

'GOING DUAL MODE'

EXPOSING THE PARADIGM SHIFT*

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This paper presents a model for exploring the relationship between the structure and cultures of educational organisations and the curriculum. The model comprises two concepts of paradigm to (1) provide a model for analysis by polarising two types of organisation, 'open' and 'closed,' and two types of education delivery, 'face-to-face' and 'distance education'; and (2) explore the organizational and (related) curriculum changes necessary to shift within the paradigm. The culture of traditional organisations of higher education is explored together with the knowledge codes that characterise them. The thrust of the argument presented is that if traditional organisations of higher education 'go dual mode' and consider distance education only, without addressing the organisation and organising principles of openness in the organisation *and* the curriculum, the political and economic benefits to be derived from innovative flexible higher education will not be maximised. It is argued that a shift in *both* directions is necessary. Elements of curriculum reform are presented which, if implemented, would facilitate a shift from a 'closed' organisation closer to the 'open' type.

Introduction

The concept and phrase 'dual mode' is rather dated and may have outgrown its usefulness, but it was introduced by the Commonwealth of Learning (COL) to describe educational organizations which were established to provide campus-based, face-to-face teaching but later recognised the need to broaden the teaching mission by developing organizational capability to provide distance education (Mugridge & Maraj, 1992; Renwick, 1992). The term is contrasted with 'single mode' organizations which were established to provide one mode only, face-to-face or distance. William Renwick (1992) introduces a third concept - 'mixed mode' - to describe organizations that allow students to follow courses and programmes of study utilizing a variety of modes, face-to-face, independent study, computer-based learning, self-directed study, study at a distance, and so on.

Implementing distance education capability and delivery alongside conventional face-to-face teaching, or going dual mode, is a strategy to address the economic, social and technological forces that are

impacting on education at all levels, and an opportunity to re-examine and re-align the mission of higher education in its contemporary, cultural and historical context. In developing countries, this strategy is more difficult to implement because of the historical associations universities have with its colonial past and its role as an 'ideological apparatus.' In the case of the British colonies, for example, the report of the Asquith Commission in 1945 implemented conditions for universities in the colonies to be modelled on the civic universities (Castells, 1993; Maxwell, 1980). The historical role of universities in developing countries and their internal social dynamics make it difficult to respond easily to the new role they are required to play.

If universities, especially those in developing countries, are to respond to the new challenges, changing teaching and delivery models is not enough. Development policies must include deeper, structural issues that will transform the system of higher education. Responding to the new challenges and deciding to go dual mode, offers an opportunity to address the epistemological issues and explore ways of re-configuring knowledge, presenting knowledge, of re-examining disciplines and their boundaries, allows the flexibility of programming in qualification routes which will compliment the diversification of skill and knowledge required by the community. If this opportunity is not taken, deciding to go dual mode may, in practice, result in a change of idiom rather than a change in substance (e.g., re-writing existing courses in distance mode without curriculum innovation, and expending resources on technology divorced from the context of holistic learning).

In its *Decade Development Plan 1990-2000* (1990), The University of the West Indies (UWI) identifies the development of distance education as a priority in order to meet its graduate targets. In 1992, the Commonwealth of Learning appointed a team to carry out an appraisal of distance education at the UWI and report to the Vice-Chancellor. The report was accepted by UWI and provided the basis and framework for a loan and grant agreement between the UWI and the Caribbean Development Bank in April 1993, for a project aimed at improving and expanding the continuing studies and distance education capability at UWI. The report, colloquially known as the Renwick Report (Renwick, Shale, & Rao, 1992) advised the UWI that the "right policy for UWI as a dual mode University will be to conceive,

