

**SELLING CHIPS TO ROBOTS
CROSS-CULTURAL PERSPECTIVES IN VIRTUAL REALITIES**

For the Third Symposium on Cross-Cultural Consumer and Business Studies
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Thank you very much for giving me a chance to participate in this fascinating conference. I have read all of your abstracts and listened to the presentations so far and I am convinced you are on the cutting edge of an extremely important field. Interest in the question of "culture" is rising everywhere in the world.

Certainly it is a big, political, very explosive issue here in Hawaii where there are as many different reactions--from utter fear to sublime fascination--as there are positions stated in favor of or opposition to the ideas of native Hawaiian sovereignty. I hope that you get a chance to experience some of this exciting diversity personally. If you think of Hawaii only as the land of sunshine and palm trees which the visitor industry so successfully sells to the world, then you are missing out on a big part of Hawaii.

At the same time, if you believe that Hawaii is one big happily multi-cultural family--that we don't have the racial tensions here that wrack so much of the US and most of the rest of the world--as many of us try to convince ourselves and others, then you also ought to be talking with some of the people who feel that racism, and cultural genocide, is nowhere more pervasive, subtle, or brutal than it is here in Hawaii.

This discussion on racism and cultural identity was re-opened here in Hawaii with a vengeance a month or two ago. So you couldn't have picked a better time to come to Hawaii to talk about cross-cultural issues than now!

But in a sense, there is hardly a spot on the face of the globe where culture is not a hot and heating issue. I am quite confident that it will be one of the major concerns of the 1990s and beyond, and for many reasons.

Like most of you, I am sure, I have had the opportunity to participate in many discussions on the futures of cultures in conferences and workshops in various parts of the world. I am also a member of a cross-cultural team on a futures of culture project sponsored by Unesco--the futures of cultures of course being a topic of tremendous interest to most of the member nations of the UN.

And of course everyone knows that the sudden transformation of communism in Eastern Europe and the Soviet Union has unleashed a torrent of concerns about cultures which have been pretty well held back for the past forty-five years. In fact, in many ways, Europe is back to where it was almost one hundred years ago, when wars were being fought not for ideology but for nationalism and cultural independence.

Why is it all happening? I think that there are many reasons. Let me just give you one for now. As a futurist, I look at lots of trends, and their interrelation, and at what we call "emerging issues"--little acorns barely popping up through the ground which might grow into might oak trees in the future.

One of the trends, and sets of emerging issues, I do my best to keep an eye on are demographic changes. These changes are obviously very closely related to culture, and whose culture is dominant, and whose submissive, in the present and the future.

Here is a ball-park statement about global demographic change over the last one hundred years, and the next:

Roughly speaking, one hundred years ago, the population of the world was roughly divided equally into whites and non-whites (actually there have always been more nonwhites, but 100 years ago the proportion was as close to 50-50 as the world has ever known).

At the present, the white population of the globe is roughly 20%.

And by the midpoint of the 21st Century, if trends continue, the white population will be between one and five percent of the globe.

Farewell Whitey! It was nice to know you (or was it?). Your day is OVER. Whether you go out with a bang or a whimper is very uncertain, given the continuation--indeed, the strengthening--of white racist policies of the US government over the past decade, and the rise of various cultural revitalization movements such as the one I mentioned here in Hawaii.

Yep, there has never been a better time for cross-cultural research than the present. So I congratulate you for doing it. And, I would say, there has never been a better reason for white folks to engage in (what we in the South used to call) "miscegenation," (when we were speaking politely), or "race-mixing" (or worse, when we weren't). And Hawaii definitely IS a good place to study, as well as to engage, in that phenomena, as you no doubt know, since all cultural groups presently tend to out-marry rather than marry persons of their own ethnicity here in Hawaii.

Well, inspite of what I have said so far, I personally have real problems with much of the discussion about "culture" that I encounter here and elsewhere in the world.

First of all, it should be clear that I, like most of you, am using the term "culture" to refer to "life-style" or "ways of behaving," in the anthropological sense of the word, rather than in the sense of art, poetry, music and other so-called "high culture." Thus, in this sense, it is as meaningless to say that a person "has no culture," as it is to say she "has no values" (or that the way she speaks "has no grammar"). Nonetheless, as you know, statements like these are often made by people of one culture about people of another. In Hawaii, for example, the mass media of the "haole" (mainland US white) culture are full of such statements about the lack of grammar in the pidgin language of "local" people. On the US mainland, white-culture newspapers frequently contain similar statements about the language of certain blacks.

