek to reflect upon the power of the co-operative practice and its relation to participation and creativity.

## 1. INTRODUCTION

The notion of 'participation' has been widely discussed in the context of contemporary culture. In the visual arts, Marcel Duchamp opened up the space as an 'art coefficient' (Bourriaud 2002) and the happenings and performances in the Fluxus movement were theorised as spectator 'participation'. In the late 1970s a strong critique of the cultural institutions originated in the United States and Europe, but there was still a strong connection between social class and arts consumption (DiMaggio and Useem 1978; Bourdieu 1979). As the question of authenticity was raised in the 1980s, and the concept of site specificity came into focus, it influenced attempts to broaden audiences. In the 1990s, the emergence of a new public art and a trend towards 'Relational Art' (Bourriaud 2002), such as social service and banal daily events, and community-based art, made 'participation' a central issue for cultural production. The art activities briefly described above strongly suggests diverse interpretations of the notion of 'participation' and the necessity for constant reinterpretation of the term. What does 'participation' mean in the age of the Internet and mobility? Who can be conceived of as a participant? What does the factor of 'participation' produce?

With the popularity of communication technology and mobility, the definition of contemporary culture is transforming. Bataille conceived that a definition of culture is deeply related to the way society chooses to annihilate excess energy (Bataille 1989: 106). Applying his words to the networked society, the surplus is observed in the phenomenon of the excess volume of communication through new media, which eventually produces a new space. Furthermore, we can look at communication as a potential area for the emergence of a new culture that differs from the pre-existing categories and class hierarchies. Instead of an inherited cultural capacity in society, the flow of communication strongly impacts the cultural sphere and mutates the recipients and stimulates creative capacity. Although, in large part, much of the need for communication and the need for new tools for communication is created by economic interests, we argue that communication in a certain sense and under certain conditions can be considered as a new production of culture.

## 2. COLLABORATIVE MUSIC

Collaborative musical compositions and sound art have been realised in a number of ways and with different objectives. In the project *Norge et lydrike, Norway Remixed*, the curatorial idea was 'to bring the whole country together through sound', so 'the local branch offices of the broadcasting corporation' were supplying sound material 'in order to secure authenticity' and 'actively counteract speculations of centralisation' (Rudi 2003). In their article on *The Interactive Dance Club*, Ulyate and Bianciardi define the goals as: (i) 'to allow group and individual participation', (ii) 'create a compelling social environment', and (iii) to 'deliver the euphoria of the artistic experience to "unskilled" participants' (Ulyate and Bianciardi 2002).

These are just two examples in a very active art and music field. Though their respective aims are different,

they both share the intention to create a soundscape that can communicate a sense of solidarity, in the first case by introducing an awareness of the political, and potentially exclusive aspects of music-making already in the curatorial concept. By letting a large number of individuals supply the input, according to the article the work succeeds in creating a fabric of references valid to a large number of visitors and thus creates 'building blocks of culture' (Rudi 2003). In the second case the visitors are invited to actively participate in the familiar environment of a dance club. But instead of merely responding in this environment the visitors are invited to influence the music and imagery they are responding to, individually or collectively. Action performed is not the only end result but also the initiation of the next process.

Music-making has traditionally been tied to the physical space, whereas now, through the Internet there is a very active virtual space that has been explored for collaborative work in sound (see Duckworth 1999; Jordà 1999; Barbosa 2003). To invite even amateur performers to collaborative in music-making is a complex matter, but it is also an agency for opening up the creative process, and participation is a step towards interpretation and perceptiveness, or as put by Jordà: 'the best way to understand and appreciate any discipline [. . .] is by "doing" and being part of' (Jordà 2002). The main intention with the collaborative element in *etherSound* was to let the desire to participate be the driving force, and the challenge therefore was to design an interface that was as open as possible to anybody who wished to take part.