organise and manage its policies for distance education so that they are a regular part of the work of each teaching faculty assisted by a Centre for Distance Education" (p. 35). This policy position was considered so important that it was incorporated in the Loan Agreement as a condition precedent to the first disbursement of funds. It is also acknowledged in the report that "Becoming more comprehensively dual mode will change the character of the University" (p. 36). The grant was very small and provided technical assistance for planning and policy formulation. Approximately 73% of the loan was for buildings and technology, providing additional teleconferencing rooms and computer laboratories in the University Centres, 2.3% was for curriculum development, 7.5% for materials production and 5.3% for staff training and development. The project, which was scheduled to be completed in April 1996, is administered and managed by a University Project Implementation Unit. During the period of implementation, the UWI has undergone a restructuring process designed "to streamline the administration of the University to bring it in step with current and prospective needs and trends and to improve its effectiveness" (The University of the West Indies, 1994, p. 3). The restructuring, however, has not changed the operational mechanism through which implementation of the project is orchestrated.

The Policy Consultant, funded from the grant, was appointed in January 1994 and in April presented a draft policy document in which he wrote:

...the University should move with all reasonable speed both to achieve a significant expansion of its off-campus work and to demonstrate that the CDB loan is facilitating a paradigm shift in its ways of working. (A University Policy, 1994, p. 2)

Although the Renwick Report doesn't mention anything about paradigm shifts, it does make it clear the UWI will "cross a watershed in its history" (p. 33). But the Policy Consultant was right, the University was facing a paradigm shift. However, it's a pity that the term 'paradigm shift' has become such a cliché that it went without analysing. Precisely what the paradigm is that was shifting, what direction it had to shift, what stuff it was made of, what needed to change, what conceptual and operational frameworks might facilitate change, were not addressed in subsequent planning documents. Had they

been, it would have provided the University with a clear framework for developing, not only distance education, but organizational change necessary to improve delivery of *all* its education, as the Renwick Report proclaimed.

Coincidentally, in the same year, the International Council for Distance Education Standing Committee of Presidents (ICDE/SCOP), came to the same conclusion:

Driven by economic, social and technological forces, the processes of educating students at all levels is changing dramatically. This world-wide phenomenon is rapidly altering the ways that students learn and teachers teach. Although these processes in the past have been thought to be stable and unchanging, resistant to the forces that have already acted upon the worlds of business, manufacturing, finance and government, we are witnessing throughout the world a transformation in teaching and learning which has all the hallmarks of a paradigm shift, a fundamental change in the way we think about knowledge and learning. (Hall, 1996, p. 27)

In October 1994, the ICDE/SCOP formed a task force to "examine the reality, characteristics and potential impacts upon its membership of this paradigm shift" (Hall, 1996, p. 27).

This paper presents a paradigm for organizations making the transition to dual mode. It also begins to analyse the nature of the 'paradigm shift' that is necessary to make the transition. It has been inspired by the experience, provided by the UWI, of managing the implementation of the distance education project as prescribed by the Loan and Grant Agreements.

The Paradigm

The other day I heard a DJ on the radio describe the change in our eating habits as a 'paradigm shift,' I have read newspaper headlines talking about 'paradigm shifts' and I have even seen a T-shirt inscribed, 'Join the Paradigm Shift.' In an article in the Trinidad &

Tobago press, the author concludes by saying: We hear a great deal these days about 'paradigm shifts' (a phrase I normally avoid like the plague), but I often wonder if we understand what it really means" (Dumas, 1996, p. 9).

In presenting the paradigm for going dual mode, I wish to utilise two related concepts of 'paradigm': Paradigm 1 and Paradigm 2.

Paradigm 1: Paradigm in this sense is a schema or model for codifying an area of sociological analysis. It typically identifies 'ideal type' social categories and attempts to locate substantive areas within the typologies so created. Thomas Kuhn refers to this concept of paradigm as the "established usage" (Kuhn, 1970). Merton refers to it in this sense as a way of doing functional analysis in sociology (Merton, 1949).

