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Technology and Music Education in a Digitized, Disembodied, Posthuman World

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Abstract

Digital forms of sound manipulation are eroding traditional methods of sound development and transmission, causing a disjuncture in the ontology[1] of music. Sound, the ambient phenomenon, is becoming disrupted and decentred by the struggles between long established controls, beliefs and desires as well as controls from within technologized contexts. I posit that music technologies are reshaping concepts of time and space, and digital mastery now appears to be the valued musical knowledge. It is necessary to consider a new paradigm for what it means to be musical-in-the-world. Virilio suggests that, rather than being democratic, technology "has hijacked democracy in a mediatized, claustrophobic world" (2005, 339), contributing to a posthuman condition through the destruction of embodied experience. Keywords: *digital, technicity, technologized, enframing, dwelling, posthuman*

In my work in music education I am constantly reminded that a new generation of humans is moving away from an engagement with the spacious physical world in favour of interactions with closed digital environments. Digital technology is no longer the 'next big thing'; it now appears to be the only thing, at least in the medium term, and for many, it is coming to dominate home life, school life and work practices. This domination is producing a conditioning that has the potential to create a populace who cannot comprehend being digital technology-free for any period of time and the conditioning is now being reinforced by systems of schooling that are coming to rely on digital technologies in teaching and learning programmes.

There is no shortage of research into the use of digital technologies in music education, much of it demonstrating how specific computer-based programmes might be used effectively in the music lesson. While many of these programmes

might be of interest, some simply replace the use of 'real' instruments or other practical activities with digital technology. I suggest that most of this research promotes *educating technologically* rather than *educating musically*. The purpose of this paper is not to provide a literature review of this research, but to contribute to a questioning of the role of music education in generating a technologized, and potentially posthuman lifeworld. In this understanding, posthuman refers to how physically embodied and mortal beings are, at least ideologically, an endangered species (Hayles 1999) in the unsettling context of technology/human interface. Of concern is how such interfaces are changing the fundamental arrangement of human knowledge (Wolfe 2010).

My initial question in this paper is whether we should encourage digital technologies to control increasingly greater spaces in our music students' everyday lives, or whether we should encourage their physical and aural engagement with the actual ambient world. In addressing this concern I will refer to Martin Heidegger's questioning of technology ([1962]1977) and examine his case for dwelling in the world ([1971]2001a). I will also draw on the recent work of French philosopher Bernard Stiegler, who is influenced by Heidegger. Heidegger, as we shall see, urges us to get to the essence of technology *as* technology, while Stiegler seeks to better understand the impact of technology, claiming that all technology erases memory and that technologies eventually become a form of prosthetic device for the dependent user.

The term "technology" stems from the Greek *Technikon*, meaning that which belongs to *techné*, which is the name of the activities and skills of the craftsperson or artist. In Greek thought, *techné* belongs to "bringing-forth, to *poiesis*, it is something poietic", knowing in the widest sense, and technology presents itself "in the realm where revealing and unconcealment take place, where *aletheia*, truth, happens" (Heidegger [1962]1977, 13). Unconcealment, or unhiddenness, refers to the correctness of assertions and the transformation that occurs when truth as a correspondence to technology is understood.

Technologies and music education

There is no doubt that new digital technologies enable us to easily access vast amounts of information and to communicate with others over long distances. It is easy to see why technology has become so important to those who manage schooling. For the music teacher, access to podcasts, music, play-along tracks and YouTube offers possibilities to enhance their lessons by reinforcing what is taught or offering new viewpoints. The commercial opportunities offered by digital technology appear to be limitless, and even socialization itself is now measured by our exposure to new media messages. Forms of aesthetic perception are also mediated by the technologized spectacle, but many music students no longer seem able to simply listen: they need pictures, preferably moving ones, to accompany musical sounds and speech. Music teachers tell me that their students have difficulty listening to a piece of music unless it is accompanied by film footage of some sort, a necessary accessory to most music lessons. I was shocked recently to be told by a colleague—who teaches at a prominent high school with a national reputation for the musical excellence of its performance groups—that she now has to play muted videos as a backdrop to her chamber groups performing at school assembly. The video content is usually unrelated to the music and often sets up a counter-text to the musical intent, but the desired result is that the younger students sit quietly, giving the appearance that they are listening to the music.