From my point of view, it is arguable whether the concept "culture", much less "dominant culture" or "normal culture," ever accurately described reality. Anthropologists frequently note that the observed individual differences within even small tribes are often as great as those between tribes. "Dominant culture" is probably like so many other concepts of industrial society--a mass-averaging statement that may helpfully describe an abstract totality, but does injustice to, and often encourages serious violence against, the behavior and preferences of almost every single individual.

Industrial society is based upon many such oppressive averaging notions (if I may indulge in an averaging notion myself). Consider "normal behavior" which is used to distinguish between "sane" and "insane" people so as to accord different treatment and rights to each. Consider "standardized tests" which are used to organize elementary, secondary and even higher education in all industrial societies. Consider "the rule of law" and "the average, rational man," which serve as the basis of legal and economic systems of modern times. Consider "majority rule" which is the official decisional rationale of such legal and economic systems.

Lies. All lies. Maybe, for a while, necessary evils for the industrial era (which itself is a brief, but recent and especially searing, pathological and fortunately rapidly-fleeting episode in humanity's brief existence); but wrong for earlier times, and unnecessarily evil for now and the future.

So, probably one of the first and most important things we need to try to get rid of (or at least seriously question) is the concept of "culture" itself as a helpful way of understanding or evaluating individual against group behavior, or even understanding and evaluating aggregate behavior itself. I believe that notions of "normality," "correct ways of behavior," of "the way we should do things" are in every instance tools of oppression by which those who have somehow had their way declared to be "the normal way," are able to coerce or force conformity from others.

If it has been possible and tolerable to speak of "Japanese culture," or "Western culture," or "Ancient culture," and the like, it has only been because of ethnocentric ignorance (that apparently common experience of tribes and other small groups to view themselves as "humans" and all other humans as "non-humans") which can be excused. Or else it is the residue of a pathology of the "modern era" where for a time "old 'tribe' became new 'nation' writ large," and "nationalism" and "patriotism" and concerns about "preserving cultural identity" gained prominence, and world and civil wars were fought and pogroms waged in the name of such abstractions.

Now, I know that most of you are using culture as a descriptive, averaging, that is to say, sociological term, and not as a normative one. In a sense, most of you don't care what a culture is, or how it changes. If you can use the concept to design and sell products to targeted markets, (or to help others do so, or scientifically to measure the success of others in doing so) then you're happy, I suppose.

For example, Richard Brislin, from the East-West Center here, will (exactly 24 hours from now, and on this very spot) give you sixteen guidelines for identifying cultures, and distinguishing one from the others.

Shortly thereafter, Karin Holstius, from Finland, will identify three useful cultural dimensions in her research: national culture (which is what I have been mainly concerned about so far), business culture, broadly speaking (which might be something which distinguishes most of you from me. I am a political scientist who, quite naturally, views business with hostility and business school professors with disdain--while I, in turn, am definitely looked down on by the high and mighty scholars who perch in the lofty cultures of the "hard" sciences). The third culture which Prof. Holstius identifies is that of any particular corporation or firm--or, I would suppose, of any more or less enduring group whatsoever.

But let's take another example from the papers proffered at this conference. Consider

the "Myth of the Nine Nations of North America" which a team of Canadian scholars this morning demolished as an idea useful for advertising purposes. Well and good. I'm convinced.

But I still find that myth a useful political concept, and an especially useful future-oriented concept. I find it difficult to believe that North America is immune from the tsunami of nationalism which is sweeping the Soviet Union and all of Europe, and indeed, virtually all of the rest of the world, as I have previously alleged. In fact, I find it interesting that it is a Canadian group which is concerned about demolishing the myth at all. If there is any country which seems about to disintegrate or (to use Kimon Valaskakis' term) "meltdown" and "transform" into several new political entities, it certainly is Canada. A research team from Concordia University and Acadia University might very well have a vested interest in trying to denigrate a myth which seems about to become a self-fulfilling prophecy!

But hey! I'm not accusing them of anything. I'm sure they are objective scholars. Even though they are from the business school. I'm not prejudiced. Some of my best friends are in business schools. Like my good friend Nicolaos Synodinos, who is responsible for my being here with you today.

What? Oh, I see, my former good friend Nick.

Anyway, back to my concerns about the normative uses of the concept, "culture."

While these (as I call them) "pathologies" are widely held in the world today I do not think they will continue much longer.

Oh alright: they will continue--but they will not continue to dominate.

