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**MIDDLESEX UNIVERSITY
NATIONAL CENTRE FOR WORK BASED
LEARNING PARTNERSHIPS**

**DOCTORATE IN PROFESSIONAL STUDIES (Strategic Development
of Work Based Learning Partnerships and Intellectual Capital)**

**Project Title: Work Based Learning Partnerships and Structural
Capital: the Case of Middlesex University**

Author: Jonathan Richard Garnett

Registration Number: 9329131

Module: DPS5140

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PROJECT SUMMARY

The aim of the project is to enhance the value of work based learning to Middlesex University through the development of a critical understanding of the relationship between the Middlesex approach to work based learning and the concept of structural capital.

The project considers the Middlesex approach to work based learning and identifies the salient features of the approach. Key to the distinctive nature of the Middlesex approach is the recognition by the University of Work Based Learning as a field of study. The central theme of the project is how the existing demonstrable value of work based learning could be further enhanced by understanding the Middlesex approach in relation to intellectual capital and knowledge management concepts.

Intellectual capital is considered as being divided into human, structural and customer capital. The traditional area of expertise of the University has been the development of human capital. Consideration of knowledge management literature identified a range of factors generally seen as facilitating the enhancement of intellectual capital. These factors and the types of intellectual capital were used to examine three case studies of Middlesex work based learning partnerships with:

- a leading international construction management company
- a UK local authority
- an overseas higher education institution.

The case studies highlighted the importance of the structural capital of the University in the customised development, business focused operation and responsive evolution of the partnerships. The potential of the work based learning partnership to contribute to the structural capital of the partner and the University is highlighted by the case studies.

The report identifies the nature and the significance of the Middlesex University approach to work based learning as a structural capital asset and concludes with 17 recommendations covering curriculum development, consultancy, research, partnership design and operation and staff development which will inform the future development of Work Based Learning at Middlesex and lead to a range of publications.

CHAPTER 1 INTRODUCTION

Programme Context

This project is submitted as the final stage in a professional doctorate programme at Middlesex University. The Title of the award sought is: Doctorate in Professional Studies (Strategic Development of Work Based Learning Partnerships and Intellectual Capital). The title reflects the overall composition and focus of the programme:

- The Learning Review- This module allowed me to engage in focused reflection upon my previous learning. It has proved to be very influential in developing my understanding of my own personal and professional development with particular reference to:
 1. personal learning from work and the influence of others as role models and facilitators of learning rather than just sources of information, this has enhanced my own understanding of work based learning and my ability to relate to other work based learners;
 2. the significance of my first degree discipline of history (eg the unique nature of the historical fact and the role of the historian as interpreter), this has proved invaluable when considering work based learning and the role of the worker as researcher and developer as it has given me ready access to a paradigm for knowledge creation and validation which is not dependent upon scientific enquiry;
 3. learning from my first hand experience of being at the centre of major organisational change eg the design and initial implementation of the Common Academic Framework at Middlesex University.
- Research and Project Capability claim at level 4- this was based upon my MA Work Based Learning Studies (Curriculum Development) research project and learning from experience as a senior lecturer acting as a programme adviser, work based research methods module tutor and project supervisor on work based learning studies programmes at undergraduate and postgraduate level between 1995 and 1998.
- Programme Planning and Rationale- this provided the rationale for the academic level and coherence of the programme and made the case for stakeholder partnership between myself and the University as employer and academic awarding body. In order to meet the requirements of the stakeholders the programme overall and this project are intended to:
 1. focus on a coherent theme at the cutting edge of my professional area;

2. extend my own professional capability through sustained research and development;
3. enable me to make a significant contribution to the work of the NCWBLP and thus Middlesex University;
4. be of interest and significance to work based learning practitioners not only at Middlesex but also at other institutions (including but not confined to universities) interested in the relationship between work based learning, the University and structural capital.

This is particularly significant as it directly impacts upon the terms of reference for this project.

- Level 5 (Doctoral Level) Accreditation claim – this focused on my role as curriculum and partnership developer. Joint authorship of the Work Based Learning Studies validation documentation in 1995 required me to grasp emerging concepts such as dual accreditation and individual programme approval. Drawing upon my specialist knowledge of corporate accreditation and the validated work based learning studies framework I have regularly acted as programme originator and deliverer, informal and formal adviser to colleagues and consultant to other organisations. This required the ability to recognise and address individual and organisational needs across a wide range of organisational contexts in the public, private and voluntary sectors eg the creation of the Diploma in Professional Development (Voluntary Organisations) and a significant partnership programme with the National Union of Students based upon accredited NUS training courses. The “NUS model” is highly significant as it took as the starting point accredited activity and reinforced the learning outcomes of that activity through their application within the supportive framework of a work based project. This model has been widely used by NCWBLP and other areas of the University. The accreditation review identified two major themes which are central to the doctoral programme and are fundamental to this work:
 1. the development of the Middlesex approach to work based learning- this focuses on joint curriculum development with a range of partner organisations;
 2. the relationship of the concept of intellectual capital to work based learning. My project work will consider the development of a relationship between the Middlesex approach to Work Based Learning (drawn from programme design and delivery from Certificate to Doctoral level) and the use and development of structural capital.
- Level 5 Project – that comprises this report and supporting appendices.

The positioning and context of this level 5 project work is important as it represents a significant watershed, not only within the totality of the doctorate programme but

also within my professional career. My personal career at Middlesex University has inextricably been linked with the development of Work Based Learning over a period of ten years. I have been fortunate to have been at the centre of this innovation from the outset and for most of the period covered by the doctoral programme I have been leading the development of work based learning at Middlesex as the Director of the University's National Centre for Work Based Learning Partnerships (NCWBLP). One aspect of this role is responsibility, as Director of the managing agency, for the development of the Middlesex University Professional Doctorate Scheme. This role means that my participation in the programme has provided an additional dimension to the already complex "worker as researcher" role which is fundamental to the Middlesex Professional Doctorate (Costley and Portwood 2000). The variety of roles I have played over time and their impact upon this work, especially in respect of the methodology used is a theme that runs throughout this work and is critically considered in chapter 4. As a work based learner formally and professionally engaged in work based research and development focusing on the potential of work based learning to contribute to structural capital (primarily via research and development) I have attempted to highlight in this report *by use of italics* the personal learning points which I have gained from the process and which I will feedback at personal, local and in some cases strategic level.

Terms of Reference

The following terms of reference are grounded in the programme context and have evolved over time in response to internal and external driving factors.

The original focus of the project activity was NCWBLP work with the Corporation of London as one major case study of the development of a work based learning centre outside the University. This provided an opportunity for contracted research and development work of such potentially strategic significance that it justified my direct and sustained involvement as Director of NCWBLP. However major restructuring within the Corporation meant that the project did not develop as rapidly or in the form originally anticipated. In contrast over the same period I have been at the forefront of the development of a Centre for Work Based Learning in East Asia based in Hong Kong. The Centre was formally launched in January 2000 and the significance and speed of this development has outstripped my initial expectations and forced itself to the forefront of my personal agenda for a sustained period of time. Throughout the project period there have been immediate imperatives to respond to eg the opportunity to make external bids for funding. In February 2001 the University Academic Planning and Corporate Strategy Committee formally approved a proposal for a Pan University Work Based Learning Development Project (see Appendix 1). This project also won support from the University Executive and was approved subject to inclusion in the University budget for 2001/2002. This was clearly a major strategic development which as main author of

the proposal and Director of NCWBLP 1 would have to lead. My initial plans to integrate my doctoral project with the Work Based Learning Development Project (WBL Development Project) were frustrated due to delayed budget approval. This has meant that the relationship is primarily sequential with this work being partly used to underpin and develop the thinking for the Development Project.

Reflecting upon the development of the terms of reference of the project suggests the following general factors:

- **Strategic Imperatives.** These may be School, University or external but require to be addressed proactively (eg development of the East Asia Centre), reactively (eg restructuring of the Corporation) or a mixture “proactive-reaction” (eg the Development Project).
- **Opportunities.** Within a frantic professional life the opportunity to engage in sustained work has to be created. This is not simply time management but fine political (in the context of the work situation) judgement establishing a central theme of strategic and hence long term significance (eg the potential advantage of a deeper understanding of work based learning beyond the merely programmatic and the potential significance of this for the development of Work Based Learning) which would remain vital to the needs of the organization and thus justify significant attention over time. Once the theme is established then proactive and reactive situations can be seen as potential opportunities to further develop the project work.
- **Barriers.** These can be internal or external but are beyond the immediate control of the worker-researcher. However once the significance and political potency of the project theme is established this leads to a very clear decision making process when confronted by barriers:
 1. Does the barrier relate to the theme or a specific opportunity to address the theme?
 2. If the barrier relates to the theme (eg provision of adequate administration for Work Based Learning Programmes) then it has to be addressed as it is cutting across a strategic imperative.
 3. If the barrier relates to an opportunity then the significance of the opportunity has to be weighed against the effort required to remove the barrier.
 4. If the potential effort required exceeds the potential benefit then it is better to decline that specific opportunity.
 5. However if the potential benefit exceeds the potential effort then the barrier should be addressed.

The factors affecting the development of terms of reference identified above are of a generic nature and as such are potentially applicable across a range of work based learning. This has significance for the support of Work Based Learning Studies and

Professional Doctorate Programmes at programme planning stage both in terms of the support offered to assist work based learners in planning their programme and how the programme plan is perceived by the University. My personal learning from experience is that the University must explicitly focus on the significance and robustness of the central theme of the programme or project and ensure that due weight is given to the complexity of the situational factors rather than being pre-occupied with a detailed but essentially linear plan which is unlikely to survive the ravages of conflicting strategic imperatives, or real life barriers or be sufficiently flexible to respond to opportunities as they arise.

Thus while understanding of the relationship between the Middlesex approach to work based learning and intellectual capital has remained central to the project work it has evolved so that the final project:

- draws upon a broader operational context (ie the Corporation of London is one of three case studies);
- has focused on the pivotal relationship between the Middlesex approach to work based learning and structural capital;
- adopts a solutions based approach which is intended to inform the WBL Development Project.

In order to aid understanding of the terms of reference it is important to establish the following key definitions:

Work based learning - learning for, at and through work (both paid and unpaid). While much of the discussion is grounded in the Middlesex experience of developing and operating University academic programmes leading to higher education qualifications the use of work based learning is not limited to learning associated with an academic programme.

Intellectual capital – “intellectual material that has been formalised, captured and leveraged to produce a higher valued asset” (Klein and Prusak in Stewart 1997, p67).

Structural capital – “the organizational capabilities (eg processes, procedures, regulations networks) of the organization to meet its objectives (Stewart 1997).

The specific aim of this doctoral project is:

“To enhance the value of work based learning to Middlesex University through the development of a critical understanding of the relationship between the Middlesex approach to work based learning and the concept of structural capital.”

The aim essentially advances a proposition that:

1. There is an identifiable and distinctive Middlesex approach to work based learning.
2. That the Middlesex approach to work based learning is of value to the University.
3. That the concept of structural capital can be applied to the Middlesex approach to work based learning .
4. That the application will lead to a critical understanding which will inform future action, particularly the WBL Development Project, so that the value of work based learning to the University is enhanced.

In order to test this proposition the project objectives are:

1. To position work based learning at Middlesex University within the wider context of work based learning developments in UK Universities. The central question to be addressed is what is the “Middlesex approach to work based learning” and in what sense might it be distinctive? (This is grounded in the review in section 3 of chapter 2 and fully developed in Chapter 3.)
2. To describe and analyse three Middlesex University work based learning partnerships as case studies in order to explore the relationship between the Middlesex approach to work based learning and structural capital. (Chapter 3 provides a sustained discussion of the Middlesex approach to work based learning, case study methodology is critically considered in Chapter 4 leading to detailed exploration of work based learning and structural capital in the case studies described in Chapter 5.)
3. To identify and consider the relationship between work based learning and structural capital arising from the analysis, synthesis and evaluation of the case studies which will inform the development of work based learning at Middlesex. (Chapter 6 provides the rationale, features and significance of the relationship between work based learning and structural, capital.)
4. To draw conclusions and arrive at recommendations to inform practice and thus to contribute to the enhancement of the value of work based learning to Middlesex University (Chapter 7).

During the life cycle of this project a three main interim products relating to the central themes of the project have been produced. These are attached as appendices and will be referred to at appropriate stages in the text. These products have a number of specific target audiences and their style and content is varied accordingly ie internal project proposal for the Middlesex University Academic Planning and Corporate Strategy Committee, article in a reviewed academic journal, report for the Corporation of London work based learning steering committee. The key target audience of this work is senior management at Middlesex University and work based learning practitioners within the University. It is also intended that the report will be of significance to the wider work based learning community of practice (University staff and employers interested in the development of intellectual, particularly structural capital, via work based learning).

CHAPTER 2 LITERATURE REVIEW

Role of the Literature Review

The literature review is generally regarded (eg Hart 1998:1) as an important part of the development of the academic apprentice. It underpins and narrows by definition the focus of the academic research. It is a direct communication to the academic assessor that the writer has mastery, at an appropriate academic level, of the relevant subject area including comprehension of the main theories, concepts and related critiques. Hart (1998:20) considers the role of the literature review in relation to the PhD and while arguing for the importance of the literature review for the entire work highlights the specific role of the literature review in respect of key requirements for a doctoral award:

- Specialization in scholarship
- Making a new contribution to an area of knowledge
- Demonstrating a high level of scholarship

The emphasis is on demonstrating high level analysis, synthesis and evaluation to move from breadth to depth and by so doing identify the knowledge gap, and hence the nature of the original contribution to knowledge, which the research is intended to address. The claim to originality and thus eligibility for the award of PhD is open to a variety of interpretations. Phillips and Pugh (1994:61) identify fifteen different ways in which PhDs have been regarded as original.

The Level 5 descriptors for the Middlesex University Professional Doctorate (Programme Handbook 1999:9) clearly highlight the importance of “depth of knowledge”, “working at the current limits of theoretical and/or research understanding” and “exploring current limits of knowledge”. However the cognitive domain is matched in importance by demonstrating mastery of the complexity of the operational context of the advanced professional and the exercise and development of high level transferable skills applicable to the professional as well as the academic operational context. The emphasis within the regulatory definition of the DProf is not on an original contribution to knowledge but “major organisational change and/or excellence in professional practice resulting in original work worthy of publication in complete and abridged form” (Programme Handbook 1999:8). Thus while originality is present it is not solely rooted in a knowledge claim and is framed by a focus on professional excellence and/or major organisational change ie the emphasis is on the purposeful application of knowledge to achieve original work. This is an important distinction which has significance for the purpose and thus the nature of the evidence advanced to meet the requirements of the Middlesex professional doctorate. While highlighting distinctive features and differences in evidence it is important to stress that the level of achievement for the professional doctorate and PhD is equally demanding (Thorne 1999). The UK Quality Assurance Agency (2001) draws no distinction between PhD and professional doctorates when describing the qualification of “doctorate”. It is significant that the QAA official

definition is inclusive and Middlesex has been able to respond by expanding the definition of the standard of the Professional Doctorate in a way which is entirely consistent with the original focus of the programme and the level 5 descriptors.

It follows that the difference in purpose of the professional doctorate project and the PhD dissertation will be reflected in the structure and nature of the documents (and as applicable other forms of evidence). The literature review in the Middlesex professional doctorate is likely to be focused on enhancing aspects of an already established project theme (see Chapter 1 for discussion of the concept of a broad project theme), it may well be defining and narrowing the focus of the project but it is unlikely to be crucial for identifying the knowledge gap and thus the point of origin for the doctoral work. Candidates on the professional doctorate are advanced professionals who enter the programme with advanced professional knowledge. In many instances this is knowledge for and in practice (Schon 1983) which is refined through reflection and may have been accredited as a major component of the professional doctorate programme. Thus the literature review in the Middlesex professional doctorate is likely to be:

- informed by considerable and high level preunderstanding (Gummesson, 1991:51) of the professional area
- directed by the pragmatic and emerging needs of the project theme
- circumscribed by the application of bounded rationality (Choo, 1998:164) which will be defined in terms of the developing needs of the project
- interdisciplinary in nature
- structured and presented to support the aims of the project

The argument advanced above has been informed by my own preunderstanding as developer, teacher and researcher of work based learning. For example the DProf project by Davies (1999) “Managing Change through Curriculum Innovation” does not include a literature review chapter but integrates extensive preunderstanding of the literature into the report. The literature is cited to provide the context of the project and as part of the rationale for the developing focus of the project.

The need for me to rationalise in writing my own approach to role of literature within my own project has been a stimulating and beneficial one as it has helped me to structure my thinking on an area which has been troubling me for some time ie the possible limitations and contradictions of the generally accepted academic view of the relationship between literature and research when applied to work based learning in general and the Professional doctorate in particular. The proposition I have advanced above not only sets the scene for my own explicit engagement with the literature for the purpose of this project but raises issues for discussion with the DProf programme team.

Themes for the literature review

This literature review supports the project aims (see chapter 1) by:

1. Identifying and considering paradigms. The original focus was on the research paradigm framing the selection and application of approaches and techniques used to inform work based learning project work and extend my personal capacity to contribute to the further development of a distinctive Middlesex approach to work based learning (see chapters 3 and 4). During the course of writing it became evident that there was a need to consider the social paradigm through which this project considers work based learning and intellectual capital. This discussion is included as section 1 of the literature review as the issue of paradigm clearly impacts upon the construction and understanding of the entire project work.
2. Identification and consideration of the key elements of intellectual capital in order to focus on the role of structural capital and the significance of this for the rest of the project, especially the description and analysis of the case studies (see chapter 5) so that the potential relationship between the Middlesex approach to work based learning and intellectual (especially structural) capital can be better understood and areas for development identified (see chapter 6).
3. Outlining the wider context of work based learning developments of UK Universities in order to provide reference points for the proposition that there is a distinctive Middlesex University approach to work based learning and to highlight the role of structural capital.

