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THE ACADEMY IN A WIRED WORLD

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## **The Academy in a Wired World**

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### Paradigm Shift

Technology is an extension of and not separate from humans. It is more than just an amplifier of the human capabilities. It is an expression of what makes us humans and, simultaneously, it modifies the human at many levels. The concept of a “tool” such as a hammer is as profound as the abstract concept of a “gedanken experiment” as constructed by Einstein. The physical manifestation may only be the indicator of the changes which have occurred in its creation.

Electronic vehicles for knowledge delivery are simply the pragmatic applications of insights which were causing change long before they were reduced to practice. When we contemplate the issue of the delivery of knowledge in post secondary education via some medium such as computers or television, we must realize that higher education is a lagging indicator. Most of the hardware and software are commercially available. The larger community has already engaged with the medium and has incorporated it into the

culture at more than an experimental level. In fact, the larger community, outside of academia, may be very sophisticated in the comprehension of the opportunities.

For individuals and institutions, globally, one now sees that the movement of information is essentially unbounded. The volatility of the international capital markets are one visible manifestation of this; countries no longer have control over the international flow of their currency. And, knowledge, which was once captured in the cloistered halls and libraries of academia, in a wired world, is immediately made available. Similarly students who once traveled great distances to listen to lectures of scholars, can now access this knowledge via the world of the internet.

Higher education is now in the global, competitive, market place. It is now a client driven environment where individuals are able to choose what they wish to acquire rather than accepting the dictates of institutions. The tyranny of certification as a device of control has lost much of its power in a world where specific knowledge has commercial value in communities which trade on short half-life information.

In the past, universities were repositories and transmitters of long half-life knowledge. This was the core set of cultural values and basic skills which not only prepared persons for earning a living, but also for establishing and transmitting community values and norms. Globalization, because of electronic communications and the spread of multinational corporations, has, in many instances, leveled these long half-lived elements and substituted sets of values as well as other patterns which support larger commercial

goals. This has been of great concern to academics and parties in the non-profit and public sectors.

Higher education has played Polonius to the Hamlet of corporate interests and thus has abandoned its focus on its traditional strengths for a more volatile and competitive venue. The enabling technology, as a meme, has infected higher education at process, content and delivery levels almost to the point where institutions have become primary carriers for these viruses of the mind. The core of higher education, traditionally focused on long half life knowledge, has mutated.

Sir John Daniel has identified 11 megauniversities. These are global, virtual institutions with enrollment of 100,000 students or more. Since the clients are scattered around the world, there must be some common denominator. These common factors often are short half life skills or knowledge which is of value in commerce. Longer half life knowledge such as the traditional 3R's ("readin', ritin' and 'rithmetic") are usually provided at secondary and primary institutions. And, the apparent velocity of short half-life, emerging knowledge, has pushed into the back ground the fundamentals of traditional academia which emerged from the Germanic traditions.

Long half life knowledge in such areas as philosophy, literature and the social or political sciences tend to reflect regional norms and are either acquired through local institutions or find themselves displaced by venues of greater commercial potential such as management, economics or international law. Thus, higher education, in order to compete in the

international market place has chosen to recast its programs and content to meet the apparent whimsy of the global market place.

Some institutions of higher education, after stepping into the river of change, have had their vision cleansed and now see that the bright light of enlightenment was only their own narcissistic reflections. Yet, there are still vestiges of disbelief. It is hard for academics to understand that the university no longer provides the guiding dictum to knowledge, nor controls the directions that a client may choose to traverse. The solipsism of academia has been deconstructed.

Davis and Botkin, in their singular work, *The Monster Under the Bed*, seem to have played the role of the small child in Hans Christian Anderson's tale of the king's new clothes. Their documentation of the rise of corporate universities, often in direct competition with traditional institutions of higher education, is the equivalent of the innocent proclaiming, "But the king has no clothes."

