The Global Virtual University

John Tiffin and Lalita Rajasingham
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What will universities be like in the knowledge society of the future?

‘Lalita Rajasingham and John Tiffin have brilliantly sketched a philosophical foundation for the future of the university in an era of rapid technological change and globalisation… This book is essential reading for students and faculty within existing universities, and for policy makers whose major challenge will be to enable the learning society on a global scale.’

Professor Donald E.Hanna, University of Wisconsin

This book is about the shift from the contemporary university of the nation state to the global virtual university of the future. The authors launched their idea of virtual universities on the Internet with the publication of In Search of the Virtual Class: Education in an Information Society in 1995. Since then, virtual universities have multiplied worldwide.

This book, based on material gathered from research projects carried out in Japan, Brazil, USA, Australia and New Zealand, describes key aspects of the global university and presents a paradigm from which it might be constructed.

As leading figures in this field, the authors argue that the universities of the future will be virtual, global and student centred, taking advantage of such technological advances as broadband telecommunications, artificial intelligence and HyperReality.

This unique visionary text will be critical reading for academics, postgraduate students, and for anyone involved in policy making and planning within the university community and administration.

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This book, *The Global Virtual University* by John Tiffin and Lalita Rajasingham offers a magnificent virtual vision. But the vision is not utopian. It is armed with the marvels of the new communication and information technologies (CIT). It is also adorned with the rich regalia of an institution that has for centuries survived the vicissitudes of time and space. The vision contains breadth, depth, erudition, and realism. Engagingly, it also provides us with many staged virtual examples.

Tiffin and Rajasingham offer us a vision that responds to a desperate global need. That need has been dramatically demonstrated by the recent raging events and debates. Beginning with Samuel Huntington’s *Clash of Civilisations* thesis (1993, 1996), the world has been intently focused on the North-South rather than the East-West conflicts of the Cold War era. It is also contemplating a possible bloody war of civilisations.


Ironically, however, 2001 coincided with the terrorist September 11 attack on the United States. That tragedy has ushered in a new era that threatens to pitch the world’s rich against the world’s poor in a global civil war. The clash could be, as Huntington has put it, ‘between the West and the rest’. In a *New York Times* article, on November 27, 2002, Thomas Friedman dramatised ‘the clash’ with an imaginary letter from President George W. Bush to the Muslim world warning it of the dire consequences of its belligerence. In the meantime, a parallel war is being waged on all sides to match the war of words.

Are we facing a conflict of unabashed material interests such as the control of Middle East oil, irreconcilable confrontation of fanaticisms, or an unembellished clash of
civilisations? All three factors are probably at work in a complex bundle to camouflage human greed and ignorance. ‘Civilisation is a race between education and catastrophe’, as H.G.Wells has so aptly put it. The challenge facing the world now is how to educate the globe’s 6.2 billion people in avoiding future catastrophes. Such an education calls for a revival of the core values of compassion and enlightenment embedded in all great civilisations—East or West. But it also demands the development of the cognitive and professional skills needed for survival in a technologically driven world.

Tiffin and Rajasingh respond to this daunting challenge by calling for three concurrent transformations: in higher education, knowledge modalities, and civilisational boundaries.

Under the impact of CIT, the transformation in higher education has already begun. The explosion of virtual universities is threatening to overtake the functions of traditional universities. Eli Noam (1995) has argued that the end is near. According to this view, conventional universities have already lost much of their functions of knowledge production (to transnational corporations and think tanks), knowledge distribution (to virtual universities), and knowledge storage (to data banks, electronic libraries, Internet, and World Wide Web). Some conventional universities, however, have responded to the challenge. Many universities have already launched or are experimenting with a complex variety of distance education programmes.

Universities are not, however, knowledge factories. They are vital and interactive social institutions. Along with other cultural and scientific institutions (religious, artistic, literary, and scientific establishments), they act as the moral and intellectual guardians of their societies. They are important conduits for socialisation, recruitment, innovation, reflection, service, and empowerment (Tehranian 1996). Tiffin and Rajasingham acknowledge all of this. But they persuasively argue that a more universal higher education is now made technologically possible by liberating learning from time and space.

The new virtual universities are globalising, democratising, and transforming knowledge. Conventional universities in the Hindu-Buddhist, Confucian, Judaic, Christian, and Islamic worlds imposed certain boundaries on knowledge. Those boundaries were closely associated with metaphysical worldviews. Modern universities imposed a different set of boundaries on knowledge closely tied to the new positivism and empiricism of modern science. The parameters of knowledge could expand only with paradigm shifts from Newtonian to Darwinian and Einsteinian worldviews. String and chaos theories have further expanded those parameters. But virtual universities are further expanding the boundaries by globalising, democratising, and relativising all knowledge. Those who claim to have arrived at the Truth, whether metaphysical or scientific, are increasingly under the suspicion that they have lost it.

Truth is increasingly considered to be the search for the truths. Two prominent theologians, one Jewish and another Muslim, have called for tolerance, nay celebration, of differences (Sacks 2002; Soroush 1378/1999). That means dialogue with other peoples, cultures, and civilisations. In this fashion, the concept of civilisation itself is undergoing a profound transformation. Civilisation is no longer to be considered as a definite destination. Rather, it must be viewed as a a civilised state. Clash of civilisations is thus a bloody game only for the fanatics. journey, a process of becoming. No nation can therefore claim to have arrived at Dialogue among civilisations is therefore the only
path for negotiating problems and solutions. Such new perspectives fostered by conventional as well as virtual universities can perhaps save humanity from the follies and catastrophes of its own making.

That is the good news. However, the same information and communication technologies that have immensely enhanced educational opportunities have also enabled Al-Qaeda to plan globally for terror in a communication, financial, and political network. The same technologies also have placed us in a global fishbowl. To pacify the revolutionary poor hungering for bread, Marie Antoinette today would not have been able to suggest, ‘Let them eat cake’. She would have been chastised in the face of images of famine in Africa and elsewhere as portrayed by the global television networks. Such utter ignorance of the world by the affluent would have been unthinkable.