1. Paradigms

Paradigm is derived from the Greek “paradeigma” meaning model or pattern. The concept of “paradigm” and “paradigm shift” was highlighted by Kuhn (1962) in the context of changes in scientific thinking. The concept is now employed more widely to signify broad reference points which frame how we perceive, understand and act. Gummesson (1991:15) defines a paradigm as “peoples’s value judgments, norms, standards, frames of reference, perspectives, theories.... that govern their thinking and action.”

Late in the writing process I was struck by the insight that the dominant issue of paradigm was not primarily one of research. University work based learning and intellectual capital make sense within a paradigm shift from an “industrial society” to a “knowledge society”. Rohlin, Skarvad and Nilson (1998:13) identify the industrial society paradigm with:

- a mass economy
- capital as the primary asset
- standardised and large-scale production
- specialisation and division of labour.

Due to technological change fewer people are producing more, the industrial production logic of the “industrial paradigm” is losing its position as the dominant paradigm while the dramatic development of information technology has ushered in information or knowledge society paradigms. This paradigm shift has in turn impacted upon the nature and structure of organizations and the nature and roles of

management and leadership (eg Clarke and Clegg 1998, De Geus 1997, Garrey and Williamson 2002, Zohar 1997). Work based learning, intellectual capital and knowledge management can be seen as manifestations of this paradigm shift and their potency is clearly associated with it. The eclipse of the industrial paradigm is far from total even in the advanced economies of Western Europe, Japan and the USA. Castells (2000:74) evidences a new economy which is “informational, global and networked” but was also dominated by the G-7 countries (90% of high-technology manufacturing), heavily segmented and selectively globalised primarily via trans-national corporate production networks. Participation in the information or knowledge age is currently not possible for the majority of the worlds population. Castells (2000:134) points out that the segmentation of the global economy leads to global trends “of increasing inequality and social exclusion” as “while the informational economy shapes the entire planet, and in this sense it is indeed global, most people do not work for or buy from the informational, global economy”. This stark reality is a sobering lens through which to view this project report.

The traditional paradigm for knowledge production in the University is an empirical positivist paradigm associated with “scientific enquiry”. The researcher is a detached and objective observer of the object of study. Research concentrates upon description and explanation and is conducted systematically and logically via well defined studies which are governed by explicitly stated theories and hypotheses. Statistical techniques of processing data are often central to produce results which are capable of generalisation (Gummeson 1991, Gill and Johnson 1997 and Cohen, Mannion and Morrison 2000).

Work based learning and by extension the Middlesex professional doctorate is by design and necessity concerned with knowledge which is often unsystematic, socially constructed and is action focused by the worker researcher in order to achieve specific outcomes of significance to others. These characteristics appear to fit more comfortably within an interpretive paradigm in which the researcher is an actor involved in the partial creation (through assigning meaning and significance) of what is studied. Research concentrates on understanding and interpretation and is conducted with the recognition that the researcher will be influenced by preunderstanding (Gummeson 1991). Reality is mult-layered, complex and hence there are multiple interpretations and perspectives of single events (Cohen et al 2000).

These two paradigms can be held to represent two polarised and heavily critiqued views of reality (Cohen et al 2000). In addition to these two views of reality a third paradigm of critical theory concerning the relationship between knowledge and power is gaining in acceptance and applicability. In the paradigm of critical theory knowledge and definitions of knowledge reflect different interest groups and can be seen as representing three cognitive interests:

- Prediction and control (scientific paradigm)
- Understanding and interpretation (interpretive paradigm)

- Emancipation and freedom (critical theory paradigm)

The emancipatory interest subsumes the previous two paradigms and goes beyond them. “It is concerned with praxis – action that is informed by reflection with the aim to emancipate” Cohen et al 2000:29). This additional paradigm is particularly significant for work based learning as it is focused on reflective practice as action research. The emancipatory nature of this paradigm contrasts with the concern that by embracing work based learning higher education has sold out to the needs of employers and become purely an instrument for enhanced productivity.

An understanding of these three contesting and partially overlapping paradigms is an essential aspect of a work based learning approach. It is over simplistic to see them as mutually exclusive. I see myself as operating primarily within an interpretive paradigm that is informed by the paradigm of critical theory. The research methodology chapter will explore the implications of consideration of research paradigms for this particular project in detail.

Engaging with these ideas has led me to reflect on our current practice within the work based learning research methods module and to suggest that we should:

- *focus more on paradigms and less on qualitative and quantitative data*
- *review the way we represent both qualitative and quantitative research as a systematic process.*

2. Intellectual Capital, Structural Capital and Knowledge Management

Soon after commencing the Professional Doctorate in 1998 I was attracted to “Intellectual Capital, the New Wealth of Organizations” by Thomas A Stewart (1997) as it appeared to offer a rationale for strategic linkage between University work based learning and organizations. Since then my own thinking about the richness of the potential to apply the concepts of intellectual capital to the University has increased alongside my understanding of the limits of Stewarts intellectual capital analysis and the possibilities of linking it and work based learning to the growing volume of work relating to knowledge creation and knowledge management. What excited me originally, and excites me still, is the applicability and potential richness of the insights offered by the concepts of structural and customer capital to work based learning and the University.

Stewart contextualises his thesis by examining broad changes in work which he identifies as the “information revolution”. He points to the downturn in size of major manufacturing companies and the rise in stock market value of companies with only modest physical assets. It is argued that this is indicative of a revolutionary shift from the company as a place of production to being a “place for thinking”. At one level this could be thinking to improve what is already being done or at a deeper level a fundamental change in what is being done. (This distinction corresponds closely to the concepts of single loop and double loop learning of Argyris, 1999.)

Stewart recognises that the importance of knowledge is not new but argues that it is now the most valuable asset of the organization.

The rise of an information age and a post industrial knowledge economy is widely supported eg the McKinsey global management survey on knowledge management (Kluge J, Wolfram S and Licht T, 2001) identifies a historical transition from the three “concrete” production factors of land, labour and capital to the “intangible” and “pre-eminent production factor” of knowledge and knowledge is “essential in making operations effective, building business processes or predicting the outcome of business models” (Kluge et al, 2001:10). Recognition of the importance of knowledge is not new, the nature of knowledge was much contested by the philosophers of Classical Greece, in 1890 the economist Alfred Marshall wrote “Capital consists in a great part of knowledge and organization.... knowledge is our most powerful engine of production” (Quintas 2002:1). Quintas (2002:2-12) points to a huge upsurge in knowledge management literature beginning in 1996 and taking off in 1997 and argues that knowledge has come to the top of the management agenda now because of:

- Wealth being demonstrably and increasingly generated from knowledge eg Microsoft, Coca Cola.
- The rediscovery, following de-layering of organizations, that people are the source of much organizational knowledge.
- Accelerating change: of markets, competition, technology, leading to a focus on the need for continuous learning.
- The recognition that innovation is the key to competitiveness and that innovation depends upon knowledge creation and application.
- The growing importance of cross-boundary knowledge transaction.
- The potentials and limits of technology.

In an age of unprecedented access to information leading to information overload it is not information but the knowledge to understand and attach significance to information which is of particular importance (Choo 1998:57).

Stewart (1997), Edvinsson and Malone (1997), Burton-Jones (1999) and a growing host of others argue that in the new knowledge economy it is intellectual capital which is the true measure of the wealth of an organization. Stewart argues that intellectual capital resides in the people, structures and customers of an organisation. Intellectual capital can thus be seen as:

- Human capital – the knowledge, skills and capabilities of individuals and groups.
- Structural capital – the organizing and structuring capability of the organization expressed in formal instruments such as mission statements, policies, regulations, procedures, codes, functional business units, task groups, committees or less formal eg culture, networks and practices.
- Customer capital – the value of an organizations relationships with the people with whom it does business.

Stewart (1997:163) outlines ten principles for managing intellectual capital:

- Companies do not own human and customer capital, therefore a collaborative rather than adversarial relationship is needed.
- Companies should actively foster the development of human capital eg by developing individual talent and communities of practice
- The need to recognize which employees are “assets”
- Structural capital (unlike human and customer) is owned by the organization and thus easier to control.
- Structural capital serves two purposes: to stockpile knowledge that supports the work customers value, and to speed the flow of information inside the company.
- Information and knowledge can and should be substituted for expensive physical and financial assets.
- Knowledge work is customised work not mass-produced.
- Analyze the value chain to see which information is most crucial.
- Focus on the flow of information not materials.
- Human, structural and customer capital work together.

What is particularly striking is the importance of structural capital as the means of operationalising all of the ten principles. Stewart (1997:110) argues that structural capital is vital and should be managed in order to promote “rapid knowledge sharing, collective knowledge growth, shortened lead times and more productive people”. Edvinson and Malone (1997) see structural capital as so important that they represent customer capital as well as internal innovation and processes as deriving from it.

The importance of structural capital is the leverage role that it plays in relation to both human and customer capital. Yet this role is far from clear and is certainly problematic. Knowledge is possessed by individuals and enables them to make sense of data and information received. Mayo (2000:523) argues that “all intellectual assets are maintained and governed by people”. Individual knowledge forms the basis for communication of information to others who will then make sense of it in the light of their own personal knowledge. Structural capital can help individuals develop their personal knowledge, store and transmit the information derived from it and access information provided by others.

“Tacit knowledge” is closely associated with situated action, it is hard to verbalise or write down (Choo 1998:116). Nonaka and Takeuchi (1995) have highlighted the significance of the “tacit” knowledge of the individual and the community of practice and the difficulties such knowledge poses to the organization. Tacit knowledge is by definition unspoken and hence by its very nature is not easily identified let alone managed. Individuals may simply be unaware of much of the knowledge which they have and which informs their action. Cope (1998:189) describes tacit knowledge as deep and hidden. Yet Nonaka and Takeuchi emphasize that organizations depend upon the ability to tap into tacit knowledge as a source of innovation. The dilemma for knowledge management is how to apply structural

capital to facilitate the creation, recognition, transfer and use of this intangible and potentially inaccessible resource, tacit knowledge (Myers 1996:4). Tacit knowledge can be learned by example eg the apprentice learning from observation and may be shared by whole communities of practice. Wenger (1991) has highlighted the key role of communities of practice in knowledge creation and use. Supporting communities of practice is a key concern for structural capital. The knowledge of teams may be more than the sum of the individual parts due to partial and complementary knowledge (Choo 1998:118). The use of reflexive practice (eg Baumard 1999, Moon 1999) has been advanced as the key to revealing of the “non-expressed” by “thinking about one’s own actions and analysing them in a critical manner, with the purpose of improving practice”. The difficulty of this process is compounded by the organisational context described by Baumard (1999:12) as “fragmented and multi-dimensional operative fields with their own ceremonial conformity”. A consequence of fragmentation is that bounded rationality often functions at the local level within “cognitive bulwarks and territories” (Baumard, 1999:14). Knowledge is thus “subjective in nature and intimately linked to the individual or group generating it” (Baumard, 1999:17).

It follows that a key concern for structural capital must be the facilitation of the recognition of knowledge eg through reflexive practice and the reduction, as appropriate, of barriers to the socialisation of knowledge ie making tacit knowledge explicit (Nonaka and Takeuchi 1995). For individual knowledge to become organizational knowledge, and thus fully contribute to the intellectual capital of the organization, it must be shared and accepted by others (Eden and Spender 1998:216). Sharing will often involve codification of some sort eg entry into a data base under certain fields, submission of a formal report. Baumard (1999:206) points to the danger of “fossilisation” of knowledge and asserts that “organizations tend to privilege formalization and combination whereas their critical resources rest upon the versatility and renewal of their collective tacit knowledge”. Nahapiet and Ghoshal (1998:253) also note that “organizational routines may separate rather than co-ordinate groups within organizations, constraining rather than enabling learning and the creation of intellectual capital”.

With so much attention paid to tacit knowledge in the literature it would be easy to assume that explicit knowledge is unproblematic. This is certainly not the case. Explicit knowledge also requires the deployment of structural capital to facilitate production, dissemination and use. Without the intervention of structural capital knowledge generation and validation would be largely at the whim of individual managers (Gill and Johnson 1997:7). Explicit knowledge held in common within one department of an organization is not of value if it is needed but yet unknown to another department. Explicit knowledge may be a barrier to progress and a key function of structural capital may be to initiate and action review and replacement of existing explicit knowledge. Combining or re-configuring existing explicit knowledge can lead to the transfer of new explicit knowledge (eg the formal learning in schools) (Choo 1998:124). Structural capital must facilitate such

combination. Nonaka and Takeuchi (1995) emphasize that it is equally important to be able to internalize explicit knowledge in order to translate it into implicit knowledge eg so that individual behaviour conforms to principles and procedures by habit as under some circumstances this may be necessary for high levels of performance.

Stewart (1997:152) described customer capital in terms of the opportunities it presented to enhance the value chain ie how a product or service moves from first seller to end user. Customer capital increases and can enhance human and structural capital as organizations move from a relationship purely based upon a transaction, through product and business solutions, to partnering eg suppliers like Proctor and Gamble actually manage the stock on Wal-Mart's selling floor (Stewart 1997:162). Burton-Jones (1999:61) details criteria for supplier selection which are expressed entirely in terms of knowledge level, specificity and value. The desire to deepen knowledge within a specific *industry or* market or to extend breadth of knowledge to different industries and their knowledge domains is seen as an increasingly important driving force eg banking and insurance firms linking with travel firms (Burton-Jones 1999:153). Edvinsson and Malone (1997:93) point out that a close partnership based on trust is essential as "the customer must divulge critical information in order that the product can be mass-customised to his or her specific desires". Five key indicators of customer capital are described by Edvinsson and Malone (1997:94-95):

- Customer type ie current and predicted future customer profile.
- Customer duration ie how long do customers remain loyal ?
- Customer role ie where does the customer fit in the value chain ?
- Customer support ie how does the company ensure customer satisfaction ?
- Customer success ie do the company's products and services help the customer achieve what she or he wants to achieve ?

The nature and lasting value to the organization of structural capital is hinted at by Edvinsson and Malone (1997:11) when they define structural capital as "all the value that remains when the lights are turned out at 5 pm". Stewart (1997:132) identifies two main purposes which structural capital should serve:

- To codify bodies of knowledge.
- To connect people to data, experts and expertise, including bodies of knowledge, on a just-in-time basis.

From the previous discussion of tacit and explicit knowledge it is already apparent that capturing knowledge for codification is no easy thing. Nonaka and Nishiguchi (2001) have contested whether knowledge can be managed and talk instead of "knowledge emergence", the importance of care and the need to create "ba" (a platform in space and time) for knowledge to flourish. There are four types of "ba":

- Originating (socialisation)
- Dialoguing (Externalization)
- Systematizing (Collaboration)

- Exercising (Internalization)

In this model tacit and explicit knowledge are complimentary. Nonaka and Nishiguchi (2001:13) believe “ what knowledge management should achieve is not a static management of information or existing knowledge, but a dynamic management of the process of creating knowledge out of knowledge”. The role of the manager is one of nurturing knowledge by creating space. This is indicative of a movement away from seeing structural capital primarily in terms of computer databases and a greater emphasis on the critical importance of facilitating direct human interaction ie technology should be used in a supporting role it should not be the driver or a barrier. Structural capital has special significance to the organization as it is the only aspect of intellectual capital that is owned by the organization. Structural capital is required to leverage customer capital and human capital and can itself be enhanced by customer and human capital.

In the context of the organization knowledge has no intrinsic value, it must have a performative value ie the knowledge has to contribute to the aims of the organization (Rohlin et al, 1998:39). The role of structural capital in formulating organizational aims, disseminating them and focusing knowledge production and application to achieve organizational aims is crucial. Choo (1998) highlighted the relationship between information, knowledge and decision making (a commitment to action) and drew upon the work of Simon (Choo 1998:164) to point out that the rationality of decision making in organizations is bounded as:

- Knowledge and anticipation of the consequences of a decision can never be complete.
- Imagination must be used to anticipate consequences.
- Only a limited number of possible alternatives can be considered, hence optimizing is replaced by satisfying.

The importance of ideological, political and personal preferences come to the fore in organizational decision making and feature strongly in “post-rational management theory” (Burgoyne and Reynolds 1997:164). All of this is not to downplay the importance of knowledge but to emphasize that in the social context of the organization knowledge creation, recognition and use is not a neutral or objective undertaking.

Table 1 (below) identifies the key factors for developing intellectual capital which were identified from the literature review. This review has argued that structural capital is critical in order to leverage human and customer capital. Enhancement of structural capital is of lasting value to the organization as structural capital remains with the organization rather than being dependent upon an individual employee or a specific customer. The table highlights the high degree of overlap between a range of authors on key factors for enhancing the intellectual capital of an organization. Baumard and to a lesser extent Nonaka stand out as different (they are indicative of other viewpoints eg Dixon [2000]) which emphasize not only the value of tacit knowledge but also the extent to which knowledge creation and sharing is a natural

process and hence less dependent upon deliberate “knowledge management”. All these factors are dependent upon structural capital.

