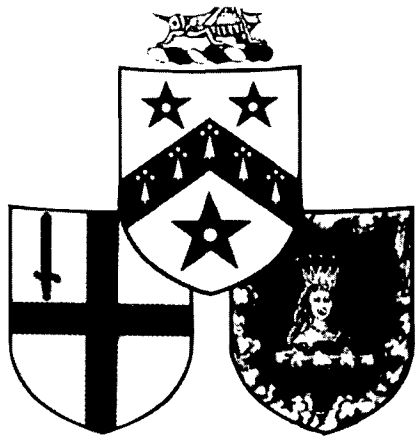
G R E S H A M

C O L L E G E



YESTERDAY'S EDUCATION FOR TOMORROW'S BUSINESS

Lecture 6

BUSINESS STRUCTURES AND THE STRUCTURE OF EDUCATION FOR BUSINESS

by

PROFESSOR TOM CANNON CIM FInstEx FRSA FCIM
Mercers' School Memorial Professor of Commerce

12 February 1997

GRESHAM COLLEGE

Policy & Objectives

An independently funded educational institution, Gresham College exists

- to continue the free public lectures which have been given for 400 years, and to reinterpret the 'new learning' of Sir Thomas Gresham's day in contemporary terms;

- to engage in study, teaching and research, particularly in those disciplines represented by the Gresham Professors;

- to foster academic consideration of contemporary problems;

- to challenge those who live or work in the City of London to engage in intellectual debate on those subjects in which the City has a proper concern; and to provide a window on the City for learned societies, both national and international.

Gresham College, Barnard's Inn Hall, Holborn, London EC1N 2HH
Tel: 0171 831 0575 Fax: 0171 831 5208
e-mail: enquiries@gresham.ac.uk

Gresham College

Business Structures and Structures of Education for Business

Tom Cannon, Mercers' School Memorial Professor of Commerce at Gresham College

The nature of business and the workforce has changed significantly over the last decade and will continue to alter in the future. The UK Government's White Paper *People, Jobs and Opportunity* notes that "the main growth in jobs has been in the service sector with an increase of 3.1 million between 1983 and 1991, compared with losses of 0.7 million in other sectors. In the same periods both manual and non-manual jobs grew but the long term trend to non-manual jobs at higher levels of skill has continued. The strongest growth was in managerial and professional employment, with total employment reaching 8.5 million or 32 per cent of the workforce in 1990. In contrast between 1984 and 1990, unskilled labouring jobs fell by 54 per cent ....

Working methods and patterns are also changing. Businesses need to organise themselves more flexibly to respond to the pace of technological change ... more work is now done in small units with each team member of the unit contributing a range of skills ... It is increasingly difficult to describe the typical working week. While the 40 hour week remains the most common, it is now worked by only 10 per cent of British employees. 6.6 million people now work part-time, an increase of 34 per cent between 1983 and 1990 ... Three quarters of the workforce now have some aspect of flexibility in their working patterns."

Add to these, the shifts to small and medium sized firms, the greater diversity of the workforce, the growth of the voluntary sector and the move towards greater mobility between employers and the shape and scale of change in the structure of business and work emerges. These structural changes impose changes on education for business. Richard Riley, US Secretary for Education, argues that there is a "very great need to re-think how we teach and learn (in response to new technologies, markets and competition)."

New Levels of Achievement

The Labour Market and Skill Trends study published by the Department for Education and Employment develops this theme of change and notes that "not only are highly skilled occupations increasing, but work itself is now requiring increased skills ... The pressures placed on the modern enterprise operating in a competitive business environment and the general broadening of skill requirements, also puts an emphasis on the development of core skills." Responding to these challenges requires a system of education for business that weds the creation of a platform of underpinning knowledge, understanding and skill with the capacity to tackle high order skill, capability and competence development and the creation of a portfolio of core skills.