In the US, these changes are leading to the closing of campuses, some from multi campus, public, institutions and others, single campus, private, colleges, in spite of increasing demands for higher education. This trend of global expansion of virtual campuses and the much slower or zero growth of physical spaces is projected to accelerate in the near term. The cultural shift has occurred; the actual implementation is only an expression of this change. There are exceptions where intervention has provided stasis, like *M Valdemer* in Poe's short story. Parsons College in Iowa, now Maharishi University is a paradigmatic

example, while the conversion of the University of Minnesota's Waseca campus into a prison is more representational of the direction. The high capital cost of constructing new physical campuses, the expense in time and cash to travel to such places, even on a daily basis, and the growing options provided by a wired world mitigated against the traditional "ivy covered halls".

In the United States, Disney productions is moving into the market called "edutainment". A school in Costa Rica is using the commercial Discovery Channel on television as a supplement to their courses. Jones Communication, one of the largest cable channels in the United States has developed Mind Extension University and other higher education programs which will soon be delivered globally. Jones uses the best minds to create content and then uses traditional, highly qualified, academics to act as faculty in, basically, a mentoring capacity. Like the movie documentaries, the commercial world is building teams of experts in content and process to deliver education with the same professionalism that entertainment is provided.

Higher education is still operating in the mode of the "sage on the stage" where persons are expected to accept less than professionally produced materials just because of the wisdom which is contained on academic campuses. Professors, now are expected to master delivery vehicles such as asynchronous communications on the internet and similar production media in order for the institutions to address a market which is demanding and can afford to have commercially produced materials delivered.

What higher education has failed to grasp is that the high cost of an on campus experience needs to be addressed. What value is there in moving a student great distances and is it worth the cost differential over virtual materials professionally produced? Similarly, offering courses at a distance may not be price/value competitive with the market and certainly can not be seen as a vehicle to shift funds to flagging physical campuses.

The concept of the wired world or global brain has changed peoples expectations with regards to knowledge and how it is accessed. Even in remote locations where there are dirt floors in the schools, there are cables networking computers and multimedia systems.

Corporations know that their employees need not only the information or knowledge delivered in a timely fashion but also produced in a professional manner. The amount of capital expended just on training of trainers and overhead support is substantive compared to higher education where the credentials are primarily the Ph.D. with the ink not yet dry.

How does an archaeologist compete with a professional script delivered by Harrison Ford as Indian Jones or how could a scientist, other than Carl Sagan, compare to an animated script on space delivered by Leonard Nimoy as Dr. Spock. The hallowed halls of higher education have been breached with the same surety that the bastions of the Catholic Church were rent by Gutenberg's publishing of the Bible.

Jose Ortega y Gasset, in his slim volume, *Mission of the University*, points out that two of the goals of a university are the transmission of culture and the training of the professions. The former has been diminished by the emphasis on short half-life knowledge of the latter. Thus, in one act, academia has failed twice by first losing its focus on the core and secondly by being unwilling to compete, *pare passu*, with those outside of academia in production and delivery of quality products and services

### The Illusion of Knowledge

The cost/bit of information gets cheaper; yet, the cost for useful bit of information becomes more expensive. Academic institutions, needing to see themselves as centers of scholarly research have emphasized publications over excellence in transmission of knowledge. This pressure coupled with the rise in electronic publications has led to a plethora of materials in both traditional journals and new formatted electronic vehicles.

In addition to education or knowledge transmission raised in the previous section, two major issues have arisen. First, we see the vast expanse of new materials which, even with the best search engines, yield little new information of substance. Second, one is seeing the erosion of credibility in the research produced by traditional institutions. In the past, serious discourse took place via select journals and professional meetings. Today, an academic specialist can not keep up with the volume of publications in his/her area of specialization and, with little effort, could spend an entire academic year going between



meetings globally. The electronic media such as the internet coupled with the other media make one feel like the Red Queen in Lewis Carroll's Alice in Wonderland.