Paradigm 2: Paradigm in this sense is taken from Kuhn (1972) and refers to the social and sociological characteristics in the evolution (revolution) of change in 'scientific knowledge.' He is making the point that changes in the dominant and prevailing basic beliefs about the world, or what counts as knowledge, is the outcome of conflicts between the status quo and competing interpretations. Existing paradigms shift to be replaced by other competing paradigms characterised by alternative basic beliefs (assumptions), innovative approaches to enquiry (method), different interpretations of phenomena (facts) and alternative truths about the world (knowledge) (Ford, 1975). A competing paradigm embraces and presents a new world view, a new culture comprising a different system of beliefs, alternative values and diverse practices. In this sense, it is an 'explanatory principle' (Bateson, 1972) which, when looking at education, "provides a way to consider (the) divergence in vision, custom and tradition. It enables us to consider...different sets of assumptions, commitments, procedures and theories of social affairs" (Popkewitz, 1984, p. 27).

When an educational institution goes dual mode, it does so in an existing context - the *organisation*. The university as an *organisation* must be a focal point of attention and analysis. I wish to distinguish two polar organizational types: 'open' and 'closed.' By open organisation I mean an organisation with a structure and culture which

is receptive to change and has the capacity and will to identify needs for change and respond. Such an organisation is characterised by flexible management systems, decentralisation of power and control over the decision-making process, a developmental culture encouraging collaboration and co-operative operating patterns. They are innovative, breaking away from established patterns, by harnessing the expertise of the organisation, not just those with authority status, into 'ad hoc project teams.' Creative organizations are often of this type, for example, media production companies, research companies, the aerospace industry. The term 'open' is descriptive and distilled from analyses of organizations and writings on the planning and management of change.

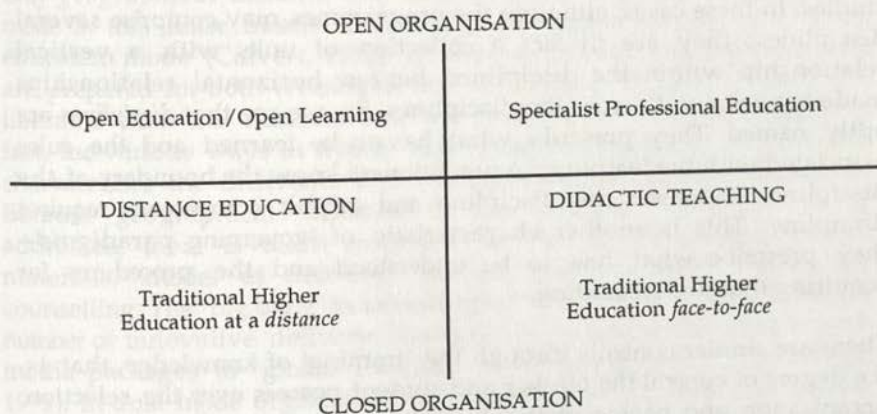
Closed organizations are usually slow to change, the structure and culture are not conducive to change and their collective may even resist change. Management and decision-making is highly centralised with weak patterns of collaboration and co-operation. They are often complex but stable and are characterised as bureaucracies, sometimes with diffused power and control with mixed elements of democracy and autocracy. In these organizations, the administrative component exerts significant control over procedures that support the structure and activities comprising 'the organisation.' Professional organizations are usually closed in this sense. Universities are classic examples. In reality, different types of organizations may be found to operate somewhere along the open/closed continuum.

Dual mode, by definition, comprises two modes of educational delivery which are, at the very basic level, polarised: face-to-face or didactic teaching/learning and teaching/learning at a distance where the learner is removed in space and time from the teacher. Again, in reality, organizations of higher education will vary along the continuum in the degree to which courses and programmes are offered for study at a distance.