On the other hand, the same CI technologies have enabled the world’s poor and marginalised populations to witness the lifestyle of the rich on television. Exposure to global advertising has whetted their appetite for consumer goods that are effectively out of their reach. Rising expectations and frustrations among the poor are displaying themselves in rising alienation, regression, and aggression. The human insecurities of the marginalised are in turn mirrored in the human insecurities of the entrenched. Ghettoes of the poor in urban slums thus find their mirror image in the ghettoes of the rich in the gated communities defended by electronic surveillance.

To build a more peaceful and prosperous world for all, can virtual learning transform the human energies mobilised for violence into human efforts for peace and development? For an eloquent response to this critical question, dear reader, I cannot offer you a better source than the last two concluding paragraphs of this splendid book.

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Honolulu, Hawaii
27 November 2002
References

Preface

The information society is becoming a knowledge society. An education system is needed to match. Industrial societies became possible with universal primary and secondary education. A knowledge society needs tertiary education that is available to anyone throughout their adult life.

Tertiary education is primarily provided by universities whose traditional role has been to prepare the managerial and professional elites of nations. Now they need to become a service that caters to everyone. And if globalisation is to mean anything more than exploitation of the wretched of the earth by the powerful and privileged, it must mean making university education available to everyone everywhere who wants it regardless of nation, culture or creed. A quite extraordinary demand for university education and change in the civilising mission of universities is in the making. What kind of university can meet it?

The modern university was set up to respond to the needs of the society that sustains and legitimises it. It is not designed or equipped to respond to the new global demands. Dependence on traditional transport and building technologies and classroom-based teaching restricts its hinterland and makes rapid expansion impossible without lowering standards.

There has to be a better way to respond to the global demand for university education and to manage how this is done without turning universities into corporate boot camps. There has to be a way that is more economic and therefore possible, more matched to the times we live in and the technology we work with, more open to people with languages other than English and more concerned with the curricular needs and cultural concerns of globalisation itself.

In 1995 we published In Search of the Virtual Class: Education in an Information Society, in which we outlined the idea of a virtual university based on the Internet that could be available to anyone anywhere. The following year the Open University of Catalonia (Universitat Oberta de Catalunya) was operating entirely on the Internet. Since then virtual universities have proliferated. However, not all have been as successful or as concerned with standards as the UOC. It is the economic advantages of the Internet that attract rather than the opportunity to develop a new kind of university that redresses the problems of the old and addresses the needs of a new age.

Our interest has been with the potential of a virtual university that is uncoupled from the accrediting structures of nations and operating from a global broadband telecommunications platform where the norm of personal computing power makes possible distributed virtual reality with artificial intelligence. Such a technological
environment will, like television and guns, become global and if, like television and guns, it is perceived as the means for pleasure and survival, even the poor will find some way of accessing the technology. Instead of providing bare bones degrees, it will be possible for virtual universities to offer the full flavour of academic life that has until now been available only to those who attend ‘real’ universities.

In ‘The Idea of a University’, published in 1873, Cardinal John Newman defined the modern university as we know it (Newman 1996). Newman (1902) also coined the term ‘virtual university’. When we first used this term in the 1980s we had in mind the concept of ‘virtual networks’ in telecommunications, the exciting new idea of ‘virtual reality’ introduced by Jaron Lanier and our own experiments with ‘virtual classes’ using a ‘computaphone’ as we explored how a university could be a function of computer and communications technologies. Newman (1902:4), however, applied the term ‘virtual university’ to the great metropolises of the industrial revolution, because their bringing together of people and ideas placed them at the heart of the dynamic changes that were taking place in society. It is a rich idea. If living in nineteenth-century Manchester was to be at the very heart of the industrial revolution, then being on the Internet in the twenty-first century means being part of the knowledge revolution.

Coming from different cultures ourselves, we recognise the dangers of ethnocentricity that Timothy Reagan raises in his work on Non-Western Educational Traditions. In seeking the common principles that underlie all education he uses the linguistic concepts of ‘relative universals’ for properties that are generally held in common and ‘absolute universals’ for properties for which there are no exceptions (Reagan 2000:15). In turn we look for the universals in universities that make them universities and should, therefore, be incorporated in any university of the future.

Universities are nothing if not communication systems and, therefore, the idea of a university in the abstract is a paradigm. The universals of a university can then be seen as the key elements of the university paradigm and individual universities as syntagmatic expressions of this paradigm.

We write of the university paradigm not from a statistical basis, nor solely from the Anglophone literature, but from meetings at conferences and communications on the Internet with academics from around the world who already embrace global collegiality. We also write from our experience of the universities where we have taught and studied in different countries. We have often been struck by the remarkable similarity between universities. Looking at the idea of the university as a paradigm helps us to understand why this is the case and fills us with hope that no matter where students and teachers are from, they would find themselves at home in a global virtual university that conforms to the age-old paradigm of the university. This book describes the kind of radical changes universities need if there is to be a better way for them in the age of globalisation, but it also argues that universities must stay within the universals that have seen them survive for as long as civilisation itself.

The relationship between universities and civilisation is close. This book was written in the shadow of the events of 11 September 2001, amid talk of crusades, growing paranoia and the emergence of atavistic fears of other cultures. It carries the suggestion that a global virtual university could be a step towards sanity, towards wisdom, towards finding the knowledge we need to deal with global problems in a global way.
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Chapter 1
The universals of a university

The purpose of a university is to address the great issues of its time.
(Wang 1999: verbal personal communication)

…the university was no longer a place of learning, but a commercial enterprise, a degree shop run by soulless administrators who cut costs ruthlessly and over-worked the shrinking numbers of their academic staff.
(Hewett 1999:155)

…a bureaucratic institution for sifting, sorting and credentialing the otherwise undifferentiated masses.
(Miller 1998:22)

A Northern Territory University Professor has been threatened with decapitation if students fail an English language exam this week.
(The Australian 2002)

…the knowledge factory, as it were, at the centre of the knowledge economy.
(The Economist 1997)

Introduction

The Chancellor of the University was required to give his final address stark naked then to lie on his belly while his head was chopped off. His body was then placed in an open grave without shroud or coffin and his head was stuck on a pole for a fortnight, after which it was thrown in the river to make room for the head of the University’s High Steward (Richards 1995).