Table 1 : Identification and comparison of key factors for enhancing the intellectual capital of an organization

Feature	Baumard	Cope	Edvinson	Goodman Huseman	Nonaka et al	Stewart
1. Vision	No	X	X	X	X	X
2. Leaders	No	X	X	X	?	X
3. Empower	X	X	X	X	X	X
4. Culture	X	X	X	X	X	X
5. Learning Opps	X	X	X	X	X	X
6. Community	X	X	X	X	X	X
7. K Create	?	X	X	X	X	X
8. K Capture	?	X	X	X	X	X
9. K Share	X	X	X	X	X	X
10. K Use	X	X	X	X	X	X
11. External Env	X	X	X	X	X	X
12. Partnering	-	X	X	X	X	X
13. Business focused	-	X	X	X	X	X

Key to Factors

1. Strategic vision which highlights the significance of knowledge
2. Leaders are proactive in the process of knowledge creation, transfer and use
3. Empowerment of individuals to be knowledge workers
4. Culture encourages enquiry and dialogue
5. Learning opportunities/space provided
6. Communities of practice/socialisation of knowledge is supported
7. Knowledge creation supported
8. Knowledge capture is supported
9. Knowledge sharing is supported
10. Knowledge use is supported
11. External Environment is connected to the organization
12. Partnering to increase intellectual capital
13. Business focus should be the driving force for the development of intellectual capital

While the role of Universities in developing corporate knowledge, let alone intellectual capital is not generally touched upon, Burton-Jones points to the potential for the University to form new learning alliances eg by linking with technology suppliers but significantly he does not link this to customer or structural capital. Huseman and Goodman (1999:79-102) do evidence a significant role for Universities in corporate learning and development in the USA (a 1998 a national survey of 202 senior trainers/educators in large US companies). Responses which seem particularly relevant to the theme of this project are:

- The proportion of training delivered by computer was expected to more than double from 16% of total in 1998 to 32% of total in 2000.
- The dominant form of training delivery was still expected to be classroom based, 56% in 1998 to 40% in 2000.
- 58% of respondents did not have corporate universities. Corporate universities are found more frequently in large companies, with large training budgets and large workforces that provide training internationally. 20% out of the 58% had plans to introduce a corporate university by 2000.
- Companies who spend most on external providers (consultants, trainers, universities) make use of customised development on only a light or moderate basis, the need to customize is equated to high internal expenditure.
- 66% currently have partnering arrangements with Universities. Companies with large workforces, large and international workforces are more likely to partner with Universities.
- Partnering with Universities is more likely for manufacturing sector organizations than it is for retail and financial services sector respondents.
- University use was seen almost exclusively in terms of MBA provision, with 49% of respondents indicating they believed an MBA was valuable in the current business environment.
- Significant factors in the choice of MBA were quality of staff, reputation of institution, availability of classes, proximity of institution, national accreditation. The least important factor (but still seen as important by 49% of respondents) is price.
- 55% indicated that partnering with a University would increase if the University offered multi-media based distance education.

This indicates that large organisations in the USA have a very traditional picture about what a University can provide (ie the MBA course) and equate increased customisation with the need to establish their own corporate university ie their appears to be little role for the University other than the traditional one as developer of human capital. Burton-Jones (1999:216) believes “a major requirement exists to improve the links between education, learning and work”.

3. Work Based Learning in UK Universities

The only comprehensive overview of work based learning in UK Universities is the DFEE funded review undertaken by Brennan and Little in 1996. This work provides a review of the political and to a lesser extent the economic context of the development. While much of the detailed discussion of how to do work based learning and all of the snapshot of provision contained within the appendices has dated the lasting value of the review is that it highlights:

- negotiation between key stakeholders (the individual, employer and the university)
- the multiplicity of approaches to work based learning
- a framework for measuring the “dimensions” of “experience led work based learning in higher education” (Brennan and Little 1996:65). An adapted version showing the position of work based learning at Middlesex University is shown in Figure 1 in Chapter 3.
- how work based learning challenges the role of the University as knowledge provider and validator.

Brennan and Little are essentially discussing knowledge as educationalists. Their chief authorities on forms of knowledge are Scott (1995) and Eraut (1994). Scott’s distinction between:

- Mode 1 Knowledge – linear, causal, cumulative; a closed system; rooted in disciplinary authority and therefore reductionist; publically organised and funded.
- Mode 2 Knowledge – multi-variant, unsystematic; an open system where the users are creative users rather than passive beneficiaries; multi-disciplinary; produced in the wider social context.

University work based learning appears to align more closely with mode 2 knowledge but Brennan and Little make a telling point that as long as the university is validator then University work based learning cannot be defined purely as mode 2 knowledge. Nevertheless the mode 1 and 2 distinction is a useful frame of reference for considering the nature and validity of knowledge claims as it suggests that if work based learning has many of the characteristics of mode 2 knowledge then it may be inappropriate to apply mode 1 research paradigms and validity criteria to it (see section 1 above).

It is interesting to note that in 1996 the emerging volume of literature on knowledge management (see section 2) does not appear to have made any impact on the discussion of the political or economic context provided by Brennan and Little. Nor have the concepts of intellectual capital been used to illuminate the discussion of the frameworks and practices of work based learning. Brennan and Little have much to say about processes and procedures eg frameworks for assessment and quality assurance, procedures for APEL and the use of learning agreements but they do not recognize that they are describing structural capital. This means that the discussion

of work based learning is essentially narrow as the discourse and significances are those of the academic community of education.

A consistent theme in the discourse of work based learning and the University is the developing analysis of the significance of globalisation and commodification of knowledge in a post-industrial society (see section 1). The challenges these developments raise for higher education are powerfully articulated in a series of provocative works by Barnett questioning the role of the university as knowledge producer (Barnett and Griffin Eds 1997), reasserting it through reliance on critical thinking leading to critical action and critical self-reflection (Barnett 1997) and arguing for a repositioning of the University to meet the needs of the age of “supercomplexity” (Barnett 2000).

Part of a largely government driven response to the challenges of the knowledge driven economy has been a focus on higher education as the producer of graduates with key skills needed for employment. This has led to a sustained focus on student autonomy and capability (Stephenson and Yorke 1998). Work based learning can be viewed as one aspect of this development as it is essentially learner-centred (see Osborne, Davies and Garnett in Stephenson and Yorke) but it has a range of additional dimensions when the student is a work based learner rather than a student engaged in work placement or some other form of work related learning.

The richness of work as a source of learning is widely evidenced eg Boud and Garrick (1999). This does not just apply to management or members of the established professions “the imperatives of work mean that an understanding of learning issues is needed at all levels (Boud and Garrick 1999:2). At the same time as work based learning offers the allure of combining individual, organizational and societal interests in an upward spiral of enlightenment Portwood (1995) has drawn attention to its darker side. Not all we learn from experience is positive, the ability to unlearn as well as learn is highly valuable. The paper by Garrick and Usher “Flexible learning, contemporary work and enterprising selves” (proceedings of the first international Conference on Researching Work and Learning, Leeds 1999) warned of the emerging influence of the discourse of intellectual capital and knowledge management on academic theorising of work based learning and the future of the University. At the same Conference Costley, Doncaster, Garnett and Ferreira drew upon the already extensive operational experience of NCWBLP in work based knowledge creation, recognition and use to argue that “educationalists need to rethink their premises and traditional constructions about learning and knowledge... if higher education is to play a role in recognising curricula emanating outside the university and reconciling it with the expertise that is unique to higher education” (Leeds,1999:59).

The concept of work based learning as a paradigm shift is taken up in “Work Based Learning, A New Higher Education” (Boud and Solomon Eds 2001). The distinctive features of University work based learning are identified as:

- A partnership between an external organization and an educational institution specifically established to foster learning – this is seen as a relationship of satisfying need by the external organization in return for revenue to the educational institution.
- Learners are employees or have some contractual relationship with the external organization, that negotiate learning plans approved by the educational institution and the organization.
- The programme followed derives from the needs of the workplace and of the learner rather than controlled by the disciplinary curriculum
- The starting point and level of the programme is established after a structured review and evaluation of current learning.
- A significant element of the programme is work based learning projects that meet the needs of the learner and the organization.
- The educational institution assesses the learning outcomes of the negotiated programme with respect to a transdisciplinary framework of standards and levels.

It is significant that the features identified by Boud and Garrick all depend upon or are features of structural capital. So far as it goes this analysis coincides almost exactly with the Middlesex approach to work based learning. This is not entirely surprising as of the seventeen contributors seven have direct links with Middlesex (academic staff, employer partners, visiting professor, work based learning student).

The 2001 SEDA publication “Work Based Learning and the University: New Perspectives and Practices” (Costley and Portwood Eds) draws entirely upon the NCWBLP experience to provide a distinctive and a richer picture of work based learning which:

- Is based on a learning partnership where both the University and the organization are providers of high level learning (this may be explicitly through structured programmes or implicitly through normal work). (Structural capital has to provide the framework to make this possible.)
- Takes into account the impact of organizational culture on work based learning, especially in respect of the learning agreement. (Culture is a feature of structural capital as is the instrument of the learning agreement and the procedures relating to consideration and approval.)
- Not only focuses on the needs of work but explicitly focuses on work based learning as a field of study. (Structural capital supporting the development of propositional knowledge.)
- Uses the concept of work based learning as a field of study to guide the recognition of learning achieved through work. (Work based learning studies provides the framework for recognition, hence structural capital.)
- Underpins work based project activity by through the support of work based research and development capability. (Use of structural capital to support knowledge creation.)

- Provides some opportunity for non-University employees to take part in the assessment process. (Structural capital makes this possible.)

Garnett (2001) draws upon the work based learning partnership between Middlesex University and Bovis to point to the potential linkage between University work based learning and intellectual capital. The critical role of structural capital underdeveloped in this article (attached as Appendix 2).

Conclusion

This chapter argues that the nature and requirements of the Middlesex Doctorate in Professional Studies directly impact upon the purpose and form of the literature review; the review is informed by extensive preunderstanding and essentially project driven. The project is framed by the paradigm of the knowledge driven economy and is carried out within an interpretive paradigm of knowledge creation. The key elements of intellectual capital (human capital, structural capital and customer capital) have been examined and their role in knowledge creation, dissemination and use discussed. Considerable overlap has been identified and the importance of structural capital (resides with the organization and supports human and customer capital) has been identified. The significance of tacit knowledge has been discussed and the problems this creates for the “management” of knowledge (primarily understood as being the development and application of structural capital) have been noted. Thirteen key factors contributing to the development of intellectual capital have been identified and they will be used to inform the analysis of the case studies presented in chapter 5.

Review of the knowledge management literature suggested that despite the importance attached to knowledge and learning and the rise of the “Corporate University” the University sector was not generally seen as having a significant role beyond the provision of general management courses (the MBA). Data from the USA suggests that organizations seeking customisation of learning were less likely to turn to the University sector. In contrast the development of Work Based Learning in the UK University sector appears to offer a focus on facilitating mode 2 knowledge production and the opportunity to achieve a level of customisation of provision through partnership between the University and the Organization. The experience of Middlesex University points to a rich picture of a work based learning partnership.

CHAPTER 3 THE MIDDLESEX APPROACH TO WORK BASED LEARNING

Introduction

This chapter describes the Middlesex University approach to work based learning, identifies the distinctive features of this approach and identifies aspects of the value of work based learning to Middlesex University.

Historical background to the development of the Middlesex Approach to Work based learning

Middlesex Polytechnic developed one of the largest modular degree schemes in the country, which operated upon credit accumulation and transfer principles. In 1991 the Polytechnic formally approved regulations for the accreditation of learning from experience and the accreditation of external courses/training programmes. In 1992 the Polytechnic became Middlesex University. In 1993 the University introduced a common academic framework which drew heavily upon the experience of the modular degree scheme to extend the principles of modularity and credit accumulation and transfer across the whole institution. These structural developments provided (by design) a supportive structural and regulatory environment for the development of work based learning.

From 1992-1994 the University gained Employment Department funding for a research and development project focusing upon the identification and accreditation of the "curriculum in the workplace". This project underpinned the development of work based learning at Middlesex as it resulted in techniques for identifying learning embedded within work roles and pioneered the use of accreditation to articulate this work based learning in the form of learning outcomes clustered in occupationally coherent units and assigned a credit point and level value (Naish 1994). During this period the University also established a small central unit to oversee the development and operation of accreditation. In 1992 this unit developed a University module to provide a structured and quality assured mechanism for individuals wishing to claim accreditation for prior experiential (especially work based) learning. This was a significant development as it was the first module created at Middlesex to support the work based learning process.

The success of the accreditation services and the curriculum in the workplace project encouraged the University to establish the National Centre for Work Based Learning Partnerships in 1993. From the outset the NCWBLP was unique within the University as it combined a research and development role with consultancy, University accreditation services and programme development. NCWBLP encouraged claims for accreditation leading to general rather than specific credit (ie the claims were not required to be specific to an existing University validated

programme but were defined in relation to the accredited work role or areas of learning proposed and described by the individual claimant). This approach provided due recognition of the diverse learning achievement of individual claimants but was not easily reconciled with gaining advanced standing within the existing stock of programmes. NCWBLP responded to this by developing and gaining validation for an individually negotiated work based learning route within the existing Independent Learning Subject area in 1994 (Osborne, Davies and Garnett, 1998). From the outset the accreditation of prior experiential learning (APEL) was for general rather than specific credit. This means that assessment focused on establishing general credit worthiness at higher education level rather than close matching to specific learning outcomes of specified modules. The significance of the general credit based approach to accreditation is that it had the potential to recognize the full range learning demonstrated by the claimant rather than being restricted to the learning achievement which closely matched existing validated modules (Garnett, 1998). This shift from normal practice when the accreditation was to determine entry or advanced standing against a prescribed course was fundamental to developing a learner or partner centred approach, rather than a University centred approach, to curriculum development and paved the way for customisation of the work based learning programme.

From practice based evidence the first Director of NCWBLP advanced the proposition that work based learning was not just a mode of study but also a field of study in its own right (Portwood 1995). This proposition was considered at length before finally being approved by the Academic Board of Middlesex University and led to the validation of Work Based Learning Studies as a Subject area within the curriculum of the University (Portwood and Garnett 2000). The radical nature of the proposition that work based learning was a field of study and the significance of its acceptance by the Academic Board of Middlesex University for the development of a distinctive Middlesex approach to work based learning cannot be over emphasized. The creation of work based learning as a field of study was a paradigm shift which on the one hand liberated work based learning at Middlesex from the constraints of established subject discipline based thinking, allowing it to develop rapidly through engagement with a wide variety of influences, many of them from outside the University through the establishment and growth of work based learning partnerships (see the case studies in chapter 5). This radical approach was far from unproblematic, it aroused incomprehension and in some cases outright antagonism from some academics and required constant explanation and justification. It has now proved to be an enduring approach which others have chosen to follow (see Boud 2001) and has been reinforced by the literature relating to knowledge creation and management which dramatically increased from the 1996 (see literature review in chapter 2).

From the outset Work Based Learning Studies :

- was learner centred and learner managed

- made full use of accreditation to recognize and build upon the learning already possessed by individuals and organizations
 - used generic level descriptors for programme construction and assessment
 - was developed in partnership with the learner and their sponsoring organization
 - focused upon work based projects which had significance beyond the academic programme and impacted upon a wider audience than the university
 - used the full qualification framework of the University (from undergraduate Certificate level to Masters)
 - was within the normal quality assurance framework of the University
- In 1995 this combination of features was unique within and to Middlesex University.

Figure 1: The Middlesex position on the Brennan and Little (see chapter 2) dimensions of work based learning framework

Dimension	Variation			
	←-----→ M			
Status of Individual	Seeking entry to HE	FT student	PT student	Full-time Employed
	←-----→ M			
Focus of overall HE curriculum	Discipline based	Vocational general	Vocational specific	Individual personal development, plus job specific project
	←-----→ M			
Control and content of curriculum for WBL	Determined by HEI	Determined by regulatory body/ HEI/ employment provider	Determined by individual/ employment provider/ HEI	
	←-----→ M			
Status of assessment of WBL within overall HE curriculum	Pass/Fail No contribution to classification	Leads to separate award of HEI		Contributes fully to classification
	←-----→ M			
Who supports the learner in WBL	Primary HEI	Primary employment provider	Primarily employer plus other learners	

The creation of the Work Based Learning Studies Subject Area was dependent upon the existing structural capital of the University and also represented a significant enhancement of structural and thus intellectual capital (Garnett and Portwood, 2000). Work based Learning Studies was supported by existing structural capital as:

- The aims of the subject area were clearly linked to the mission, vision and values of the University.
- The University had already established a credit based modular system.
- The University already had approved regulations and procedures for the accreditation of the prior and work based learning of individuals and external courses (Portwood and Garnett produced the first edition of the University Accreditation Handbook in 1993).
- The University assessment regulations were designed to facilitate accreditation and work based learning.

I was directly involved in the design and introduction of pan-university credit based modularity, accreditation and assessment regulations all of which were introduced in the period 1991-3. My recollection is of proactive support of the University executive and a dominant culture of excitement, ambition and confidence, another example of the facilitative structural capital. The fourth edition of the Accreditation Handbook (Garnett 2002) is about to be published.

From the outset Work Based Learning Studies directly enhanced the intellectual capital of Middlesex University as it provided a framework for developing work based programmes (across all higher education qualification levels from Certificate to Masters) which could be customised to the needs of the individual and/or the organization. This was achieved by:

- the use of a three-way (individual, organization, university) learning agreement to design the programme
- individual and course accreditation for general credit (see above)
- the development of undergraduate and postgraduate work based research and development modules
- the introduction of empty shell modules to depict work based learning projects – the content of the shells was outlined within the individual learning agreement.
- the creation and validation of generic descriptors used for the assessment of work based learning.

In 1997 the University established a work based learning centre aligned to NCWBLP in Athens. Later in 1997, as part of a major restructuring of the University, NCWBLP became part of the new School of Lifelong Learning and Education, thus being mainstreamed within the management of the academic provision of the University. In the same year the University extended the principles of work based learning to doctoral level study and validated a framework for a credit based professional doctorate which allowed candidates to negotiate a programme designed to demonstrate their ability to satisfy the doctoral level descriptors validated by the University. In 1999 Work Based Learning Studies underwent a highly successful

review and revalidation which drew upon extensive operational experience to develop the curriculum and emphasize the distinctiveness of work based learning as a curriculum subject area. In January 2000 the East Asia Work Based Learning Centre was launched in Hong Kong and in 2001 Middlesex was one of five UK Universities selected to develop and offer a negotiated work based learning programme “learning through work” as part of the University for Industry. All of these developments were made possible by the existing structural capital of the University in general and Middlesex Work Based Learning in particular.

Writing the historical background to the development of Work Based Learning Studies at Middlesex University has reinforced my belief in the radical nature of the decision to validate awards in Work Based Learning Studies ie to regard work based learning as a subject area rather than just an innovative mode of study. This is at the heart of the distinctive Middlesex approach to Work Based Learning and is core to the development and future direction of NCWBLP. Colleagues who have not been through this development from the outset are less likely to appreciate this and might benefit from this historical perspective.