The two social categories, *organisation* and *mode of educational delivery*, are mutually exclusive and comprise the model presented in *Figure 1*. The model reveals four configurations and contexts of higher education. Most universities that go dual mode are located in the bottom/right. These are characterised by the 'collegial culture' which

value independence and autonomy in teaching, research and scholarship. Of these functions, teaching has the lowest status. This is reflected in promotion decisions which are usually based on research activity and scholarship measured in publications. Teaching is seldom monitored or evaluated for promotion purposes. These values are embraced by the notion of 'academic freedom' which emphasises independence of professional judgement in the three functions. The right to academic freedom does not extend to students who are deemed not to be 'competent' to exercise it. In the professional organisation, the professor has a lot of control over what is taught and how, as well as what is researched and how (Mintzberg, 1989, p. 184). However, this apparent carte blanche autonomy is tempered by a subtle constraint--other professionals. Professors choose course contents and adopt teaching methods that are highly regarded by their colleagues. They espouse research subjects that will be funded by professional bodies and they publish in journals refereed by their peers. Individual freedom is exercised in the context of professional control.

FIGURE 1



In this important sense, the 'collegial culture' is self-perpetuating, reproducing itself through its values, norms and professionally

controlled practices, all underpinned by a set of assumptions about teaching, learning, what counts as knowledge, how knowledge is packaged and structured, who should get it, how it should be delivered and when. A consensus about these fundamentals exists in the 'collegial culture.' This is a key feature of the nature of paradigms (Kuhn, 1970, p. 11-12).

The curriculum of the 'collegial culture' is characterised by a 'collection code' (Bernstein, 1971), which is subject oriented. Teachers and students are socialised into specialised subject areas and this serves to give them an academic identity. This is reinforced by keeping subjects separate by distinct boundaries so that *differences* are emphasised over *communality*. The structuring of the university into faculties and departments serves to reinforce and emphasise these differences. Preserving the status quo protects academic identities.

So, in the traditional university there are strong controls on the way knowledge is classified. Interdisciplinary courses are seldom developed. Sometimes multidisciplinarity passes for interdisciplinarity, as in combined studies programmes like management studies, teacher education, social administration, environmental studies and social studies. In these cases, although the programmes may comprise several disciplines, they are in fact a collection of units with a vertical relationship within the disciplines, but few horizontal relationships made between and across the disciplines. So, we see that *disciplines* are aptly named. They prescribe what has to be learned and the rules associated with the learning, so practitioners know the boundary of the discipline. To master the discipline and exhibit competence requires discipline. This is another characteristic of 'governing paradigms'--they prescribe what has to be understood and the procedures for acquiring that understanding.

There are similar controls through the 'framing' of knowledge, that is, the degree of control the teacher and student possess over the selection, organisation and pacing of the knowledge transmitted and received. Strong framing suggests a high degree of control and a reduction of the power of the student over these elements. The stronger the classification *and* framing, the more the educational relationship tends to be hierarchical, with the student seen as having little status and

few rights (Bernstein, 1971, p. 58).

Finally, the evaluative system in the traditional university places an emphasis on *states* of knowledge rather than on *ways* of knowing. Kuhn (1970, p. 137-8) criticises textbooks for reinforcing this emphasis by presenting *contributions* to scientific knowledge without reference to the *process* of scientific enquiry, that is, the paradigmatic nature of enquiry. Students are introduced to knowledge as a linear and structured development. This masks the true nature of enquiry which, without exception, has an integral interpretive element. A study of examination questions is interesting in this regard.

What Changes, or What Needs to Change, When a University Goes Dual Mode?

If the university as an organisation remains closed, that is, retains many of the values, norms and practices outlined here, in effect, retains fundamental elements of the 'collegial culture,' it may shift to the bottom/left of the model in *Figure 1*. By introducing distance education, only *geographical* distance will be addressed. In practice, going dual mode in this sense means 'translating on-campus courses to distance education mode' (Calvert, 1992). At best, structured learning materials are prepared for both on-campus and off-campus students as they are liberated from the constraints of the traditional lecturing system. In fact, the various ways in which 'non-contiguous teaching' is achieved, characterises the difference between providers of distance education. Because geographical distance is the primary 'distance' to be addressed, there is much emphasis on the design of instructional materials, modes of delivery, student support, study skills and counselling. The 'big bang' in technological development has allowed a number of innovative delivery strategies to be introduced from mixed-media packages to 'global information infrastructures' (Hawkrige, 1995). In dual mode organizations, depending on the delivery process adopted, instruction is transferred from the individual tutor or lecturer to the educational organisation which produces the instructional materials and provides the delivery mode, for example, teleconferencing system and/or network of tutors. This is an important element in the shift to dual mode. The individual freedom and

