

Paper Title: A Global Academy?

Author: Peat, F. David

Institutional Affiliation: Director, Pari Center for New Learning, Pari, Italy

This paper was prepared for "Science and Religion: Global Perspectives", June 4-8, 2005, in Philadelphia, PA, USA, a program of the Metanexus Institute ([www.metanexus.net](http://www.metanexus.net)).

Abstract:

The paper discusses the current failure of the universities to live up to their promise and the need for alternative academies. One such alternative could be a distributed academy in the form academics and researchers who are connected electronically via an interpenetrating metric- and topologically- connected networks. Such an academy would be in the position to discuss a series of meta-topics involving research and education. These include issues of the dissemination of scholarly knowledge, copyright, more powerful citation indexes, a global system for the identification of scholars whose knowledge, skills and interests would benefit from networking, discussion of ethical issues related to research and assessing the value of the "orchid disciplines".

Biography:

F. David Peat obtained his Ph.D. from Liverpool University and carried out research in theoretical physics at Queens University, Canada and the National Research Council of Canada. He also acted as a consultant for the Science Council of Canada and taught at Carleton University, Ottawa. Peat is the author of some twenty books and for many years was associated with the late David Bohm. In 2000, he founded the Pari Center for New Learning in the medieval village of Pari in Tuscany. His web site can be found at [www.f davidpeat.com](http://www.f davidpeat.com) and the Pari Center's website at [www.paricenter.com](http://www.paricenter.com).

Paper Text:

### **Introduction**

In the year 2000 the Pari Center for New Learning hosted an international conference, "The Future of the Academy", to discuss the role and future of universities, research institutes, knowledge and higher education. Five years later the World Academy for Arts and Science will be holding a follow-up meeting, "The Future of Knowledge: Evolutionary Challenges of the 21<sup>st</sup> Century", in Zagreb, 17-20 November 2005.

While Pari meeting brought together academics from USA, Canada, Australia, France, England, Italy, Austria and Sweden, the conclusions reached were remarkably uniform: It was felt that in many ways the university is failing to live up to its original vision. Universities were supposed to be the transmitters of culture, learning and independent thought. Its scholars would act as arbiters who accredit knowledge. But today's universities appeared to be producing knowledge within a "hothouse" atmosphere characterized more by the corporation than the campus.

The academy was increasingly being influenced by financial and institutional pressures. Respect for the bottom line plus an emphasis on short term results that satisfy corporate

sponsors and government support, was turning the university, as a source of human capital, into a factory that turned out skilled workers. Its traditional role of fostering scholarship, original research and critical thinking was losing ground. Learning has shifted from being an end in itself, to learning as a means to an end. It had moved from fostering learning as a public good, to learning as a way of making a living and creating human capital.

While specialization was necessary in academic fields, it has also led to the fragmentation of knowledge to the point where it is increasingly difficult to dialogue across boundaries and to come to a coherent understanding within a particular field. Fragmentation was also exacerbated by the protectionism practiced in certain fields. There was also the issue of the pruning away of “orchid disciplines”– subjects not explicitly linked to an immediate and explicit returns to society. These are often seen as a luxury, or even parasitic. Indeed, Charles Clarke, the British Education Secretary, said in an address to University College, Worcester in 2003, “I don’t mind their being some medievalists around for ornamental purposes, but there is no reason for the State to pay for them.” He went on to say that the State should only pay for subjects of “clear usefulness”.

There are many scholars within the university who have a great need for transdisciplinary contact and genuine intellectual engagement. Increasingly, far ranging meetings of minds no longer take place within the context of universities. The fostering of such engagements on an international scale is the subject of this paper.

One of the great lights of European culture burned in medieval El Andalus when Jews, Christians and Muslims worked together, translated each other’s books and studied arithmetic, astronomy, medicine and botany side by side. It was the Arabs who brought the new learning into Europe and cities such as Córdoba, Toledo and Granada became for a time the most important centers in the Western world. This period in history clearly demonstrated that, when scholars are engaged in a passionate search for truth, they can transcend the boundaries of religious differences. Is such a unity of minds possible in our modern age? And if so where would it take place?

My feeling is that there is a definite role for alternative academies and institutions, and that scholars, researchers and teachers can belong both to a university and at the same time participate in alternative academies. While there will always be localized academies another possibility, made feasible by revolutions in communication and by air travel, is a distributed academy or Global University. In this context we can look towards the Metanexus international network of LSI groups as a seed for the future.