It is as important that "young people realise the value of education and training to their futures; acquire a broad range of skills (including the skills of learning) and are encouraged to progress to higher levels of achievement" as it is for employers to recognise and reward people's

investment in skill development, continue to invest in the development of people and learn to use the full range of ability and competencies in their workforce. Wedding these twin responsibilities is the central task of education for business. It goes beyond merely defining job, firm or sector skills. Entrants to the workforce will need a platform of underpinning knowledge, the aptitude to learn and the capacity to acquire competencies. The ability of workers to respond to workplace demands for education, training and development has a direct effect on business costs. Allyson Tucker of the US Heritage Foundation indicates that Motorola in the US has to spend $250 per employee to introduce quality control techniques while its Japanese rivals spend an average of 50 cents per employee.

New Partnerships

Changing the content of specific aspects of the curriculum is not enough. Allyson Tucker demands "total restructuring" of US education while Richard Riley says that "business has a collective stake in helping create the architecture of new educational institutions. Educational reform can only work if it is comprehensive, creating new partnerships at every level from early childhood to after school, university and training." This scale of change is not easy to achieve. There is a long history in education of resistance to business involvement. This partly reflects the natural reluctance of all professions to resist outside interference. It is, also, linked with the core role of education in maintaining the wider values of the society.

The nature of business activity forces a different response to change. Business structures generally reflect the mixture of technology and culture that shapes the industry or enterprise. Communication, control and information technologies are especially important in forming business structures. In the nineteenth century, communication was generally personal, hard copy and slow. Business structures reflected this. Manufacturing plants were concentrated and their owners lived locally. This provided direct personal supervision and control. Distant operations required a different form of control system or structure. Poor and slow access meant that 'local' managers required a great deal of autonomy. This posed special problems for the great international trading concerns like Swires, Jardines, The Hudson Bay Company and others. They resolved this by placing particular emphasis on recruiting their 'agents' from groups they trusted especially family members. Trustworthiness was more important than competence. There were, also, very few levels of hierarchy between the 'agent' or 'local manager' and the proprietor. Hierarchies were neither needed - because of the infrequent contact - nor appropriate - because of the wide and distant relationship.

Technological and market change transformed these structures. Many of the new oil, chemicals, electronics, vehicles or engineering sectors provided opportunities for significant economies of scale. New communications technologies and sharp increases in the speed and reliability of existing technologies made it possible to extend the direct span of control of directors, managers and supervisors. Local and operational autonomy was reduced while information systems became impersonal and relatively fast. The local agent of the Conrad novel gave way to the corporate man. The skilled craftsman was replaced by the production line worker. Branded products provided quality control and led to mass marketing.

Changing technologies had altered structures that went on to change the culture of businesses. The growth of mass production techniques especially in the type of multi-product, multi function firm that dominated the middle part of the twentieth century was closely linked with a sharp increase in the numbers and levels of supervision. In North America "between 1948 and 1966.. the ratio of supervisory to non-supervisory employees in the private business

sector increased by nearly 75 per cent - from roughly thirteen supervisory employees per hundred non-supervisory employees to more than twenty two[1]."

Although UK industry seldom matched the scale and structure of US corporations a similar transformation took place. Alister Mant[2] argues that this was partly a result of the "massive dependence on the USA to the point where it is hardly an exaggeration to suggest that the leadership function in the collective mind of British industry was vested in America." These shifts in industrial practice were mirrored by the increasing specialisation and fragmentation of education and training for and in businesses. These changes, added to increased professionalisation, helped to prompt a transfer of ownership and control of education for business from employers to providers and standards setting organisations.

Control of Content and Process

In the nineteenth and early twentieth century, education and training for business was dominated by employers and crafts. At the turn of the century a marked change occurred especially in North America and Germany. Sandra Feldman of the US United Federation of Teachers points out that "by 1900 the rudimentary training for which public schools had originally been created had already shifted to a wider, more encompassing liberal curriculum." In North America and much of Europe this shift saw control of content and process move into the hands of educators, government and the professions. In some cases these agendas coincided with the need of larger corporations for more skilled workforces led by large, specialised, managerial bureaucracies. This was most marked in the USA. In Germany, the technical and engineering skills required by industry were delivered through Fachschulen (technical universities). In Britain and France there was limited investment in technical or vocation for the mass while a small leadership group was sustained.