It seems that disciplinary knowledge, understanding and wisdom are being moved to the periphery as the information-society becomes its own reality. In music classrooms we might regard the presets and standardized loops found in computer programmes, software and synthesizers as sources of information—neatly packaged with easy-to-access sounds and effects. This is information that can be used without an in-depth knowledge and natural understanding of how sound is shaped or how sound recording might be carried out in computer-free contexts. It would appear that to learn now means to have the right digitally encoded information pushed to you as efficiently as possible. More and more of our lives seem to be lived in a networked systems space where rapid and minimal content messaging is replacing extended, negotiated and often nuanced processes of spoken dialogue. But if we consider two people who require the same musical information, one who has acquired knowledge

through genuine dialogue and one who has accessed the information data as quickly as possible, which one might we consider as having the richer understanding?

The technological premise is based on the negation of the real and the problems arise when we have to decide whether what is produced in the music classroom is music or technology. I am compelled to ask, therefore, whether meaning arises out of the musical replication or from the technological object. The gradual disappearance of the musical referent is producing the appearance of the hyperreal—a "principle of non-reality based on 'reality'" (Baudrillard 1987, 51). The sonic image becomes more real than the 'real', more music than Music, resembling itself while escaping its own logic and essence. There is little connection between what was previously required to be known and the instantaneous virtual representation intent on only engaging with the "delirious use of its own technique" (32). This negation of the 'real' has been incorporated into technological reality and the new model for music making is the simulation of the technological reality, one that appears set on creating the posthuman condition. Where the humanist believes in the power of the human mind investigating the human mind, the posthumanist believes in the power of technology to mediate the human mind.

Historical and technological change

For millennia human development and advancement have been defined by the technologies to which specific groups of people have had access. We might say that human existence is technical. But until the eighteenth and nineteenth centuries the pace of technological development was so gradual that people hardly noticed the changes, and through a whole lifetime things more or less moved along in much the same way as they had for previous generations. When the period of intense technological rupture did occur, motivated by trade and industry, theorists such as Marx (*Das Kapital*) and Nietzsche (*Human all too Human*) began to question what this insistent technological transformation might mean for mankind. After all, the Greeks had no ontology of technology, it was simply an appearance, and the essence of technology was not considered in any depth by the Greek philosophers.

We have seen in recent times that technology can develop faster than culture and that our *becoming* is now more intimately tied to technology than it is to our cultural habits. Technologies require systems, from apparatus to networks, such as

the vast technologies and organizations of the military machine, or the trading networks that required factories, ships, merchants, raw materials and labour in the Industrial Revolution. But the digital revolution is different. Of course it needs electricity supplies and types of connections to the internet such as Wi-Fi, but the main raw material in the system is humans—humans willing to 'labour' almost all their waking hours before a computer screen. As with previous technological revolutions, however, humans ultimately become the victim of their own technological invention.

Over time we have consistently adopted technologies, just as we adopt a name, a child, a town, a country, and this requires our constant adaptation to the angst of new technological demands as well as the acceptance of their comforts and benefits. Discussions on the nature of being, on the way to becoming, reveal that such adaptations to technological demands are in place to improve our chances of survival—fire, plant cultivation, the wheel, the spear and the book are early examples. Writing became widely adopted, despite the concerns expressed by those such as Plato about a potential loss of human memory. Heidegger's early questioning of being in relation to technologies appears in *Being and Time* (1927/1962), where he questions the technology of the hammer and how it has become a natural part of our existence. As something ready-to-hand, the hammer's handiness has erased our memory of how we coped before the hammer. For the builder, the hammer is simply one piece of equipment in the repertoire of their technical prostheses, but it has become a necessary part of the builder's existence.

The twentieth century saw the rise of the telephone, film, radio, gramophone, television, computer and the internet. Wu (2010), in his extensive review of the rise and fall of information empires, shows that, even though these new media of the twentieth century were born free and open, and each invited unrestricted use and enterprising experiment, eventually some would-be mogul would battle his way to total domination and control of the 'master switch'. Apple, for example, ensures unrelenting control over its products and how they're used (278). The iPad, iPhone and iPod give the appearance of being able to do many things and offer an unlimited variety of functions that can be acquired from the 'app store', but "the inescapable reality is that these machines are closed in a way the original Apple computer never

was" (291). They have become a form of enclosure and whoever now sits at the top of the organization controls the master switch to Apple's 'walled garden'.