The present LSI network attracts those with strong ethical backgrounds; people who, I suspect, share a sense of awe and respect in the face of the cosmos, and who are concerned with knowledge in its widest and its deepest sense. This is exactly the attitude that encourages dialogue across boundaries. It brings experts from the sciences into contact with those in the humanities. In turn, it also encourages debate within the various branches of the humanities and the sciences.

I see the possibility of the emergence of a true global university and one with a strong basis in which could be called “spirituality”, values and ethics. Such a global university need not have any physical headquarters or hierarchical structure. Rather it would be distributed and supported by a series of active nodes. This also opens the possibility of offering graduate students new interdisciplinary courses that can in part be taken at a physical center (an LSI group) and in part on the Internet via the LSI network.

While the present LSI network could well hold the seeds for the future, clearly it must extend beyond its present domain of the science/religion debate. (Already this is happening in the sense that the field of economics has entered into the network and there could well be significant overlap with another of the Metanexus programs – Spiritual Economy). While the future of a distributed academy could well retain the spirit of its initial conception – let us call this “spirituality” in the very widest sense of the world, that is, to embrace not only the religious believer but the agnostic who has a strong sense of wonder, awe and respect in the face of the cosmos – it must extend to cover all the disciplines in a fully authentic manner.

An additional impetus is required before the various LSI groups could be said to form a true interacting global network. Groups have been established within many countries. They are encouraged by the fostering hand of Metanexus through the funds it disperses and the supplemental grants made to those groups who excel in their programming. A List Serve enables groups to circulate information about programming. Finally there is the opportunity for group representatives to meet during the annual conference in Philadelphia. But in order to form a true global network, one with active exchange and debate, more work is needed to create a true distributed network or global university.

Such a network could be envisioned as having an entwined two-level structure – metric and topological. By metric-based I mean the linking of academics who are located a comfortable traveling distance from each other. These sub networks would be clustered around a series of nodes; a node being an LSI group in one region identified as particular active. Its responsibility would be to encourage exchange (for example the occasional joint meetings, pooling of speakers) within particular a geographical region, or country, in order to foster a spirit of open transdisciplinary debate.

Topologically-based networks would gather around some common interest, research project or fundamental question with individual members located in different parts of the globe. In this case communication would be electronic with the possibility of occasional meetings, at annual conferences, for example.

In such a distributed academy a high degree of cross-linking will occur. In turn, this should lead to the creation of new areas of debate and research, and new and, at times unexpected, outcomes. This could be thought of as self-organization of a knowledge system in which something totally new emerges.

At this point we should remind ourselves that the study of non-linear systems tells us that spontaneous self-organization only takes place when something flows through a systems

– matter, energy, information, etc. In the case envisioning the LSI network as a seed for the future, the flow-through is going to involve a financial kick-start. But once self-organization has taken place the entire system should be self-sustaining. Therefore the creation of such a network is going to highlight funding issues, boundaries between disciplines and notions of scholarship.

But how are standards of excellence to be maintained within an evolving network? In the absence of an hierarchical structure who is to determine if a particular research program is worthwhile, or that a currently circulating ideas is “flakey”? This is related to one of the problems of the Internet. While there is an enormous amount of information floating around how much of it is directly verifiable? How can a particular statement or theory be traced directly to original sources? How much is the result of cutting and pasting of other people’s articles? Not too long ago I was acted as an external examiner for a PhD thesis that contained URLs amongst its references. A little time spent on the Internet showed me that information within some of these URLs was not totally reliable.

There would have to be a strict policy of careful monitoring of any distributed university, a form of electronic referee system in which academics take on the responsibility of commenting on each others work. Some scholarly journals adopt an anonymous referee system, which advises the editor to reject, accept or accept with modifications a particular paper. Possibly a more appropriate model for a global university would be based on the alternative approach in which academics publish their comments alongside a particular paper and give the author the right to reply. This approach encourages debate and allows for different approaches and shades of opinion to be aired.