Electronic media has created the illusion of expanded access to new knowledge. Additionally, it has acted as an amplifier to expose the inflation of the current research within academia. There have been growing concerns within funding agencies, particularly in the public sector, regarding support of fundamental or scholarly research. Even in the United States, basic research has seen a shrinking of funds amidst protests from the academic community. The proliferation of "scholarly" materials distributed by electronic media, may have enhanced communication while eroding credibility, even within the community itself.

Jose Ortega y Gasset indicated that research was, indeed, an important function of academia. He believed, though, that this function should be carried out in separate institutes to allow complete concentration over extended periods. Many larger institutions have just such facilities and, in the current period, some universities are emphasizing this arena while others are still trying to have faculty balance between the Scylla of teaching and the Chrybdis of "publish or perish". In terms of promotion and tenure, the institution itself is having its own struggle with balance in evaluation of the professorial ranks.

The electronic connectivity has taken this issue global. In addition to the proliferation of information, it has raised the issue of the rolls of higher education in both the developed and developing world. Many countries are in serious need of an educated leadership in

government, education and even the private sector. This requires core or long half-life knowledge in what the western world would label the humanities and social sciences. Yet the “lure” of building a technologically advanced economy has placed countries with limited resources on the horns of a dilemma.

Similarly, the electronic connectivity creates an opportunity to obtain the short half-life knowledge needed for a modern infrastructure. Yet, importing such knowledge comes at a significant cost in both economic and social terms. World wide entertainment presents a significant pressure which is acerbated now by the internet and related technologies. With weak cultural infrastructures in place, the potential for a world dominated by the multinational corporations as described in David Korten’s book, *When Corporations Rule the World*, present a potential of more than passing concern.

We know from biology, that ecosystem stability is predicated on having genetic diversity. Homogeneity, leads to a highly vulnerable system. Similarly, from a cultural perspective, memetic diversity provides for that creative dynamics for human evolutionary survival. While the biblical “Tower of Babel” has been seen as a curse, from a modern perspective, it has provided the world with a richness and diversity which has allowed the human species to evolve to its present status. Many countries and even cultural groups have great concerns that the “wired world” will yield a “Disney World” with significant memetic losses. This is not limited to developing countries as evidenced by France’s response to Disney’s building of a theme park in the country.

From an academic perspective, governments, globally, are struggling with the issues of importation of knowledge, physically or virtually, at the expense of their own academic institutions and long half-life knowledge. These countries see the same issues at the memetic level which appeared when genetic viruses were introduced by the European explorers as they traversed the world. Add to the oppressive balance of payments at the country level and the increasing pressures from modern culture over electronic media the incursion of intellectual memes into academic institutions. This leads to the modification of long half-life knowledge. Defacto, intellectual colonial rule is reintroduced.

Bruce Sterling has written a short story called "The Swarm" where the world and its biota have organized as an undifferentiated, interconnected whole, much like a colony of ants or bees, with a collective consciousness. When needed, the entity can self organize parts of itself into a differentiated being. Yet the collective sees such differentiation as inefficient and not an effective use of resources for the ultimate survival as a whole.

There is parallel discussions in scientific circles regarding a "Gaia Hypothesis" which sees the world as having some collective consciousness but not as extreme as Sterling's model. If there is a memetic proclivity towards such a holistic model, the development of a wired world provides a perfect vehicle for unchecked "mind viruses" to propagate across cultures.

Stephenson's prescient novel, *Snow Crash*, raises just such issues. Essentially, there is a religious movement which is seeking the keys which will unite the world by reversing the effects caused by the original Diaspora after the destruction of the Tower of Babel. The issue, of course, is that when there is a homogeneous medium such as language, the ability to disperse selected mind viruses such as a specific religious message, throughout the network is enhanced.

