Quantum Listening: From Practice to Theory (To Practise Practice)

Pauline Oliveros

"Through the practice of meditation we can explore the depth of insight through the wisdom of listening and hearing."
Sogyal Rinpoche[1]

From childhood I have practised listening.

As a musician, I am interested in the sensual nature of sound, its power of synchronization, coordination, release and change. Hearing represents the primary sense organ — hearing happens involuntarily. Listening is a voluntary process that through training and experience produces culture.

All cultures develop through ways of listening.

"Deep Listening" is listening in every possible way to everything possible to hear no matter what you are doing. Such intense listening includes the sounds of daily life, of nature, or one's own thoughts as well as musical sounds.

Deep Listening represents a heightened state of awareness and connects to all that there is. As a composer I make my music through Deep Listening.

Deep Listening is active.

What is heard is changed by listening and changes the listener I call this the "listening effect" or how we process what we hear. Two modes of listening are available — focal and global. When both modes are utilized and balanced there is connection with all that there is. Focal listening garners detail from any sound and global listening brings expansion through the whole field of sound.

Listening shapes culture locally and universally.

Listening is directing attention to what is heard, gathering meaning, interpreting and deciding on action,

"Quantum listening" is listening to more than one reality simultaneously.

Listening for the least differences possible to perceive — perception at the edge of the new. Jumping like an atom out of orbit to a new orbit — creating a new orbit — as an atom occupies both spaces at once one listens in both places at once. Mothers do this. One focuses to a point and changes that point by listening.

Quantum Listening is listening in as many ways as possible simultaneously — changing and being changed by the listening.

I see and hear life as a grand improvisation: I stay open to the world of possibilities for interplay in the quantum field with self and others, community, society, the world, the universe, and beyond.

Our improvisations will soon include accelerated artificial evolution — hybrid humans (new beings born of technology) new challenges, consequences, dangers, freedoms and responsibilities — all of this in addition to the life we lead through the habits of our own traditions.

How will we meet the genius of more rapidly evolving interactive cultures, a genius of culture that could give us freedom of perception, freedom from physical and mental limitations?

Will we stop the evolution with destruction and annihilation or embrace it courageously to go forward into the new world we are creating with all its edges?

Here follows a brief history and description of my practice called Deep Listening. I also describe Quantum Listening, a theory derived from the practice of Deep Listening. My composing, performing and educating is rooted in my practice and theory.

My theory of Quantum Listening leads back to practise practice!

As a composer and performer I have experienced a relationship with music technology that spans more than half the century. Technology is changing and changing cultures more rapidly now than ever before. What used to take 300 years now happens in twenty minutes.

The time span of my teaching stretches fifty years from the first lessons I taught to my accordion students at age fifteen to the more recent graduate composition seminars that I have given at Mills College as Darius Milhaud

Professor, at Oberlin Conservatory as professor of composition, and in other institutions.

Teaching has always engaged me, given back to me generously, and nourished my career as a composer/performer.

When I taught The Nature of Music to large classes of non Music Majors at the University of California at San Diego I wanted to engage the students in creative sound experiences. I began to compose pieces that would allow anyone to participate whether they could read music or not. By 1970 I had begun to compose *Sonic Meditations*,[2] pieces based on the structure of human attention. *Sonic Meditations* gave my work a whole new direction. I began to understand just how important listening is to creative music making. Compared to reading and writing relatively little attention is given to developing listening skills or even to considering the nature of listening.

I have been training myself to listen with a very simple meditation since 1953 when my mother gave me a tape recorder for my twenty first birthday. The tape recorder had just become available on the home market and was not ubiquitous as it is today. I immediately began to record from my apartment window whatever was happening. I noticed that the microphone was picking up sounds that I had not heard while the recording was in progress. I said to myself then and there:

"*Listen to everything all the time and remind yourself when you are not listening*".

I have been practising this meditation ever since with more or less success. I still get the reminders after forty six years. My listening continues to evolve as a life-long practice.

How we listen creates our life. Listening is the basis of all culture.

The quality and flexibility of listening skills is the foundation of musicianship. The essence of musicianship is the ability to discern the least change in pitch or tempo and relate that discernment to a field of ongoing sound or musical relationships.

For audiences the greatest gift is rapt attention.

