

# Considerations in the use of Computer Technology in Contemporary Improvisation

## Are Computers Musical Instruments?

Cesar Villavicencio

Departamento de Música – Escola de Comunicações e Artes – Universidade de São Paulo

Email: cesar@cevill.com

*Music has always had close ties with the development of instrumental technology. Although today computers hold an important role in performance practices, there are some issues regarding the physicality of musical presentations that need to be discussed. This paper focuses on some aspects involved in the use of computer technology today in the performance of music improvisation. Borrowing information from cognitive and aesthetic sources, it presents the idea of the necessity of developing instrumental interfaces for performing music with computer technology, arguing that sponsoring collaboration between scientific and performative areas would ultimately help to generate music that is eloquent and consistent.*

### Introduction

Soon after the introduction of tape as a musical medium, in the decade of the 1950's, the first experiments and compositions combining both tape and acoustic instruments began to appear. This was the beginning of live sound processing. Today, the technological possibilities are, needless to say, enormous. Computer technology is constantly becoming faster, more powerful and reliable. Yet, these qualities do not ensure the quality of musical performances that use electronic devices. Quite the opposite, they offer such broad possibilities that the danger of losing consistency is present as it probably never was before. I am of the belief that the physicality of musical performance is a crucial issue and a central aspect of the way music communicates in live situations.

When Hazel Smith and Roger Dean mention that “Computers can be both tools of improvisation and provide the environment (with)in which improvising takes place”<sup>i</sup>, we also have to think that, since the role of a computer machine is not solely dedicated to the making of music, there are some issues that need to be addressed. Today, it seems that the lack of communication between the “laptop” performer and the audience is sometimes acknowledged as a new “concept” natural of this kind of performances. Although there might be unquestionable levels of expertise involved in using computers for performing music, I think that it is misleading to regard as inherent of this practice the lack of direct contact with the audience.

## Body and Gesture

If we reflect on the idea that considers the body as playing a central role in musical activities, we should also think that there is an intrinsic corporeal engagement in musical communication, which allows moving sonic forms to affect our bodies. Although it may be difficult to contextualize these musical corporeal significations, they exist and affect us in the process of listening to music (Leman, 2008). Roland Barthes in his *Musica Practica* acknowledges the existence of a “muscular music in which the part taken by the sense of hearing is one only of ratification, as though the body were hearing.”<sup>ii</sup> Furthermore, Richard Leppert tells us: “When people hear a musical performance, they see it as an embodied activity. While they hear, they also witness: how the performers look and gesture, how they are costumed, how they interact with their instruments and with one another.”<sup>iii</sup> Conclusively, the observation of a performance has a dialectical perception that involves aspects related to the mind and body. We could also embrace the idea of gesture as a movement that can express something that embodies a special meaning (Iazzetta, 2000). In this matter, the focus concerns the physicality of live musical performances that use electronics in which regularly there is a divergence between what we listen and what we see. Richard Barrett, in a conversation, said that this lack of connection deprives audiences of understanding what is going on between the interpreter and the computer and creates an illusion that once it takes place, we run the risk that the perception of the music by the audience loses its connection with reality. I believe that we should not compromise in trying to adjust to this situation by understanding it as a problem that the audience needs to solve by adopting a different concept of listening, but rather to find manners to restore the vital connection natural of live performances.

## Resistances

John Dewey’s aesthetic theory reveals the importance of what he calls resistances to transform an impulse<sup>iv</sup> into an expression. An outward impulse without resistance would simply be a discharge. Dewey tells us that, “To discharge is to get rid off, to dismiss; to express is to stay by, to carry forward in development.”<sup>v</sup> In theory, a resistance may manifest itself by meeting and overcoming the technical difficulties of, for instance, an instrument. Naturally, the learning process required for managing the electronic music’s hardware and software could be thought as offering resistances as well. However, the manner for controlling them is usually restricted to a *mouse* or a couple of sensors, which do not offer a platform for developing the combination between the corporeal and the sound manipulation. Moreover, in the absence of predefined musical material, as in the case of contemporary improvisation, the resistances presented to the performer inherent in the process of interpreting a score, for instance, are absent. Hypothetically, the necessary resistances for composing the music in this environment depend on the intersubjective process of the collective artistic activity in which the performer is immersed. Now, if we apply to music making with computer technology those three concepts, (a) the intrinsic intercorporeal level of music performances, (b) the congruence between gesture and sound, and (c) the transformation of impulse into expression through the interpolation of

resistances, it might be possible to move towards the direction of making music with computers an experience in reality for both performers and audiences.

### **The Modified Contrabass Recorder**

One possible strategy to improve the physical experience of electronic music is to think of whether we can make the computer into a musical instrument. During the process of developing my interactive contrabass recorder, in collaboration with sonologists, technicians and composers at the Institute of Sonology in The Hague, issues such as the connection between the electronic sounds and the gestures were taken into consideration. We had to choose, for instance, where the sensors ought to be built according to the function they were intended to perform. Also, regarding the contact with the audience and the interactivity with co-participants, we came to regard the graphical interface as one of the main obstacles in the communication process. Relying on having the computer screen in front of the instrument induced me to look unnecessarily at the screen for most of the time during the performance. At STEIM (Studio for Electro Instrumental Music), in Amsterdam, we incorporated a small LCD monitor into the recorder so as to get the necessary information when needed while playing. By no longer having that distractive element in front of me and the instrument, a better connection with the audience emerged from which I felt a significant change in the music I played, one that was more eloquent and in tune with the co-participants and the public. What actually changed was the amount of time available for performing. Instead of using time for paying mostly unnecessary attention to the graphical interface, time was now being used for concentrating better on the reactivity of creating music.

### **Conclusion**

Reflecting on the different roles music fulfils today, it is important to consider Mark Slobin when he suggests: “we need to think of music as coming from many places and moving among many levels of today’s societies, just as we have learned to think of groups and nations as volatile, mutable substances rather than fixed units for instant analysis.”<sup>vi</sup> Indeed, among the myriad of things that have changed due to technology we could affirm that it has made distances shorter, it has brought different concepts of time and helped us get in contact with different societies with which we can interact. I believe that the revolution brought by the use of technology in music still will prove to be one of profound changes in the manner we make and receive music, compared possibly to the changes once brought by Humanism. In my experience as a performer, I think that those profound changes in music could be brought to light more consistently by collaboration between experts in the areas involved in the performance with computer technology. It seems reasonable to think about abandoning traditional ideas such as the individual status of the “creator”, the adulation of the performer, and the transcendence of musical creations in order to give space to a more pluralistic and collaborative endeavours in which all the parties bring the best of their field into the creation of music manifestations that moves our mind and body in deep enjoyment. Bringing performers, sonologists and engineers in partnerships with the objective of developing tools would maybe allow us to create unique instruments that are sophisticated and flexible, that are able to generate superior sound quality, and that let us be expressive

and powerful. Once we start developing new instruments we also start a process of learning and discovering the richness of true artistic experiences of intellectual depth and expression immersed in our present cultural reality.

## Notes

<sup>i</sup> Smith and Dean (1997) p. 249

<sup>ii</sup> Barthes (1977) p. 149

<sup>iii</sup> Leppert, R. (1995) p. xxii

<sup>iv</sup> In Dewey's own terminology impulses are referred to as *impulsions*, which "are the beginnings of complete experience because they proceed from need." Dewey (1934) p. 58.

<sup>v</sup> Dewey (1934) p. 62

<sup>vi</sup> Slobin, Mark (1993) p. xv

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