In order to examine these issues one must clearly rise to the meta levels. This transcends both the pragmatics of the actual network and the socio/political /economic issues of the wired world. It requires that one engages with fundamental issues which must be understood within the context of long half-life knowledge. Yet, it is these core fundamentals which are being systematically destroyed by the viruses which propagate short half-life knowledge and promote the immediate needs of the Freudian Id.

It is interesting that from an ecological perspective, the world has essentially embraced the notion of the need for biodiversity which includes both the preservation of genetic diversity within species and mixed ecosystems. The latter provide synergistic opportunities which are just beginning to be understood. On the other hand, memetic diversity seems to be at the core of human societal conflict. The idea of religious, political, cultural and social diversity existing coextensively seems to be a foreign concept, particularly in practice. Religious pogroms, genocide, racial persecutions and similar cultural discords have not found resolution in any forum such as world courts and the United Nations.

Technology can not provide solutions to issues which are largely socio/cultural in nature. David Glernter in his book 1939, *The Lost World of the Fair* provides the paradigmatic example. The New York Worlds Fair, born in the shadow of war and in the midst of economic chaos, provide the hope that technology would bring all that one might hope for via the wonders of modern science and technology. By the end of World War II, all that was promised had been delivered. But, like the touch of King Midas, that which was promised, while being real, did not bring the happiness which was promised. Moreover, much of the technology brought its own negative consequences with it.

Academia traded wisdom for knowledge and knowledge for information and information for facts. It has always been easier to look towards technology because it could be touched. It has been harder to invest in those intangibles which spoke to the elements which make us human, the arts, literature, culture. In their rush to be at the edge, academia embraced technology and made its pact with Faust. And now, with the world wide web, Tolkien's Dark Lord has the one ring to call them all \*.

### Pandora's Box

An instructor was giving a workshop to total novices on the use of Geographical Information Systems (GIS), a technology which can be used to access and analyze spatial information either on stand alone computers or via the internet. A problem was given to K-12 students. The same problem was given to K-12 teachers, separately. At the end of

the period, the students had solved the problem. None of the teachers had come close, even though they had the same information.

The youths visualized the problem differently and also used a different methodology for approaching the problem. While the students were more comfortable with the technology, the driving factors seem to be a singular lack of discomfort facing an unknown problem without a preconceived methodology for approaching a path to the solution.

In this wired world, the youth ( Douglas Rushkoff calls them “screenagers”) are seen to be qualitatively different from those of us over the age of 25 (whom Perry Barlow calls cyber immigrants). This not only impacts on the ability to use and/or adapt to technology, but also it changes the understanding of the world at a meta level. Orson Scott Card, in his “Ender” stories, Neil Stephenson, in Snow Crash, and other writers have utilized this apparent shift within youths as a pivotal vehicle in their stories.

In the past, this very agile physical capability was exploited by the military. Today, the perceptual shift is opening up new and evolving relationships across all sectors. It is this talent of youth which not only grasps, but can fully articulate the opportunities which arise from short half-life knowledge. And, it is the academic cyber immigrants who, having lost focus, are attempting to compete on a playing field which favors youth.

At one time, adults would concede the athletic fields to youth. Many, though, also realized that in the sciences, the break throughs came from the younger academics. The shifting

world of short half-life knowledge has moved this age differential downward. Yet, it is interesting to note that the domains outside of science and technology see a longer and delayed period of productivity.

Organizations can also be considered living organisms. In fact, in the United States, corporations have many of the same rights and privileges accorded to persons. Because these organizations constantly renew themselves with new personnel, they have the potential to remain as adaptable and agile as the generations which enter the ranks.

What is more interesting is that humans, and correspondingly, organizations are the only species which learn, contemporaneously, from mistakes and can pass this knowledge onto others within the same lifetime. Memetic information is contemporaneous while genetic information is historical and differentially posthumous ( the survivors pass on the information by virtue of their survival). Moreover, humans and organizations can differentially and selectively access the past or long half-life knowledge.