Description of the key features of the current Middlesex University work based learning curriculum offer

Work based learning provides an approach to individual development which:

- is learner centred (ie takes as the starting point the position and learning of the individual and allows the negotiation of a customized programme)
- makes explicit and provides formal recognition for existing knowledge and skills
- is not only located in the work place (ie does not require large blocks of time away from work) but focuses on learning through work (ie is relevant to the individual and the organization)
- provides a coherent framework for individuals to review and establish the lasting value of learning from short courses and experience
- encourages and enables individuals to take responsibility for their own continuing development
- makes the individual a more effective work based learner through the development of the following abilities (Work Based Learning Studies Subject Handbook 2001):
 1. identification and appropriate use of sources of knowledge and evidence
 2. analysis, synthesis and evaluation of information and ideas
 3. application of learning
 4. selection and justification of approaches to tasks
 5. action planning leading to effective and appropriate action
 6. effective use of resources
 7. effective communication
 8. working and learning with others

9. self-appraisal/reflection on practice

10. appreciation of ethical issues (eg confidentiality) at work

- enables the individual to be more effective in commissioning and evaluating work based research
- enables the individual to be a creator of work based knowledge of relevance and potential value to others
- leads to nationally and internationally recognized qualifications

The Middlesex approach to work based learning combine's individual and organizational development. It does this by:

- providing a framework for the individual and the organization to agree work based learning activity which contributes to the goals of the organization and the aspirations of the individual
- recognizing and developing the workplace as a source of learning (eg through recognition of formal training courses and learning gained from experience, especially through work)
- developing the individual, as an effective work based learner able to undertake research and development activity of direct relevance to work
- developing in the individual, key abilities eg action planning, analysis, synthesis, evaluation, communication, reflection on practice
- providing a structured approach to "real" work based projects which enhances their potential to contribute to the development of the organization (at levels from local operational to strategic)
- providing a means of facilitating and measuring the transfer of learning from formal training courses to application in the work place
- aligning learning and development activity with the goals of the organization through programmes of personal development which are work based and required to demonstrate added value to the organization
- focusing on the importance of knowledge as a key resource of the organization

The Middlesex approach to work based learning (irrespective of the level of programme) focuses on four key stages:

1. Forward focused review to establish what relevant knowledge/skills the individual/team brings to the programme or project (this can lead to formal accreditation). The Middlesex focus on the facilitation of learning review leading to general credit has freed the traditional APEL process from the tyranny of only recognizing learning which closely matches existing validated programmes (Garnett 1998). This is highly significant as it provides for fuller recognition of the learning achievement of learning (from experience or taught) which is external to the University and hence leads to enhanced customisation.

2. **Planning** to take fully into account stakeholder interests and requirements as well as resources (eg of time, information, materials) (Garnett 2000).
3. **Research and Development Methodology** to equip the worker researcher with appropriate techniques to undertake real life projects that are focused on knowledge creation and use (Armsby and Costley 2000).
4. **Project Support** which focuses University level critical thinking (Barnett 1997) on real work based issues.

The value of Work Based Learning to the University

Work Based Learning and the associated activities of NCWBLP have made a sustained and increasing contribution to Middlesex University.

Students

From the outset work based learning has exceeded recruitment targets. The number of students on work based learning programmes has risen from 392 in 1995/6, the year after the validation of Work Based Learning Studies as a subject area, to 900 in 2000/2001.

Table 2: Work Based Learning Students 1995-2001

Year	95/96	96/97	97/98	98/99	99/00	00/01
Number	392	493	653	750	852	900

This is particularly significant as these students are all part-time and pay full-cost fees (many at the overseas student rate). The growth of the DProf is particularly significant as over the same period the number of Middlesex PhDs has decreased. In 2000/2001 there were 260 MPhil/PhD registrations across the University and 122 MProf/DProf registrations.

As work based learning students are already likely to be well advanced in their working careers many of them have the potential to become influential advocates for the University. This is particularly the case with the DProf as candidates must be of advanced standing in their professional area.

Reputation

The development of work based learning has enhanced the reputation of Middlesex as a highly innovative University. In 1995 work based learning studies was examined as part of the Higher Education Quality Council for England audit of the

collaborative provision of Middlesex University and was found to be “innovative and rigorous”. Further external recognition came in 1996 when the University was awarded a Queen’s Award for the submission based upon the work of NCWBLP, which received a citation for “excellence and innovation”. One of the key case studies for the submission was the development of a postgraduate scheme for Bovis construction which not only included accreditation of in company training but also included an accreditation framework based upon the organizations core competencies (see case study in Chapter 5). Thus work based learning has enhanced the Middlesex higher education “brand”, a significant contribution to structural capital.

Training and consultancy

NCWBLP has a core team of 9 academic staff with experience of WBL development (ie establishing partnership programmes), management (providing academic leadership for a partnership programme) and support (acting as programme adviser and as appropriate module tutor/project supervisor to individual/groups of learners). Since 1993 staff from all the Schools of the University have been involved in WBL as accreditation and/or project supervisors and assessors.

Within Middlesex NCWBLP has played a major staff development role by:

- providing staff development events on specific topics eg assessment of experiential learning, assessment of work based projects on a School and pan university basis
- team teaching with staff new to work based learning
- working alongside and acting as mentor to designated work based learning co-ordinators in other schools
- working alongside staff from other schools in the development of work based learning programmes related to their schools

Externally NCWBLP has been highly active as a provider of staff development events (workshops, seminars and conferences) and disseminator of good practice. Over the years NCWBLP has provided consultancy on work based learning to other universities and agencies in the UK and overseas (eg University of Wolverhampton, Queens Belfast, University of Technology Sydney, Hong Kong University School of Professional and Continuing Education). NCWBLP has provided staff development for colleagues in partner organizations in the UK and overseas (eg Metanoia Institute, Inter College, Cyprus). Another focus for consultancy has been the development of organizational competency frameworks for accreditation and the introduction of a work based learning approach to individual and organizational development.

Through staff development events NCWBLP has contributed to structural capital, directly enhanced the human capital of the University and contributed to the development of customer capital.

Research and Development

Work based learning as a field of study cuts across traditional subject boundaries, is heavily dependent upon context and is concerned with knowledge arising from and as the basis for action. The NCWBLP Research Centre was well represented in the 2000 Research Assessment Exercise, the University entered all the full-time members of NCWBLP.

NCWBLP aims to be recognized internationally as the leading centre for applied research and development in the areas of:

- “The construction and application of knowledge in the curriculum areas of work based learning and professional studies across disciplines in higher education
- the promotion of personal and organizational/professional and/or community development through individual and group learning (leading to enhanced understanding of the application of theories of knowledge management and intellectual capital)
- Interdisciplinary and multidimensional knowledge/areas where academic and vocational knowledge conflate. Creative and lateral thinking. Bounded rationality (Simon)
- Real time research and development projects and practice based methodologies.”

(From a position paper prepared for the NCWBLP Advisory Group meeting of 6 March 2002 by Costley and Garnett.)

This can be seen as NCWBLP leveraging, through the structural capital of the NCWBLP research centre and the research support structures of the University, the human capital of its formal members and associated communities of practice (eg work based learning practitioners in other schools and in partner organizations).

Open and flexible learning materials

NCWBLP has invested significant staff resources into the creation and ongoing development of module booklets to support:

- Recognition and accreditation of learning - leading to a claim for accreditation
- Programme planning -leading to a negotiated learning agreement
- Work based research and development methods - leading to a portfolio demonstrating general work based research awareness and the ability to design a work based research and development project
- Work based projects - leading to a project report or product plus commentary
- Reflection in work based learning programmes.

These materials represent a resource with potential for pan-university application as other curriculum areas at Middlesex incorporate elements of the work based learning approach into their curriculum offer. NCWBLP staff routinely communicate with learners by post, fax, email and telephone. Several dispersed occupational groups eg driving instructors and seafarers appreciate the work focus and flexibility of WBL and are rarely available for face to face sessions. NCWBLP has successful experience with learners based outside the UK (eg in Australia, Cyprus, France, USA). This illustrates the transfer of explicit knowledge held as human capital to explicit knowledge held as structural capital.

Partnerships/Customer capital

Through the use of accreditation NCWBLP has developed a range of partnerships which enhance not only the income of the University but also extend the intellectual capital of the University. This is explored in more depth in the case studies presented in Chapter 5.

Conclusion

This chapter identified the key features of the Middlesex approach to work based learning and shows how they have been developed from and contribute to the structural capital of the University. NCWBLP staff continue to make a significant contribution to the structural capital of the University. The case for the contribution of work based learning to the structural capital of Middlesex University will be developed further in subsequent chapters.

CHAPTER 4 METHODOLOGY

Introduction

This chapter links the project aim and objectives as described in chapter 1 with the methodologies for inquiry used in this project. Consideration of methodology is informed by the literature review in chapter 2 as this:

- identified main paradigms affecting the project;
- considered the nature of work based knowledge and the significance of structural capital; provided an overview of University work based learning.

Focus of the Project

The aim of the project is:

“To enhance the value of work based learning to Middlesex University through the development of a critical understanding of the relationship between the Middlesex approach to work based learning and the concept of structural capital”

In chapter 1 this was broken down into a four stage proposition:

1. There is an identifiable and distinctive Middlesex approach to work based learning.
2. That the Middlesex approach to work based learning is of value to the University.
3. That the concept of structural capital can be applied to the Middlesex approach to work based learning.
4. That the application will lead to a critical understanding that will inform future action, particularly the WBL development project, so that the value of work based learning to the University is enhanced.

My role as worker researcher

The role of the worker as researcher is of central significance to work based learning (Armsby and Costley, 2000:41). Based upon my own preunderstanding (gained from teaching work based research methods, supervising work based projects and ongoing literature review). I believe that being a worker researcher appears to offer a range of possible advantages relating to:

- Preunderstanding. This is likely to include: the organization and the relevant external environment, sources of information, appropriate language/forms of communication for the organisation or professional area, appropriate procedural

and possibly propositional knowledge, decision making processes, organizational goals, people. Preunderstanding will be both tacit and explicit knowledge and is likely to include the ability to distinguish between “espoused theory” and “theory in use”.

- **Position:** the worker holds a position that is related to the area of inquiry. This will often be a formal position recognized by others (eg within an organizational hierarchy) but it need not be so. The position may be significant in terms of: authority (eg recognized expert, formal responsibility for an area), opportunities for access to data or information, access to resources, opportunities to direct or influence the work of others, participation in decision making, freedom to take action.
- **Prediction.** Work (and by extension work based learning) centres upon the use of knowledge to inform purposeful action. It is thus directed towards a future beneficial result that is the subject of prediction at the time the action is implemented. The prediction may be modified in the light of experience as the action progresses. *The significance of prediction is not made explicit in our current WBL approach to research, there is significant opportunity to enhance our current understanding of WBL by linking prediction and decision making with theory (since explanation enables prediction) and bounded rationality.*

There also appear to be a range of possible associated disadvantages:

- **Preunderstanding** may be flawed eg tacit knowledge may be antithetical to the design and conduct of work based research, assumptions may be made which seem inconsistent with rational enquiry.
- **Position.** The worker researcher may be limited by the position held (eg not at a high enough level to access information or action change) or overburdened by other demands placed upon her. The worker as researcher may be incapable of standing back in order to achieve the detachment deemed necessary to be appropriately critical of the research process.
- **Prediction.** This may be seen as subjective and motivated by the desire to achieve a particular outcome which serves the interests of the individual worker researcher.

The range of potential advantages relate most closely to facilitating mode 2 knowledge creation and appear to correspond most closely to an interpretive or critical theory research paradigm (see chapter 2). In contrast the associated disadvantages, while real, appear to be grounded in a positivist paradigm which privileges detachment and objectivity (see chapter 2).

My self-assessment in the light of the above and the literature review recorded in chapter 2 is:

- **Preunderstanding.** This is a major strength which has been recognized and partially accredited already within the professional doctorate framework (see the discussion of the learning review, research and project capability and level 5 accreditation in chapter 1). The most significant period of my professional

development in relation to my proposed project stems from joining Middlesex in October 1988 and from 1993 centres upon my role in the development, validation and implementation of the work based learning curriculum at Middlesex University. I thus have a specialist knowledge of University work based learning (propositional and particularly procedural knowledge eg scope, application, instruments, regulations) and an intimate knowledge of the Middlesex approach to work based learning, particularly aspects relating to structural capital eg: introduction to Middlesex University of the first "Accreditation Module". This was significant because it provided the University with a cost effective and quality assured structure to enable students to gain due recognition for their prior and work based learning and facilitated the use of accreditation to develop work based learning partnerships. I am interested in people and organizations and have built up my own multi-layered schema for understanding and interpreting how Middlesex works. I recognize that I am subject to a variety of influences that impact upon my implicit and explicit knowledge and thus on how I perceive and react to the external world. I strive to be a reflective practitioner but also believe rational enquiry has boundaries. Preunderstanding is not uniformly helpful; my preunderstanding of research methodology was initially a barrier as it lead me to consider extremely complex multi-methodology approaches (Mingers and Gill, 1997) using soft systems methodology (Checkland and Scholes, 1990) as a research superstructure (Thorne, 1999) for a combination of Action Research (McNiff, Lomax and Whitehead, 1996), Case Study (Yin, 1994) and Survey (Saunders, Lewis and Thornhill, 2000). *With hindsight I think this was a confusion of complexity of design with fitness for purpose of approach to complex issues, coupled with a desire to demonstrate a broad and sophisticated understanding of research methodologies. A manifestation of the insider trying to exhibit attributes to score points with the assessors.*

- Position. I have held a number of formal positions of direct relevance to this project: Polytechnic and then University Examinations Officer, University Accreditation Officer, Senior Lecturer in Work Based Learning. My current position as Director of NCWBLP is the most significant for the current project as it combines responsibility and considerable scope for action with access to members of the University Management Team. A key part of the role of Director has been presenting (eg the 1998 CVCP National Conference on Lifetime Learning, the 1999 CVCP Conference on Higher Education and the Regional Economy) and receiving feedback from external audiences. This has been an important element in the development of my own appreciation of the distinctiveness and possibilities of the Middlesex approach. In addition I have formal pan-university roles as Chair of the University Accreditation Board (and hence member of the University Academic Standards and Quality Committee) and Director of the managing agency for the pan-university professional doctorate scheme. While these roles are of senior manager level I operate within the formal structure of the University and report to the Dean of the School of Lifelong Learning and Education. As Director of NCWBLP and Chair of the

NCWBLP Academic Group I also have responsibilities to other members of the University. In short, in respect of academic and related procedural issues I have considerable autonomy, in terms of resources I have to work within considerable constraints.

- Prediction. I have a developing understanding of the concept of bounded rationality, which coupled with my preunderstanding provides my framework for prediction. My recent career and future prospects depend upon the continued success of work based learning at Middlesex University. I believe work based learning requires a paradigm shift in the creation and validation of knowledge recognised by higher education (Costley et al 1999). Philosophically and ideologically I am committed to Middlesex and the work based learning cause. I believe there is a high degree of commonality between my self and selfish interests and the good of the University. It is certainly not in my interests to advocate action that is likely to fail as I will be directly affected by the consequences.

Stage 1: The starting point

The project focuses on the specific case of work based learning at Middlesex University. A literature review (chapter 2) has been used to put this development into the context of work based learning in the UK University sector and the wider developments of intellectual capital and the growing management focus upon knowledge as the critical resource of the organization. In the light of the literature review the salient features of work based learning at Middlesex have been identified and examined in detail in order to substantiate the proposition that there is a distinctive Middlesex approach to work based learning and work based learning is of value to Middlesex University (chapter 3). The review of the intellectual capital literature resulted in the identification of factors enhancing the intellectual capital of an organization (see Table I). The review of literature on University work based learning identified six key features of work based learning and noted that they were present in an enhanced form in the Middlesex approach to work based learning. The importance of structural capital emerged as the dominant outcome of the review. In addition to published literature the analysis of work based learning at Middlesex presented in chapter 3 drew upon working documents such as:

- Common Academic Framework Core Group Minutes
- Doctorate in Professional Studies Validation document
- Doctorate in Professional Studies Annual monitoring reports
- Middlesex University Accreditation Handbook
- Middlesex University Assessment Regulations
- Work Based Learning Studies Annual Monitoring Reports
- Work Based Learning Studies validation document
- Work Based Learning Studies Review document

I am familiar with the origin and purpose of these documents, in many cases I had a major hand in writing them.

Stage 2: Detailed consideration of cases

The work undertaken in stage 1 has identified factors relating to:

- Intellectual capital (especially structural capital).
- The Middlesex University Approach to Work Based Learning.
- The value of work based learning to Middlesex University.

Stage two considers three case studies in detail in order to examine if these factors are evidenced and in what ways, if any, they relate to each other. Thus the dominant research strategy is “case study” which Yin (1994:13) defines as “an empirical enquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident”. Case study focuses on “the complex dynamic and unfolding interactions of events, human relationships and other factors in a unique instance” (Cohen et al, 2000:181). The case study strategy is particularly appropriate for this project as it:

- allows for detailed description of a phenomenon – this is important given the range and complexity of factors to be explored;
- benefits from the development of prior theoretical propositions to guide data collection and analysis (Yin,1994:13)
- gives due prominence to context – the factors identified in chapters 2 and 3 highlight the importance of context;
- provides insights into specific situations – this raises the issue of generalization which will be addressed later;
- is grounded in action and may yield insights to inform future action;
- will provide products- the individual case studies which have the potential to be of value in themselves eg as the basis for research articles or illustrative material for staff development or marketing.

It is also a strategy that I feel comfortable with as “it relies on many of the same techniques as history” (Yin, 1994:8) but also allows for direct observation and interviewing. In most instances the historian is not also a direct participant in the events being described and analysed. In my selection of cases I have chosen cases in which I have had direct involvement and therefore considerable preunderstanding.

Yin identifies three uses for case study:

- Exploratory - as a pilot to other studies.
- Descriptive – providing narrative accounts.
- Explanatory – testing theories.

While there will inevitably be a significant descriptive and exploratory elements to the selected cases their main intended use is explanatory ie to examine and explain the relationship between the Middlesex approach to work based learning and structural capital.

Case study research has been subjected to a range of criticism (eg Gill and Johnson 1997:124-126, Cohen et al 2000:184). The main concerns are:

- The ability to generalize from one or at best a small number of specific cases.
- The unique nature of the case coupled with the depth and breadth of detail is likely to make them difficult to cross-check and thus open to suspicion on the basis that they may be selective, biased, personal and subjective.
- The validity and reliability of the case is likely to be undermined by observer bias.