## 3. THE DESIGN OF *ETHERSOUND*

The idea of making *etherSound* a piece that required active participation from the public grew out of the early discussions surrounding the development of the general concept of the curatorial project, *The Invisible*



**Figure 1.** The space at Malmö Konstmuseum where *etherSound* was first realised.

*Landscapes*. *etherSound* was first imagined as a sounding body that derived its control from non-active participation, specifically from data about activity in the GSM network surrounding the exhibition space. Facing difficulties regarding issues of information security, it became clear that mobile phones could successfully be used in order to let the public interact with the sound much more actively. *etherSound* adopts the mobile phone, maybe the most popular device amongst the new tools for communication, and opens a participation channel to the public.

The principle idea behind *etherSound* became an attempt to design an instrument that could be played by anybody who had the knowledge to send an SMS (Short Message Service) from their mobile phone. In the version displayed at *The Invisible Landscapes*, all messages sent to a specified number were received by an Internet server, parsed for its content, the phone number it was sent from and the date and time it was received. This information was written into a database which was queried at regular intervals by a computer running a control and text analysis application (written in Java [J2SE 1.4.2 2004; J2EE 1.4.1 2004]) and the sound synthesis software (Max/MSP [Zicarelli 2001] running a Csound orchestra [Boulanger 2000]). For every new message, the data was downloaded, processed and analysed by the control program, turned into control signals which were then sent to the sound synthesis engine. Every message generated one sonic object that would last for up to two minutes. The response was very direct – a received SMS would result in an immediate and perceivable change in the sound. *etherSound* was tried in two different modes: as a stand-alone interactive sound installation, and as a vehicle for improvisation. In the latter, one or several performers improvised along with the sounds of the installation while the audience contributed actively to the performance by sending text messages.

In this work the mobile phone is the interface to the sound production and to the distribution of sound events. The way the mobile phone is used here, as a text-only input interface, is rather limited and much of the rest of this article evaluates the advantages the mobile phone has, despite its limitations as a text input interface. If the only purpose of *etherSound* was to allow users to input text that would be transformed into sound, installing a computer with a keyboard that would allow visitors to post messages on site would conceivably be technically less complicated. Another solution, more dynamic than the one we chose, would have been to implement a voice interface that allowed for true real-time interaction similar to that of the *Auracle* project (Freeman, Ramakrishnan, Varnik, Neuhaus, Burk and Birchfield 2004). Although this last option was considered, such a solution would need a technical and financial framework that was beyond our scope.

## 4. COMMUNICATION, TIME AND CREATIVITY

It has been suggested that young people's (specifically teenagers) use of text messages (SMS), call credit and mobile phones themselves can be interpreted as a form of *gifting*: 'We will contend that these gifts are exchanged in performances that have specific meaning in young people's daily lives and are played out with the intent to cement social relationships' (Taylor and Harper 2003; see also Mauss 1990). In other words, text messages have a meaning to the sender and the recipient that transcends the actual content or meaning of the message. This is, in more than one way, in accordance with how the messages sent to *etherSound* were used. The content of the message as such is not transparent in the resulting sound object, only the general outline of it (the length, the composition, the number of syllables, etc.) and every message is 'rewarded' with sound; the gift is always returned. To further develop the meaning of the returning of the 'gift', the temporal aspect of *etherSound* needs to be considered.