Traditionally, it has been the K-12 educational experience which has provided the basic tools to access long half-life knowledge and to effectively experience short half-life information. Post secondary education has provided the larger venues either in universities or specialized trade oriented programs. Post modern society has blurred these distinctions, partially by default. The wiring of the world has created schizophrenic institutions of education at all levels, particularly universities. It is hard to “certify” for the future based on short half-life, evolving, contemporaneous knowledge.

When an ice skater twirls, the individual must pick a point of focus or loose equilibrium. As the speed is increased, that focal point becomes dynamic. If that “point” is lost, disorientation sets in. Higher education has lost that focus.

If universities are to fulfill their principle purpose as curators and transmitters of long half-life knowledge then they must effectively use the global network, not to participate in collegial reflexive exchange, but to more effectively connect back to those who have graduated and forward to the generations yet to enter the institutions. The web must first and foremost be used to build time bridges between generations where the wisdom gained from the past can be used to link the future with the present, youth with adults.

The wired world has been seen in one dimension, only. It has been used in the traditional mode of connecting space rather than bridging time. It is this unique piece of the web which has been so obvious that it has been overlooked. Screenagers with their adaptability and capability of accessing short half-life knowledge have traditionally been separated, generationally, from those with long half-life experience, wisdom. Only in premodern cultures has this linkage ever been appreciated. Zen monasteries, medieval guilds, medicine men and story tellers all represent a connectivity which the world lost until the web built a new and more profound connectivity.

Alexander (The Great) had a tutor by the name of Aristotle. The philosopher was neither a great politician nor a military strategist. What was it that made Aristotle worthy of being



Alexander's mentor? St. John's College, with its campuses in New Mexico and Maryland has built a program around classics of the western world. Its graduates enter professions such as medicine, law and education. While these are specialized examples, they are worth contemplating.

In the United States, some educational models are starting to be built as K-16 (the traditional K-12 plus a four year tertiary program integrated and seamless). K-99 or life long learning is another metaphor which is under serious consideration. The wired world presents this opportunity for individuals and organizations to never see these transitions as singular points in a person's life. At the edge, tertiary institutions are building linkages with corporations and other organizations to provide continuous post secondary programs which are the complement to the K-16 program. Many institutions of higher learning are building full multimedia production facilities, equivalent to commercial studios, to deliver broadcast quality programs to support these efforts. While form and structure are emerging, there is no certainty that content and process will follow.

It is interesting that while tertiary institutions have been rushing to be at the fore of short half-life knowledge, the private sector, whose existence is supposedly dependent on this information, has turned inward to assure that it has within its educational objectives the creation of a core set of values without which, it is believed, it can not survive. In interviews with corporate leaders, one sees that corporations can obtain the short half-life materials when and where needed provided that the core competencies are there to build the culture and to integrate and evolve the contemporaneous materials.

The youth and the corporate world, in constant renewal, are capable of connecting at the contemporary level provided they have the wisdom to effectively move forward. Government and the non-profit sectors, because of their inertia are unable to anticipate and respond as quickly in the present. Thus, they are in critical need of long half-life knowledge to provide a matrix in which the future can unfold in a substantive and meaningful manner for society as a whole.

Higher education, in seeing the electronic media as a space bridge and not a time bridge, has failed. The rise of corporate universities, private brokering institutions and private sector commercial providers of tertiary education are evidence that the failure may be catastrophic. This is particularly true for higher education in the developed world. And, unless the developing world's tertiary institutions look beyond their proverbial noses, they, like the lemmings, will follow the developed world institutions over the same cliff, potentially taking their countries with them.

#### Future of the Academy in a Wired World

Diversity is the key to survival in both time and space. Monocultures in biology as well as in metaphysics are highly vulnerable from both within and without. Humans are unique and view the world from individual platforms. The world is seen differently from each point in time and space. As the clock moves, all changes, providing a dynamic and evolutionary kaleidoscope.