autonomy allowed in the 'collegial culture' is diminished in a dual mode organisation. Instead of having autonomy over the design, construction and delivery of the course, the lecturer has to work with instructional designers, technicians, producers and editors. Teaching effectiveness now depends on a *team*. Faculty members are relegated to 'content specialists' and 'facilitators.' The dynamics of course development and the teacher/student relationship change.

Although going dual mode in this sense is a paradigm shift, namely, from bottom/right to bottom/left, it's a shift within 'paradigm 1'--a shift within the *model*. It is not a shift of the 'paradigm 2' kind or the 'watershed' referred to in the Renwick Report. For this we must shift to top/left.

In its world-wide survey to determine the nature, reality and pace of the paradigm shift, the ICDE/SCOP Task Force noted that there was a shift:

- from objective to constructed knowledge;
- from an industrial to a knowledge-based society;
- in the educational mission from providing instruction to providing learning;
- to technologically mediated processes of communication and learning;
- from current college and university models to *as yet undetermined structures* (Hall, 1996, my italics).

The new paradigm recognises that knowledge and reality are socially constructed and that objective knowledge is a 'fools gold' (Barnett, 1990; see also Berger & Luckman, 1966). This is in direct contrast to the importance accorded objectivity by logical positivism in the pursuit of 'truth' and 'knowledge.' This shift places the focus on the knower rather than the known. This, in turn, impacts on learning theory and the learning priority. Education becomes learner-centred not subject- or fact-centred and learning to learn, to make observation, to think critically, better prepares us for the mutable nature of knowledge. Hall (1996), refers to Barr and Tagg (1995) who argue that, "This shift changes everything" (p. 28), meaning everything from the organisation's mission, the organisation's structure, the funding criteria,

the role of staff and students, teaching learning structures and the definitions of 'productivity' and 'success.' In practice, the changes call for a synergy encompassing the whole organisation, a flexible curriculum and 'coactive' learning, and an open learning model utilizing technology for different delivery systems designed to meet the spectrum of needs that students have. It is clearly recognised that the professional organizational structure with its associated 'collegial culture' is not an appropriate operational structure or value system. The anatomy and shape of an appropriate structure may be a dramatic departure from the professional organisation characterised as a closed organisation to the extent that its evolutionary form is 'unrecognisable.'

This 'open learning system' allows many more 'distances' to be addressed other than the geographical. An open learning system may dismantle socio-economic barriers to higher education, remove barriers militating against gender, class, education, occupation, social circumstances, and barriers to cognition, knowledge and self-esteem. The failure to distinguish and discriminate between the philosophical and organizational frameworks of 'distance education' per se, and 'open learning systems,' is fundamental to the direction of the paradigm shift. The former results in a *horizontal* shift from bottom/right to bottom/left, the latter requires a *diagonal* shift from bottom/right to top/left. Miguel Escotet, writing about educational experiments in Latin America, comments on the confusion:

All kinds of projects begin to appear in Latin America which indiscriminately use the names 'distance' or 'open' without considering the objectives, goals and media which have generated the project. This over generalised use of the terms has produced confusion in both modalities with negative consequences in the administrative and philosophical framework. While open education is a strategy opposed to traditional education, distance education may or may not be the main difference; the only difference it has from existing universities is in the mode of delivery of learning. Through distance education we are going to form the same individual who might have been instructed in the regular university, but with open education the strategy of learning is different, not only in media but also in its objectives and processes which

carry a very different meaning in professional formation. (Escotet, 1983, p. 145)

For a traditional university, this requires a major paradigm shift requiring changes in perceptions of knowledge, how knowledge is structured and packaged, different assumptions about teaching and learning, profound changes in educational practices, a decentralisation of curriculum control, a weakening of the classification and framing of knowledge with a shift from specialisation to integration, and a shift of emphasis from research and scholarship to teaching. These changes will also necessitate changes in the organisation.