There are two time frames at play in *etherSound* which bear immediate significance to this question, and they are described here, borrowing terms from Curtis Roads' table of temporal hierarchies in music (Roads 2001: 3): (i) The 'meso time scale' which constitutes the single message and the resulting sonic events; the mapping between the message and the sound is linear and relatively consequent; (ii) the 'macro time scale' which is the time from when the installation was started to when it ends. It is within the meso time scale that the relation between the object and the participant is established, and it is in the dynamics between the meso and the macro time scale that the 'returning of the gift' has crucial significance. It constitutes a receipt of the contribution; a sonic confirmation that the message has been received. This kind of immediate response is important in order to avoid a sensation of exploitation in the participant: their time, energy and, in the case of sending text messages from mobile phones, their money, are not used to fulfil our own opaque objectives hidden to the participant, but result in a palpable response with a value of its own. This is the main reason a clear causality between input and output in the meso time scale is aimed for. Therefore, some effort has been invested in making each sound object a closed-form musical composition in its own right. However, as soon as the sound object begins to play back, it transmutes into a player in the macro time scale, in which there is no preconceived musical form but where the indeterminacy of collective efforts is the main factor. It should be noted that the relation between the closed form of the meso time scale and the indeterminacy of the macro time scale is not unproblematic, and that this should be an area of further development.

In the age of mass information, consumerist ideology and market segmentation strategies, individuality is at stake. Laura Martz asserts that 'the spectacle steals every experience and sells it back to us, but only symbolically' (Martz 1994),[1] but we believe it is fair to assume that the desire for personal and individual expression among the general public and the wish to exercise influence has not vanished. As we will discuss later, individuality taken too far can be a problem in the context of an interactive collaborative work such as the one discussed here, but it is also an asset. Along with curiosity it is an incitement for wanting to participate, provided that the action invested results in a perceivable stimulus.

The clear causal relation between the action invested and the sounding result is a way of giving the participant an experience of involvement that ultimately could lead to a wish to further explore the causality of input and output, and give a sensation of understanding. The suggestion by Taylor and Harper that mobile-phone-originated text messaging is already used in some circles for social interaction indicates that the mobile phone is indeed well suited as an interface for interactive art work, where the creativity of the participant is the object.

## 5. TECHNOLOGY, COMMUNICATION AND UNDERSTANDING

Concerning the ideology of audience broadening, Mary J. Jacob argues that public participation in the
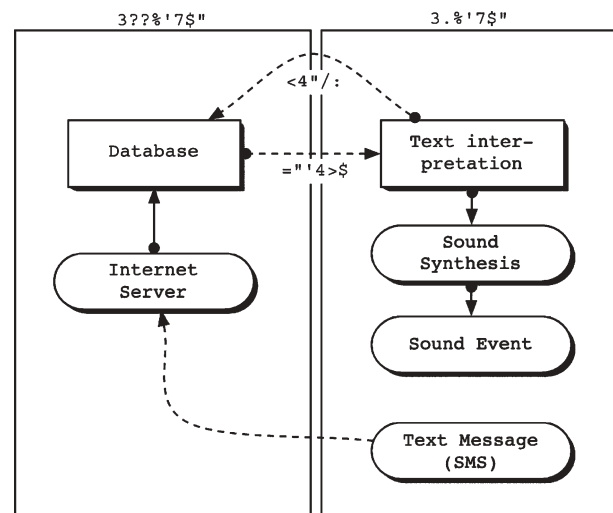