Let us now enquire, assuming that such a global network comes into existence, what issues would it consider and what practical results could it be expected to achieve? Let us speculate:

### **Scholarly Journals and the Dissemination of Knowledge**

A key issue that must be addressed by a Global University is the dissemination of scholarly knowledge. We still live in an atmosphere of “publish or perish” yet the scholarly journals are a virtual monopoly in the hands of a very small number of publishers. In turn, a library subscription to the key journals in any field is very expensive and precludes some third world academics having access to the latest information. While a single university or library will not have much impact on one of these publishers, a Global University is in a far more powerful position to facilitate the dissemination of scholarly knowledge. (Note the Pari Center is in the process of offering a complete course in science and mathematics, intended for self-study by students in developing countries, via a series of Workbooks that can be downloaded without charge from the Pari Center website [www.paricenter.com](http://www.paricenter.com). )

### **Copyright and Copyleft**

Currently academics sign over copyright to the publisher of a scholarly journal in which their paper appears. In principle an author should not even display that paper on his or her own website. Clearly the whole issue of knowledge within the Public Domain must be

discussed within a global network. One possible solution is the adoption of the principle of “copyleft” – (<http://www.gnu.org/licenses/fdl.txt>).

### **Internet-based publishing forum**

Internet journals and Internet publishing may go some way to resolving the two issues above. In 2002 the Pari Center held a conference on “The Future of Knowledge in the World of the Internet” in which it was proposed that an Internet-based publishing forum be created in order to discuss the whole range of issues involved in knowledge dissemination. This forum has yet to be set in place and could well be managed through the Metanexus network.

### **Citation Index**

Another issue is that of navigating one’s way through the enormous amount of data available both in scholarly journals and on the Internet. We need to transform a mass of raw data into active information.

When it comes to academic journals there is a small amount of meta data associated with each paper – such as a few keywords. Internet search engines such as Google and Yahoo can also be used to locate information on names and topics but clearly something far more powerful and effective is required. Creating an “intelligent” search engine was one of the goals of the A. I. program but, according to my contacts in this field, this is proving a notoriously difficult problem. The issue may not so much the technical problems involved but that of understanding the ways in which we humans search for knowledge and recognize what is significant to us – it is sometimes the case that serendipity plays a more important role than a methodical search.

The 2002 Pari Center conference on “The Future of Knowledge in the World of the Internet” discussed this issue and proposed that the academic community should think seriously about how meta data can be enriched by, for example, mapping of topics to create contextual metadata fields. Suppose that key issues and questions were defined in various disciplines. Meta data would then identify how a particular paper or research project addresses these issues. This would promote more effective access to, and creation of, content in vertical and trans-disciplinary fields. What is required is the development of research teams to build the metadata templates in specific areas and then test out their validity and effectiveness using a natural language contextual/inference search engine. Such a program would also involve pilot studies in a number of fields. Again such research could make use of the existing LSI network.

### **Making Connections and Encouraging Leaps**

A closely related issue is that of how scholars are to find each other. Researchers, located in different countries, or working in different disciplines, may have something important to exchange – it could be a transferable technique, methodology, theory or piece of technology. Or it may consist of experimental results and data whose value may be appreciated by another researcher. Again this is where a distributed university could play a significant role – in making and fostering connections.

Sometimes great leaps can take place when scholars in different disciplines interact. Suddenly new research tools are opened up and new methodologies, areas of expertise and knowledge intersect. One example of this is that fertile period when physicists entered the field of biology. Maurice Wilkins, for example, brought with him the technique of X-ray crystallography, which led to the discovery of the molecular structure of DNA. Others carried the approaches of theoretical physics into the study of molecular biology. Sometimes leaps occur when a concepts and technologies meet. The principles of the computer and the computer program were laid down in the 19<sup>th</sup> century by Babbage and Lovelace but had to wait until the development of electronics. On the other hand, the world already possessed computers and international networks of telephone lines but the Internet and World Wide Web were not possible until researchers and the military realized the importance of distributed networks.

There is yet another possible strategy that a global university could draw upon. An enormous number of computers are connected world wide but with each computer only being used for limited periods of time. Already the SETI project makes use of this enormous potential of computing power by distributing the data it collects to those willing to collaborate by having their computers contribute to analysis of data.

Distributed networks could be used to put researchers together in order to explore certain fields of interest. The network would be constantly profiling individual researchers – their knowledge, area of expertise, questions they are asking, techniques they use, resources to which they have access and so on – and then seeking matches to academics in other countries and institutions. Again this is a research project that could be initiated in via trials using the existing LSI network.