These are significant criticisms but they are firmly rooted in a positivist paradigm. An interpretive approach still has to address these issues but they are considerably less threatening when seen within an interpretive paradigm:

- Generalization is dependent upon clarity and insight leading to understanding which can inform others, it is not dependent upon notions of representation or sampling (Coffey and Atkinson, 1996:163, Gummesson, 1991:79).
- The unique nature of case study means that the positivist conception of reliability as replication is not appropriate (Gummesson, 1991:81).
- Complete objectivity as a goal and cornerstone of research “validity” is highly problematic as research of any type inevitably has a social nature, “questions of determining which problems to study, the relevancy of findings, and the translation back to the subject’s world have always posed constitutive and value-laden issues at the very heart of any “objective” research.... (Alvesson and Deetz, 2000:65).
- The active participation of the researcher is a strength if it is coupled with a high degree of reflexivity and openness about the uncertain nature of the research process. Reflexivity involves self-critical interpretation of assumptions and consistent consideration of alternative interpretive lines (Alvesson and Deetz, 2000:112-113). The case studies examined are cases of my own work based experience and as such are “subjective in nature and intimately linked to the individual or group generating it” (Baumard, 1999:17). This does not render them invalid under an interpretive or critical theory paradigm. The literature review in chapter 2 suggests that this is not only the norm but necessary for the development of mode 2 knowledge.

The criticisms and defence of case study stem in large part from the divide between positivist and interpretive paradigms. The divide is exemplified and sharpened by the discussion of objectivity and subjectivity. Alvesson and Deetz (2000:68) take a critical approach to consideration of this divide and argue that while it provides identity protection to opposing academic camps it also shields positivistic and interpretive approaches from critique (see the critical theory paradigm in section 1 of chapter 2).

An alternative approach to the polarity of induction and deduction is “abductive reasoning” (eg Coffey and Atkinson, 1996:156). Abductive reasoning starts with the

particular and then seeks to explain it by relating it to broader concepts. This is attractive for the purpose of this project as it provides a rational framework for:

1. Starting with the particular ie the Middlesex University approach to work based learning
2. Relating the particular (the Middlesex approach) to broader concepts (knowledge creation, intellectual capital, knowledge management, University sector work based learning)
3. Relatability is not confined to simple confirmation or disconfirmation but to produce new configurations of ideas (the significance of structural capital in knowledge creation, knowledge management and the Middlesex approach to work based learning).
4. Repeated interaction between existing ideas, former findings, new findings and new ideas (using knowledge creation, knowledge management and general work based learning concepts, especially structural capital, to aid understanding of selected Middlesex case studies with a view to enhancing the value of work based learning to the University). *The concept of repeated interaction is one that is appropriate to the project and one which I personally find more realistic as it moves away from depicting the research process as linear and rigidly systematic to one of a spiral where aspects are revisited and possibly re-interpreted as the project continues.*

The research approach is thus one of case study informed and informing abductive reasoning. The research is predominantly within an interpretive paradigm but recognizes the need to be mindful of the concerns of critical theorists (Alvesson and Deetz 2000:146, Cohen et al, 2000:27). For the purposes of this project major areas of concern appear to be:

- Recognition of the political and social complexity of the organization.
- The dominant discourse of knowledge management.
- The commodification of higher education.
- The interests of the individual work based learner, especially in relation to the power relationships and the organization of knowledge.

The Case Studies

The main case studies described and discussed in chapter 5 were all partnership developments where I played a major role on behalf of Middlesex University. While this gives the research writing process an ethnographic (Cohen et al, 2000:138) feel I was in the thick of the action operating in a mode nearer to action research (McNiff op cit) than detached observation.

Due to the change in focus of my project (see chapter 1) from one case there is the temptation to impose a post-event rationalisation of the research process. In reality my approach to the three main case studies has had to vary according to their chronology and the opportunities for data collection.

Case Study 1: Bovis. This work based learning partnership is one of the oldest and potentially most illuminating. It commenced four years prior to my registration for the doctorate and my close involvement with it ended when I became Director of NCWBLP in 1998. I have previously captured aspects of the Bovis development, individually and jointly in other published work. My approach to this case study is primarily a historical one using original documents and revisiting previous interpretations for the purpose of this project.

Case Study 2: Corporation of London. This was originally conceived as the focal point of my project and as such was planned at the outset as a work based research and development project. The project commenced with a specific research and development phase conducted by myself (team leader and principal Enquirer), NCWBLP Research fellow (the other principal Enquirer), and the Emeritus Professor in Work Based Learning (senior consultant to the project). Data was collected by interview, group meetings and documentary analysis. Project group meetings identified joint understanding of research design, especially concepts and analysis. Interviews were semi-structured around common themes. Interview was seen as an appropriate technique (Cohen et al:2000:268) to gather detailed qualitative data from key personnel identified by the Corporation. The interview is open to critique as it hinges upon a specific interviewer talking to a specific interviewee (who must be seen as a politically conscious actor) (Alvesson and Deetz, 2000:194). Initially interviews were conducted by the Research Fellow and myself working together to ensure consistency of approach and to assist in note taking during the interview. Later in the project we each held separate interview sessions. We were sensitive to the possible need for both interviewees and interviewers to be politically aware. From our perspective we were anxious to explain the nature of our partnership with the Corporation and to promote it in a positive light. There was scope for triangulation between interviews, group discussions, documentary evidence and the experience of a small number of Corporation employees had commenced work based learning programmes with Middlesex. The initial research phase resulted in a report to a project steering group which acted as a valuable reference group to the first stage of the project. The second stage of the project centred on implementation of programmes and followed an action research approach of define problem, design intervention, implement and review in order to develop the use of work based learning by the Corporation.

Case Study 3: SPACE. This case study examines two partnerships, that between the University and the business partner to establish the East Asia Centre and that between the University, the East Asia Centre and University of Hong Kong School of Professional and Continuing Education (SPACE) to jointly offer work based learning programmes for specific occupational groups. Data is drawn from documentary sources and participant observation.

Validity and fitness for purpose

Each case study design was subjected to testing (Yin, 1994:33) for:

- **Construct validity:** achieved by the use of multiple sources of evidence, establishment of a chain of evidence, reflexivity of the researcher, review by key informants.
- **Internal validity:** achieved by triangulation and explanation building.
- **External validity:** achieved by the use of a common analytical framework across the case studies to facilitate theoretical generalization. Use of clear language and format to enable the reader to relate to the case study.
- **Reliability:** problematic as dealing with a unique case, addressed by reflexivity and clarity of reporting evidence used and inferences made.

Drawing upon the criteria advanced by Yin (1994:147) each completed case study report was reviewed for:

- **Relevance and significance** to the project aims
- **Completeness**, especially considering bounded rationality and validity.
- **Consideration of alternative perspectives**, both from key informants and in relation to critical theory.
- **Display of sufficient evidence**, in order to illuminate the case and to satisfy the design criteria.
- **Clarity of report**, to facilitate use and to meet the design criteria

Stage 3: Theoretical generalization to inform future practice

Analysis and comparison across individual cases was undertaken using the framework derived from chapters 2 and 3 to provide points of comparability. This was supplemented by feedback from activity related to and in part drawing from the project (eg promoting the University Knowledge Leadership course in Hong Kong, designing and running a half day taster session on knowledge management from a work based learning perspective for the Corporation of London) to make recommendations at a variety of levels, especially informing the strategy and forms of the WBL Development Project.

Other views and critical communities

Critical communities and critical readers have played an important part in the research process. For example the NCWBLP research group has been used as a critical group to test out ideas about the nature of the Middlesex approach to work based learning and possible linkage to knowledge management. Other communities have commented on aspects of the theme addressed by the project eg NCWBLP advisory group when considering the aims and activities of the NCWBLP research Centre.

Ethical and commercial considerations

Work based knowledge creation and use is a social and political act. It is dependent upon and impacts upon other people. I view this professional doctorate project as work based knowledge creation formalised and enhanced by the structure and critical engagement with others (especially the programme adviser and other consultants) provided by the programme. The ethical considerations of the DProf candidate stem not only from the role of researcher and the ethical schema of the candidate but also from the work role/formal position held by the candidate. Thus the candidate comes to the programme with a socially constructed and evolving schema of ethics and values and has to work through the challenges and implications that the DProf programme, particularly the project pose to their personal and organizational schemas.

Ethical issues of particular relevance to this project:

- Acknowledging the work of others – especially in the development of work based learning at Middlesex. Addressed by sensitivity to the issue, reflective practice, appropriate acknowledgements, use of critical readers.
- The interests of individual informants. Addressed by sensitivity to individual interests (especially in power relationships), preserving anonymity unless the work is already in the public domain.
- The interests of partner organizations. Addressed by the use of information already in the public domain, sensitivity to organizational interests, checking validity with key informants.
- The interests of Middlesex University. Addressed by sensitivity to commercial value of the work, exclusion of detailed financial information and review of recommendations.

CHAPTER 5 CASE STUDIES

Introduction to the Case Studies

The chosen case studies provide insight into the development, implementation and evolution of work based learning partnerships between Middlesex University and organizations in the commercial, local government and education sectors. A standard format has been adopted and an analysis is made in relation to the factors influencing the enhancement of intellectual capital and the role of structural capital (identified in chapter 2) at the end of each case study. A discussion of themes emerging from the case studies is presented in chapter 6.

CASE STUDY ONE: BOVIS

Introduction

This case study examines the development of a work based learning partnership between Middlesex University and Bovis from 1994 to 1999 and Bovis Lend Lease from December 1999. The case highlights how Middlesex University, through the National Centre for Work Based Learning Partnerships (NCWBLP), was able to respond to the changing needs of Bovis over an extended period and how the partnership drew upon and extended the intellectual capital of both organizations. The partnership programme was made possible by the structural capital of the University, especially the Middlesex academic credit scheme and accreditation procedures. Middlesex accreditation of Bovis structural capital is a key feature of this case study as it was instrumental in the development of a highly customised work based learning scheme for Bovis employees.

The case study draws extensively upon my own personal observations as Middlesex University Accreditation Manager and Programme Leader for the Bovis Postgraduate scheme until 1998. There are also two written accounts of the development from 1994 to 1998, an article by Bovis Training Manager Alison Comerford published in *Capability* (Volume 3(4) 1998:10-14) and a chapter by Garnett, Comerford and Webb in "Work-based learning: A New Higher Education" (Boud and Solomon, 2001:103-112). I have also drawn upon working documents held by NCWBLP and the project reports of participants in the Bovis Postgraduate Scheme.

Bovis

The Bovis construction group is a global construction company providing consultancy and construction management expertise to clients. The European headquarters is based in Harrow, Middlesex and covers 2500 of the 5000 staff worldwide. In 1997 Bovis was ranked as the world's largest international contractor in the general building sector. In December 1999 Bovis became part of the Lend Lease Group.

Bovis has a long history of commitment to the training and development of its staff and works with a range of Universities and training providers to provide opportunities for employees to engage in personal and management development and achieve degree and postgraduate qualifications. Bovis pioneered the first in-house Masters in Construction Management in 1990.

Phase 1: Development of the work based learning partnership with Middlesex University

Bovis originally approached the University seeking accreditation for their Management Development Programme. This programme had been developed over a period of two years in conjunction with Webb Associates (a "virtual organisation" consisting of fifteen self-employed consultants) in order to address an identified "gap" in the knowledge of specialist or technical managers appointed as general or project managers. The specific aims of the programme were to raise awareness of the role of the manager, examine team dynamics and develop leadership skills. The programme included a project based upon a work place issue. In late 1994 Bovis decided to seek University accreditation for the Management Development Programme as it was felt that this would provide appropriate recognition for participants and contribute towards the corporate drive for staff to achieve more professional qualifications. Several Universities were approached and, while feedback about the programme was positive, it appeared that changes would have to be made to bring it into close alignment with existing University management courses if accreditation was to be achieved. Bovis were reluctant to change a programme which was clearly meeting their business needs and were thus pleasantly surprised when Middlesex was willing to consider the existing programme for accreditation as it stood. Unlike many other Universities the Middlesex approach to accreditation was not restricted to close matching of existing programmes as University regulations also allowed assessment against generic higher education level descriptors for the award of general academic credit. Following this approach Middlesex was able to accredit the Management Development Programme as carrying twenty academic credit points at postgraduate level. (Academic credit points are a measure of the volume of learning achievement, with 120 academic credit points equivalent to the learning achievement of a conventional full-time

student in one academic year. Academic level is a qualitative measure on a scale of one to four with three being degree level and four being postgraduate level.)

Further discussions took place about the possibility of building upon the accredited Management Development Programme to develop a work based learning postgraduate scheme for Bovis managers. The Bovis Training Manager identified the Bovis Core Competencies as a potential key source of organizational learning which Bovis wished to be incorporated into the programme. The Bovis Core Competencies were a set of behavioural indicators which were common to all staff within the organization, they were part of the performance management process and underpinned all learning and development activity at Bovis. The knowledge and skills required to exhibit competent performance in the Bovis Competency areas were identified and developed into an accreditation proposal by the University Accreditation Manager and the Bovis Training Manager. An example of how the Bovis competency “Teamwork” was developed for accreditation is given below.

Table 3: Elements of the Bovis “Teamwork” Core Competency.

TEAMWORK
1.Demonstrating understanding of team roles and commitment to team decisions.
2.Manage group processes by taking account of individual and group behaviours.
3.Contribute fully as a team member, resolving conflicts, building appropriate alliances and networks and helping others to do so.
4.Keep the team fully informed about developments and encourage awareness of the competitive environment.
5.Treat colleagues as customers.

Each of the five elements of teamwork were analysed to identify the knowledge and skills required in order to perform it., This resulted in an expanded version of each element. An example of the expanded element 3 of “teamworking” is given below.

Table 4: Expansion of Bovis Teamwork Core Competency element 3.

Teamwork . 3 Contribute fully as a team member, resolving conflicts, building appropriate alliances and networks and helping others to do so.
3.1 Understanding of the causes of conflict.
3.2 Ability to resolve conflicts
3.3 Understanding of what constitutes an appropriate alliance, network.
3.4 Understanding of what constitutes building appropriate alliances and networks.
3.5 Ability to help others to build appropriate alliances and networks.

This accreditation of the Bovis competency framework in 1995 was a significant development for Bovis and for the University. The significance for Bovis was that it had a substantial stock of University accredited learning which could be used

alongside the accredited Management Development Programme as part of a customised postgraduate work based learning scheme. The high level of customisation was achieved by the use of accreditation to enable the scheme to draw upon the structural capital not only of the University but also of Bovis. A work based learning project report by Comerford (1998) demonstrated that participants in the scheme had a much greater understanding of the core competencies than other employees. Participants in the postgraduate scheme were required to demonstrate their understanding of the competencies and how they related to their work roles.

Table 5: Accreditation of Bovis Core Competencies

BOVIS Core Competency	Academic Points	Credit	Academic Level(s)
1. Customer Focus	10		1 to 4
2. Teamwork	10		1 to 4
3. Professional Expertise	10		1 to 4
4. Global Awareness	5		1 to 4
5. Setting High Personal Standards	5		1 to 3
6. Flexibility	10		1 to 4
7. Taking Initiative	5		1 to 3
8. Leadership	15		1 to 4
9. Performance	15		1 to 4
10. Effective Communication	10		1 to 3
11. Commercial & Financial Awareness	15		1 to 3
12. Strategic Vision & Direction Setting	5		4

The development and accreditation of a competency framework was a significant development for the University as for the first time it explicitly linked corporate capability with academic accreditation (see Garnett 1998 for a discussion of APEL and competency frameworks). By determining credit values for specified areas of learning based upon the Bovis competencies the assessment process of individual learning from experience was given greater structure and uniformity as the assessor no longer had to come to individual judgements about the volume of credit awarded. The assessment focused on satisfactory coverage of all the elements for the competency claimed and a judgement of the level of learning achievement demonstrated, measured against the generic work based learning level descriptors (see below for levels 3 and 4) developed for the Universities programmes in Work Based Learning Studies.

Table 6: Work Based Learning Studies Generic Level Descriptors for Level 3.

LEVEL 3: High level analysis and synthesis are the predominant features of this level.
Action planning is likely to be complex and impact upon the work of others.
Identification of appropriate sources of learning, their use and evaluation will be wide ranging and critical.

Approach to task/problem will recognize and articulate a range of alternatives.
Analysis and synthesis will be sufficient to make judgements and derive principles to guide further action.
Application of learning in a number of contexts.
Communication in writing and orally will be clear, concise and persuasive.

Table 7: Work Based Learning Studies Generic Level Descriptors for Level 4.

LEVEL 4: Self directed research, originality, and depth of understanding are the hallmarks of this level.
Action planning will be complex and is likely to include the work of others.
Identification of appropriate sources of learning, their use and evaluation will be wide ranging in scope and often original in detail.
Approach to task/problem will recognize and articulate a number of approaches and demonstrate the application of a reasoned methodology.
Analysis and synthesis will lead to critical evaluation resulting in an original contribution to knowledge which transcends a specific context.
Communication in writing and orally will be in an appropriate format to appeal to a particular target audience, clear, concise and persuasive.

The Middlesex University Work Based Learning Studies subject area provided an existing validated framework for the development of a postgraduate scheme for Bovis. The joint development of the work based learning partnership programme ensured that the Bovis Management Development Programme and the Bovis Core Competencies were central components of the scheme. These two components and the programme planning module were important in the provision of a high degree of customisation and a strong business focus for the scheme.

Bovis and Webb Associates (Garnett et al, 2001:106) “believed that Middlesex demonstrated a number of characteristics that helped to develop the partnership:

- flexibility of approach in encompassing and enhancing existing programmes and inputs
- did not seek to impose a standard pedagogic approach
- showed a willingness to focus on the practical application of theory in order to meet the needs of the individual and the organization”.

These characteristics were made possible by the existing structural capital of the University:

- Accreditation policy, regulations and procedures that allowed and facilitated accreditation of the Bovis Management Development Programme and Bovis Competencies.