**Figure 2.** Diagram of the system for receiving and processing incoming SMS messages.

[1]Martz uses the term 'the specatacle' with a reference to what Guy Debord and the situationists called 'the society of the spectacle' (Debord 1967) which includes commodities, art as commodity, the mass media and the entertainment industry.
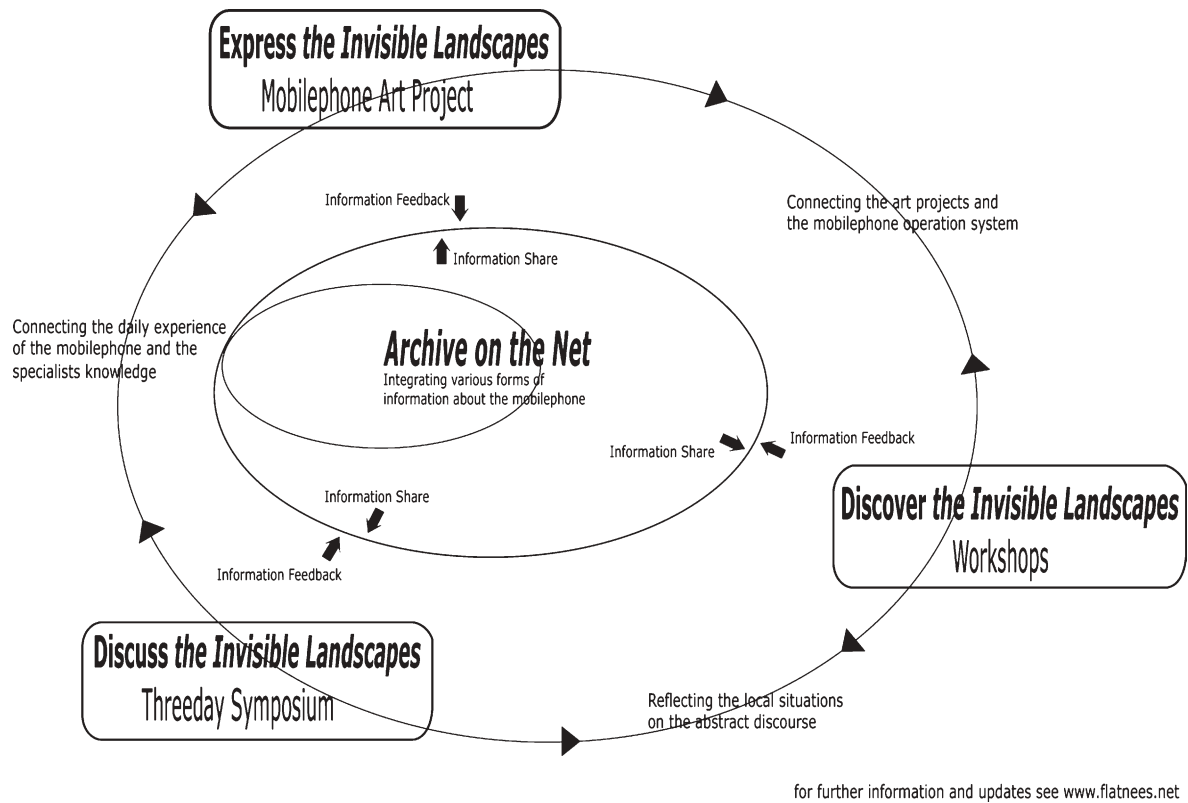
**Figure 3.** Map of events for the project *The Invisible Landscapes*.

public art of the 1990s never achieved this (Jacob 1995: 59). Her arguments have a point, but in order to evaluate the processes at work in our project we need to consider the social dynamics of new communications technology. As has already been stated, mobile communication is no longer a luxury reserved for the privileged classes, but accessible to most citizens in the Western world. It may be proposed that luxury today is to *not* be accessible, a luxury that only the secure, upper classes can afford.

About ten years ago, in the early ages of email communication, it was seen that the nature of the medium had effects on group dynamics:

> Advances in computing and telecommunications technology are changing how people can meet and make group decisions. Technological changes help people cross physical, social, and psychological boundaries and have secondary effects on group behaviour and decision making. Experiments show that compared with face-to-face meeting, a computer-mediated discussion leads to; delays; more explicit and outspoken advocacy; 'flaming'; more equal participation among group members; and more extreme, unconventional, or risky decisions. (Kiesler and Lee 1992)

Whether this is also true for SMS communication is a matter of speculation, but it suggests that the means of communication has far-reaching consequences

that need to be considered when designing interactive interfaces for public art.