This is not an undergraduate fantasy. The university was Cambridge, the year was 1535, the Chancellor was John Fisher and the High Steward was Sir Thomas More. Their problem was that they held to the monolithic authority of the pope to reveal God’s
meaning for the world and decide such issues as whether a king could divorce a queen. Papal authority was the keystone in the structure of logic that universities taught and the mindset that held the medieval world together. But

Figure 1.1 John Fisher Chancellor of Cambridge University (1514–35). (Permission of the Master and Fellows of St John’s College, Cambridge.)

Heading up a university has been a risky occupation since the days of Socrates

the Reformation had begun. Papal infallibility was under question. North of the European Alps powerful renaissance princes like Henry VIII were asserting the sovereignty of the state. In the edifice of the medieval university were appearing the first cracks that would ultimately open the way for the modern university. University academics that failed to
adjust what they taught and researched accordingly suffered similar fates to More and Fisher.

Since the 1960s it seems as though all the world could see that once again ‘the times they are a-changing’, except for those who managed the modern university. They continued to operate as though by some divine right, while the world they were supposed to prepare people for changed about them. Not anymore. Once again the heads of chancellors and vice-chancellors roll, albeit virtually. Is this ‘the end of university?’ as Majid Tehranian (1996) asks.

Universities are still focused on the receding national issues of the countries they serve at a time when globalisation is becoming the burning issue, not globalisation in the sense of a neoliberal economic environment for free trade, but in the fuller sense that Marshall McLuhan envisaged when he wrote of a global village (McLuhan and Fiore 1967). We are all inextricably interconnected in a global information environment that brings global awareness and with it global responsibility for sustainable development, for seeking solutions for pollution, poverty, pandemics and climatic change, and for learning to live together. No country, not even the USA, can think of itself anymore as ‘an island, entire of itself’. The challenge is to develop a university that rises above partisanship to cultivate cadres of professionals who deal with global issues.

This book is about the idea of a global virtual university. Who should teach what to whom and how in the future? Who will academics serve when universities are global, how will they be paid and by whom, how will they and their students be assessed? What rules, procedures and philosophies will hold them together? To address these questions we consider the university as a paradigm.

The university paradigm

If one were to name a single text as a starting point for thinking about the idea of a university as a paradigm it would have to be Thomas Kuhn’s *The Structure of Scientific Revolutions* (Kuhn 1962). By casting doubt on the objectivity of the scientific method, it brought into question the philosophical grounds on which the modern university stands.

Kuhn used paradigm to mean ‘what the members of a scientific community, and they alone, share’ (Kuhn 1977:294) and explained that such communities are characterised by the relative fullness of communication within the group and by the relative unanimity of the group’s judgement in professional matters. To a remarkable extent the members of a given community will have absorbed the same literature and drawn similar lessons from it.

(Ibid.: 296)

The history of science according to Kuhn is not a logical progression toward revealing the nature of the world we live in. Rather, science develops in stages of well defined norm paradigms separated by scientific revolutions. In a norm paradigm research results complement each other. New knowledge fills in missing pieces in the jigsaw puzzle of the norm paradigm. Practitioners are trained to solve problems according to the norm
paradigm and have a vested interest in its preservation. When research findings do not fit
the norm paradigm, a paradox is created. If the research and the researcher are
discredited, the norm paradigm is reinforced, but if the problem proves to lie with the
paradigm, the resulting scientific revolution involves competition between new
paradigms until a new norm paradigm emerges to resolve the paradox. Science seen like
this is more a self-maintaining cultural communication system than an objective search
for truth.

Kuhn’s concept of paradigms has been widely applied in other fields. Heinich (1970)
talks of educational paradigms and Carlotta Perez (1983) of technological paradigms. The
way Kuhn applies the concept of a paradigm to science can be applied to any university
discipline. Indeed it fits any socially established system of knowledge.

A hundred years after Fisher and More of Cambridge were executed for upholding the
primacy of the papacy in resolving any paradoxes that might present themselves to a
university, Galileo Galilei of the University of Padua was accused of heresy by the
Inquisition for arguing the heliocentric case that the earth orbited the sun. Galileo,
however, was on the southern side of the Alps where the counter-Reformation was in full
swing and the pope still ruled on paradoxical issues according to the norm paradigm as
defined by the Bible. Galileo was only saved from torture and execution by recanting.
Yes, the earth was the centre of the universe, as of course it had to be because God
located the Garden of Eden there.

Dava Sobel (1999) links the life of Galileo with that of his daughter who was a nun in
a closed order. Their correspondence shows how the philosopher and the seminarist were
both locked into a world where everything was explained and justified in terms of God’s
intention as interpreted by the Roman Catholic Church. The dominance of such a mindset
can only be understood by comparing it to the scientific rationalism in which the
developed world and its universities are immersed today. Michel Foucault calls such
zeitgeist an episteme by which he means an all-encompassing body of unconscious
knowledge peculiar to a particular time and place.