At the heart of these changes lie fundamental shifts in the nature of work. Success in the first industrial revolution was founded on the effective application of the notion of the division of labour to the work of operatives. As early as 1798, Eli Whitney was using the notion of the division of labour to fill an order from the US government for 10,000 muskets. His use of interchangeable parts was duplicated with increasing frequency as the century progressed. Machines gradually replaced manual labour in factories across North America making clocks, watches, agricultural machinery, sewing machines, typewriters, and bicycles.

Process production was employed in making shoes, textiles, hammers and wrenches, foodstuffs such as meats and canned fruits and vegetables. The system of manufacturing these items was sufficiently well established by the middle of the nineteenth century to be called "the American System." Henry Ford drew all these ideas together when he linked interchangeable parts and process production with the moving conveyor belt originally employed in the Liverpool Docks (England). The first industrial revolution had transformed the

---

[1] Gordon, D. M. "Chickens Home to Roost: From Prosperity to Stagnation in the Post-war US Economy" in Bernstein and Adler eds *Understanding American Economic Decline* Cambridge, Cambridge University Press, 1994

[2] Mant, A. *The Rise and Fall of the British Manager* London, Macmillan 1977

integrated labour force of agricultural society into a fragmented and separated labour force shaped by the division of labour.

Educational Fordism

Fordism took this to its logical conclusion. It took one of Ford's peers - Alfred P Sloan of General Motors - to introduce many of the changes that marked the move from the first to the second industrial revolution. During the nineteenth century, the separated labour force was led by an integrated managerial group. This integration took many forms. Social integration was an important characteristic of nineteenth century managers. Their business systems were integrated with little separation of the marketing, production and financial systems. Structures in large companies were characterised by relatively little departmentalisation or divisionalisation. In a sense, Ford was probably the last, best example of nineteenth century industrial organisation while General Motors was a pioneer of the new business paradigm.

Sloan spelt out his problems. "The was a lack of control and of any means of control in operations and finance, and a lack of adequate information about anything[3]." His solutions centred on the application of the division of labour onto management. He created "a highly rational and objective mode of operation" in which the roles and responsibilities were decentralised and closely specified. The dominant business paradigm of this century is a separated labour forced directed by a separated management group.

Competitive success today and tomorrow depends on undertaking the same type of fundamental review of the suitability of existing business systems as Sloan undertook in the 1920's. The key question is - do we have yesterday's education for tomorrow's businesses? It is evident that neither the fragmented workforce nor the separated management are required by the dominant technologies nor do they suit today's markets. Rigid, narrow, episodic and mechanical education is hard to separate from rigid, narrow, episodic and mechanistic businesses. Fluid, wide ranging, continuous learning cannot be separated from fluid, wide ranging, continuously learning organisations. People who understand how to learn are more likely to prosper in a knowledge based economy than those who struggle to understand how and what they were taught.

Capability and Reach

New information and control technologies work best when they are organised on a non hierarchical, user-need basis by people who can combine operational competence, an understanding of the capabilities of the technologies and the ability to learn. Hierarchies give way to hub based structures. This means that information flows where it is needed rather than where tradition or authority expects it to flow. Everyone helps to shape the best system of working and responding to need. In contrast, the multiple layers of traditional structures reflect limited, personal spans of control.

Information technology extends these spans of control. The capabilities and 'reach' of those closest to policy and operations extend reducing the need to multiple levels of intermediary managers. The role of the manager changes from controlling and supervising to enabling and developing. The task of the operative changes from performing tasks to adding value. Both are

---

[3] Sloan, A. P. jnr *My Years with General Motors* New York, Doubleday, 1963

easier in an organisation in which notions of co-determination, joint decision making, empowerment or ownership of tasks are sustained by a workforce which has adapted to the new environment.

Robert Hall, in *The Soul of the Enterprise* would define the empowered enterprise as a firm with new type "soul" while more traditional firms have an old type "soul."