We believe that advanced technology designed for the consumer market, such as the cellular phone, lends itself well to the purpose of public interaction and may also help to counteract the tendency for art to turn itself to the already initiated. What Walter Benjamin (Benjamin 1968) calls the 'advent of mechanical reproduction of art' has, according to DiMaggio and Useem, along with other things, 'resulted in a tendency for culture interests to diffuse across class lines' (DiMaggio and Useem 1978). Benjamin writes:

> Around 1900 technical reproduction had reached a standard that not only permitted it to reproduce all transmitted works of art and thus to cause the most profound change in their impact upon the public; it also had captured a place of its own among the artistic processes. (Benjamin 1968)

What will be the impact upon the public of the new tools of distribution of text, audio and images and what will be the role of the present day technological devices used for communication within the spheres of creativity and art production? It may not be possible to answer these questions for many years, but we feel it is of great interest to evaluate and experiment with the use of these tools within the realm of artistic and creative expression.

**Figure 4.** Henrik Frisk and Peter Nilsson improvising along with *etherSound* at the exhibition *The Invisible Landscapes.*

It may be presumed that consumer market technology, for economical reasons, is designed to be accessible to as many people as possible within the target segments assigned by the production companies. The vast popularity of the mobile phone, despite its technological level of complexity, coupled with the recent price drops of service charges suggests that, for mobile phones, this is true. However it should also be noted that certain segments of Western society (notably senior citizens) and the developing countries are still locked out from, and largely ignored by, this communication revolution. This taken into consideration, the dynamics of mobile phone usage and accessibility nevertheless seems to be of a different class than that of traditional culture consumption. If this holds true, constructing an interactive interface to an art work based on the use of mobile phones can potentially open the work to uninitiated groups of the public.

## 6. CREATIVE PRODUCTION AND SPACE

Even though *etherSound* is not site specific in the traditional sense, it may still be regarded as such since it follows the logic of the flattened non-space of telecommunication. The phone is tied to a virtual space and *etherSound* exists within this space as it is delimited by the group of people interacting with the installation at the very moment interaction takes place. As a result, the context is *not* the gallery space, but the curatorial idea that delineates *The Invisible Landscapes.*

As we have discussed, the emergence of mobile communications, the Internet and the technological devices that are used to interact on these networks, has the potential to change the nature of (social) participation. Now, participation takes place as an extension of everyday acts. At its best, it does not matter if it is manifested and glamorised as a single, unique and individual voice. It is not strained and it is not in a pedagogic mode, but rather follows a mode of pop culture. It abandons the rational individual and puts emphasis on the collective in a typical Durkheimian fashion. We could say that this new form of participation, consisting of clusters of anonymous random acts, empowers a new structure for creative corporeality which is never fixed within predetermined conditions but is more reminiscent of a flow. We want to suggest

that it holds potential as a new coefficient of an autonomous agency of creativity.

The boundary between public and private in mobile phone communication is not a straight line and cannot easily be defined. If we take into consideration the fact that it is possible to track the location of a mobile phone, we may even go so far as to say that privacy ceases to exist the moment one's mobile phone is turned on. But mobile communication also makes possible a certain kind of private interaction in the work domain as well as in public spaces. In their article, Taylor and Harper (2003) list a number of circumstances where public infringes upon private and vice versa. It may be suggested that the space for mobile communication cannot be distinguished as private *or* public but creates a new space with its own set of attributes. Taylor and Harper write:

> The phone and its contents, if you like, allow young people to differentiate themselves from family or household relations as well as cement their own social networks. The phone allows the young person to withdraw from the world of the home, for instance, and establish a 'microworld' through the system of exchange that young people employ. (Taylor and Harper 2003: 292)

In *etherSound*, a private act, the composing and sending of a text message from one's own phone, is transformed to streaming sound in public. Even though the content of the message remains hidden in the public sphere, the processes it sets in motion takes place publicly and may set in motion another private act. What was originally private, and maybe even meant to stay private, affects the public space and consequently, the participants share both the physical and the imaginary, and the two feed off one another.