There is similarity between Foucault’s idea of an episteme and Kuhn’s concept of a
paradigm (Major-Poetzl 1983:86). Kuhn’s idea that ‘when paradigms change, the world
itself changes with them’ (1962:110) reflects Foucault’s view of an episteme as a
worldview that is so comprehensive it is not possible for people in one episteme to
comprehend the way people in another episteme think (Foucault 1970). We could think
of an episteme as a metaparadigm of all the paradigms by which people live as they eat,
dress, work, fight, play, talk (and go to university). The difference between an episteme
and other paradigms, such as those of the university, science and clothes, is in its
comprehensiveness. We can walk away from a game of tennis or a lecture on political
science and recognise that other people play different games and take different subjects,
but we cannot as readily exit from the episteme we live in or comprehend epistemes we
do not live in. We are conscious of our use of the paradigms within an episteme. We seek
to acquire knowledge of paradigms so that we ‘know’ how to do things in ways of which
our society approves. We go to university to learn advanced complex paradigms and to
critique them so that we can improve them, but we do not lightly shift paradigms. To do
so is to invite discord in the harmony of the intermeshed paradigms that make an
episteme.
Galileo looked outside his episteme when he saw the mountains of the moon through his new telescope and worked out that Venus orbited the sun and that the heavens were not immutable. Galileo wrote about his discoveries from scientific and mathematical, not biblical, premises and in Italian not Latin, so that the reader could follow the reasoning instead of having to accept it. The issue with Fisher was who should decide what God intended marriage to be. The issue at the centre of Galileo’s trial was the source of knowledge: who explained the world, God or humans? This was the key philosophical issue that would ultimately distinguish the medieval from the modern episteme and consequently, the medieval from the modern university.

In the medieval university knowledge was based on God’s will as it was revealed in the Latin version of the Bible. In the modern university, knowledge is based on the texts of authoritative, widely-referenced authors who rationalise along accepted logical grounds and intertextualise with a community of peers to develop agreed bodies of knowledge preferably in the language of the state that supports the university. These constitute the national norm paradigms of the subjects that, in sum, make up the curriculum of a national education system. Students sit exams that test their comprehension of what the textbook writers intended them to understand. Then they go forth to teach, manage and practise in the professional community for which their study of the knowledge paradigm has prepared them, bringing scientific rationalism to bear on the problems of industrial societies. They are the priesthood of modernism, the texts they study are its bibles, the authors its gods.

The modern university that emerged from the Enlightenment to serve the needs of the nation state through the application of scientific rationalism is still with us. It is still the legitimate university, but signs that all was not well with it came in 1968 when students and academics in Paris staged a revolt against the authoritarianism of the modern university and its failure to address the issues of the time. This was the year that Philip Coombs (1968) reflected global concern that education was preparing people for the past instead of the future. Les évènements in Paris rumbled on around the universities of the world and down through the years that followed, manifesting itself in a variety of guises as feminism, cultural theory, postmodernism and now as a form of globalisation ironically called anti-globalisation.

In 1977 Roland Barthes announced the ‘death of the author’ (Barthes 1977). By this he meant that once a text is published it is the reader who gives it meaning. Readers become the new gods creating their own individual virtual worlds from the bits of information provided by a text. Many will remember the way in the past some academics behaved as though they were minor deities. Anyone who is teaching today in a university will encounter students who expect to be treated as something very special. Jacques Derrida taught the intelligentsia to deconstruct the meaning in texts and to find that there was no single universal meaning (Derrida 1974). Jean-François Lyotard defined the postmodern condition as ‘incredulity towards meta-narratives’ in which he included both religion and science (Lyotard 1984: xxiv). Critical theory in its many forms has attacked the theoretical structures that have held together the modern university and modern society. The effect has been to erode the episteme of modernism that universities have maintained and the consequent worldviews by which we cooperate in what we see as civilisation. When we are all gods, who is left to believe in us?
Kuhn’s concept of a paradigm can be applied to the idea of a university itself. Could we then see a paradigm shift in the way the medieval university became the modern university and argue that we are undergoing another shift from the modern to the global virtual university? The scientific revolutions that Kuhn regarded as paradigm shifts really were revolutions. It is not possible to reconcile genesis with geology. Equally the industrial revolution really was a revolution. Life in pre-industrial societies was radically different from that in industrial societies. The change between the medieval and modern universities was not of this order. It was more in the nature of an adaptation to the episteme shift of the industrial revolution.

Paradigms on paradigms

If you found yourself transported to a thirteenth-century university somewhere in Europe you might not understand the Latin people were using and people might stare if you were a woman or not properly gowned, but you would have little difficulty in recognising that you were in a university. From the founding of Bologna University in 1088 there has been strong institutional continuity in universities. They have continued to hold lectures, seminars and tutorials that cover a fixed curriculum. They still have faculties, deans, rectors, chancellors and vice-chancellors, and students have been writing assignments, arguing, getting drunk and taking Bachelors and Masters degrees for almost a thousand years. These are components of the university paradigm that everyone recognises. Most medieval universities survived and transformed themselves into modern universities and new universities still follow the traditions of the medieval universities. The philosophical paradigm of what was taught and researched shifted from theology to rational scientism as the university adapted to the epistemic shift from the medieval to the modern, but the institutional form of the university stayed relatively constant. What was taught changed, but how it was taught has remained the same. We could, therefore, think of a paradigm of the medieval-modern university that has lasted with little change over 900 years.

A question that faces us in designing a global virtual university for the future is whether it will continue within the norm paradigm of the university as an institution. Can the university paradigm adapt to the epistemic shift of the information revolution and the philosophical shift of the postmodern? Will we continue offering degrees, using traditional titles, completing terms and holding medieval rituals where the participants dress in the mock medieval finery of monks to graduate students, or will there be the kind of disjuncture that took place between the Greek idea of a university and the medieval institution of a university?

If you were now transported to a class in ancient Greece would you recognise it as a university? Many American universities echo ancient Greece in their architecture so that the classic surroundings would suggest a university, but we have no evidence that there was any kind of classroom or formal sequence of lectures or that degrees were awarded. You might be startled by the scant attire of the students, but they would be intelligent, schooled and adult and women were part of the Greek university tradition
Figure 1.2a The University of Virginia founded in 1819 is an expression of Thomas Jefferson’s belief that a new university for a new country should be based on the example of ancient Greece.
Figure 1.2b Victoria University of Wellington, only 100 years old, looks back to the influence of the medieval church
Figure 1.2c Waseda University’s clock tower subtly mixes European gothic with medieval Japan

Figure 1.2d Leeds University’s Library Tower when it was built was an art deco symbol of the modern
Figure 1.2e National Chung Cheng University founded in 1989 makes its links with early Chinese civilisation

Figure 1.2f Universitat Oberta de Catalunya. The Open University of Catalonia founded in 1996 has a classical exterior but there are no students on these premises. It houses the offices of the virtual university.