In a world where Japanese nationalistic pride, Islamic and Christian fundamentalism, Pacific island nativistic movements, and all the rest are so very much apparent (though often struggling against currently more powerful and oppressive controlling forces of certain Western political-economic states and corporations) it must seem ludicrous, if not heartlessly inhumane, for me to call such yearnings "waning pathologies of earlier times."

But I consider the survival, in their current or currently-preferred forms, of both so-called "minority" and "majority" "cultures" to be problematic, if not highly unlikely.

I will mention only four eroding and potentially transforming factors.

1. The first is the tension between an apparently emerging "global" culture and every residual local or existing national, regional, linguistic/religious/ideological culture.

This tension is well known by everyone at this conference. So I will simply endorse the view that global forces--technological, economic, political--are so overwhelming that (barring holocaust of one sort or another) they are unstoppable. These globalizing forces will destroy all current cultures. So, in the meantime, people living in both global and local cultures (or several of them) will continue to exhibit lives of exquisite agony, bearing the future in their own presence today. Many of you at this conference are probably harbingers of such future-beings.

But the globalizing forces will not result in the creation of a new, single, global "culture;" at least not of any permanence comparable to the cultures they destroy. Other forces will see to that:

2. The tension between the global (especially Third World) youth culture of the future, vs. the increasingly gerontocratical cultures of the West.

This, also, is presently well understood, even if its implications have not been fully recognized or accepted. For example, while the US is projected to be the least "gerontological" of all of the OECD nations by the mid 21st Century (being "saved" by continuing in-migrations of young people), the historically-dominant US white cohort certainly is aging (and proportionately diminishing in numbers) while young, brown, black, and yellow cohorts rise. Nearby, Mexico becomes increasingly youthful--and large.

It is the burgeoning young of the Third World who will be (are being) accused of "having no culture," meaning that they have a culture (or quickly fleeting cultures) of their own which is ignorant of, rejects, or is actively trying to destroy the "culture" of their elders. At the same time, many of these youth cultures will seek or pretend to be the true living vessels of past cultures. But as twelve to fifteen year old children continue to have children of their own, each youth cohort is rapidly replaced by still more and younger persons each creating cultures which diverge from those of their "elders".

3. One of the major differences between the youth and aged cultures now will soon become (has already become?) a factor in itself: the media literate vs. the print literate.

Oral tribes of great antiquity everywhere throughout the world were no match for agrarian "civilizations" based on writing. Subsequently, industrial societies destroyed agrarian societies by the power of the mechanically-written word. All of the institutions of "developed" societies are (or were) based on printing. Indeed, "development" is measured by the extent to which traditional oral/scrabal institutions are replaced by modern print-based ones. Even the thought processes of individual themselves (and hence their values and behavior) have been modified by the depersonalized, decontextualized, linear, analytical, logical, objective qualities of print which oral communication alone makes difficult if not impossible.

And then came electricity, telegraph, telephone, radio, cinema, mechanical switching, broadcast television, computers, electronic switching, audiotape recorders, videotape recorders, electronic networks, cable television, lasers, communication satellites, fiber optics, personal computers, modems, laser discs, holography....(much more's on the way).

And print and all its institutions and ways of thinking lost its dominance, and will soon lose its place--or rather it will find its place among the infinitely greater "communication" capabilities of the electronic/post-electronic/information era.

The post-literate (or, as I hope they will become, media-literate) cultures emerging around us in the present and looming vastly larger in the future, are as different from cultures based on print as print cultures are from those of oral societies. Since we live within the envelop of the dying (or marginalizing) print cultures and the

rise of audio-visual ones, those of us who have been conditioned all our lives to "think like a book" usually ignore, disparage, or simply cannot understand those who may learn to think and to express their thoughts through moving holographic images. Being so (literally) brainwashed by print, we can no more truly understand the new cultures that are overwhelming us than we can truly understand "the savage mind" of pre-literate societies we distorted or destroyed.

4. But we ain't seen nothing yet. Immediately ahead of us, just slightly over the horizon, racing rapidly towards us (coming, ready or not) lies an utterly new world for humanity: the cultures of robots, cyborgs, chimeras, extra-terrestrials--and post-homosapiens.

If it is virtually impossible for most of us to comprehend and take seriously the ways of thought and behavior of post-literate humans, how much more difficult is it for us to be willing (much less able) to acknowledge the emergence of new, non-human intelligences, and the rapid (prosthethically/genetically engineered) transformation of our own! But both processes are well underway.