Composing *Sonic Meditations* led me deeper into my listening practice and to the notion that there were other important ways to relate to teaching that were different from the presentation to students of prescribed and measurable content. *Sonic Meditations* helped me devise ways to engage students in creative sound making. Processing the results with discussion led

to content that came from the inside out (student to professor) rather than exclusively from the outside in (professor to student).

As my work progressed in composition and performance I came to the notion of Deep Listening. In 1988, together with Stuart Dempster and Panaiotis, we made a recording in an underground cistern in Washington State. The recording was released in 1989 by New Albion (NA 022 CD) under the title *Deep Listening.*[3] Quoting from my CD liner notes:

Each composer represented in Deep Listening has a very individual style of composition. As we improvise together, and listen intensely to one another, our styles encounter in the moment, and intermingle to make a collective music. I call the result *deep listening.*

After I had written these words, many activities began to unfold as *deep listening.*

In 1990 I published *Deep Listening Pieces,*[4] which contains a brief explanation of my listening theory. It involves two attention processes — focal and global listening, and the interdependence of the two modes.

In 1991 together with Heloise Gold, Tai Chi master and choreographer, I created and led the first Deep Listening Retreat at Rose Mountain Retreat Center.[5] I had already done research at the Center for Music Experiment at the University of California San Diego in 1973 and given numerous workshops based on my *Sonic Meditations.* This research is detailed in several articles in my book *Software for People.*[6]

The retreat form I devised gave me a wonderful opportunity to focus the material and to work more intensively with people. After five years it was clear that advanced work was needed for those returning each year.

Poet and psychotherapist Ione joined Deep Listening as an instructor to offer Listening Through Dreaming[7] giving the participants the opportunity to practise listening in the retreat twenty four hours a day.

Based on a request from one of the participants, I decided to offer an advanced retreat and a Three Year Certificate[8] program for those who would like to teach Deep Listening and use it as a guide for their own creative development.

As a team, Ione, Heloise Gold and I unify our teaching with listening.

Consilient common ground creates a whole learning situation. The retreat is always held in a beautiful natural mountain environment. Tai Chi and Chi Kung inform and ground the body in the ancient way of the Tao.

Dream incubation and processing bring the aura of dreams into interplay with waking consciousness; sounding and responding through deep listening provide new portals to creativity, unity with self and others.

What Is Deep Listening?

For me Deep Listening is a life long practice. The more I listen the more I learn to listen. Deep Listening involves going below the surface of what is heard, expanding to the whole field of sound while finding focus. This is the way to connect with the acoustic environment, all that inhabits it, and all that there is.

For others:

Deep Listening is a practice consisting of listening and sounding exercises and pieces I and others have composed since 1970. The results are processed by group discussions in workshops and retreats.

Deep Listening is for musicians as well as participants from other disciplines and interests. Previous musical training is not required.

The key to multi-level existence is Deep Listening — listening in as many ways as possible to everything that can possibly be heard all of the time. Deep Listening is exploring the relationships among any and all sounds whether natural or technological, intended or unintended, real, remembered or imaginary. Thought is included.

Deep Listening includes all sounds expanding the boundaries of perception. This concept includes language and the nature of its sound as well as natural sound and technological sound. In addition, Deep Listening includes the environmental and atmospheric context of sound.

Listening is the key to performance.

Whatever the discipline, responses that originate from Deep Listening resonate with *being* — inform the artist and audience and make art an effortless harmony. Inclusiveness is essential to the process of unlocking layer after layer of imagination, meaning and memory down to the cellular level of human experience.

Hearing is the passive basis of listening.

Hearing is involuntary. Hearing protects us from unseen dangers. We can hear without listening (Unconsciousness). We choose to listen inwardly or outwardly to the past, present or future (Consciousness). Listening actively directs one's attention to what is heard, to the interaction of the relationships of sounds and modes of attention.

We hear in order to listen.

We listen in order to interpret our world and experience meaning. Our world is a complex matrix of vibrating energy, matter and air just as we are made of vibrations. Vibration connects us with all beings and connects us to all things interdependently.

We open in order to listen to the world as a field of possibilities and we listen with narrowed attention for specific things of vital interest to us in the world.

We interpret what we hear according to the way we listen.

Through accessing many forms of listening we grow and change whether we listen to the sounds of our daily lives, the environment or music.

Deep Listening takes us below the surface of our consciousness and helps to change or dissolve limiting boundaries.

Babies are the best Deep Listeners.

Think of the tremendous acts of attention and concentration that babies make to explore sounds and speak their first words, to learn language and communicate through listening.