However, what would seem strange to anyone who has attended a modern university would be that instead of telling you, the teacher in ancient Greece would be asking you. Knowledge was not something to be accepted as it was passed down, but to be sought and endlessly renewed through questioning.

Glenys Patterson draws the distinction between the university as an idea and the university as an institution (Patterson 1997). What the medieval and the modern university have in common is an institutional paradigm. What the modern university shares with the Greek-Alexandrian university is the idea that a core function of a university is a search for truth. This is the universal of a university that transcends epistememes. It is the academic freedom to test received knowledge, the restless probing of the norm paradigm that throws up the seminal ideas that lead to revolutions and epistemic change.

There is something paradoxical in the idea of questioning knowledge in an institution dedicated to the continuation of knowledge and at times universities become the means for maintaining the status quo rather than questioning it. When it becomes impossible to question the paradigm of what is taught, when norm paradigms become dogma, when
radical thinkers have no place, then the idea of a university dims, and they become mere institutions, universities in name not nature.

The Greek philosophical paradigm did not sit easily with the mainstream theological philosophy of the early medieval university. However, there were tenuous links across the Dark Ages between the ancient Greek-Alexandrian university and the medieval-modern university. Irish monasteries in the sixth to eighth centuries, remote monasteries in the Appennines, the University of Constantinople (AD425–AD1453) and centres of study in the Islamic world kept the ideas and knowledge of ancient Greece alive. It was with the Renaissance that Greek rationality was renewed in European universities. From the Renaissance came the Enlightenment and the emergence of the rational scientific way of explaining the world that provided the philosophical basis of the modern university. Today any overview of a subject in the arts or sciences will begin by recognising its roots in ancient Greek thinking. Every time a subject carries a suffix such as -logy or-ology, -graphic or -graphy we are reminded that it had its origins in the universities of ancient Greece. How far back does the university paradigm extend?

One could argue that the Greek idea of a university began with a woman. Sappho’s college in Lesbos provided a complete education for a community of young women in the seventh century BC. It was regarded by Marrou as the equivalent to an Academy of Music and Drama because of its focus on dancing, music and its ‘ideal of beauty aspiring to wisdom’ (1956:34). However, we have little idea of the level or content of what was taught and the first real evidence of something that could be regarded as a university comes from what we know from later writings of the school Pythagoras founded at Crotona in Southern Italy in 518BC. It was a community of adult people of both genders drawn from many places that lived together and were engaged in profound philosophical study on subjects that still engage us, at a level that would challenge any modern academic (Dewdney 1999). From the Pythagoreans we can trace a continuous tradition of Greek scholarship that lasted up to the final sacking of the great library of Alexandria in AD640. Then comes a gap of between four and five centuries before the first medieval university. This was not a paradigm shift. It was the Dark Ages.

Does the university begin in Greece with Pythagoras? Many of the ideas that Pythagoras brought as a teacher to his school in Crotona have their origins in his travels and studies in the ancient centres of civilisation in Africa and Asia. He spent some twenty years studying mathematics in the temples of Egypt. Builders there used a knotted rope that was a practical application of what today we call Pythagoras’ theorem (Dewdney 1999). The buildings and organisation of Pharaonic Egypt could hardly have been possible without advanced knowledge and an associated system of tertiary level instruction. There were sources in ancient Egypt as well as Greece for the founding of the great library in Alexandria. In Cairo the university of al-Azhar with its foundation in AD969 claims to be the oldest continuous university and the college mosque of al-Zaituna in Tunisia has a similar ancient history (Gibb 1939).

Pythagoras was captured in Cairo by the army of King Camyses and taken to Babylon. Four tablets found near the site of Babylon and housed in Yale University show that the Babylonians were able to apply Pythagoras’ theorem over a thousand years before he was born (O’Connor and Robertson 2002). Babylon was a great metropolis and centre of learning. The Babylonians were outstanding mathematicians and occupied the ancient
land of Sumer which is regarded as the cradle of written language and classroom education (Kramer 1963).

For some five years from his Babylonian captivity until his return to Greece the movements of Pythagoras are not clear and legend has it that he went to India and China. Applications of his famous theorem (though not the proof) were described in Indian Vedic sulbasutras that were extant three centuries before him. Moreover, his philosophical ideas include the transmigration of souls across species that is similar to the Hindu belief in reincarnation. There were settlements of learned men in India involved in higher education from 600BC (Mudaliar 1960). This seems to have been the origins of the university of Taxila in Northern India that attracted hundreds of students from many places and was famous for its schools of medicine and philosophy when Alexander invaded India (Raza 1991). Buddha was contemporaneous with Pythagoras and it was with the emergence of Buddhism that what can be clearly recognised as universities appear in India (Siqueira 1943). The University of Nalanda in Bihar came to rival Alexandria as a centre of study. At one point it had 1,500 teachers and 8,500 students, a teaching ratio any university could be proud of. Students came from China, Nepal, Tibet and Korea. Entrance examinations were strict, the average age of students was twenty and they were taught a broad range of sacred and secular subjects. There were similar rival universities at Vallabhi in Gujarat and Vikramshila in Bihar (Raza 1991).

There is a Chinese proof of Pythagoras’ theorem and his concept of the interaction of contraries seems to be the same as the Chinese idea of yin and yang. Confucius (551–479bc) was another contemporary of Pythagoras and although there was an earlier form of higher education, it is Confucius who is seen as inspiring higher education in China. Confucianism held that education prepared people for public life by cultivating virtue and wisdom and harmonious relations. Higher education was closely linked to examination for entry into the civil service.