## 7. AUTHENTICITY AND INTERPRETATION

Active public participation raises a series of questions about authorship. Who is the composer and who is the performer? Who is the originator? Who is the commissioner? In *etherSound*, the creator of the piece can very well be said to be the commissioner, and the participants, supplying the input, the originators and the curator the orchestrator. Or, the curator may be perceived as an originator, the audience as the performers

and the creator as the commissioner. We believe it is impossible and of no use to impose pre-existing roles on participants. Ultimately, the hybrid role created by different levels of involvement should be in a state of flow in this work. The coefficient of plural roles in one individual temporarily appears and disappears in a subtle and sensitive balance which, in every performance, will be different. It is 'onceness' created by a new coefficient through SMS participation.

Experience made from presenting *etherSound* at a music festival is testimony to the difficulty in achieving this and of the importance of context.[2] Musical performance is surrounded by old and established traditions which imply a rigid definition of the author. However, since the roles of the players involved in *etherSound* are interchangeable, confusion arose as to what the music consisted of, which in turn resulted in some performers doubting the validity of their participation.

Participating in *etherSound* through SMS is an action started from an individual initiation at the bottom level that influences the whole. The totality will further lead participation to an unpredictable outcome. It indicates the power of the situation and the multitude (not an individual) as factors of creativity. Thus, the attitude of conviviality naturally directs authenticity of the work in a more flexible manner. There is no obvious author to credit, and this opens up to a new form of authenticity, even in relation to contemporary culture.

As has been noted, the content of a given message is not revealed in the public sphere except as an abstract series of sonic events, and furthermore the audience is not informed of the mapping between the message and the sound event it generates. This unkown relationship between the SMS and the sound composition coupled with an expectation of reflectivity stimulates the imagination of the participant and navigates them towards a more careful attention to, and translation of, the sound. This is consistent with Guy Garnett's analysis that:

> (. . .) music can be roughly considered to be sounds made with aesthetic intent, or even sounds listened to with aesthetic interest. The former gives more weight to the role of the creator, while the latter formulation tends to privilege the listener. (Garnett 2001)

Hence, content is not only a result of a compositional process, but of public active participation, and in that sense there is nothing to 'understand' in *etherSound* unless you participate. However, if you do participate, understanding the resulting sound is not dependent on a thorough insight of the history of art or electronic music following the idea of the 'telematic' piece:

> (. . .) the observer in an interactive telematic system is by definition a participator. In telematic art, meaning is not something created by the artist, distributed through the network, and *received* by the observer. Meaning is the product of interaction between the observer and the system, the content of which is in a state of flux, of endless change and transformation. (Ascott 1990)

## 8. CONCLUSION

Having discussed the positive effects that portable communication devices can have in the context of public art, it should be mentioned that this mainly holds true in the Western world. Access to technology and its uses can easily be taken for granted, but for certain groups, even in the Western world, it is not self evident how a mobile phone and all its options are operated, and tangled within this is the danger of a new kind of class hierarchy based on knowledge of, use of and access to communications technology.

In this project we have shown that the cellular phone, and its owners' ability to send text messages from it, can successfully be used as an interface for public interaction. We also believe that, given our intentions, the SMS interface has some advantages compared to other possible solutions. From a practical angle it is widespread, comparatively simple to use, it is private and it is surrounded with a large framework that makes it easy to integrate in an artistic work. In addition, in the Western world, it has already coalesced into our private and professional lives and has become a tool for social interaction. Participation can *per se* open up the work to groups of people not familiar with contemporary sound art and an interactive interface built around the mobile phone may contribute in some degree to neutralising the class hierarchies in arts consumption.

Even though interaction with *etherSound* stems from an individual wish to participate, the interface and the system centre on the public rather than the private. This transformation from private to public opens up a new sensation of space and an auspicious and dynamic impression of creativity. Moreover, we have suggested that communication itself is a corresponding form of creativity.

A thought that was never implemented, due to lack of funds and technical equipment, was to, in addition to the location-specific installation, stream the sound on the Internet. This would allow for groups of people that, for various reasons, did not have access to the location of the exhibition hall to participate, and it would greatly expand accessibility. Further, it would be interesting to try to allow for greater depth in the system and for 'expert' performance. However, this would have to be done with great care in order not to lose the collective focus.