Deep Listening is a birth right for all healthy humans.

As a blind person the musician Stevie Wonder has listening abilities that persons with normal sight don't ordinarily develop.

Stevie Wonder is a Deep Listener as many blind people are.

With heightened listening ability one can detect the slightest differences in sounds. This enables acute voice recognition, echo detection, spatial location, etc. Such heightened listening substitutes auralization for visualization (or seeing) by creating sonic pictures, etc.

If you are a blind person, hearing is your means of sight, but such acute listening ability also could be cultivated among people with normal sight.

If you were a deaf person hearing for the first time with a newly implanted bionic ear, how would you know what you were hearing? You would have to learn to interpret the sounds.

What if you could hear like a bat zipping and swooping around the night sky, or a whale sounding the depths of the oceans, or elephants sounding the earth?

What would it be like to attend a live concert with the ability to hear it anyway that you like?

What if you as a sophisticated listener could individually adjust and optimize the room acoustics for the music to your own taste?

What if you could equalize and mix an orchestra the way you want to hear it — while other listeners are hearing their own versions of the same concert?

What if you could cancel out any interference automatically so that only the music is purely audible?

What if such feats are possible as an internal and private experience? How could your experience be valued in relation to a community of interest?

What if your experience could be shared instantly in the present moment or later?

Audio engineers already do this; they have developed the art of recording concerts and usually have the best seat in the house for sound which they hear through head phones or near field speakers. The results of their listening can be shared through recordings.

All the technology for controlling the sound of concert acoustics exists already.

What if you could hear the frequency of colors?

Research on visual simulations and robotic sight has far outpaced research on hearing. Hearing has not seemed as important to scientists and technologists as seeing. One hears repeatedly that we live in a "visually oriented society" even though the ear tells the eye where to look.

Those of us who are aurally-oriented are marginalized.

For example: The recent $165 million dollar Mars probe launched by NASA had a $15 microphone from a hearing aid module along as a hitchhiker. This was an afterthought although listening for the sounds of other worlds could yield data that might not come from cameras. We take cameras to the zoo, not tape recorders. And zoos are generally not open during prime sound time in the early morning or evening.

We need to be listening in all possible modes to meet the challenges of the unknown — the unexpected.

An unconscious negative attitude that makes hearing less important than sight developed in parallel with industrial age technology. Pre-industrial

cultures depended on hearing for survival needs. Now unnecessarily loud motor sounds serve to let the operator know that a machine is working. Silent machines are possible but people seem to need the aural feed back even though it may contribute to the destruction of their hearing.

Why is industrial sound so often excessive?

Sound conveys a sense of power and connection to the machine operator. Sound is the mythos and symbolic representation of the need to accumulate power. It is unconscious "participation mystique". The sounds of machines dominate and are a constant ubiquitous presence.

There is no courting of silence.

Urban sound levels continue to rise in a great cacaphonic puzzle.

Those who operate machines can feel powerful — in control.

No part of the planet is untouched by machine sound. No wonder that the Youth Culture has embraced loud amplified music. How else could they feel heard, extending their work to audiences as a powerful presence?

Technology has deeply altered the quality of life, both positively and negatively.

The devaluation of hearing through unconsciousness and ignorance has caused a serious imbalance in the quality of life. Suppression of listening is a consequence of this imbalance. Separation and alienation results. How we attend to this imbalance will have a profound influence on the future of human values. How we use the power of sound and music affects our values.

We need sound designers and composers as consultants to city planning and noise abatement regulation.

Machines such as cranes, earth movers, pile drivers, etc. have amplified human muscle power enormously in the Industrial age and enabled the large building accomplishments in the development of cities. We have machines that multiply and leverage our senses and our mental capabilities. In the Twenty First Century we will be grappling with who we are as extended humans — hybrid computer/humans and computer beings.

We already see and hear far into outer space and into micro space.

With the Hubble telescope we are able to see into galaxies from the edge of the universe. How thrilling it would be if we could also hear this too. How about launching a parabolic microphone on the next satellite to listen for the music of the spheres? With the electron microscope we can

see atomic structures, but we could also listen to the micro-world, hearing a strange universe unfolded by Quantum Mechanics.

Research on hearing and repairing damaged ears increased after World War II, whereas the need for ear protection in the work place had not been recognized earlier. Hearing loss is usually a slow painless process occurring over many years and not necessarily detected until late in its progression. When veterans returned from battle with acoustic trauma, the more instant damage from the loud explosions of war motivated the Army to do new research on protecting and repairing ears.