As always, there is a utopian idea that the wiring of the world will allow the global connection to provide the ability for all persons to exchange memetic information and thus reach a level of sharing in some form of universal harmony of learning. Yet the wisdom of the ages tells us that we can never close Pandora's box nor can we undo what has been wrought in attempting to construct the Tower of Babel.

In the movie, *Zorba the Greek*, there is a death. In his pain, Zorba asked the English scholar what good are all his books if they do not provide answers to this situation. The scholar replies that the books tell about the anguish of men who are unable to answer these questions. The world's Mythologies are filled with those who sought these answers and challenged the "gods". Contemporary history is filled with heroes such as Steve Jobs who founded Apple computers; and it also tells of the hundreds of contemporaries whose similar technologies lie lost in some garage. The literature is filled with tales of gurus and religious mystics whose only memories, like the statue of Shelly's *Ozymandias* are withering under the steady blasts from the sands of time.

Yet long half-life knowledge shows us that the human condition strives to "go boldly where no person has gone before" (a paraphrase from *Star Trek*). Modern theory seems to tell us that the world is dynamic, self organizing and continually evolving. Historians say that their first job is to rewrite history. Stasis as harmonious equilibrium seems to exist only in the after life.

George Land's seminal work, "Grow or Die", talks about the need of the human spirit to continually transform itself. The process involves specific transition points where there is the requirement of a "leap of faith". If one is unable to make that transition, the pressure to experience growth forces the person to revert back to a former period where such a sense occurred. If one gets back to the transition point and again can not make the jump, the same pattern, like that of a hysteresis loop is created. Tertiary education, in its rush to embrace short half-life knowledge, is in such a feed back loop.

What we must remember is that academics in tertiary institutions have a "doctor of philosophy" whether in electrical engineering or in the discipline itself. As an academic one can not believe that the awarding of the degree confers this capability any more than the scarecrow in the Wizard of Oz has the capability to "think" after receipt of the "paper" from the Great Oz. The wired world clearly points out that abandonment of the responsibilities of the philosopher in a quest for short half-life knowledge sunders rhetoric from reality.

One might wish to recall the sentiments of Wordsworth who, in paraphrase, said that we can never recall the past and its glory, yet we must grieve not, rather find strength in what remains behind. Academy, like Poe's M Valdmere must eventually come out of its hypnotic trance and either make the transition or die. One realizes that what lies on the other side is dynamic and evolutionary and the story we tell of the future is really our present. With this in mind, present vision sees:

- 1) There will be a rise in academic “super stars” in both the areas of research and teaching. Some will fulfill dual rolls; but most will choose a dominant position. To the extent that strong linkages are created across time beyond the traditional graduate student/mentor relationships and across space, between academia and the private/public sectors, there will be an ephemeral bridge between short and long half-time knowledge.

The majority of faculty, internationally, will become mentors and guides to students, helping them to understand both the past and current knowledge which is being built on the foundations of the past. For many years academia has struggled with awarding the doctorate of philosophy to those whose primary interests were in the area of mentoring. Alternative degrees have been proposed and abandoned because of the static nature of the publish or perish industry. This differentiation will be acknowledged with the same reluctance that society has accepted the “coming out” of gays and/lesbians.

- 3) The cost/bit of useful information will decrease as the pressures of the “publish or perish” industry reduces the need for individuals to contribute in both print and cyberspace. The best search engines, the human biocomputer, will provide the filters as personal networks expand, evolve and restructure and the pressure for formal categories and static boxes diminish for short half-life knowledge.

- 4) Tertiary institutions will be connected “locally” downward to K-12 and upward to public and private sector organizations. There will also be a more integrated relationship between communities of individuals with less concern about arbitrary age differentials. With this connectivity, core courses can be distributed globally in a competitive market place, while local institutions provide unique experiences of relevance to their communities. Physical mobility to obtain knowledge will diminish while the quality and quantity of “on-campus” experiences will change significantly.
  