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[2]*Elektrisk Helg*, arranged by Ars Nova, held in Malmö, Sweden in April 2004.

## REFERENCES

Ascott, R. 1990. Is there love in the telematic embrace? *Art Journal Computers and Art: Issues of Content* **49**(3): 241–7.

Barbosa, A. 2003. Displaced soundscapes: A survey of network systems for music and sonic art creation. *Leonardo Music Journal* **13**: 53–9.

Bataille, G. 1989. *The Accursed Share*, volume 1. Urzone, Inc.: Zone Books.

Benjamin, W. 1968. The work of art in the age of mechanical reproduction. In *Illuminations*. New York: Schocken Books.

Boulanger, R. (ed.) 2000. *The Csound Book, Perspectives in Software Synthesis, Sound Design, Signal Processing and Programming*, 2nd edition. MIT Press.

Bourdieu, P. 1979. *Distinction: a Social Critique of the Judgement of Taste*, translation by Richard Nice. Harvard University Press.

Bourriaud, N. 2002. *Relational Aesthetics*. Paris: les presses du reel.

Debord, G. 1967. *Society of the Spectacle*. Zone Books, MIT Press.

DiMaggio, P., and Useem, M. 1978. Social class and arts consumption: The origins and consequences of class differences to the arts in America. *Theory and Society* **5**(2): 141–61.

Duckworth, W. 1999. Making music on the web. *Leonardo Music Journal* **9**: 13–17.

Freeman, J., Ramakrishnan, C., Varnik, K., Neuhaus, M., Burk, P., and Birchfield, D. 2004. Adaptive high-level classification of vocal gestures within a networked sound instrument. In *Proc. of the Int. Computer Music Conf. 2004*. ICMA.

Garnett, G. E. 2001. The aesthetics of interactive computer music. *Computer Music Journal* **25**(1). MIT Press.

J2EE 1.4.1. 2004. *Java Enterprise Edition, API Specification 1.4.1*. Sun, http://java.sun.com, 1.4.1 edition.

J2SE 1.4.2. 2004. *Java Standard Edition, API Specification*. Sun, http://java.sun.com, 1.4.2 edition.

Jacob, M. J. 1995. Unfashionable audience. In *Mapping the Terrain: New Genre Public Art*. Bay Press.

Jordà, S. 1999. Faust music on line: (fmol) an approach to realtime collective composition on the internet. *Leonardo Music Journal* **9**: 5–12.

Jordà, S. 2002. Fmol: Towards user-friendly, sophisticated new musical instruments. *Computer Music Journal* **26**(3): 23–39.

Kiesler, S., and Lee, S. 1992. Group decision making. *Organizational Behaviour and Human Decision Processes* **52**(1): 96–124.

Martz, L. 1994. Free time! ludicity and the antiwork ethic. *cultronix*. http://eserver.org/cultronix/01/

Mauss, M. 1990. *The Gift, the Form and Reason for Exchange in Archaic Societies*. W. W. Norton.

Roads, C. 2001. *Microsound*. MIT Press.

Rudi, J. 2003. Norge et lydrike, norway remixed: a sound installation. *Organised Sound* **8**(2): 151–5.

Taylor, A. S., and Harper, R. 2003. The gift of the gab?: A design oriented sociology of young people's use of mobiles. *Computer Supported Cooperative Work (CSCW)* **12**(3): 267–96.

Ulyate, R., and Bianciardi, D. 2002. The interactive dance club: avoiding chaos in a multiparticipant environment. *Computer Music Journal* **26**(3): 40–9.

Zicarelli, D. 2000/2001. *Max/MSP, Manual*. Cycling 74, IRCAM, http://www.cycling74.com/products/maxmsp.html, 4.2 edition.