In 1978 the first person was implanted with a Bionic Ear. Rod Saunders went profoundly deaf because of head injury, and received the Bionic Ear when he was 48 years old. The prototype Bionic Ear (a cochlear transplant) proved to be a success and was commercialized in 1982. A range of improvements over the years as a result of the continuing research has led to additional benefits for people like Rod. Now over 20,000 people throughout the world can hear because of the Bionic Ear, including over 10,000 children.[9]

At least 28 million people in the United States suffer hearing loss. 60% have genetic hearing loss and the rest have damaged ears from industrial noise and loud music.At least 16 million are under 30 years old.[10]

Ignorance (more than accidents) causes ear damage which is currently irreversible. All the devices that are supposed to contribute positively to the quality of life are dangerous if they also produce sound levels at and above 85db and people have more or less continuous exposure to those levels.

Many people especially young people have not a clue as to the danger of loud music through head phones, or at a disco, or concert.

People are not necessarily aware of the occupational hazards of loud motors although some progress has been made. Workplace ethics should hold employers accountable for such hazardous sound. Manufacturers should be accountable too.

Musicians need education about the dangers of their profession.

Audiologists should be consulted routinely and should hold positions as health inspectors. Just as restaurants must maintain cleanliness against infectious microbes, industrial workplaces should be free of continuous sound above 85db. Ear protection should be provided for employees.

Interpretation of our sense information (listening) and the sharing of this experience with each other is the basis of culture and our values.

For example, the members of traditional musical ensembles share knowledge through the experience of performing together, interpreting and creating repertoire and sharing it with audiences. Audiences participate by responding to the music. We rejoice in the pleasure of music that we know and love. Community develops around music. Critical response, discernment and education help to shape and conserve musical values.

Unfamiliar contemporary music tests values, challenges habits, helps to create new thought patterns and expanded awareness. We need an improvatory of music[11] to balance the conservatory and promote the creation of music.

The Youth Culture — Generation X is transforming music and creating new values across cultural divides. DJs are re-mixing the artifacts of recorded music cultures as performances. They are listening differently. They are deconstructing recorded music and turning recorded sound into live performance. The movement is powerful and reaches others instantly through the INTERNET as well as other media venues. Their listening and cultural flexibility is the future of music.

My own work is now presented live on the internet. Fifty years ago I performed for the first time on another new media venue — television. Now in the twenty first century the Youth Culture will navigate this new internet venue.

We have arrived at the threshold of the twenty first century with sense organs developed gradually by natural selection through the slow millennial process of evolution. We assume that as humans we hear in the same manner although not all ears have the same acuity. And, because we do not all share the same culture, we definitely are not all listening in the same way with the same attention.

Soon we will be faced with an unprecedented exponential acceleration in technology.

How do we understand normal hearing? What are we listening for?

Restoration of damaged sense organs and nerves will be possible. Regeneration of nerves may be possible also. For the first time there also may be a choice for enhancement of sense organs and for new perceptual abilities if our brains can handle the processing involved with the unfamiliar.

When we cannot process complex information we tend to shut down our senses and retreat.

What if such retreat were impossible?

What if we could share our thoughts instantly over a network as computers now do? Such possibilities and amplified intelligence will present new challenges to our ethics and future human values.

What would you want to hear if you had a Bionic Ear that could let you listen to anything, anywhere any time?

As a musician would you like to focus on a particular instrument in an orchestra that seems inaudible? Or listen globally with the ability to equalize and optimize the sound of the whole ensemble canceling out any distracting interferences?

What does a bat hear as it swoops and dives through the air sounding its prey to locate it?

Would you like to zoom into a waterfall to hear individual sounds of the falling drops? Would you like to hear the sound of a cell dividing in your own body? The sound of blood coursing through your veins as you monitor your own health?

How about discerning the exact distance of sounds with an internal molecular computer?

What are the sounds of the gases in deep space?

All of this enhancement to hearing is already available with outboard equipment — microphones, amplifiers, speakers.

Surveillance by spies is quite sophisticated.

What if such equipment were available as on board internal equipment through microscopic ingested technology? (Never mind implants — they will be outdated.) How would you want to use your newly-enhanced ear power? How could humanity handle such power?

What is microscopic ingested technology?