It would seem that there were early centres of higher education in Asia and Egypt that we may think of as proto-universities. However, it is around 500BC that we have the extraordinary coincidence of Pythagoras, Buddha and Confucius establishing not just universities Per se, but paradigms of what universities should be. The philosophical content of what they taught was different, but what each of these philosophers had in common was a search for truth that involved a teacher-student relationship between intelligent literate autonomous adults. It seems unlikely that this first flowering of universities took place in the ancient civilisations of China, India, Mesopotamia, Egypt and Greece without them being aware of each other. They were linked by great trade routes. The story of Pythagoras is one of mobility. It is not difficult to imagine academics of yore conferencing by camel along the ancient Silk Road.

The Christian paradigm in medieval universities was matched by the Hindu, Buddhist, Confucian and Islamic paradigms in Asian universities. However, Asia does not appear to have had an equivalent to the Enlightenment. The early flowering of universities in Asia, with the exception of the madrasas of Islam has faded over the centuries. By contrast the last 500 years has seen the European university paradigm spread around the world. Initially, especially in North and South America, universities were part of the process of colonisation and subscribed to the medieval theological tradition. However, the last 200 years have seen the global spread of the idea of the modern university which has proved remarkably adaptable wherever it has been implanted.
If any particular event can be seen as inaugurating the modern episteme it is the American Revolution. It marked the emergence of a democratic nation state based on rationalism. A new kind of university was needed to match a new kind of nation: a university based on empirical science, democratically accessible and dedicated to the service of the state. The USA developed remarkable diversity in its tertiary education, but it was the emergence of the modern university in Germany and the way it integrated teaching and scientific research that most influenced the way American universities developed. It is in the USA that the modern university has reached its apogee and it is from the USA, as well as from Europe, that the modern university has been seeded in Latin America, Africa and Asia.

Today, overseas students form a considerable component of classes in the English language speaking universities of the developed world. They study in a second language and learn to apply knowledge in the way of the West. Some of these students will take the opportunities Western universities offer to become part of the process of globalisation. Some will go back to their own countries and adapt what they have learned to their own language, their own context and their own culture. Many will be aware that the roots of their culture lie in the universities of antiquity that existed long before the modern university. The university paradigm that we trace back to Romano-Greek-Alexandrian civilisation in the Mediterranean has shared roots with the early universities of Asia. Over almost 3,000 years the university paradigm has drifted Westward until it has come full circle back to Asia. It has seen epistemic changes and clashes with time and place, but the basic paradigm has proved remarkably durable. Today, as they probably were in the days of Pythagoras, universities around the world are remarkably similar, as they would be, because they are all examples of the same paradigm. However different the form a global virtual university may take to fit the episteme of the future, it will need very good reason to depart from the basic university paradigm.

Paradigms are communication systems

In linguistics and communications studies the word ‘paradigm’ refers to a communication system in the abstract and is used in opposition to ‘syntagm’ which refers to an actual manifestation of communication from a paradigm (Fiske 1990).

All messages, therefore, involve selection from a paradigm and combination into a syntagm. All the units in a paradigm must share characteristics that determine membership of that paradigm, thus letters in the alphabet paradigm, numbers in the numerical paradigm, notes in the musical paradigm. Each unit within the paradigm must be clearly differentiable from other units; it must be characterised by distinctive features. Just as the paradigm is governed by shared characteristics and distinctive features, the syntagm is determined by rules or conventions by which the combination of paradigms is made—rules of grammar and syntax (Watson and Hill 1996:123).

This is not in contradiction with Kuhn’s use of paradigm. Universities are communication systems. The idea of a university is a paradigm. An actual university is a syntagm. Cambridge University has survived the medieval episteme to become a modern university and no doubt one day there will be a Virtual Cambridge University. Cambridge already is a global university. It draws its staff and students from every country in the
world and has managed to maintain a degree of autonomy from the state thanks to having chancellors and vice-chancellors who were prepared to give their all. Like other distinguished universities with an international reputation, its brand name transcends its location. Such universities are going to be tempted to expand globally by going virtual. In its different incarnations Cambridge is a syntagm of the overarching university paradigm.

Universities as institutions are universities because other universities accept that they are universities. The process called *ad eundem* (to the same level) is applied to students seeking to transfer from one university to another. This establishes whether the student’s previous experience was in a university that can be recognised as a university because it fits the university paradigm. Today universities are such a fundamental part of society that they fall under scrutiny from students, government, employers, accrediting agencies and the media to ensure that they do what universities are supposed to do and comply with the paradigm that states have of a modern university (Hanna 2000:22–3). It is here that we can appreciate the effect of an episteme on the university paradigm. Agencies that accredit universities expect them to fit the paradigm in its modern form. They have little difficulty accepting the equivalence of universities of similar ranking in other countries. They do have difficulty with universities that claim to be virtual and global and that, while apparently functioning as a university should, do not have the form of a university. They accredit some virtual universities and not others and it is clear that the idea of a global virtual university is not established. However, if any organisation tried to establish a university where all communications would be in Latin, women would not be allowed and academics could be sued for teaching anything that did not comply with the Bible, they would have real problems. The medieval university is finished. For that matter, think of trying to establish a university in the style of classical Greece where, apart from the language problem and the peculiarities of the dress code, student and teacher were wont to engage in what Patterson (1997) calls the tradition of educative eros.

Universities are educational communication systems

Educational systems are a special kind of communication system in which there are four critical factors: teachers, students, knowledge and problems. The core communication process is one where teachers interact with students to help them apply knowledge to problems (Tiffin and Rajasingham 1995). This is as true of universities as it is of kindergartens with the difference that one is at the top and the other at the base of the educational process in society.

The terms teacher and learner are used in a broad sense to mean people who have these roles in relationship to each other. It also allows for the roles to be reversed, as frequently happens today in a postgraduate course where a mature professional student may in the course of a seminar take over the role of teacher. What is critical of the teacher-student communication axis in education is that it is interactive. The student has to be able to ask for help and the teacher has to be able to find out if the student needs help.