Hall's New and Old Soul of Enterprise

Mode A		Mode Z
Profit first priority		Customer satisfaction first priority
Assets are things		Assets are people
Thinkers are separated from doers		Does and thinkers the same
Traditional Mass Production		Lean Production
Separated marketing with suppliers and customers at arm's length		Integrated marketing with partnership based relationships with suppliers and customers
Performance measurement for control		Performance measurement for improvement and adding value
Strong hierarchies		Weak Hierarchies
Scale economies important		Time Economies important

Adapted from Robert Locke *The Collapse of the American Management Mystique*

Company A's profile indicated by the solid line

is that of a traditional "old soul" business

Company B's profile indicated by the dotted line

is that of a "new soul" business

Business structures can now reflect more fully a more natural 'organic' structure freed from the limitations of established mechanistic structures. Dr Yoshito Maruta of Japan's successful Kao Group has his own version of this when he talks of building the business around a system of "biological self-control." Multiple layers of management become redundant as improved information flows reduce the need for scrutiny and supervision. New technologies can flow on a 'need to know' basis further limiting the need for successive levels of the hierarchy to act as filters or funnels. Shifts in the capabilities of and relationships between suppliers, employees, operating systems and customers mean that the locus of authority moves closer to the point of action. None of these groups expects to battle through layers of bureaucracy for either decisions or delivery.

The chief executive on one successful German company quoted by Herman Simon highlights this approach. He comments that "if people are not challenged by hard world, they resort to unproductive activities like writing memos, holding meetings, occupying themselves. Most of the intrigue and bureaucratic hassle that plagues large companies is avoidable..." Percy Barnevik of ABB takes this approach further by asserting the importance of using the total capability of people. "We have to be able to recognise and employ that untapped ability that each individual brings to work every day."

For most of the successful, new generation of business leaders the cutting edge of this approach is improved customer satisfaction and competitive advantage. Josef Kratz, the CEO of JK Ergoline links the twin issues of commitment and customer satisfaction in his views. "Wherever the opportunities lie, we will be fast enough and flexible enough to grasp them. And we will strive for market leadership, there's no question about that. We have proven our flexibility ... (we were) determined to become number one in the world. That was our goal, and here we are." Komatsu's "Growth, Global, Groupwide" strategy is based on the same determination to growth through people and customer satisfaction, to win global leadership and extend this across all the firm's activities. These approaches are especially important in knowledge based industries and companies because "unlike capital, knowledge is most valuable when those on the front line control and use it[4]."

The reluctance of many Anglo-US corporations to accept and internalise this perspective leads some people to doubt their long term competitiveness. Konosuke Matsushita, founder of the Matsushita Electrical Industrial Corporation - total sales 1994, $61Bn, takes a clear view on these prospects.

"We are going to win and the industrial West is going to lose out; there's not much you can do about it because the reasons for your failure are within yourselves. Your firms are built on the Taylor model, and even worse, so are your heads. With your bosses doing the thinking while the workers wield screwdrivers, you're convinced deep down that this is the right way to run a business. For you the essence of management is getting ideas out of the heads of managers and into the hands of labour.

We have gone beyond the Taylor model. We realise that business has become so complex, the survival of firms so precarious, and our environment increasingly unpredictable, competitive, and dangerous that firms' continuing existence depends on their day to day mobilisation of every ounce of intelligence."

A Double Cycle of Learning

This view of the organisation shifts the responsibility of education for business away from narrow and functional skill development or pure academic knowledge to the combination of knowledge and understanding with competence development. Warren Bennis former University President comments that (traditional) "organisations are, by their nature bureaucratic, with a mind set of control, order and prediction. In more stable times, when manpower resources were channelled to make stovepipes or steel these techniques worked well. Now we are moving towards organisations that are more like temporary systems, networks or clusters. The mind set of these organisations will be alignment, creativity and empowerment."

The mind sets of those working in the organisation will need to show the same capacity to align knowledge and understanding with need, act creatively and wed these to effective action. Argyris's double cycle of learning has special relevance with its emphasis on linking the acquisition with the application of knowledge. Argyris argues that effective learning consists of two cycles. The first is the acquisition of knowledge. The second is the application of knowledge. Education for business relies on both processes working for both the individual and

---

[4] Bartlett, C. ibid

the group. Each of the elements identified by Bennis - alignment, creativity and empowerment - requires a higher level of understanding of the capabilities and competencies of the people and organisation than the control and ordering tasks under traditional structures.