In an extremely important article entitled "Hypothesis on the Genesis of Homo Intelligens," the Japanese futurist, Yoneji Masuda, briefly discusses four key elements leading him to conclude that we are rapidly moving towards the genesis of what he calls a "New Man" which he designates homo intelligens. I believe he has correctly identified some of the major elements of the coming cultural transformation: (1) new theories about the past and future evolution of homosapiens; (2) "computer-production of intelligence information and knowledge," (3) "new media--the formation of autonomous information networks," and (4) "robots and the liberation of humans from productive labour."

However, I think Masuda is too conservative (or maybe too optimistic) in his forecast about the consequences of these developments. Masuda sees (correctly, I believe) the rapid "artificial" evolution of homosapiens into something else. But he does not seem to acknowledge that this is not likely to be a single homo intelligens but rather several futures species of homo, some of which may be intelligens as he describes them, but others almost certainly will choose or otherwise evolve into other post-sapiential possibilities (and some may "choose" to try to remain homosapiens).

In addition, Masuda does not discuss the consequences of the evolution of artificial intelligence (robots, cyborgs, chimeras, etc.) in terms of the new intelligences themselves. Work on the "Rights of Robots" done by a group of us for the Hawaii State Judiciary; advances I have observed in "re-constructive surgery" and electronically-guided prosthetics; and research described in many books and journals, convince me that the emergence of true artificially intelligent entities is imminent. I am also aware of many sound arguments to the contrary. But though they temper, they do not alter my conclusions.

Geoff Simons, of the National Computing Centre, England, in his book, Are Computers Alive?--Evolution and New Life Forms, is closer to understanding and stating what is happening than is Masuda, in my opinion, when he writes that "Robots will come to be universal and intelligent, in other words they will know what is going on in their world and they will have the power to choose, on their own initiative, appropriate action." "[R]obots are developing highly complex anatomies and...computers already have sophisticated psychologies capable of intelligence, learning, creativity and free will. Biological research will further facilitate the evolution of emergent computer

life.

"There is overwhelming evidence that we are now witnessing the birth of a new family of living species on Earth--and this must be seen as one of the most momentous events in the history of life." "We will soon not be asking whether computers and robots are alive, but what sort of life they represent. And this will open the way to a host of second order questions:

Can a computer stand for Parliament?
 What rights should a robot have?
 Would you let your daughter (son) marry a machine?

"Perhaps we should start asking--and answering--these questions now. Before they are answered for us by the infinitely superior creatures that machia sapiens will become!"

Provocative research is also being carried out concerning artificial life as well as artificial intelligence. The introduction to the proceedings of an interdisciplinary workshop on the synthesis and simulation of living systems, edited by Christopher Langton, and titled Artificial Life, says:

"Artificial Life is the study of man-made systems that exhibit behaviors characteristic of natural living systems. It complements the traditional biological sciences concerned with the analysis of living organisms by attempting to synthesize life-like behaviors within computers and other artificial media. By extending the empirical foundation upon which biology is based beyond the carbon-chain life that has evolved on Earth, Artificial Life can contribute to theoretical biology by locating life-as-we-know-it within the larger picture of life-as-it-could-be."

Titles of some chapters in the volume can only be a foretaste of the pleasures--or horrors--to come:

"Evolving Bugs in a Simulated Ecosystem;" "The Evolution of Evolvability;" "The Artificial Menagerie;" "Mirror beyond Mirror: Puddles of Life;" "Lego, Logo, and Life;" "Modeling Behavior in Petworld," and "Animal Construction Kits."

Or to quote from a report ominously titled "Human Culture: A Genetic Takeover Underway," by Hans Moravec:

"In the late 20th century, the barriers of complexity that divided the engineers of inanimate matter from the breeders of living things have been crumbling." "We are very near to the time when no essential human function will lack an artificial counterpart." "In the future presented in this chapter, the human race itself is swept away by the tide of cultural change...to a future that, from our vantage point, is best described by the word, 'supernatural.'" "The underlying theme is the maturation of our machines from the simple devices they still are, to entities as complex as ourselves, to something transcending everything we know, in whom we can take pride when they refer to themselves as our descendants."

Ongoing developments in Brain Science and in Genetic Engineering are racing ahead of electronics in the development and evolution of artificial intelligence and

life. And the new and emerging possibilities of molecular engineering are sweeping in from the wings.