Exploring each of these domains is beyond the scope of this article, instead I wish to focus on four key aspects affecting the way we think about the curriculum and which may provide the impetus for the diagonal paradigm shift:

- What is *higher* about higher education?
- Accreditation for prior learning.
- Credit accumulation.
- Modularisation.

What is *Higher* about Higher Education?

This topic is introduced in response to the concerns about quality and academic standards that many academics have who are facing educational change and, in particular, when the curriculum is being tampered with. Following the work of Jürgen Habermass, Barnett (1990) argues that higher education "calls for increasing intellectual maturity of individual expression, commitment, resilience, tolerance of other viewpoints, interaction with others and self-critique" (p. 59-60). The challenge of higher education is to produce and present a curriculum that encourages and promotes these values and, in essence, this means that the student must be an active partner in the curriculum process and not just a passive recipient of it. From the Caribbean, Rex Nettleford has argued passionately for 'appropriate paradigms' that allow the peoples of the region to "discover and articulate (their) own sense of being and an epistemology that begins from where (they) are, rather than people's prescriptions for seeing and knowing" (Nettleford, 1993,

p. 26). As long ago as 1972, Paulo Freire made it very clear what is *higher* about higher education, although he isn't talking about higher education specifically. That is, *the student must develop critical and meta-critical skills*. Similarly, more recently, Barnett forcefully argues that the development of 'critical' perspectives and insights is an essential condition for a student to reach a "state of intellectual independence."

The assumption that this 'higher state of mind' can only be achieved in the context of a higher educational institution with real-time access to all its resources, is now challenged. An individual does not have to be registered with, or attend, an institution of higher education to reach this state of critical reflection. Other experiences of life, other, that is, than institutionalised higher education, can provide the circumstances for reflective and critical thinking. There are ample contemporary and historical examples of 'autodidacts'--those who have achieved higher levels of critical consciousness through action--without registering with an institution of higher education. The honorary degree is the epitome of an award recognising this kind of achievement. So, the concept 'higher education,' is independent from any institutionalised reification of higher education. The achievement of a 'critical state of mind' is not dependent on attending an institution of higher education, it can be achieved independently through the pursuit of other activities and in other contexts. This was also the empirical findings of the ICDE/SCOP survey and is a feature of the 'paradigm 2' shift.

Accreditation for Prior Learning

This topic is introduced in response to concerns about waste of resources and high drop-out rates, especially in developing countries, associated with open-access policies. There is an assumption that there exists a correlation between the achievement of school leavers and the quality of degrees they obtain at university. The empirical findings do not support this assumption. The 'collegial culture' selects its customers on the basis of the number and respective grades of 'O' and 'A' levels they have achieved. There is a major problem with this selection practice. Because it is based on normative evaluation criteria, which is correlated with the actual number of places available, it discriminates sharply in favour of those who 'clearly pass' and not necessarily those

who are 'clearly able.' Despite pragmatic reasons for this practice, it reflects a blind faith in the selection procedures and practices for entry into higher education.

Going dual mode, in part, means expanding opportunities to receive higher education. Introducing 'distance education' makes more places available within the existing selection framework. In practice, the statistical percentile shifts to include more students than was possible in single mode, that is, the entrance criteria shifts downwards to accommodate more students. But what about those potential students, many of them adults, who have left school for a number of years, but none-the-less have developed skills and aptitudes conducive to higher education? Do they need to exhibit their potential in 'O' and 'A' levels? Indeed, can 'O' and 'A' levels reveal their potential? If we accept that contexts other than institutionalised higher education can evoke learning and critical thinking, it follows that entry requirements into higher education might include accreditation for prior learning. In fact, Zemsky and Massey (1995) warn that if universities continue with business as usual, "most undergraduate education will shift away from human intermediation toward more automated systems dispensing codified knowledge with easily measured performance indicators" (quoted in Hall, 1996, p. 29).