- An existing validated framework for work based learning programmes using the Universities academic credit scheme.
- A mission, leadership and culture which encouraged the development of collaborative partnerships.

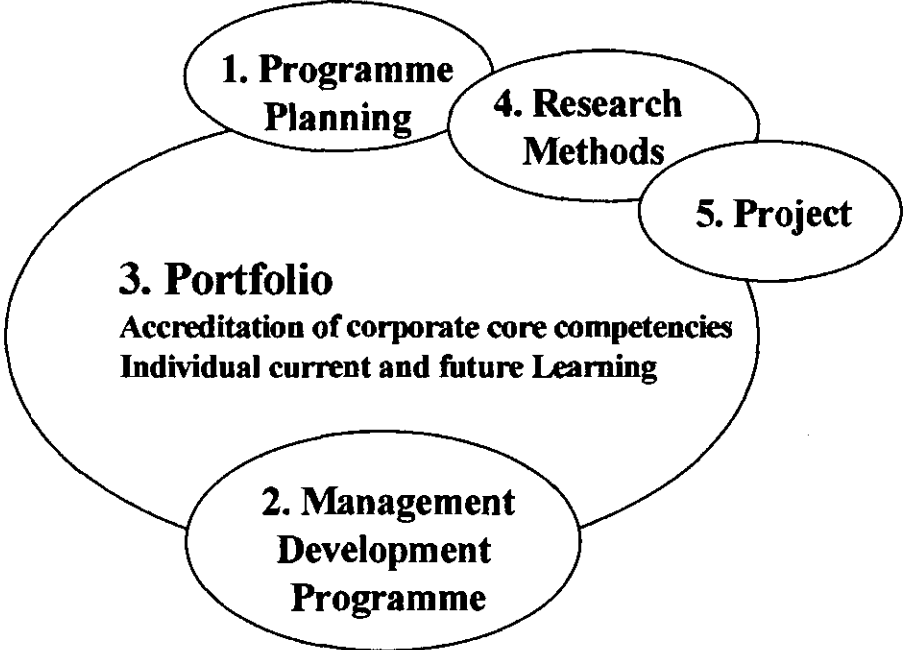
The joint design phase concluded with the agreement of a Memorandum of Co-operation between Middlesex and Bovis. The memorandum was in essence laying out how the structural capital of the two organizations would inter-relate in order to operationalize the joint scheme.

Phase 2: The Bovis Postgraduate Scheme

The jointly designed scheme had five main components:

1. Programme Planning (a customised version of the Middlesex Work Based Learning Studies Programme Planning module).
2. The Management Development Programme (devised and delivered by Webb Associates).
3. The Bovis Core Competencies (supported by a customised version of the Middlesex Work Based Learning Studies Recognition and Accreditation of Learning module).
4. Work Based Research and Development (a customised version of the Middlesex Work Based Research Methods module).
5. Work Based Project (a negotiated project module agreed as part of the programme planning module and designed in further detail as part of the Work Based Research and Development module).

Figure 2: The combination of the five components of the Bovis Postgraduate Scheme.



1. Programme Planning. A Middlesex University module used to enable participants to negotiate an individualised work based learning programme with the University and their employer. The participants produced a learning agreement detailing the proposed composition of the programme, duration and sequencing and even a customisation of the title of the target qualification. This began as the standard NCWBLP learning agreement between the individual, their employer and the University. It soon became apparent that in order to ensure employer commitment to the programme the signature obtained from the central Bovis Training Department had to be supplemented by the signature of the Bovis Head of the Local Business Centre. This emerged as a significant strength as it reinforced involvement and helped ensure the relevance of the programme at the operational level of the business.

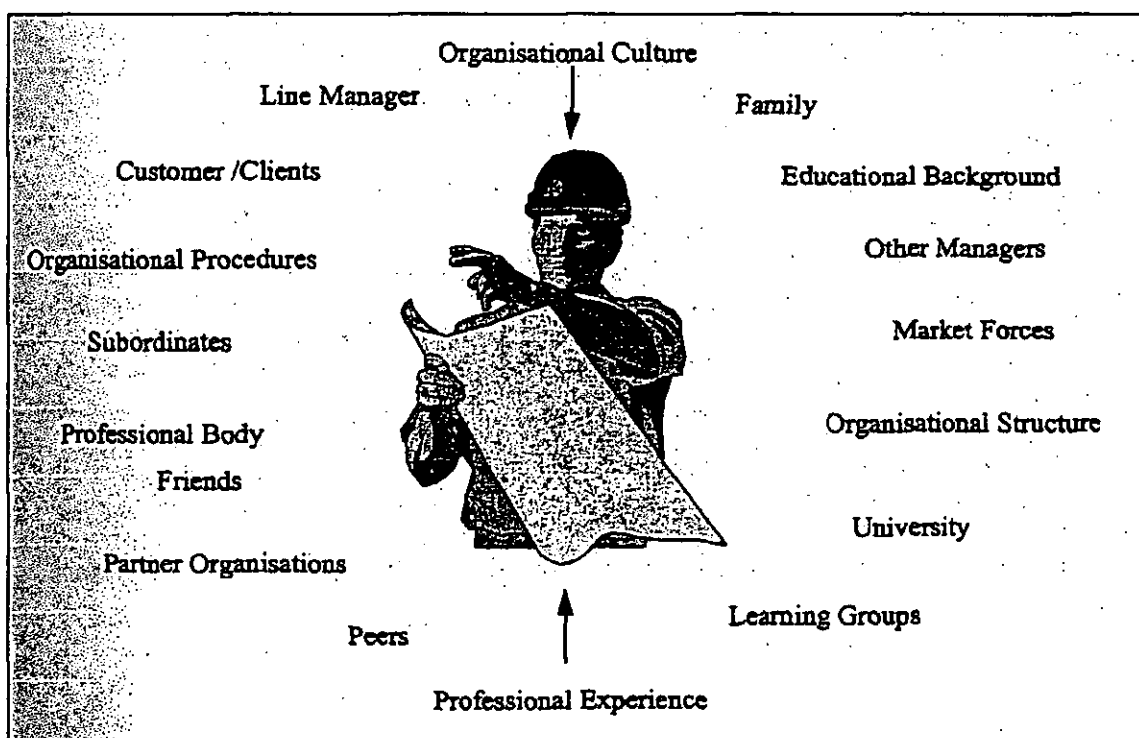
2. Management Development Programme. A residential programme, focusing on general management principles and human behaviour, designed and delivered by Webb Associates. Participants built up a file of course notes and submitted two reports on the application of learning gained from the course to their own work situation.

3. Core Competency Development. Participants selected Bovis Core Competencies on the grounds of personal expertise and relevance to project work. The selected competencies were related to the individuals work role and evidence gathered in the form of a portfolio which demonstrated the knowledge and skills required to underpin competent performance. The portfolio building process was supported by the structure and materials of the University Work Based Learning Studies module "Recognition and Accreditation of Learning" which were customised for the Bovis scheme. The Portfolio followed a standard Middlesex format and drew heavily on the experience and expertise of NCWBLP in portfolio development. The process of portfolio building was used to develop reflective practice with participants encouraged to reflect upon the full range of their experiences (ie not just paid work). The starting point was the development of individual resumes as documents which chronicled and highlighted learning achievement and job descriptions which were expanded to reflect the post holders view of the job and the knowledge and skills required to perform it competently. These documents served to help the participants differentiate between experience and learning, acted as the basis for discussion between the participant and their adviser (from NCWBLP or Webb Associates) and ultimately provided the context for the assessor of the portfolio. Each core competency was described in terms of acquisition, relevancy to work role and application. Each element of the competency had to be covered (eg Teamwork elements from 5.1 to 5.5 see above) and the expanded knowledge and skill requirements (see expansion of Teamwork element 5.3 above) were addressed. A key concern of the advisers during this process was to emphasize the holistic nature of the core competencies and that their real life use was in combination not isolation. This was achieved by encouraging the use of short case studies of real life issues to demonstrate the application of learning from across several competency areas in order to achieve competent performance. Participants were encouraged to stand back and reflect upon the learning process of making a claim for University

accreditation based on the Bovis core competencies. A senior Bovis commercial manager commented “I have been glad of the imposed discipline necessary to assemble the claim portfolio....I have been surprised at the complexity of the processes involved in carrying out my job role and the interplay of the competencies necessary to perform it effectively....I would say the compilation of the portfolio has strengthened my career aspirations” (Comerford, 1998:12).

4. Work Based Research and Development. A Middlesex University Work Based Learning Studies module which was adapted to the Bovis context. The aim of the module was to introduce a range of research approaches and data collection techniques appropriate for projects of a research and development nature carried out by workers as part of their work. Participants built up their own work based research resource bank and a specific proposal for their intended work based project. Although this was seen as a vital part of a masters programme by the University it was initially greeted with scepticism by many programme participants who did not see themselves as researchers and had difficulty relating research methodology to the work place. NCWBLP and Webb Associates had to devise strategies to present this module in a relevant and accessible form. One successful strategy was to ask a group of Bovis managers to identify the attitudes, skills and knowledge required of a manager and of a researcher and then to compare the two. This highlighted the range of generic skills which researchers and managers had in common. Managers recognized that they were often engaged in trying to find information upon which to base decisions. A key perceived difference was the range of influences brought to bear upon the worker as researcher. An example of the range of influences identified by Bovis managers is given below and was subsequently incorporated into a revised version of the Work Based Learning Studies Research Methods module handbook.

Figure 3: Influences upon the Worker Researcher



5. Work Based Project. The major work based project is the focal point and culmination of the programme. Participants first identified a general project area acceptable to Bovis (ie appropriately related to the participants work role and of potential significance to the organization) and the University (ie sufficiently demanding to form the final stage of a postgraduate programme and the logical culmination of an academically coherent programme). Participants could propose a collaborative project as part of the learning agreement where there was a strong rationale in terms of complimentary expertise required for a particular project area. In view of the task driven nature of the industry it was necessary for the University to be flexible in the timing of the project work and the related provision of supervisory support. The University emphasis that the project must address real life issues and have at least the potential to be of value to the organization was appreciated by participants and by the Bovis programme stakeholders. A major incentive for local managers to support the programme was the potential of the major project to address an issue of current concern and thus provide a local benefit within a relatively short time scale.

Table 8: Random sample of Bovis Projects

Year	Project Aim	Methodology	Outcome
1997	To improve team working by increased awareness of behavioural characteristics within Bovis teams.	Action Research	A seminar as an educational tool.
1997	A collaborative project to learn from the experience of construction defects in order to reduce defects and thus improve productivity and customer satisfaction.	Survey	6 recommendations considered and partially implemented.
1997	To examine the construction procurement process to see if it could be improved by contractors offering different forms of incentives as part of their tendering proposals.	Action Research	Improvements to the procurement process were implemented.
1998	To improve the management and motivation of site-based construction teams.	Survey	Recommendations to improve the motivational levels within site-based construction teams.
1998	To explore a potential linkage between early appointment /involvement of specialists works package contractors and successful completion of a major construction	Case Study	Learning from a successful project to make a range of recommendations.

	project.		
1999	To improve feedback on tendering.	Action Research /Survey	Improvements were made to the tender documentation and feedback process.
2000	To establish knowledge requirements and methods of sharing knowledge within Bovis.	Survey	Best practice identified, recommendations made.

The table shows the broad range of project areas. Survey and Action Research were the two most used methodologies and Action research was the approach most likely to result in an implemented outcome. The nature of action research projects (change projects undertaken by those able to make change) means that it is a particularly effective approach where the participant is in a position to implement change. In the case of the projects to improve the procurement and tendering processes the participants concerned were in such a position. The collaborative project which surveyed the reporting of construction defects was particularly interesting as it was commissioned by the head of the relevant department and thus the recommendations had direct access to senior decision makers. It is significant to note that all the projects that were implemented contributed to the structural capital of Bovis.

Pattern of delivery

The partnership programme adopted the same pattern of delivery favoured by Bovis for their Management Development Programme. Typically this took the form of 3 or 5 day blocks at a residential centre. Although one of the perceived advantages of the scheme from the employers point of view was reduced time away from work these blocks of time were highly valued by participants. They provided protected time away from the pressures of work to learn new knowledge and skills, develop reflective practice and plan real life research and development projects. The block days provided a safe environment where knowledge creation, capture and sharing were supported. The culture of the sessions was supportive of enquiry, dialogue and learning from mistakes. Participants contrasted this with what they perceived as a site based culture which did not encourage enquiry and dialogue and was intolerant of mistakes.

This concentrated pattern of delivery meant that the boundaries between University modules were often blurred as a session routinely included input and supervision relating to more than one module. Delivery took the form of group activity, seminar and individual or small group tutorial. Input on management development was provided by Webb Associates, input on the development of accreditation claims based upon the Bovis core competencies and programme planning was shared between NCWBLP and Webb Associates. At the outset the role of Webb Associates (an experienced industry specific training provider) in relating the requirements and

inputs of the University to the Bovis context were vital. NCWBLP led in the research methods input and supervision of project work. Subject expertise from other areas of the University was available to support project work on a distance learning basis.

The Bovis Training Manager acted as the co-ordinator and key point of contact within Bovis for the scheme. Administration of the sessions was provided by Bovis. Administration of assessment was carried out by the University. Bovis contracted with Webb Associates to participate in the delivery of the programme. Assessment was primarily carried out by the University. Webb Associates undertook the assessment of the Management Development Programme, the University monitored this assessment. The oral presentation of the research proposal and final project presentations were jointly assessed by Bovis, Webb Associates and the University. All other assessment was carried out by the University.

An initial pilot programme in 1996 was swiftly followed by multiple groups of previous and new Management Development Programme participants. Each participant was required to negotiate their own programme and gain agreement for it via completion of a learning agreement. A typical Masters programme (180 academic credits of which at least 120 must be at level 4) is shown below.

Table 9: A typical Work Based Learning Masters Programme

Programme Component	Academic credits	Academic Level
Programme Planning	10	4
Management Development Programme	20	4
Bovis Competencies: essay	10	4
Customer Focus	10	4
Performance	15	4
Leadership	15	4
Effective Communication	10	3
Teamwork	10	4
Work Based Research Methods	20	4
Major Project	60	4
Total	180	3 and 4

The first cohorts graduated in 1996 at Postgraduate Certificate level and 1997 at Masters level.

Phase 3: Middlesex Accreditation of the Bovis Self Development Programme

On the basis of this work with Bovis in the UK NCWBLP was invited to meet with the Head of Management Development for Bovis Ltd (The multi-national parent company) to discuss the possibility of Middlesex accreditation of the Bovis Self

Development Programme (SDP). In his introduction to the SDP Sir Frank Lampl (Chairman of Bovis) said “the Bovis Self Development Programme has been created to encourage the fast, efficient and practical transfer of knowledge and management skills across the Bovis construction Group”. The first meeting took place in late 1997 and led to the creation of a Bovis/Middlesex working party looking at the possibility of gaining accreditation for Bovis programme units which had been written by Bovis subject experts and were available on CD Rom. A range of SDP units were accredited by the University during 1998. Once again a Memorandum of Co-operation was agreed to set out how the structural capital of the institutions would be combined. At the request of Bovis a clause was inserted which prohibited Middlesex from entering into a work based learning partnership with any of its industry competitors without the prior agreement of Bovis.

Table 10: SDP units accredited by Middlesex University

SDP Unit	Academic credits	Academic level(s)
Global Induction	10	1 to 4
Total Quality Management & Continuous Improvement	15	3 or 4
Project Management	15	3 or 4
Commercial Awareness	10	3 or 4
Strategic Management & Business Development	15	4
Value Management	15	3 or 4
Financial Awareness	10	3 or 4
Self Development	5	3 or 4

Participants in the SDP scheme had the option to submit work for assessment for credit and had the opportunity to use credit gained towards a Middlesex University Postgraduate Certificate, Postgraduate Diploma or Masters (MA or MSc). In order to enable this option the Middlesex Recognition and Accreditation of Learning and Programme Planning modules were converted into a CDRom format.

Two example case studies prepared for the SDP programme literature demonstrate the flexibility and possibilities of the scheme:

1. Peter has been with Bovis for three years in a project management role. To support his work Peter decided to take the Bovis module on Project Management. He successfully completed the assessment for the module and thus gained 15 academic credit points at level 4 (Postgraduate Level). After a short break Peter decided he wanted to undertake further study as part of a Postgraduate Certificate. He registered for the Middlesex University module “Programme Planning” in order to construct his own programme. Peter gains 10 academic credits at postgraduate level for this module and negotiates a program which includes the Bovis Value Management module, carrying 15 academic credit points and a 20 credit point

project module. This is approved by Bovis and by the University as a coherent programme and will lead to a Postgraduate Certificate (60 academic credit points).

2. Raj has eighteen years experience in the industry and has already decided that he needs a masters qualification to help him develop his career in the Company. He starts by registering for the Program Planning module (10 credits) and plans a programme to gain recognition for his learning from experience and to increase his commercial awareness and understanding of value management. He therefore decides to take the module “Accreditation of Prior and Work Based Learning” in order to gain academic credit for his learning measured against the Bovis SDP competencies (10 credit points for the module plus a further 75 points from the competencies) and the Bovis modules Commercial Awareness (10 points) and Value Management (15 points). In order to undertake a Masters level project Raj is required to take the “Work Based Research Methods” module (20 points) before rounding off his program with a major (40 credit point) project. This program reaches the Masters requirement of 180 academic credit points.

As with the UK scheme participants were advised that “The program is designed by you and relies heavily on your self-motivation”. A proposed enhancement of the original scheme was the provision of Bovis mentors and specialist subject experts. The mentor would act as an informed second opinion with whom to discuss progress on the programme, “the subject expert is likely to be one of the authors of the Bovis SDP program units . . . general advice on the program and its administration is also available from Bovis Regional Offices”. The University was not directly involved in a supporting role unless participants wanted to work towards a University qualification and thus registered for the programme planning module.

The Bovis Self Development Programme was officially launched in July 1999. A Bovis evaluation of the scheme carried out in 2000 (Hughes, 2000) shows that while substantial use has been made of the stand alone units for unaccredited continuing professional development the option to submit work for accreditation has only been taken up in a very small number of cases. To date there have been no graduates from the Self Development Programme.