- 5) Institutional diversity is the key to survival in the global market place. There are already 11 “megauniversities with enrollments of over 100,000 students. These institutions, such as the Open University, spend hundreds of thousands of dollars to produce courses; yet, the cost per student is about 2% that of the current costs in a US institution, and their quality is high (Open University ranks 10<sup>th</sup> among the 77 institutions in England). Western Governors University in the US was to be a regional model, but has created relations such that it will soon enter the ranks of these mega institutions. The mega institutions will provide core courses globally while smaller institutions will meet specific local needs.
  
- 6) Memetic diversity will be preserved as globally, local institutions will focus on their core strengths and reorienting their campuses for more creative alternatives to offset the high cost of operating a physical facility. They will import core skill courses for their students while eschewing the idea of building a global metaphysical construct as

the wired world hastens to establish more complex memetic ecosystems in parallel with the understandings being gleaned from the bio/physical models.

- 7) Academic research will restructure into institutes. Some of these will be attached to large institutions and allow for academics to spend a focused amount of time in such endeavors. Many of these will have joint relationships with the private sector for both applied and fundamental research. Faculty from smaller institutions will have the opportunity to work in these centers. Many will choose not to engage in research but focus on teaching. Political jurisdictions such as countries and states may choose to support specific centers. Most of these will focus on socio/cultural issues while the more generic technical and scientific domains will be supported in global centers. The strength and survival capabilities of regional diversity will depend on the ability for the educational infrastructure to provide long half-life wisdom.

If one studies the history of scientific progress, one can see that the knowledge has been gained by building on history. But, more interestingly, it has been built from conflict and diversity. Darwin's evolutionary theory competed with Lamarck, not only on merit, but also on politics. And, while Darwin became dominant, we see today a model which now recognizes the contributions of Lamarck. The competition amongst various scientific groups to decipher the structure of DNA, the struggle of those who believed in a heliocentric model of the solar system, the reinterpretation of x-ray spectra with new understanding of atomic theory, and the rise of the current theories of complexity and chaos speak of struggles within the larger socio/cultural ecology of the human condition.

Octavia Butler, in her novel, *The Parable of the Sower*, said “God is Change”. Husserl has cogently argued that the past and future are seen through the present and that as the present changes, so does the past and the future. Current theories of dynamics have rescued Blake from single vision and Newton’s sleep.

If academia is to evolve, it must build its strength on long half-life knowledge. But critical here is the fact that this wisdom is dynamic. Future institutions of higher learning will regain a balance across time and space, across disciplines and age. The calm which we thought we had within the world was an illusion. Change is the normal world. The perspective on that differential change depends on from which perspective we see it, the half life of the Mayfly or the life span of the Galapagos tortoise. The wired world has just provided a new platform from which to view the dynamics.

### **Bibliography**

- Ainsworth-Land, George T., *Grow or die*, John Wiley, New York, 1986
- Butler, Octavia, *The Parable of the Sower*, Warner Books, New York, 1995
- Daniel, Sir John, *Megauniversities*, Kogan Page, London, 1996
- Davis, Stan and Jim Botkin, *The Monster Under the Bed*, Simon and Schuster, New York, 1994
- Dawkins, Richard, *The Selfish Gene*, Oxford University Press, New York, 1989
- Gassett, Jose Ortega, *The Mission of the University*, Norton, 1966
- Gelernter, David, 1939, *The Lost World of the Fair*, Avon, New York, 1995



Green, Kenneth C, Money, Technology, and distance Education, On the Horizon, <http://sunsite.unc.edu/horizon>, 1997

Knight, Peter T., The half Life of Knowledge and Structural Reform of the Education Sector for the Global Knowledge-Based Economy, <http://www.knight-moore.com/halfife.html.html>, 1997

Korten, David, When Corporations Rule the World, Berret-Kohler, San Francisco, 1995

Stephenson, Neal, Snow Crash, Bantam Books, New York, 1992

Sterling, Bruce, Crystal Express, Ace Books, New York, 1990