Technologies for the performance of music have also changed over time. In the 1950s *electronic music*, often sourced from oscillators and wave generators, sat alongside *musique concrète*, which sourced real or actual sounds and recordings then processed or manipulated them. The development of MIDI (an electronic standard for Musical Instrument Digital Interface), around 1982, delivered a code universally recognized by synthesizers, samplers, signal processors, mixing desks and computers. MIDI itself imposed certain constraints. If we take the example of synthesizers, which once allowed the user to sculpt and shape their own sounds through the parameters of envelopes and use of filters, the convenience of MIDI brought about the gradual adoption of an enclosure mentality, imposed through the manufacture of convenient preset sound modules that suited an expanded market which included novices. Even so, the music technologies could generate positive outcomes from human encounters with machines that initially seemed to prophesy the end of musicians. The Roland TR808 drum machine originally looked likely to put drummers out of work simply because of the complex rhythms and steady time that could be programmed in. However, musicians soon tired of the artificial sounds and the rhythms tended to lack feel and reflexivity. Drummers then began to challenge themselves by learning complex polyrhythmic patterns that once were unthinkable in a single player, and four-limbed and linear playing developed as a result. Real drummers were once again more in demand than drum machines. The machine had separated nature from the know-how of *techné*, but *techné* itself has no end because it is directed at that which must be produced—the infinite production of new ends.

Technology and time

Stiegler claims that "technics [technical systems] is invention, and invention is innovation—and the adjustment between technical evolution and social tradition always encounters moments of resistance, since technical change, to a greater or lesser extent, disrupts the familiar reference points of which all culture exists" (1996/2009, 2); subsequently, "memory is objectified when it is technically synthesized" (97). In discussing speed and the transformative nature of digital

communications technologies in relation to our perceptions of time, Stiegler points out that new technologies engender the loss of our situated, embodied experience of space and time and that the absence of situatedness in relation to the temporal and spatial experience constituted by digital technologies defines the disorientation of contemporary experience. In earlier times the body framed our experience of space, and time was its domestication, but these areas have become machinized. With the digitized technological turn, time and space have become detemporalized and deterritorialized. Stiegler cites Leroi-Gourhan who proposes that the industrial has done its work and we are now moving towards "accelerated improvements, not of the individual as such, but of the individual as an element of the social super-organism" (Stiegler 1996/2009, 89). For Italian philosopher Antonio Negri, "human becoming, extended by the [technological] prosthesis with which man has equipped himself, constitutes the final destiny which cognitive labour prefigures itself." Negri goes on to suggest that a human metamorphosis is already underway (2011, 115). Stiegler reinforces this attitude when he tells us that "to live contemporary technics today is less about the structuring of territory than it is about deterritorialization" (1996/2009, 90).

Deterritorialization is articulated in the disembodied or virtualized real time of digital communication which annihilates geographical (or contextual) situatedness. This context presents a confusion to the body's rhythms of night and day, giving rise to what Stiegler refers to as a perpetual 'false-day' as we digitally communicate 24/7. We can see this in the way the news is often reported, with the event occurring simultaneously with our viewing. There is virtually no delay between the event and its reception, no matter where in the world it might occur. Our disorientation thus takes effect, and one part of the world might just as well be any other part of the world—only the costumes and scenery occasionally change.

In *Technology and Time 3*, Stiegler reflects on a rereading of Kant's *Critique of Pure Reason*, relating Kant's themes to the 'culture industry' as defined by Adorno and Horkheimer. Stiegler notes that the internet has now become the implementer of standard interoperability among digital infrastructures, one that has made new services, tools, and uses possible, combined with new standards for text, image and sound, and which has brought about a convergence of international

telecommunications and audiovisual technologies. He claims that "the resulting disruption, universally recognized as vital to industrial societies, and as the decisive stage in the 'globalization' process", was the first step. The second step, currently taking place, is an increase in digital networking which will "produce a new kind of temporal object: one that is *delinearizable* and *inseparable,* produced by hypervideo technologies" (Stiegler 2011, 2). This will result in even more time spent in front of computer screens, which will then require redefinition as "terminals of tele-action" Reacting in real time, the "functional integration of the symbolic and logistic industries" will produce "total control of markets as collectivities of a temporal stream of consciousness always in need of being *synchronized*" (3). The subsequent loss of individuation means the *I* moves into a confusion of possible *I's* more likely to "dissolve into a globalized, impersonal *One*" (5).