The use of the terms ‘knowledge’ and ‘problem’ is also relative and refers to the domain of knowledge that applies to a particular class of problems. The knowledge-problem axis is embedded in the content of student-teacher interaction.
This model is based on Lev Vygotsky’s notion of a Zone of Proximal Development (ZPD). A ZPD comes into existence when someone finds they do not know how to resolve a particular kind of problem and turns for help to someone who does and who thereby takes on the role of teacher (Vygotsky 1978). This implies that there exists some abstract body of knowledge that can be applied to the particular class of problem a learner is addressing and that the teachers are teachers because they know how to apply knowledge and learners are learners because they do not. When the learner can apply the knowledge then the ZPD no longer exists for that learner.

Vygotsky saw this process as being embedded in culture. A particular class of problems is dealt with by applying a paradigm of knowledge that is culturally sanctioned. An attempt to solve a specific problem in a culturally appropriate way is a syntagmatic expression of a knowledge paradigm. The process of acquiring knowledge paradigms begins from the moment a child is born. It is parents and family who are the first teachers and the paradigmatic body of knowledge a child is learning is that of the culture into which the child is born. When the child goes to school the paradigmatic body of knowledge they are expected to acquire is approved by the state, as is the examination system that checks that students are able to apply the knowledge in the curriculum to appropriate classes of problems. Legal systems ensure that people continue to solve problems in approved ways out of school and there are penal systems for those who fail to conform to this. A doctor may consider euthanasia the best solution for a terminally ill cancer patient in pain, but in many countries could face criminal charges for practising this. At the apex of the educational system are the universities preparing the judges, the lawyers, the doctors, the civil servants and the teachers who will be responsible for ensuring that the apparatus of a state functions in accord with the national hierarchy of paradigms as they exist in a particular episteme.

The *sine qua non* on which the paradigmatic organisation of states depends, upon which all education since time began depends, is the simple interaction between teacher, student, knowledge and problem. It is the basic function of universities to do this at the topmost level of educational systems, at an advanced level, with mature students. These are basic components of any university paradigm, no matter the era or country. It is the nature of these components and the style and means of communication between them that vary with the episteme. What is meant by students, teachers, knowledge and problems in a global virtual university and how the interaction between them is effected is the subject of Chapters 3–7.

In conventional educational systems the technologies that make the educational communication system possible are those of transport and buildings. Teachers and students travel by road or rail to come together in classrooms. They bring with them knowledge and problems that may be in their heads, their textbooks or their notebooks. Knowledge will also be housed in libraries but it will have been brought there in the first place by transport systems. The school, college or university has support systems for administration, relaxation and personal needs, but the core process takes place in classrooms. These provide sheltered environments for the face-to-face communication process called a class which is where education in the Vygotskian sense happens. Students, teachers, knowledge and problems can also be brought together by postal services and with the help of film, radio, television and computers, but transport systems and buildings still remain the primary enabling technologies for education.
The radical difference between a virtual university and all previous universities is that students and teachers and knowledge and problems come together as bits of information not as atomic substance. Telecommunications and computers replace roads and buildings. The Internet has facilitated this process and while as yet the numbers involved in no way match those of conventional education, the turn of the millennium has seen a multiplication of virtual schools, colleges and universities on the Internet. However, the Internet is in transition. At the beginning of the twenty-first century it is still primarily dependent on the narrowband telecommunication systems set up for different purposes in the last century. This means that the interaction between teacher, student, knowledge and problem is essentially asynchronous. It is based upon email and the World Wide Web.

The first generation of virtual universities approximate to open universities using the Internet instead of the postal service. The dynamic of synchronous faceto-face communication that has been possible in the conventional class, which explains its survival for some 4,000 years, has yet to emerge in the virtual class. Until it does the Internet may supplement, but does not threaten the conventional mode of instruction.

How universities differ as communication systems

What makes universities unique is the search for truth, whatever that is conceived to be. Research and questioning have always been there, but it is in the modern university that we find a clear acceptance that there should be a unity of teaching and research. This is derived from the founding philosophy of Humboldt University of Berlin, known for this reason as the mother of modern universities. Universities with strong postgraduate studies and research traditions in the Humboldtian tradition expect that their teachers have research qualifications, are actively engaged in research and demonstrate its standing by publishing regularly in research journals.

From the origins of universities in Greece and Asia, academics derive a sense of mission akin to that which drives doctors and priests. Universities are where the approved paradigmatic knowledge of a society is created, consolidated, critiqued and renewed. It is why universities are respected, called on to pontificate on their subjects and seen as the conscience of society. Even the medieval university encouraged research, secure in the knowledge that, if properly done, it could only reaffirm that all phenomena are a manifestation of God’s will. Otherwise the researcher was a heretic and went to the stake. Today a search for truth in research would be defined as something that can attract funding.

The knowledge—problem axis remains in research communication, but the teacher—student relationship is replaced by one of interactive questioning between fellow researchers until an answer is found. The teaching process begins when a zone of proximal development opens up and closes when students can apply knowledge to problems. The research process begins when a zone of paradigmatic questioning opens up (why does the knowledge not solve all the problems?) and is closed when the query is resolved either by an addition to the existing knowledge paradigm or by a new knowledge paradigm which is seen to solve the problem in a better way than the old paradigm.
What makes one paradigm better than another? William of Ockham applied the principle of parsimony. Einstein similarly sought simplicity (Schroeder 1991). The recognised procedure today is to report the results to a research journal and undergo a peer review. If the research paper is accepted and published as a contribution to the existing paradigm it becomes part of the knowledge about that subject and hence a part of the paradigmatic body of knowledge taught within an educational system and thus part of the episteme within which people understand their reality. If the research findings do represent grounds for a paradigm shift they will not be published lightly and will not be accepted readily by the knowledge community concerned.