The capacity to break the mould and identify new ways forward is closely identified with the notion of continuous discontinuity. Continuity is important but is a platform for development not a trap or easy option. The ability to manage discontinuity must be integrated into existing or revised control and operations. This allows the education to focus on the opportunities inherent in change and the value of effective innovation. The ability to manage change and innovation cannot be confined to the product and process aspects of the organisation. It must extend into the heartland of the enterprise through its mission, values and culture. Issues like fairness in the workplace, the avoidance of gender or ethnic bias are heartland issues not peripheral topics.

Current technologies and markets make re-integration of the workforce practical and desirable. The best production and information systems available today are flexible, interactive and open. This enables operators and managers to intervene directly to improve quality, add value and increase customer benefits. They are no longer slaves to machines that control them and can only be changed at a high cost. Computer Aided Design and Manufacture, for example, can free producers from the machine logic of Fordism by moving away from a pre-occupation with the parts to an emphasis on the whole. Mass customisation in some form is the likely outcome of these changes.

This is made more likely by the blurring of the lines between products and services. In mature, industrial markets, the service associated with product is often more important in sustaining customer satisfaction than its technical features. Finance, warranty, maintenance, availability and product support have long dominated industrial and institutional markets - they are emerging to dominate consumer markets. This reflects, in part, the degree of technological convergence in most markets. It, also, highlights the ability of firms to get a competitive edge by development and innovation in service. This synthesis of the physical and service features of the product makes it easier to match the benefits delivered to the needs of the individual - mass customisation by another name.

The renewed emphasis on the values that underpin an enterprise derive from the difficulties of control in the new, more open, entrepreneurial environment. This is especially true when the emphasis shifts from management of controllable inputs to less easily controlled processes and outputs. Part of the success of Japanese industry lies in their more clear articulation of the core values of the enterprise and their willingness to empower all employees to defend these values. The clearest case of this is the use of the Waigaya session at Honda. This allows any employee to raise any issue at an open meeting. Critically, it gives employees the chance to question decisions, instructions or procedures which undermine the core value of commitment to quality. Self control, in this form, eliminates the costs and waste associated with external inspection and testing.

The integration of work, expertise (Fachkompetenz) and technical competence is a priority in Germany companies. This is part of an industrial tradition that means that shop floor staff in engineering and production are able to interact with customers, understand their needs and deliver against their specifications. Studies of industrial innovations that compared the approaches of Anglo-US and North European companies found a marked difference in the policies adopted. Anglo-US companies developing new products and services adopted an

intensive, separated marketing approach. They preferred to involve customers late in the product development process, preferable when "a finished product was available." Links between suppliers and customers were usually funnelled along a fairly narrow path through sales and purchasing departments.

German firms and other North European companies with shared traditions adopted an extensive, integrated marketing approach. They involved customers at very early stages in the development of new products and services. Idea development, business analysis and early development were often undertaken jointly. Perhaps inevitably, this required the creation of extensive networks of links between people in the supplier and customer firms. Design team talked to design team, production people talked to each other as did engineering, research and development, sales as well as those formally involved in the transaction. The result was that industrial innovation in German companies was less costly. Customers shared many of the costs. Failure rates were far lower, in part because problems and likely difficulties were identified early.

Knowledge, acceptance and commitment to the goals of the enterprise lie at the heart of thinking about empowerment. Ventures or managers that seek to empower their employees add new dimensions to their relationships. They move beyond delegation of activity to the allocation of authority. The empowered individual or group can decide a course of action and, within accepted limits, take action. The hardest aspect of empowerment for most managers lies in the need to delegate authority while accepting responsibility.

Talent

In some fields of endeavour, empowerment has long been the norm. In a football team, the manager or coach can give his or her instructions before the game but once on the field the players are empowered. Performing artists are empowered to interpret the text. The more talented the performer, the more freedom he or she has from the director. Academics are similarly empowered. Three aspects of work come together to increase the value of empowerment. The first are unforeseen changes that require an immediate response. There is no point looking to the bench if a talented opponent does the unexpected. The second aspect occurs when the individual talent of the worker has a marked effect on results. Fine artists create fine outcomes. Third, where lack of freedom inhibits achievement. The poor productivity of academic researchers in totalitarian regimes attests to the negative effects of restraint.