Stuart Hameroff, the author of Ultimate Computing: Biomolecular Consciousness and Nanotechnology writes:

"Biology and technology are both evolving towards more efficient methods of information processing." "With a head start of a billion years, biology has evolved human consciousness; technology appears to be catching up rapidly." "There are several indications that the evolution of technology will force another nonlinear acceleration in biological evolution which has dealt with crises such as toxic oxygen two billion years ago, utilized new energy sources, inhabited new environments, developed new forms, and spawned technologies which themselves have evolved."

And then of course there is space, the final frontier.

In his book, Infinite in All Directions, Freeman Dyson envisions human's movement into space on the wings of a space butterfly or an astrochicken. The former he describes as "a way of exploiting for the purposes of space science the biological technology which allows a humble caterpillar to wrap itself up in a chrysalis and emerge three weeks later transformed into a shimmering beauty of legs and antennae and wings." "So it is reasonable to think of the microspacecraft of the year 2010, not as a structure of metal and glass and silicon, but as a living creature, fed on Earth like a caterpillar, launched into space like a chrysalis, riding a laser beam into orbit, and metamorphosing itself in space like a butterfly."

Similarly, Dyson says the "Astrochicken will not be built, it will be grown. It will be organized biologically and its blueprints will be written in the convenient digital language of DNA." "The next hundred years," says Dyson, "will be a period of transition between the metal-and-silicon technology of today and the enzyme-and-nerve technology of tomorrow. The enzyme-and-nerve technology will be the result of combining the tools of genetic engineering and artificial intelligence."

"When life spreads out and diversifies in the universe, adapting itself to a spectrum of environments far wider than any one planet can encompass, the human species will...find itself faced with the most momentous choice that we have had to make since the days when our ancestors came down from the trees in Africa and left their cousins the chimpanzees behind. We will have to choose either to remain one species united by a common bodily shape as well as a common history, or to let ourselves diversify as the other species of plants and animals diversify. Shall we be forever one people, or shall we be a million intelligent species exploring diverse ways of living in a million different places across the galaxy?"

Ben Finney, an anthropologist at the University of Hawaii, answers Dyson's question clearly, and I think correctly, in his book, Interstellar Migration and the Human Experience:

"If our descendants spread far and wide through space, the forces of evolution now braked on Earth will be released once more." "Human evolution in space will hardly be limited to the birth of one new species. Space is not a single environment.... There are innumerable environments out there providing countless niches to exploit, first by humans and then by the multitudinous descendant species. By expanding through space we will be embarking on an adventure that will spread an explosive speciation

of intelligent life as far as technology or limits placed by competing life forms originating elsewhere will allow."

So I conclude that we will within a few decades at most experience our first encounter with post-human (but, initially, human-generated) intelligence, and within a few decades beyond that, humans will live in an environment where there is a large number of such intelligences, none much like our own now, and many clustering into "cultures" which will differ significantly from the others. That is to say, just as there will not be one post-homosapiens (eg., Masuda's homo intelligens) but many, so there will be many differently intelligent artificial lifeforms (and hence cultures) and artificial environments--virtual realities--by the mid-21st Century and beyond.

I believe we present "human becomings" have already forfeited our control over the forces of transformation of our environment and ourselves by focusing too much on obsolete past, and/or relatively trivial personal and cultural, problems and injustices. But what we do about the transformation (whether we respond with foresight, creativeness and enthusiasm, or with reactionary hindsight, appeals to tradition, and apathy or denial) depends very much on our will--here and now.

I suspect that certain "cultures" of the present can accept and perhaps co-evolve with artificial and extra-terrestrial intelligences easier than others. I know it will be tough for Christians. I suspect it might be equally difficult for Jews and Muslims, though I may be wrong. What about cultures informed by other religious, philosophical, or ideological traditions, especially those of the East, or the so-called "New Agers" of the West? Which of the evolving old, or new, global, regional, youth, or media literate cultures may best adapt or co-exist?

OK. I know you guys aren't interested in the philosophical problems surrounding the cultures of robots. You have more fundamental needs. So I turn the title of this talk into a question, and ask you: how do you sell chips to robots while living in virtual realities?

I know you can do it! Or at least you can study those who try.

Which is more than I can do!

Thank you.

Substantial portions of the above came from two of my articles:

"What Do 'You' Do When Your Robot Bows, as Your Clone Enters Holographic MTV?" Futures, August 1989, and "It's Only a Paper Moon," Futures, December 1990.

Detailed references to the articles and books cited are also found in these two articles.