According to Ray Kurzweil "Nanobots are microscopic sized robots which will exist by 2030."[12] Entering the blood stream Nanobots could scan your brain from the inside. Nanobots could swim through every capillary of your brain and take a high-resolution picture from inside.

Note that Kurzweil doesn't posit nanobots that listen.

Nanotechnology is underway. The result could mean that new neural networks could be created and controlled within the brain. Nerves could be repaired. Brain extenders could extend your pattern recognition and memory. You would have the processing power of powerful computers or return to normal carbon based being.

Kurzweil predicts that, "In a hundred years there may be no clear distinction between humans and computers. There will be enormous augmentation of human perceptual and cognitive abilities through neural implant technology. Humans who do not use such implants (or nanobots) are unable to participate in meaningful dialogue with those who do — knowledge is understood instantaneously through assimilated knowledge protocols. The goal of education and intelligent beings is discovering new knowledge to learn."[13]

What about spirituality?

To Kurzweil a spiritual experience is "a pattern of information."[14]

For Matthew Fox "spirituality by definition means plummeting to the depths, getting down to the realm of experience. Spirituality is about living deeply. It puts experience before everything else. It's about responding with passion, awe, reverence and gratitude to everything in life — including the grief, the pain, the suffering, the injustice. It's about tasting God, not just talking about God."[15]

We will need all the wisdom that we can possibly absorb to deal morally and ethically with the powers inherent in Nanotechnology. Our battles with good and evil will jump to a new level.

Enter the Chip Monk![16] Will spirituality evolve on a microchip with the programmed essence of the best of our world religions available to all? Could the Chip Monk be ingested to assist one's inner monk in the practice of deep ecumenism and the distillation of universal truth?

If you are a Buddhist listening leads to the "Buddhaverse"; if you are a Christian listening leads you to the word of God; if you are an artist listening leads you to your material and to shape the material; if you are a scientist listening leads you to theory and experiment.

If you are a spy listening may lead you to prison.

Quantum Listening leads you to notice that you are listening. Quantum Listening leads you to attention to a point — all or nothing focus which changes that point forever.

Quantum Listening leads you to an all embracing perspective of an ever-expanding field.

We live in these conditions and our listening simultaneously perceives and shapes the moments that we live whether we are Buddhist, Christian, Islamic, Artist, scientist etc. Whoever and whatever we are, religion is a set of rules and regulations for a particular kind of listening. Style in art sets the way of listening.

Quantum Listening is listening to our listening. The field expands to embrace all kinds of listening with openess to all possibilities.

In 1990 the noted ethnomusicologist Ki Mantle Hood proposed the Quantum Theory of Music. When asked for the formula for QTM in 1994 he replied "At present, our modus operandi is asking questions. We try to identify neglected, overlooked, not-always-obvious phenomena that relate in any way to the perception of music. That order of perception is only possible by participation."[17] Participation means actually experiencing all aspects of music creation and performance.

What is Quantum Listening?

Quantum Listening is listening in all sense modes to or for the least possible differences in any component part of a form or process while perceiving the whole and sensing change.

The Quantum Listener listens to listening.

Quantum Listening simultaneously creates and changes what is perceived. The perceiver and the perceived co-create through the listening effect. All sounds are included in the field. This creates potential, cultivates surprises, opens the imagination, and approaches and even plunges over the edges of perception into the mystery of the universe predicted by Quantum Field Theory.

Quantum Listening is the ability to discern all that there is in a single moment — point in space (a transient) or a quantum.

"In the new physics of Quantum Field Theory, particles — have an 'aura' or a force field. Although it cannot be seen, its presence is felt. It conveys forces from one particle to another as they interact."[18]

Analogously when one is listening to the whole field of sound without focusing on any one sound but expanding to include all sounds that can be heard — sounds seem to become interrelated rather than chaotic or meaningless — the field conveys forces (energy) from one sound to another.

The field seems to have a unified logic and form, as if it were a composed piece of music.

"What is a field? A field carries the potential for manifesting a force. Particles of objects inside a field may change or move."[19]

The field of sound can be felt as potential force. There is active participation by the listener and co-creation of this form between the listener and sounds.

The field assumes meaning (potential force) and is transformed by the listener. The listener is also transformed by the field. If one is not listening in this expanded way then the form disappears into the background of consciousness — the field disappears — is meaningless, attention narrows, the potential lessens. This is analogous to the collapse of the wave function in Quantum Mechanics when a particle is observed and decides to change state.