Phase 4: The Bovis Lend-Lease Postgraduate Certificate

In December 1999 Bovis was sold by the P&O Group and bought by Lend Lease. At about this time the Bovis Training Manager and Bovis Director of Management Development joined other organizations. The change of ownership and new staff led to a re-appraisal of the UK based Postgraduate scheme. The accredited Bovis core competencies were no longer in use and it was decided that the scheme should be re-structured to centre upon the Management Development Programme and the focused application of learning from the programme in a small work based project. The University recognized this as a coherent sixty credit point programme at

postgraduate level leading to a Postgraduate Certificate in Work Based Learning Studies (Organizational Development).

Table 11: Composition of the Postgraduate Certificate in Work Based Learning Studies (Organizational Development)

Component	Academic credit	Academic level
Management Development Programme Learning Agreement Project		
Total	60	4

The first graduate of the Postgraduate Certificate in Work Based Learning Studies (Organizational Development) was achieved in 2001.

Conclusion

The case study of the partnership between Bovis and Middlesex reveals a number of distinct phases over a seven year period:

1. Initial Accreditation and Scheme Design
2. Scheme Implementation (The Bovis Postgraduate Scheme)
3. Scheme Extension (The Bovis SDP)
4. Refocusing on a specific programme (The Postgraduate Certificate)

In order to respond in a positive and timely manner to the changing Bovis needs Middlesex drew extensively upon structural capital to:

- Provide accreditation services.
- To develop customised programmes
- To provide specialist input in respect of, programme planning, reflective practice, work based research methodology, design and conduct of work based learning projects.

Bovis used the University and Webb Associates as providers of client capital in order to enhance and quality assure its learning and training activity. The participation of Bovis employees on the programme enhanced the human capital of Bovis. The Bovis Training manager (Comerford, 1998:12) identified the following benefits for the participants in the Bovis Postgraduate Scheme:

- “a clear sense of purpose for work-based projects and the personal rewards that can come from them
- an understanding of the concepts of academic research methods and how to apply them to the work place
- a greater sense of responsibility for personal and continuing professional development

- an improved and more participative role in personal performance appraisal and consequently an improved dialogue with line managers
- a greater sense of self esteem especially as the result of gathering evidence of competency
- a clearer understanding of the role and expectations resting upon them as Managers”.

Significantly the scheme also had the potential to contribute directly to the development of the structural capital of the organization, through increased understanding of the Bovis core competencies and the potential impact of the project. The work based projects provided Bovis with a significant in-house research and development capability which could draw upon university support. These projects often had the potential to improve performance and thus produce a direct bottom line benefit eg by improving reporting and thus the ability to learn from construction defects.

Two significant changes associated with the change of ownership of Bovis served to reduce the value of the scheme approach to partnership (ie the original Bovis Postgraduate scheme and the Self Development Programme):

1. the core competencies were no longer in use the schemes no longer had the same linkage to appraisal and hence to the Bovis performance management scheme;
2. there was no longer the same strong organizational focus on increasing the level of qualifications.

This meant that the two remaining most valuable features were the Management Development Programme and the project. This explains the move from a scheme approach to a highly focused Postgraduate Certificate.

Webb Associates benefitted from contributing towards a University Masters programme (Garnett et al, 2001:110) as it gave Webb Associates “a tremendous level of credibility and status within Bovis”. This increase in standing was a structural capital benefit.

The development and operation of the Bovis postgraduate scheme (phases 1 and 2 of the partnership) were the richest in terms of the development of the intellectual (especially structural) capital of the University. Commenting on this period Garnett et al (op cit, 110) noted that the scheme has:

- provided the University with a model of partnership which is based around organisational core competencies.
- provided NCWBLP with a significant model of curriculum transformation (ie one based upon the particular needs of a partner organization).
- radically changed the NCWBLP approach to Accreditation of Prior Experiential Learning (APEL) from a highly individualistic process to one with a corporate dimension (Garnett, 1998).

- demonstrated how the university could benefit from the client knowledge and industry expertise of an independent training provider (ie Webb Associates).

A review over the four phases of the partnership also highlights:

- the need for the University to be flexible in the sequencing of its standard modules in order to support the needs of real life projects.
- the potential to link the Middlesex approach to work based learning to corporate appraisal and performance management and the threat of marginalization of the work based learning scheme if this linkage is not present.
- the contested contribution of University work based research methods to work based projects which are valued by the employer.
- the need for the University to be aware of and respond to the changing learning and development needs of the organization.

The Bovis/Middlesex work based learning partnership has endured over time as it has contributed to the intellectual capital of both organizations. The case study indicates the utility and potential relevance of the factors (advanced by a range of authors on knowledge creation and management) identified in chapter 2 as enhancing the intellectual capital of an organization.

Table 12: Mapping of factors for enhancing the intellectual capital of an organization over the four phases of the work based learning partnership between Bovis and Middlesex University.

Factor	Phase 1	Phase 2	Phase 3	Phase 4
1. Vision	X	X	X	-
2. Leaders	X	?	X	?
3. Empower	?	?	?	?
4. Culture	?	?	?	?
5. Learning Opportunities	X	X	X	X
6. Community of Practice	?	X	-	?
7. K Create	-	X	?	?
8. K Capture	?	X	X	?
9. K Share	?	?	?	?
10. K. Use	X	X	X	X
11. External Env	X	X	X	X
12. Partnering	X	X	X	X
13. Business Focused	X	X	X	?
Total x	7	9	8	4

1. Strategic vision which highlighted the significance of knowledge was strongly in evidence over the first three phases of the project. The development and implementation of the Bovis Postgraduate scheme directly contributed to the corporate objectives of Bovis Europe. The Self Development Programme (SDP) was a strategic world wide initiative driven by the Chairman of Bovis.
2. Leadership in the process of knowledge creation, transfer and use was most evident in the proactive roles of the Bovis Training Manager in the development of the Bovis Postgraduate Scheme (Phase 1) and the Director of Management Development in the accreditation and launch of the SDP (Phase 3). In contrast there appears to be less proactive leadership from Bovis during operational phases (2 and 4).
3. Empowerment of individuals to become knowledge workers is difficult to gauge. It is evident in the literature of the SDP and in the negotiation of learning agreements. In contrast concern about line manager attitudes was one of the reasons the pilot group for the Bovis Postgraduate asked the Managing The Director of Bovis Europe to sign a group learning agreement with them.
4. Culture appears to have been a variable factor, often according to location and line manager. There is a contrast between considerable investment in training and development (eg the Bovis Postgraduate Scheme and the SDP) and the perceptions of site-based culture voiced by some scheme participants.
5. All four phases show Bovis creating learning opportunities, phase two combines opportunities with significant protected space.
6. A community of practice in which knowledge can be socialised can be seen as being provided by the Management Development Programme in phases 1 and 4 and the Bovis Postgraduate Scheme (including the Management Development Programme) in phase 2. There appears to be a comparative lack of community and structured opportunity for the socialisation of knowledge in the SDP, possibly because of the CD Rom based delivery.
7. Support for knowledge creation is only strongly evidenced in phase 2 through the framework of the Bovis Postgraduate scheme which facilitates University support, including input on work based research and development methodology, for knowledge creating projects.
8. Knowledge capture is supported within the Management Development Programme but the potential to make tacit knowledge explicit was greatly enhanced in phases 2 and 3 through supported reflection centred on the Bovis Core Competencies.
9. Knowledge sharing did take place between scheme participants throughout phases 1 to 4. Formal project presentations were used as an opportunity to share knowledge outside the group. The outcomes of certain projects were shared outside the group but this seems to have depended greatly upon the position of the participant, the methodology employed (ie action research by its nature would have some impact and result in knowledge sharing) or the extent to which the project had been commissioned.
10. Knowledge use is emphasized across the four phases. In phases 1 and 4 the emphasis is very much upon the practical application of management knowledge

gained from the Management Development Programme, in phase 3 the emphasis is on knowledge acquisition for future use from the SDP units with optional assessment reinforcing application of knowledge. In phase 2 knowledge use is enhanced by the potential of the application of knowledge created by major project work (see 7, 8 and 9 above).

11. Connection to the external environment was high throughout the four phases and stemmed from the use of customer capital (eg Middlesex, Webb Associates, individual clients, professional bodies, industry reports).
12. Partnering is evidenced throughout but appears stronger in phases 1 to 3 when more use is being made of Middlesex by Bovis.
13. Phases 1 to 3 show a high degree of business focus, but this declines in phase 4 as the scheme no longer directly relates to organizational core competency.

Phase 2 (The Bovis postgraduate scheme) appears as the most productive phase in terms of providing factors likely to enhance intellectual capital. This phase offered the most support for knowledge creation and capture. It is interesting to note that neither individual empowerment nor a supportive culture were unequivocally present in any of the four phases analysed. This is not to suggest that these are unimportant factors but it does indicate that they are not absolute prerequisites for enhancing the intellectual capital of an organization. In contrast provision of learning opportunities, support for knowledge use, linkage to the external environment and partnering to increase intellectual capital were present across all the phases of the partnership (although the latter is hardly surprising given the theme of the case study).

CASE STUDY TWO: THE CORPORATION OF LONDON

Introduction

This case study examines the development of a work based learning partnership between Middlesex University and the Corporation of London from September 1999 until April 2002. The case study began with a specific research phase funded by the Corporation. Changes in priority within the Corporation meant that the original vision of a Corporation Centre for Work Based Learning have yet to be realised and, while the partnership has contributed to the human capital of the Corporation, it has yet to achieve a major impact on the structural capital of the Corporation. The use of the structural capital of Middlesex University has enabled the University to respond to the changing needs of the Corporation. The development of a project driven approach to the use of work based learning, which was prompted by the findings of the research phase of the partnership has the potential to make a significant impact on the intellectual capital (human and structural) not only of the Corporation but also of the University.

The case study draws extensively upon my own personal observations, first as team leader during the research phase and then as partnership co-ordinator throughout the period of the case study.

The Corporation of London

The Corporation of London has some 3500 employees and provides local government services for the City of London, over 300,000 workers concentrated in the Square Mile and some 8000 residents. In addition to the usual local authority services it provides a variety of services for London some of which are of national and international significance eg the animal reception centre at Heathrow airport, the Barbican Arts Centre. The Corporation has a distinctive history, which still impacts upon its responsibilities.

Background to the development of a work based learning partnership between the Corporation of London and Middlesex University

NCWBLP first worked with the Department of Personnel and Management Services to produce a report on the possible use of the Departments resource centre in 1997. At the same time a small number of individual Corporation employees joined the Masters in Work Based Learning Studies or the recently validated Professional Doctorate. In late 1998 an ambitious proposal to create a work based learning centre in the Corporation was developed for consideration by the Establishment Committee of the Corporation.

The proposal offered a unique approach to staff training and development which:

- catered for the whole workforce, irrespective of status and role, in the provision of focused and progressive work based programmes;
- provided access and support to a comprehensive set of vocational and educational qualifications from NVQ1 to Doctorate;
- capitalized on all learning opportunities and resources in the workplace;
- combined learning resources from other providers eg universities, colleges, private trading companies and trades unions;
- integrated training and education with the Corporations appraisal/performance management procedures and hence supported the Investors in People process;
- quality assured all training and education through its partnership arrangements with accredited institutions.

The first stage of this development was a yearlong consultancy project to cover the design and pilot implementation of the proposal. Agreement to proceed with the first stage was given by establishment Committee in mid 1999.

Phase 1: A research based approach to partnership development

Unlike previous partnership developments the consultancy approach provided NCWBLP with the opportunity to take a more research based approach to the design and development of the partnership with the Corporation. A team of three NCWBLP staff took part in this stage:

- Jonathan Garnett: Director NCWBLP, overall responsibility for the development, joint principal researcher and principal developer.
- Professor Derek Portwood: author of the original proposal to the Corporation and senior consultant to the research and development phase.
- Dr Lucy Thorne: NCWBLP Research Fellow and joint principal researcher.

The research and development work focused upon:

1. Definition of the initial pilot work.
2. Testing the desirability of the proposed features of a work based learning approach to individual and organizational development.
3. Identification of key areas of strategic significance to the Corporation and how these might be supported by work based learning.
4. Identification and commencement of work with key corporation personnel.
5. Identification of existing resources in the Corporation which might benefit from inclusion in the work based learning initiative
6. Commencement of pilot work.

The NCWBLP collected data from:

- Interviews with key personnel from Personnel and Management Services and nominated members from the pilot departments.
- Participation and observation of Corporation meetings.
- Pilot work with individuals on work based learning programmes.
- Corporation documents, especially the revision of the Human Resources strategy.

The NCWBLP used the data to build up a “rich picture” of the opportunities and constraints for the introduction of a work based learning approach to the corporation.

The research phase coincided with major restructuring within the Corporation, including Management and Personnel services that sponsored the initiative. In the changing environment it was rapidly apparent that the original concept of a work based learning centre was too static and might appear too resource intensive. The focus of the proposal thus shifted to the introduction to the Corporation of a work based learning approach to individual and organizational development. The report prepared by the NCWBLP team for the Corporation Work Based Learning Project Steering Group is attached at Appendix 3. Some of the detailed recommendations it

contained regarding implementation were rapidly overtaken by re-organization in the Corporation.

The lasting value of the research phase for the project was:

1. It confirmed the following as desirable features of the proposed work based learning approach (relationship to intellectual capital added in brackets):

- Inclusive, with the potential to benefit all staff (ie enhancing human capital)
- Access to a comprehensive range of qualifications (using the structural capital of the University and other awarding bodies)
- Work based (ie focused on real work issues and with minimum time away from work) (this gives the potential to enhance not only human capital but also the structural and customer capital of the organization)
- Capitalising upon learning resources from a range of providers (use of customer capital)
- Integrative with other initiatives eg with Best Value, Investors in People (enhancing human, structural and customer capital)
- Provision of University quality assurance to learning (use of the structural capital of the University).

2. It identified significant additional potential advantages to the Corporation:

- strategic advice on the use of work based learning to realise key departmental and corporate objectives (ie the use of work based learning to enhance structural capital)
- development of an advisory capacity within each Department on the potential use of a work based learning approach to attain Departmental objectives (using human capital to enhance structural capital)
- the use of University supported work based projects as the vehicle to achieve tangible benefits for the Departments (ie the application of human capital to enhance structural capital). The opportunity for collaborative work based projects involving teams from within and across Departments was seen as attractive. One manager remarked that “ there are plenty of projects already in existence as well as those coming on stream ... I think everyone would benefit from more support, particularly those that have to manage the budgets and the people”.
- provision of tailored specialist courses drawing upon work based learning expertise (eg work based research methods applied to consultation in order to achieve “Best Value” objectives).

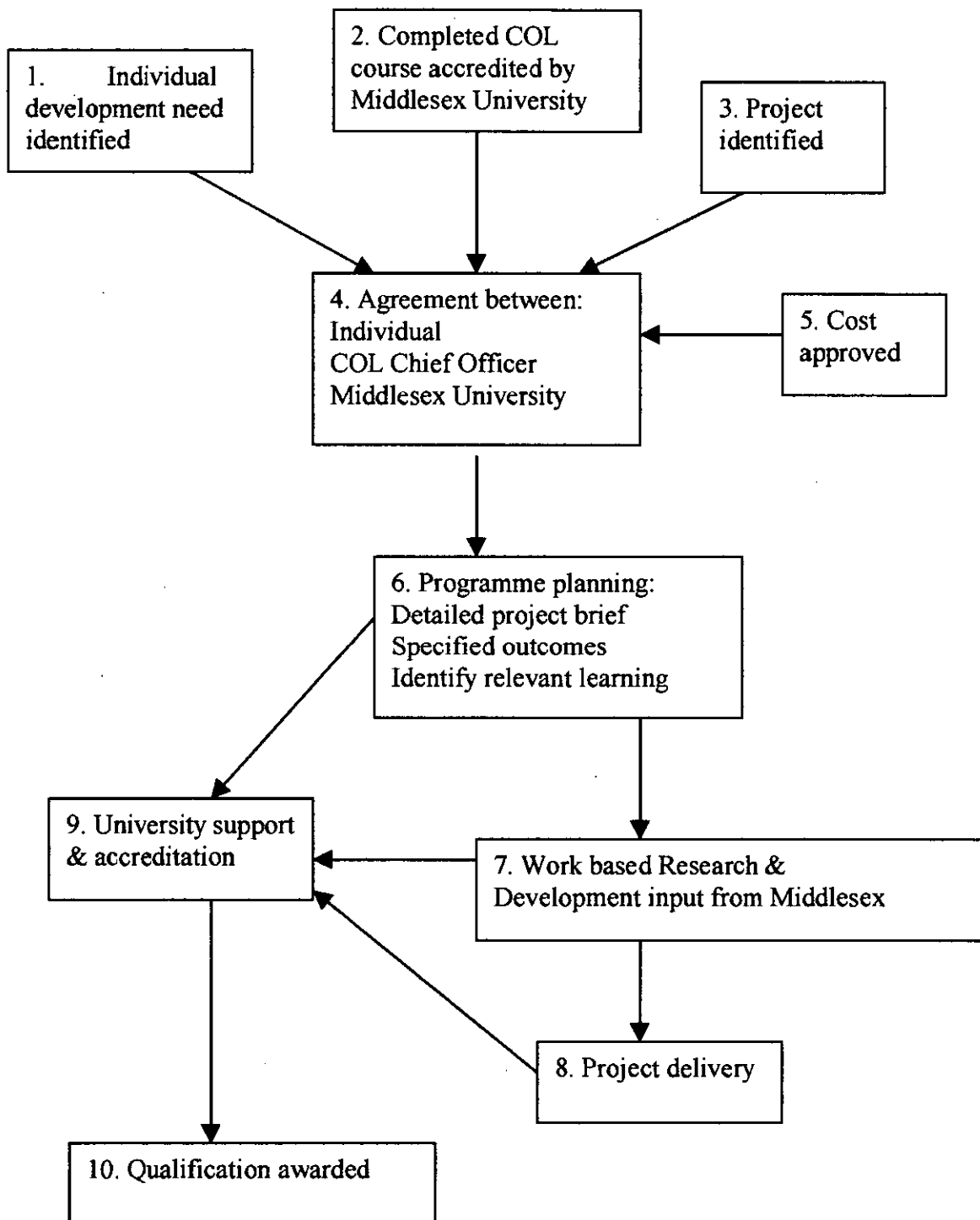
3. It identified the Corporations extensive portfolio of in-house training courses as an important resource, which could be enhanced by the work, based learning initiative.