When we question digital technology in an attempt to locate its essence we need to examine the *who* and the *what*. The *who* reflects *Dasein* (being there) as a modality of temporality, preoccupations and habits as well as the constraining determinants of the impersonal (Stiegler 2009, 67). The *what* represents différance as it reappears in different identities and epochs, from real to virtual, and is a modality of the *who's* difference. In social networks, the *I* of Dasein becomes the *we*, and Dasein's primordial questioning must consider the opposition of the *we*. Within digitized environments the *who* might be the specific user, the software designer, the creative artist or the listener, but once within a socio-ethnic collective, when the *I* becomes the *we*, a triple structure of individual, group and *what* comes into play impacting on temporality, memory and efficiency. For Stiegler, technological stereotypes can disrupt human understandings and subjugate the human *who* to the technology of *what*. The implication is that we are becoming a technological community, embraced by the hegemony of "technological deculturation" (Leroi-Gourhan as cited in Stiegler, 75), artificially accelerated evolution (Stiegler, 99), and dwelling technologically. What condition is needed to dwell technologically? Must the horizon become a question of the *who*, which in turn becomes just one more political-economic imperative? Simondon (in Stiegler 1996/2009, 99) suggests that we remove the *sapiens* from *homo sapiens*, while Stiegler goes one step further and suggests we also remove *homo* and replace it with *what*.

Our personal memory is one that reflects on the human condition and determines human cognition. In digitized environments idiomatic shifts in aesthetic patterning transfer ethnic human memory to artificial memory, capturing function and form when the *who* lacks access to the mechanations of the *what*. The digitized 'artificial' and industrialized memory subscribes to the logic of the media and is of a technical nature. Artificiality has accelerated evolution (Stiegler 1996/2009, 99). Digitized forms of temporal ecstasy, whose primary effect is the "profound transformation of the conditions of reification and event-ization" (Stiegler 1996/2009, 100) mean aesthetic selections become industrial, bringing into play other outputs such as the economic, the calculative digital project, and human transformation. Our specific human memory, which has embraced personal and educational experiences, is a human rather than a technological experience. Technological experiences are stereotypes that disrupt cultural and musical understandings and subjugate the human *who* to the technological *what*.

Heidegger's questioning of technology

When Heidegger undertakes his questioning of technology he insists that "mastering the machine still does not mean controlling the technicity" ([1939]2006, 155). Claims of mastery and controlling technicity are an illusion, a cover-up of "the metaphysical enslavement to technicity" (Heidegger [1939]2006, 152) and our long-standing human dependence on technologies. Heidegger insists that "technicity is producing beings themselves (producing nature and history)" (Heidegger [1939]2006, 152), through a calculable makability; and through the machination that thoroughly empowers their technologized producibility. Yet we are the ones who call on technologies, often seeing technological mastery as what defines one culture from the next or one civilization from another.

Heidegger wants to promote a freer relationship with technology, believing that this will open "our human existence to the essence of technology" ([1962]1977, 3). Essence here means the way in which something pursues its course, the way in which something remains essentially what it is through time. Heidegger uses the German word *Wesen* to mean essence, the root meaning of which is "to dwell", and it implies dwelling in openness. Rather than essence referring to what something is, Heidegger establishes it as the way an entity such as technology "endures as

presence" (footnote, 3), something present-at-hand, enduring not simply as a handy tool but as a possibility to be unconcealed or revealed.

Digital technology itself is not equivalent to the essence of technology, which is not anything technological. Heidegger stresses that if we regard technology as something neutral, whether we affirm or deny it, then we are chained to it, paying homage while utterly blind to its essence. Whether we regard technology as a means to an end, or as a human activity, technology is a contrivance and the way in which we usually conceive it as a means and a human activity can be viewed as "the instrumental and anthropological definition of technology" ([1962]1977, 5). In this view, technology is a means to an end, instrumental, yet a means that attempts to bring us into the right human relation with it. If we "get" technology simply to "master" it, then, for Heidegger, "the will to mastery becomes all the more urgent [and] the more technology threatens to slip from human control" ([1962]1977, 5). In this way what was a marginal practice becomes normalized as the thing to do and for the users it seems to be for their own good.