Within the "Listening Field" sounds which shift and change inside the field are the manifestation of forces which give rise to the perceived form. Listeners will hear the form slightly differently, each from their own angle of observation in the field. Different listeners would have to occupy different locations in the field, thus making their experience of the field different. This is no less true when listening to a piece of music in an audience in a concert hall.

A Quantum Theory of Music[20] as proposed in 1990 by Ki Mantle Hood would have to account for these slight differences in perception, their interaction and effect.

Each listener by the act of "listening" affects the field and thus the form. The form affects the listener in a dance of reflections in the space between.

Listening performers feel the "listening effect" as they are performing for an audience.

This is focal/global listening with the added perspective of a "witness" function.

This is listening to listening — layers of processing in the brain and body.

The skin listens too.

In fact the whole body listens in this heightened state of awareness

which can expand continually, unless attention narrows (perhaps to ego concerns) and there is the collapse of the wave function and a change in the field and its potential.

In practising Chi Kung I have experienced listening with the palms of my hands to sense these electromagnetic fields. Since these are vibrations I call this sensing listening with the palms of the hands. Simply imagining the sound of humming transfers immediately to the palms of my hands and manifests as healing energy.

There is a deep relationship between Chi Kung and Quantum Field Theory.

According to the speculation of Physicist E.H. Walker, "Consciousness may be associated with all quantum mechanical processes — since everything that occurs is ultimately the result of one or more quantum mechanical events, the universe is 'inhabited' by an almost unlimited number of rather discrete, conscious — entities that are responsible for the detailed workings of the universe"[21]

Can sounds be understood as particles?

"In a fashion analogous to auric fields, particle fields influence certain particles when near them."[22]

Sounds near one another influence each other. Listeners near one another affect or influence one another with active listening.

"Particles have auras. This makes them like everything else in the universe, as the ancient Chinese viewed it." *ibid.*

"Photons (light particles), do appear to process information and to act accordingly, and therefore, strange as it may sound, they seem to be organic"[23]

Particles behave as if they had consciousness.[24]

"In fact, modern Quantum Field Theory suggests that what we call a particle is an 'energy knot' in the field...." Thus particles are a flow creating the illusion of a form, made up of concentrated *Chi*. "*Chi* is similar to a cloud".[25]

"When the Chi condenses, its visibility *(or audibility)* becomes apparent so that there are then the shapes (of individual things *{or sounds}).* When it disperses its visibility *(or audibility) is* no longer apparent and there are no shapes *(or sounds).* At the time of its condensation, can one say

otherwise than that this was but temporary? But at the time of its dispersing, can one hastily say that it is then non existent?"[26]

Is sound intelligent? Does sound have consciousness?

Listen to sound disappearing. This meditation that I practise takes one to the border of reality and virtuality. When do you stop hearing the sound? When does memory begin?

What we hear depends on the angle from which our ear receives sound. How we listen depends on our consciousness. Are we creating the sound that we hear by listening or is sound creating our listening? Is it co-creation between consciousnesses? Is the sound disappearing or am I disappearing?

Human values are developed through the experience of listening. With practice humanity could be transformed to a flexible culture of listeners.

"Listening involves a reciprocity of energy flow; exchange of energy; sympathetic vibration: tuning into the web of mutually supportive interconnected thoughts, feelings, dreams, vital forces comprising our lives; empathy; the basis for compassion and love. Yes, Deep Listening is the foundation for a radically transformed social matrix in which compassion and love are the core motivating principles guiding creative decision making and our actions in the world. Quantum Listening is a 'simple' practice, open to all, which has profoundly rich and far-flung implications, for bringing to our world the two conditions the Dalai Lama illuminates in his recent book *Ethics for the New Millennium*:[27] happiness and relief of suffering."[28]

The practice generates theory.

Theory is perceiving structure — analyzing and explaining structure so that testing and experiments (practice) can be done. Theory directs practice and creates culture to practise practice.

Practice is a way of action — a set or sets of ways of doing or responding to gain experience.

Listeners practising cultural flexibility[29] would be aware of the profound interdependence of all beings and all things. A new music reflective of a new humanity with a high value on life could arise.

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[Hearing loss is one of the greatest health threats to military forces. Civilians would also benefit as noise-induced hearing loss has reached epidemic proportions in all industrialized nations.]