### **Research**

If we look into the history of science we realize that, in the past, a great deal of important research was carried out by amateurs working outside the walls of the university. Today, with the technical sophistication required for certain types of experiments, many research programs can only proceed within universities or large research institutions. Nevertheless a great deal of research, particularly in the fields of mathematics, theoretical physics, chemistry and biology, artificial intelligence and so on could be carried out in a distributed way.

One such prototype project is the University of Bath's, U.K. *Replicating Rapid-Prototyper* project. This is one step towards the physical realization of von Neumann's hypothetical Universal Constructor – a machine capable of reproducing by making a copy of itself. The University of Bath's project under Adrian Bowyer involves a self-copying rapid-prototyping machine that, in turn, can be used to produce other objects whose structural "DNA" as it were would be downloaded from the Web. The project is Open Sourced so that researchers in other institutions can freely download details, make design modifications and post them back on the project's website. In this way the project will evolve thanks to distributed creative ideas.

Academics are happy to carry out their research with people in other countries and institutions, but this is often most effective when people have first met face to face. A meeting, even an informal conversation during a coffee break, can convey an enormous amount of information in a short time, both explicit and subliminal, that tells us where the other person “is coming from”. It could be the enthusiasm in a voice when a certain topic is raised, or a sense of reservation at a particular name. In this way the basis of a relationship is being built, ideas are exchanged and new approaches generated. Following such a brief initial meeting researchers can then work via emails, file transfer, telephone calls and videoconferencing. But clearly, if a global research network is going to be truly effective, funding must be set aside for “warm body” contacts via meetings at central nodes of particular networks. Indeed the whole notion of academic and research funding must be rethought in terms of a Global University.

### **Ethical issues**

There are a number of ethical issues to be discussed with the traditional disciplines, such as physics and chemistry, medicine and law, as well as within the newer fields of biotechnology and bioengineering and the range of genetic endeavors. But how is this to be done? In whose interest is it to convene these discussions? And how can ethical guidelines be established across national, religious and cultural boundaries? Clearly a distributed university could and should promote such discussions.

### **Value of 'orchid' disciplines**

Reference was made above to current attitudes towards the so-called 'orchid' disciplines. In the past a range of disciplines in the humanities were taught and promoted for their own sake. They were part of what was broadly understood to be culture and knowledge. Students with degrees in arcane areas also made valuable contributions to society. But today, there is a tendency to view exotic disciplines as not returning investments quickly enough, with the result that universities are tending to drop such studies.

Any valid Global University must consider the future of these disciplines. It must ask what is the long-term cost to society in losing scholars from these disciplines? Does all learning have to be justified by a return on investment? It should investigate in which ways apparently arcane areas of learning can lead to new insights. How do they help to define the values of a society, and how are skills transferable to areas that have more immediate application to the needs of society and the workplace?

### **Recommendations**

- a. Establish a consortium of funding agencies in the sciences and humanities that will kick-start the creation of a distributed academy based on the notion that the LSI network is a prototype of a seed to be nurtured.
- b. Identify nodes and individuals responsible for fostering sub networks
  - i. Local nodes responsible for geographic areas
  - ii. Nodes based on topic areas. (See below.)

c. Ensure that some warm-body meetings take place within sub networks and between those responsible for network nodes

d. An important aspect of b(ii) above will be to identify topic areas that are amenable to research and study via a network. Ideally these should be topics that cross traditional boundaries between disciplines, or topics that I draw upon important resources located in different geographical areas or cultures. Some topics have been referred to in this paper. This paper has also identified what could perhaps be called meta-topics, that is topics relating to the structures in which knowledge and research are embedded. These are listed below

- i. Issues of the dissemination of scholarly knowledge and scientific and technological information. The situation regarding publisher's monopolies of scientific journals. Creation and regulation of Internet journals.
- ii. Issues of copyright and copyleft
- iii. Creation of more powerful citation indexes and search engines
- iv. Pilot studies on ways of identifying scholars whose knowledge, skills and interests would benefit from networking

### **Acknowledgements**

The author would like to thank the participants who attended the 2000 Pari Center conference on "The Future of the Academy" and the 2002 Pari Center conference on "The Future of Knowledge in the World of the Internet", also the many visitors to the Pari Center who have contributed their ideas and approaches to this debate. Also to Eric Weislogel for his encouragement and for stimulating discussions on the vision of a global university