To uncover the truth of technology we must ask: What is the technology itself, and within its functions and possibilities where do such things as means and end belong? For Heidegger, "a means is that whereby something is effected and thus attained" ([1962]1977, 6); its consequence is called a cause while the end, in keeping with the kind of means we determine it is to be used for, is also considered a cause. Therefore, "wherever ends are pursued and means are employed, wherever instrumentality reigns, there reigns causality" ([1962]1977, 6). Causality and instrumentality both lead to a completion, sometimes called *telos*. Heidegger is concerned that *telos* is often simply defined as "aim" or "purpose", for him a misinterpretation, as *telos* "is responsible for what as matter and for what as aspect are together co-responsible" for the technological shape or form of our actions ([1962]1977, 8). This means that if our openness to the possibilities of digital technology is clouded by its being a convenient means to an end, then this becomes the cause for our relationship, rather than the open discovery of new possibilities.

We admire the way computers are getting faster and faster, many even smaller and smaller, and also cheaper and cheaper, but such peripheral knowledge still evades the questions around what use the computer will be put to, and what its

potential might be. How might we set the technology free to bring-forth possibilities (poiesis), such as a musician finding new and creative ways to access and use technology to reveal aspects which were previously concealed or not perceived. We might interpret this in music to mean not only the realizing of the technology's possibilities and potential but also the possibilities and potential for the composer or performer.

With digitized music technologies we can see how the ambient energy of the nature of acoustic, 'real' musical instrument timbres are challenged and set upon to expedite the supply of music more consistently in a reduced time frame. "Set upon" here means a setting in place so as to supply. This domination is embedded in Heidegger's concept of 'enframing' or 'configuring' (*Ge-stell*)—this we might associate with digital technology as it reduces all entities, including humans, to the homogenized level of resources, on hand to be ordered and used with maximum efficiency. In the *Ge-stell* a peculiar ownership and appropriation takes place as the technical-scientific forces our surrender and Being is carried out without insight. The *Ge-stell* is the essence of technology; it orders into an inventory for the assembly line of users and everything is ordered to stand-by as a standing-reserve, immediately at hand to await further ordering.

Heidegger's complaint is not about technology in general, he is only against technologies that are not thought out from the essence of technology and instead conceived as unautonomous objects and packages. Such technologies await commands or utterances, their orderability and substitutability making them lose their character as objects when they get caught up in the "standing-reserve" ([1962]1977, 17). Computers and smart phones might appear to us to be autonomous, but the closed nature of their digital platform, their reliance on access to the web, and their reliance on source material and the forced obsolescence that produces the need for a constant stream of updated products, simply reinforces their role as standing-reserves awaiting instruction or activation. Each of these characteristics suggests a strong pattern of enframing.

Enframing does not just mean a framework; it is "that way of revealing which holds sway in the essence of modern technology and which is itself nothing technological" (Heidegger [1962]1977, 20). For example, the technology used in

science or physics becomes apparatus not for the questioning of nature but for the purpose of demonstrating how nature appears to be when set up as what can be produced. Likewise, digital music technology, made for the purpose of modifying sound and so nature, works from within the limits imposed by the constraints of its own development, not questioning sound in relation to nature but in how swiftly and efficiently it might be produced. In this way music technology regulates and regurgitates, in digitized ways, what nature already knows but which might be concealed to users until the point of revealing, until the sound is actually heard.

Stiegler defines Heidegger's concept of Enframing (*Gestell*) as industrial schematicism which, coupled with the programming industries, will synchronize the flux of consciousness with the "convergence of the technical system with mnemotechnics" (Stiegler 2001/2011, 209)—technologies to assist memory, and having the potential to become memory—as we move closer to a posthuman condition.