Credit Accumulation

Any common exchange system effects openness in the sense that it provides for more movement and choice of movement. Accredited courses and programmes are representative of a shared and recognised academic exchange system. An open organisation will have internally articulated courses and programmes so that the qualification routes will articulate horizontally as well as vertically. This means that first degree programmes will build upon diploma and certificate programmes, and credit will be given to those who have successfully completed the latter and wish to continue their higher education. Some traditional universities, through the autonomy and independence of faculty and ad hoc growth, have developed numerous qualifications without any articulation between them. This is particularly so with universities in developing countries which have inherited a colonial past. Apart from the economic reasons for rationalising these programmes, the students are seriously disadvantaged. Firstly,

without internal credit accumulation, students will find they cover the same work where overlap between qualification routes inevitably exists. Secondly, the rigid boundaries that prescribe qualification routes may preclude taking interesting, interdisciplinary options.

Where this situation exists, it acts as an impediment to developing inter-organizational credit transfer. Organizations of higher education that have not rationalised their own courses and programmes will have difficulty negotiating credit transfer with other organizations which have. To become more open in this sense is to become less parochial and share, with other organizations, perspectives, meanings, beliefs, understandings and ideas comprising knowledge areas. This gives a new meaning to the idea of 'academic community.' The 'new technology' and access to international computer networks (Internet) make this kind of global academic community technically possible. Technically, customers may have access to a wide range of accredited courses worldwide. In 1979, Isaac Asimov foresaw a time when computers will greatly expand learning and "when that happens...for the first time in history (we) will be achieving something approaching intellectual maturity" (quoted in Sewart, Keegan, & Holmberg, 1983, p. 139).

Modularisation

I have chosen to introduce the concept of modularisation as a response to the flexibility and adaptability required in curriculum design, programme and course structures, student choice and market demand. Modularisation is now the norm in many education systems. Modularisation is an important curriculum innovation which contributes to 'openness' and is a direct compliment to credit accumulation systems. At its simplest, 'modularity' implies a division of a course into separate, but not necessarily unrelated, elements with discrete aims and objectives and self-contained assessment schemes. It implies much more than a crude division of courses to correspond to the division of the academic year, namely, 'semesterisation.' The principles informing the modular structure are all important for ensuring the integrity of the system and maintaining both vertical and horizontal coherence. The relationship between the principles and the structure can be quite complex. Arguably, the most well-known modular course in Britain has

been developed by (what was) Oxford Polytechnic. Three fundamental principles underpin the educational philosophy of that institution's modular course:

- Credit accumulation.
- Progressive assessment.
- Responsibility and choice.

The unit upon which awards are based is the single module (usually one eleven-week period). The structure allows considerable student control over the educational experience and approximates to Bernstein's concept of 'weak framing' characteristic of the 'integrated code' (Bernstein, 1971). This is in contrast to the prescribed programmes of study where the student has little or no choice over the content, structure, design and integration of elements.

Organisationally, the modular scheme is a device for allowing a great variety of individual qualification routes without compromising academic rigour or standards. The student is given the opportunity of broadening his/her areas of study in order to learn the principles and methods of several disciplines or of concentrating on a specialist area.

As the modular course at Oxford Polytechnic matured, the principles above were developed. It is worth presenting them here since they embrace the concept of 'openness' presented in this paper:

- to re-affirm the principle, inherent in the content and design of the Modular Course, of offering students a broad-based, flexible course of study in which they participate actively through *choice* of fields, within fields and of study outside their main field. They may...either broaden their areas of study in order to learn the principles and methods of several disciplines or concentrate on a more extensive study of a single discipline.
- to exploit more fully the opportunities provided by the unit credit system to offer the studies on *undifferentiated full-time, mixed mode, and part-time routes*, and hence contribute to local and national needs for initial undergraduate courses and continuing education.