The change from the medieval to the modern took place over centuries in the universities of Europe. Humboldt University of Berlin may claim to be the mother of the modern university because it was founded in 1810 on the principle of integrating teaching with research, but the University of Halle also claims to be the first modern university because when it was founded in 1694 it abandoned religious orthodoxy in favour of the scientific approach and adopted the national language instead of Latin. It also awarded the first doctorate to a woman in 1754 whereas it was not until 1869 that Girton College for women was founded at Cambridge. By contrast the change taking place in universities today from the modern to what we would see as the global and the virtual is happening so rapidly that academics are actually aware of it. We suggested the events in Paris in the 1960s marked the start and the pace of change is quickening, but the technological infrastructures that make a global virtual university possible are not yet in place and the equivalent to a Humboldt or a Halle has yet to be founded.

What then is a university?

In sum, what are the universals of universities across the ages and around the world?

Any syntagmatic expression of the universal university paradigm would be a spatio-temporal field where people interact in the roles of teachers, students and researchers to study the application of knowledge to problems at an advanced level in a way that questioned accepted knowledge and sought to improve knowledge in what would be seen as a search for truth. It would be at the apex of the educational paradigm of the society it served, preparing people for professional roles and having a key part in validating the corpus of knowledge that constitutes the societal paradigm. What constitutes the society, the knowledge and the problems and who are the teachers, students and researchers and how the quest for knowledge is pursued depends upon the episteme within which the university exists.

A paradigm is a communication system in the abstract, but its syntagmatic application requires an actual communication system which in universities means some kind of institutionalised communications technology such as libraries, lecture theatres or the Internet. We can say that all universities have systemic structures that will not function without feedback and control systems, support systems and inputs of information, energy and money.

Paradigms are systemic but the term paradigm does not carry the obsession with objectives that goes with a systems approach. People think paradigmatically and act syntagmatically. Objectives in a paradigm are self-referential. Thinking within the
paradigm requires credulity in the paradigm and its purposes. The occasional student or academic might wonder why they are in a lecture and what the point of it all is, which is rather like going to a football match and wondering why the people in the funny costumes are chasing a ball around a field. Paradigms are only possible because people accept them on their own terms. However, those who are players in today’s university need to ask themselves what they think they are playing at, because the game is changing.

What no one dares say

One of the delights of the globalisation of universities is the proliferation of international conferences. Here and in pre- and post-conference email chat, collegiality has gone global and thrives. With the gossip that accompanies academic discourse, chatting to colleagues from other universities who are unlikely to pass on any indiscretions, comes the realisation that the stresses and strains that have arisen over the last two decades in one’s own university and that have come to seem so personal, are in fact widespread, at least in the universities that can still afford to send their academics to conferences. The talk is of a malaise in universities, a creeping corruption of the academic spirit. Academics with more than a decade of experience in universities believe that teaching standards are declining, research is compromised and intimidation by management rife, but as in the days of Henry VIII, most of them know to keep quiet if they want to avoid the chop. Even so, there is a growing body of literature being hammered onto university doors by fearless souls that amounts to a call for reformation (Hanna et al. 2000; Miller 1998; Barnett 1997; Biggs and Davis 2002; Slaughter and Leslie 1997; Marginson and Considine 2000; Readings 1996; Wortham 1999).

The episteme is changing and universities have change thrust upon them. To state the obvious, the information society is based on information technology and so too must be its universities. They have to have a virtual dimension. Nation states do not disappear, but much of their function is taken over by global corporates. Universities have to have global and corporate as well as national and public dimensions.

The epistemic change we are in at the global level does not have the kind of immediacy that comes with conquest or radical political change, nor will it have the century of enlightenment in which the modern replaced the medieval. Universities are in transition and know not whether they are fish or fowl. From within today’s university, what is good and bad depends upon whether it is seen from the perspective of the new or old epistemes. John Fisher, the man who lost his head defending papal infallibility is also celebrated as the person who, almost single-handed, brought renaissance learning to Cambridge (de Hamel 2001:29). Logic that would lead to the modern university and belief in medieval catholic theology coexisted in the same man. A similar polarity of mind can be found in Galileo, Keppler and Darwin and is a source of angst in today’s academic.

The dilemma for universities is not dissimilar from that which faces ecotourism. The parks and leisure movement of the last century opened vast areas of private mountains and forests to the public. This was seen as making the beauty of nature available to everyone. However, by the end of the century the cumulative impact of ever-increasing numbers of tourists and sightseers was devastating the landscape and destroying that
beauty. One hundred years ago university education was only available to a privileged few. Slowly, the doors have been opening to more and more people, but as they do, it becomes increasingly difficult to maintain the environment that existed when universities were the preserve of the elite. The social pressures to increase access to university education come as governments promise to reduce taxes. In response to this students pay an increasing proportion of the costs of universities yet governments demand greater accountability from universities for their use of government subsidies.

According to the OECD (2000) 37 per cent of all education is in the private sector and this is reflected in universities where what is paid by students and what is paid by the state rapidly approaches parity. From the perspective of the old episteme, the more government support is reduced the worse things get. Education is a public good and its privatisation is bad. From the perspective of the new episteme, however, the less the government contributes the better. State subsidisation is seen as the problem. According to the World Trade Organisation, university education is an information service that can be traded globally (World Trade Organisation: http://www.wto.org/). State-supported universities are trading a subsidised service and that is unfair practice. The universities of North America and Europe which dominate global exports of university education are being as protective of their education as they are of their agriculture.

In this time of transition, universities lose their sense of direction and mission. We addressed the question ‘What is the purpose of a university?’ to academic colleagues and found ambiguity. However, Georgette Wang who writes about the information society (1994, 2000) answered in a way that transcended epistemes: ‘To address the great issues of its time’ (1999). It takes us to the question ‘what are the great issues of our time?’ It serves as a basis for designing a university of the future and leads to the next chapter on the technology that is transforming the episteme.
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Foreword


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