Heidegger's caution is not about the technology; he is concerned with the higher sense of Enframing as we get unquestioningly what we expect from the technology. Enframing, as a revealing, is indeed the essence of technology, but the discourse of technology makes demands on us to think of essence in another way. By essence of technology, do we mean a generic idea that encompasses everything technological, the original primordial essence made permanent? Do we use technology or does technology use us? The pedagogical processes we access as we learn a new programme or navigate a new website limit our freedom to act as autonomous individuals and we become technology's pupils. Technology has possibilities for revealing, but when we simply represent technology as an instrument or tool we remain committed to the will to master it, overlooking the essence of technology. Heidegger's views on the ambiguity of technology also claim an ambiguity of revealing and concealing in the ways in which the presence of truth comes to pass. Our acceptance of ourselves as an important raw material and part of the technological process further conceals the essence of technology. Heidegger's questioning of technology does not mean his outright rejection of it; he merely seeks freedom from the technological imperative. Heidegger advises us to:

> Let technical devices enter our daily life, and at the same time leave
> them outside … as things which are nothing absolute but remain

> dependent upon something higher [the clearing]. I would call this comportment towards technology which expresses "yes" and at the same time "no", by an old word, *releasement towards things.* ([1959]1966, 54)

The clearing[2] is where things and people can show up for us, but we do not produce the clearing, it produces us as the kind of human beings that we are. Heidegger tells us that the essence of modern technology is to seek more and more flexibility and efficiency simply for its own sake. But he suggests that if we keep technological devices under control and remain true to ourselves, even though affirming the unavoidable use of technical devices, we can deny them the right to dominate us.

Technology gives us the power to 'transform' objects with fixed properties into resources which are flexible, with no determinate and necessary features or properties, yet we also remain blind to how technology transforms us. What is transformed is stored up and made available for use whenever we wish, including our technologized selves. But what is stored up is also distributed and what is distributed is turned around and distributed anew. Our relationship to technologies ends up changing the essence of everything we encounter. Digital technology is dramatically different to previous technologies because much of its power remains hidden, even though its reach is vast. Technology usually establishes a standard way of doing things and the initial ways in which technology comes to revolutionize soon facilitate an easy transition to standardization. This suggests that, musically, it might become more difficult to express musical truths in a digitally encoded world that is virtualized, synchronized and standardized.

Dwelling and the return of Nature

In considering our being-in-the-world, Heidegger urges us to think about building and dwelling in relation to thinking. In fact, his lack of commas in the title of the paper *Building Dwelling Thinking* ([1971]2001a) suggests the essential continuity of being. A building is not always a dwelling and this is an important distinction for Heidegger. Dwelling means a sense of place, a home in which we stay in place. For Heidegger, "building as dwelling [cultivating growing things], that is, as being on the earth … remains for man's everyday experience that which is from the outset "habitual"—we inhabit it" ([1971]2001a, 145).

Can we consider music as *building dwelling thinking*? Music is not simply background, it brings together its materials and concepts and offers their purposeful gathering in an imaginative outpouring that reflects the simple folding together of earth and sky, divinities and mortals, bringing them "*together all at once*" (Heidegger [1971]2001a, 171). The fourfold (earth, sky, divinities, mortals) mirror each other; they bring sound into the light of our auditory spectrum and in the process of reflecting each other they become intelligible. Humans are the fourfold by dwelling or safeguarding and bringing the essence of the fourfold into things. Earth supports and nourishes the totality of sounds the musician shares with the world, and the *world* aspect of music draws on the character of musicians to make the work explicit and coherent. Earth, for Heidegger, is the realm of soil and rock, of plants and animals etc., the natural environment whose presence is not a standardized part of human history or relations and which, for the musician, can be a source of inspiration. Through music that engages the earth we can move from technical, scientific objectification and escape calculation and technical mastery by Being-in the materiality of the earth, the open region in which we can dwell, just as the embodied sculptor accesses the earth's clay to form their creation, in preference to keying in to produce simulacra on a screen.

In *The Origin of the Work of Art* ([1971]2001b) Heidegger suggests that art is alethically true in that it lets us see the conflict of the world and earth, where the earth is the concealed domain from which the artist's world emerges—the opening of a realm in which cares, concerns and possibilities are placed before us. Again, consider the sculptor who bestows meaning on the clay or the master instrument maker who shapes metals and wood into sonic realizations. In Heidegger's thought, making-space can make the granting of places happen and place then opens a region in which it gathers together the things that belong in that region. Heidegger regards region as a free expanse and the opening into the region lets things unfold and gather in their belonging together.