- to build on the established strengths of subject areas and seek to extend *interdisciplinary co-operation* in teaching, learning and research. (Watson, 1989, p. 12)

Summary

Traditional educational organizations that decide to go dual mode, and/or wish to embrace the challenges of change presented by the emerging and exploding 'information age,' the impact of growing technology, sociological changes in the work that people do and the education they receive, and demographic changes in the student population, face dramatic and fundamental changes in how education is perceived, how it is developed and how it is delivered. The change is formidable because it challenges our basic assumptions, our beliefs, our time-honoured principles, our practices, our experience, our self-perceptions as professionals and, most fundamental of all, it challenges our professional existence as educators. The change is so dramatic, in sociological, epistemological and educational terms, that it has all the hallmarks, of a paradigm shift as espoused by Thomas Kuhn.

The concept of paradigm and paradigm shift is a useful tool to begin reflecting on where an organisation is and where it needs to go in order to achieve the desired changes and concomitant objectives. But it needs articulating. A model (paradigm 1) is integrated with an exposition of the values, assumptions and practices, as related to the curriculum, that need to change (paradigm 2), and is presented here as a conceptual framework and management tool for understanding the shift options and what they entail. In this sense, it is a model for certain types of educational change.

This model for educational change may inform policy and strategy decisions. An educational organisation can reflect on its sociological, epistemological and economic position and, in other contexts (political, regional, international), can contemplate optimum development strategies. For example, although a university may decide that it wishes to make the diagonal shift, it may also plan and phase the journey. On the other hand, it may wish to retain its 'collegial culture' (and there are many powerful arguments for doing just that--especially

for universities in developing countries). Whatever the decision, it must be arrived at with a clear perception and understanding of where the organisation is and where it's going. The framework presented in this paper is intended to help that process and evoke the most appropriate questions.

Endnotes

1. The definition used here is but one characteristic of paradigm as used by Kuhn who was using it as an 'explanatory principle' for the development of scientific knowledge. The usage here is summarised by Charles Handy (1985): a paradigm is: "... a conceptual framework, a way of looking at the world, a set of assumed categories into which we pile the facts." (p. 389)
2. The case of the 'Copernican Revolution' is invariably quoted to illustrate this point.
3. This type of organisation has been referred to as *ad hoc*racies by Bennis and Slater (1964) and later by Alvin Toffler (1970).
4. The rationale for 'openness' and its organizing principles are derived from Karl Popper (1945).
5. An analytical discussion of the university as a professional organisation may be found in Mintzberg (1989), Taylor (1983), Bergquist (1992).
6. There has been much muddled thinking surrounding distance education confusing terms like 'distance teaching,' 'distance learning,' 'independent study,' 'self-directed learning' and 'open learning.' For a discussion of these terms see Keegan (1990).
7. Note how lecturers talk about their 'teaching load.'
8. The concept and focus on 'study skills' in the bottom/left of the model is very different from the 'learning to learn' in the top/left. (see Cunningham, 1987).
9. Charles Wedemeyer (1983) provides an interesting account of the role of non-traditional education in the shaping of civilisation.
10. For an interesting discussion on the relationship between 'critical thinking' and interdisciplinary studies see Barnett (1990).
11. The issues which need to be addressed when considering explicit recognition of the curriculum in professional education are given in Bines and Watson (1992, p. 126-136).
12. The 60s and 70s in Britain was a time of expansion encouraging new ideas, new ventures and innovation in curriculum design and structure. This period saw the introduction of ambitious modular developments at the City of London, Middlesex, Manchester, Sunderland, Central London and other Polytechnics. Two institutions, Hatfield Polytechnic and Crewe & Alsager College of Higher Education adopted modularity as an organizing principle for practically all their work.

13. For interested readers see, Watson (1989).

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