Effective management structures match the capabilities of the organisation to the needs of the environment. These structures are influenced by the dominant technologies and market features. The management structures that emerged a century ago reflected the efforts of organisations to control their operations and direct their workforces along fairly well regulated lines. Even at the start of the century a divide emerged between the more separated and fragmented structures adopted by Anglo-US corporations and the more integrated approaches which characterised German and Japanese firms. There were enterprises in all these societies which departed from the stereotypes outlined above.

The dominant cultural and social values in the society have a profound effect on the way organisations allocate resources and interpret the technological and market pressures. Change, especially in communication, control and information technologies, is forcing firms to re-examine how they organise their management systems. This re-examination is raising questions about the value of many of the features that characterised organisations - especially

those in the US and UK - during this century. Rigid and elaborate hierarchies fitted well with the needs of the dominant production technologies in industrial and consumer goods. These structures encouraged the introduction of large numbers of supervisory and management staff. They delivered the high levels of control required by US and UK business.

This organisational model faces major problems today. New technologies are less dependent on hierarchies and seem to work best with natural, organic structures. Close control and supervision do not work well with newly important groups like the knowledge workers in telecommunications, information and computing. Elsewhere, the best returns grow out of an emphasis on deploying the talent of people rather than exploiting their labour. Creativity, innovation and business development require more cohesive, better integrated and open approaches to workplace organisation. This type of management increases in value as enterprises strive for the greater flexibility of entrepreneurial businesses.

Education for Business

The form and structure of education for business must shift to reflect the needs of the new environment. Business itself must pay a part in this realignment. Business's contribution cannot be confined to the financing of peripheral development - often at high costs. Allyson Tucker claims that "business can improve education if it stops throwing money at public schools and demands total restructuring." The call for radical change is not confined to radical think tanks. The "collective stake" that Richard Riley asserts for business means that a crucial role exists in helping education address its "inability to change." The knowledge based industrial revolution rests on a new partnership between education and business.

Among the key features of this partnership is a shift in educational priorities away from education for employment to education for enterprise and employability. Education for enterprise is not confined to the specifics of the smaller enterprise. It includes personal competencies like self development and management, developing appropriate learning styles and communication. Creative responses to threat and challenge are more important to survival and prosperity in the new environment than withdrawal and resistance. Much educational effort remains focused narrowly on the individual. A shift to team development and group work is more suited to the emerging workplace.

The notion of employability poses special challenges to education for business. On one level, the concept of employability recognises the shift away from continuous employment with a single or small number of employers to a more diverse and flexible working life. The change poses major difficulties for those whose education has focused on a narrow portfolio of skills. Life long learning is the inevitable corollary of the search for life long employability. Business and education have a mutual interest in creating learning communities. These communities break down the barriers between work, learning and leisure. Education for business requires a redefinition of the relationship between business and education. The transfer of ownership and control of education for business from employers to providers and standards setting organisations is no longer productive to either party.

The weaknesses are especially vivid in the Britain when an increasingly harmful divide is maintained between academic and vocational systems of provision. Until the 1980's vocational education was maintained at the fringes of education through a mixture of under-funding, low status and questioning of its ethos and contribution. The present government achieved considerable success in building a ladder of vocational qualifications to match the well

established ladder of academic qualifications. Two ladders exist but the links remain poor and weakly maintained. The priority is to convert these separate structures into a proper scaffolding on which a genuine structure of life-long education for business can be constructed. Change is as important for high status university qualifications as it is for technical qualification. We can no more afford graduates who do not understand either the world of work or the capabilities or all those with whom they work than we can afford unskilled, semi or skilled operatives whose lifetime prospects are destroyed by technical or industrial change. The unemployed graduate is as much of a waste as the older, less well educated male who is unlikely to work again without major changes in education for business.