Musical thought builds and raises up, and what is constructed is experienced as a dwelling which the dedicated musician inhabits. Musical thinking and making build like a bridge, one that crosses the space and receives its essential being from the boundary or horizon of the locale. Horizon, here, is not limits imposed on our

thinking, but the expansive realm of the knowable available to us. The bridge becomes a musical standpoint, joining the creative expression of an aesthetic locale with the character of a musically distinctive dwelling. Building and thinking belong to dwelling, but as such they are inseparable because "dwelling *is the basic character of Being*" (Heidegger [1971]2001a, 158).

Does a digitized technological understanding of being threaten to reduce everything to resources, including humanity itself? Technologies have a use; but, are we in danger of delivering ourselves over to digital technologies. If we wish to change our world, we must develop new skills and dispositions alongside those required by technology. We can only accomplish these through 'dwelling'. We need to create things relevant to our locality, for 'dwelling' is a staying with things. It was often thought that technology would free us up to do these things and it was expected that time would be saved for humans anxious to engage in worthwhile pursuits. Instead, humans chose to be chained to their technologies, even as they strove to master them and frame what was possible; and so intimate, open mutuality slipped away. I am not proposing a form of sentimental nostalgia, a yearning for the past; what I am proposing is to allow our world to condition us. Not the digital world, but the physical earth in which we dwell; an ambient world, a world of light and shade, cold and warmth, wet and dry, a world of smells and tastes, tactile and spacious.

Dwelling is the essence of being-human and to dwell is to belong. In considering the relationship of the creative artist to the fourfold, we might see Nature (earth and sky) as the ground for History (divinities and mortals), for Nature is the ground of beings (Heidegger [1971]2001c, 98) and creative life means being in their Being, and music and the arts are a natural outcome of this liaison. In order to dwell in music the musician must clear away the wilderness of everyday life and free up the spaces to enable creativity to happen. The musician can then "build out of dwelling, and think for the sake of dwelling" (Heidegger [1971]2001a, 159). Music is an opening to the lived world made by the distanced yet 'close' connections of the fourfold, but without the thing that music is, the connections cannot exist. Through the simplicity of making sound, sounds are gathered together by the thing that is music so that we can dwell in music. Unlike the sounds emitted from within the enclosure of technology, the sounds gathered by music are pliant and malleable, like

a living being, and we can dwell in the belonging-together of homo sapiens with our musical Being.

Conclusion

I have argued that new digital technologies *do* affect the ways we act, perceive, feel and understand music *as* music, simply because of the centrality of such technologies in our everyday lives. While tools can transmit a worker's energy and virtuosity, the digital machine has now become the virtuoso; it regulates the worker who merely acts as a link in the virtual cyber-system. Digital technologies are generally information systems that produce information as merchandise. They are potentially communicative, not just internally but also in relation to the world (both physical and virtual). Some operating systems and applications, however, are manufactured in such a way that it is very hard to extend their capacities. They become a form of dogmatic enclosure in themselves.

Throughout this essay I have referred to the growing role of music education in technologizing its students, assisting in the dismantling of the liberal, thinking human being, one with a memory. Heidegger's "openness" to the world, a world in which the fourfold guide how we musically dwell, is in danger of succumbing to closed perceptions as mind and memory become technologically industrialized. For example, the growing use of digital technologies means that the issue in education is no longer one of knowledge, for the human 'real' is no longer real. Independence cannot be stated or produced simply because the bio-technical cannot produce 'performativity', and all that is produced is the disruption of our biological status. These biological, mechanical and communicative processes potentially remove the human from *Homo sapiens* and "from any particularly privileged position in relation to matters of meaning, information and cognition" (Wolfe 2010, xii).

The insistence of the new technologies is such that it calls for a new disposition towards being and for new responsibilities for music education in a technologized, potentially posthuman world. Aesthetic perception in digital environments is mediated by technology, but this does not prevent a type of perception from occurring. The aesthetic is capable of perceiving the virtuality of the world because our aesthetic actions re-orient the actuality of perception. It is clear

that educators have an important role to play in developing embodied programmes in which sensory ways of knowing and doing are valued as essential attributes rather than being regarded as a redundant human trait.

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Notes

[1]Ontology concerns the nature of being and the first principles of entities (such as music). In analytic philosophy the term means the study of what there is; in Continental thought it has come to mean the study of being (the being of an entity) which is the definition I take for this essay.

[2] The clearing is conceived as an infinitely complex space of possibilities in which some things appear (are unconcealed) while others do not appear (are concealed); disclosing in one particular way can cover up other possibilities.

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