Phase 2: Implementation of the Work Based Learning Approach

A core group of senior personnel from the Department of Personnel and Management Services and the Director of NCWBLP met regularly to prepare for the formal launch of the Work Based learning initiative. Drawing upon the main

findings of the research phase it was decided that the partnership between the Corporation of London and Middlesex University would provide three routes to support work based projects of significance to the individual and the Corporation.

Figure 4: Corporation of London Work Based Learning Routes



Route 1 is a customised individual route to a University qualification and as such followed the standard Work Based Learning Studies approach of joint programme design by the individual participant, employer and the University. This route drew

upon the existing structural capital of the University (ie the validated Work Based Learning Studies framework) and was thus the easiest and the first route to be fully operationalized. The route fits within the existing Corporation training course support structure eg for advertising, room bookings and general administrative support. Entry usually follows an advisory interview with a member of University staff and is conditional on the agreement of the relevant Department. Registration for a specific University qualification takes place after and as a consequence of the successful completion of the University programme planning module, which requires the negotiation of a three-way learning agreement between the individual participant, the employer and the University.

The programme core modules are:

1. Recognition and Accreditation of Learning. This module provided structured support for individuals to review their experiences (ie not just paid work) and identify their own areas of learning. As described in Case study one the participant produces an expanded resume and job description but they have an additional purpose which is to help the participant, in consultation with their University programme adviser, to identify their own areas of learning (rather than the prescribed competency based areas used in the Bovis case study). Each area of learning is described in terms of acquisition and application. Knowledge and skills attained and exercised are described and evidence is used to illustrate their application. Each participant submits a portfolio that includes several areas of learning.
2. Programme Planning. This module combined the individual learning of the individual with projects of a developmental nature of interest to the individual (or group) and of potential value to the organization. The outcome was a three way learning agreement between the individual, the Corporation and the University. One way of regarding such an agreement is that the individual is proposing how she is going to use the intellectual capital of the University and of the employer. In the case of the University it is clearly the use of human capital (ie the knowledge and skill of the programme adviser and project supervisors) but this is only made possible by the structural capital of the University. In the case of the Corporation there is also potential for a human capital (eg expert or general advice) and structural capital (eg education and training support infrastructure, access to records) dimension. In addition there have already been instances where external expertise (eg professional market researchers) has been made available to support a work based learning project.
3. Work Based Research methods. The standard University module but customised in the delivery to the Corporation context eg by making links with the need to consult as part of the response to the "Best Value" initiative. This is a human and structural capital input by the University that needs to relate to the current or potential future structural capital of the Corporation in order to have added significance to the individual participants and the Corporation.

4. Project(s). Each programme must include at least one major work based project. An analysis of the first three Masters Qualifications awarded to Corporation employees under this partnership is given below.

Table 13: Corporation of London Work Based Learning Studies Masters Projects 2000/2001.

Project Aim	Methodology	Outcome
A joint project (2 participants) to provide a framework to enable managers to determine the competencies of posts and assess the competencies of individuals within the Department of Housing and Sports Development.	A survey/grounded theory approach to the problem definition and intervention design stages of action research.	A framework in the form of a handbook for managers was produced and recommendations for the use of competencies made. The Department has subsequently implemented these.
To produce a guidance note for Chief Officers/ designated managers on the establishment of a workplace register of relevant environmental legislation.	An action research approach that also used Survey: to define the problem and Case Study at implementation stage leading to review and refinement of the guidance.	The guidance note has been put out for formal consultation with a view to implementation across the Corporation.

The table clearly shows the potential of the work based learning project to contribute to the structural capital of the organization. In both cases an action research framework has been used and the outcomes achieved have been suitable for implementation. The use of case study to enable an action research approach to future pan-organizational action was crucial in enabling the guidance note to be tested and refined.

Route 2 provides a progression route from a Middlesex University accredited Corporation of London training course to a work based learning programme leading to a University qualification. This could lead in to a full work based learning programme with the accredited course becoming part of the individuals portfolio of learning achievement (see route 1 above) or could be followed directly by a project focused on the application of learning gained from the training course to a real life work situation, possibly leading to a University Certificate or Diploma. The training programmes offered by the Corporation were reviewed and five identified for possible accreditation on the basis of level of learning involved and significance to the Corporation. Recruitment and Selection training has been accredited by the University and the accreditation proposal for Leadership training is currently being prepared. This route depends upon the structural capital of the University in the form of the University accreditation regulations and procedures to enable the combination

of the structural capital of the Corporation (in the form of in-house courses) with the structural capital of the University (in the form of the Work Based Learning Studies framework).

Route 3 provides University support to significant work based projects identified by the Corporation. Project workers have the option to submit work for accreditation towards a University qualification. The potential for this route was indicated in the research phase. The approach is based from the outset on the needs of the project. University expertise is applied to support the project as a knowledge based activity ie one that involves knowledge creation, capture, sharing and use. This route draws upon knowledge developed by NCWBLP in the operation of Work Based Learning Studies programmes and can be mapped onto the Work Based Learning Studies core modules.

Figure 5 : Route 3 – the project driven approach to Work Based Learning

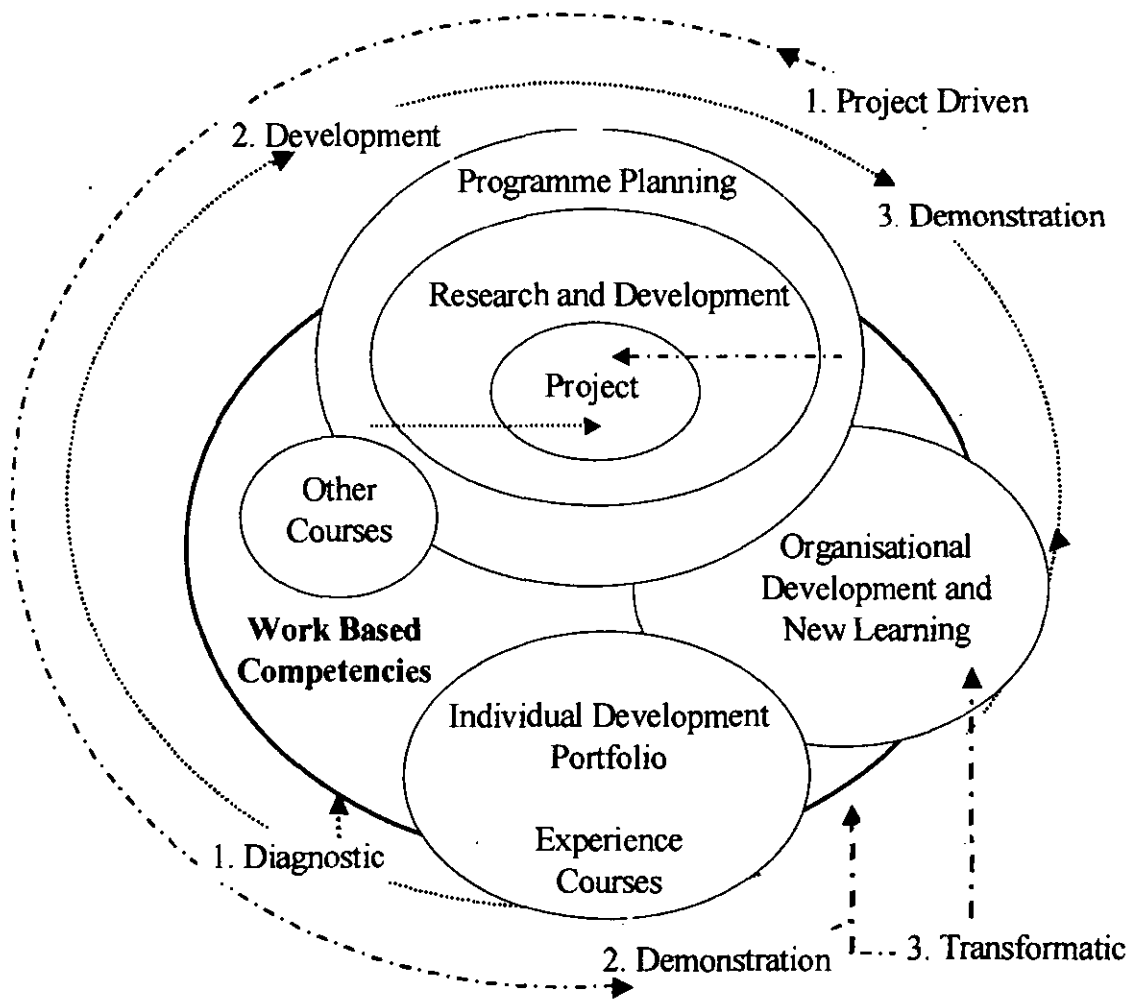


Figure five above was developed by the NCWBLP research team. The outer dashed semi-circle shows the project driven route which ends with optional accreditation. The inner circle shows the route 1 approach ie starting with the diagnostic portfolio and ending with the project.

The significance of this “project driven” route to the structural capital of the University is that it provides a potential application of the Middlesex work based learning approach that is not dependent upon being part of a University qualification. The rationale for the approach is the added value of University support for the project. This route highlights the potential for university expertise in work based learning to be linked to knowledge management in organizations and applied in other ways eg consultancy and short courses for continuing professional development.

Conclusion

The case study of the partnership between the Corporation of London and Middlesex highlights:

- The advantage of a research phase in identifying how the work based learning approach could be customised to the needs of the organization ie the development of the three routes; including new thinking to develop the route 3 “project driven” approach.
- That the University needs to be flexible in order to learn from and respond to the changing needs of the organization. This involves not only the use of existing structural capital but also the refinement and extension of it.
- That the use of existing structural capital can restrain new thinking eg accreditation and qualification regulations and procedures (ie the structural capital essential for University qualifications) may not always be most applicable if the qualification is not a major aim of the individual or the organization that wishes to work with the University.

Table 14: Mapping of factors for enhancing the intellectual capital of an organization over the research phase and across the three routes of the work based learning partnership between the Corporation and Middlesex University.

Factor	Research Phase 1	Route1	Route 2	Route 3
1. Vision	X	X	X	X
2. Leaders	X	?	?	X
3. Empower	?	?	?	X
4. Culture	?	?	?	?
5. Learning Opportunities	X	X	X	X
6. Community of Practice	X	?	?	X

7.K Create	X	?	-	X
8.K Capture	X	X	X	X
9.K Share	X	?	?	X
10. K.Use	X	X	X	X
11.External Env	X	X	?	X
12.Partnering	X	X	X	X
13.Business Focused	X	X	X	X
Total x	11	9	8	11

1. Strategic vision that highlighted the significance of knowledge was strongly in evidence throughout the development of the partnership. If route 3 is to make a strategic contribution to the Corporation then it must closely align to strategic vision.
2. Leadership in the process of knowledge creation, transfer and use was most evident in the proactive role of the Director of Personnel and Management Services and the support of the Chair of the Establishment committee (Phase 1). In contrast there appears to be less proactive leadership from the Corporation during operational phase
3. Empowerment of individuals to become knowledge workers is central to the negotiation of learning agreements.
4. Culture appears to have been a variable factor across Departments, often according to line manager.
5. Both phases were dependent upon the Corporation providing learning opportunities.
6. A community of practice in which knowledge can be socialised was evident in the Middlesex research team but failed to make a significant impact on the Corporation. The lack of this community is a potential weakness which group sessions in support of route 1 is an attempt to address. It is envisaged that to be effective route 3 would have to draw upon one or more communities of practice.
7. Support for knowledge creation is only strongly evidenced in phase 1 through the research phase. Support in route one is provided primarily by the University with support from the Corporation depending upon the individual learning agreement. In its basic form route 2 could just focus on the application of knowledge learnt from an accredited course. It is envisaged that knowledge creation would be an essential element of route 3.
8. Knowledge capture was part of the research phase. The potential to make tacit knowledge explicit is intrinsic to routes 1,2 and 3.
9. Knowledge sharing did take place within the Middlesex research and between the research team and the Corporation eg the research report to the Corporation. The significance of projects in route 1 has to date ensured knowledge sharing using the structural capital of the Corporation eg communication channels within a Department, formal consultation channels across the Corporation. The significance of project work undertaken in the basis version of route 2 may not

warrant this degree of sharing. The commissioned nature of route 3 projects is likely to ensure that knowledge is shared.

10. Knowledge use is emphasized across both phases and all three routes. In route 1 and 3 knowledge use is enhanced by the potential of the application of knowledge created by major project work (see 7, 8 and 9 above).
11. Connection to the external environment was evident in phase 1 eg the potential of using other providers which was subsequently built into route 2. The external environment clearly has the potential to impact upon routes 1 and 3; the extent to which it does so is likely to depend upon the nature of the project.
12. Partnering eg between the Corporation, the University, Corporation Training Associates is evidenced throughout.
13. Phase 1 shows a high degree of business focus. Route 1 depends on the individual learning agreement to maintain business focus. Business focus in route 2 may be directly related to the business focus of the accredited programme. Route 3 has the potential to be highly business focused as it is entirely based upon a work based project.

The case study of the Corporation provides an account to date of a partnership which is still developing and has yet to maximize the potential advantages to the Corporation. It is envisaged that this will be achieved as more of the structural capital of the Corporation is utilised (eg the expansion of route 2) and the project driven approach (route 3) begins to enhance the structural capital of the Corporation.

CASE STUDY THREE: UNIVERSITY OF HONG KONG SCHOOL OF PROFESSIONAL AND CONTINUING EDUCATION

INTRODUCTION

This case study examines the development of a work based learning partnership between Middlesex University and the School of Professional and Continuing Education of the University of Hong Kong from January 2000 until April 2002. The case study began with the use of accreditation to enable the two Universities to combine the structural capital of their academic provision. The case highlights how the Middlesex approach to work based learning can be used in partnership with other providers of University level learning.

The case study draws extensively upon my own personal observations and direct involvement throughout the duration of the initiative.

The School of Professional and Continuing Education (SPACE), University of Hong Kong

The School of Professional and Continuing Education is an extension arm of the University of Hong Kong but does not have degree awarding powers. Over the years it has built up a strong reputation for quality and for meeting the continuing professional development needs of adults. Established in 1956 the School had 95,101 student enrolments in 2001 (equivalent to 14,875 full time students) in 786 programmes. The School is a pioneer in lifelong learning and has responded strongly to calls from Government for education reform.

Background to the development of a work based learning partnership with Middlesex University

Encouraged by the success of the Greek Centre for Work Based Learning in Athens the University formally launched the East Asia Work Based Learning Centre in Hong Kong in January 2000. The University already had established links with SPACE and thus the Director of the East Asia Centre opened discussions with them about the possibility of developing a work based learning partnership.

Phase 1: Partnership development

Discussions between the Director EAWBLC, Director NCWBLP and senior members of SPACE resulted in a commitment to work together to provide joint work based learning top up routes to designated SPACE Diploma level programmes. SPACE saw work based learning as highly relevant to their institutional mission and the increased focus upon Lifelong Learning in Hong Kong. Middlesex valued the opportunity to work with an established and highly regarded educational provider on the introduction of an approach to higher education learning that was untested in Hong Kong.

The area of Sport and Recreation management was identified for pilot development as:

- Leisure was recognised as one of the fastest growing industries in Hong Kong.
- SPACE had an established and highly successful Diploma level programme in Recreation and Sports Management which Middlesex could accredit and for which there was no established progression route to Honours Degree level.
- The SPACE Diploma Programme Leader was interested in the work based learning approach and believed it was appropriate for her subject area and would benefit Diploma holders.

Following initial agreement in principal to work together the development of the partnership focused upon:

1. Production of a formal agreement (Memorandum of Co-operation) between the two Universities identifying how they would work together. This followed the

standard content for Middlesex University Joint Collaborative programmes which covered:

- Admission. Carried out by SPACE from students who had successfully completed a SPACE course accredited by Middlesex or an equivalent course.
 - Registration and Enrolment. Registration for an award of Middlesex University and enrolment (giving access to facilities) of both institutions.
 - Tuition. Provided jointly by Middlesex and SPACE, with Middlesex retaining the right to approve all tutors used on the programme.
 - Learning Resources and Support Services. Library, computer and other facilities to be provided by SPACE.
 - Programme Management and Monitoring. Joint management and monitoring with quality reports to SPACE and to Middlesex.
 - Assessment. Carried out by SPACE and Middlesex staff. Responsibility for assessment rested with the Middlesex University Assessment Board for Work Based Learning Studies via the East Asia Work Based Learning Centre Assessment Panel and in accordance with the Middlesex University Assessment Regulations.
 - Certification. By Middlesex University.
 - Programme and publicity material. Subject to Middlesex University approval.
 - Financial Arrangements. Negotiated to reflect the contribution of both partners to the programme.
 - Legal Matters. Standard conditions relating to intellectual property and limited liability. It was agreed that the memorandum was a legally binding document under English law.
2. Accreditation of the SPACE Diploma in Recreation and Sports Management in order to establish its value in the Middlesex academic credit scheme. SPACE provided detailed course information and samples of assessments in accordance with the standard accreditation procedures of Middlesex University. The Diploma programme was accredited as carrying 120 credit points at level 1 and 60 credit points at level 2.

It is significant to note that both these essential agreements relate to the joint use of the structural capital (eg procedures, regulations, award systems, quality systems, programme structures) of both institutions. Once the accreditation process had been completed joint curriculum design took place to produce a programme model (see below) which built upon the accredited SPACE Diploma and incorporated the core modules of the Middlesex Work Based Learning Studies Degree programme.

Table 15: BA Hons Work Based Learning Studies (Recreation and Sports Management) offered by SPACE and Middlesex University

Stage/Year	Title	Academic Credits	Academic Level
1/ yr 1	SPACE Diploma in Sport and Recreation Management	90	1
1/ yr 2	SPACE Diploma in Sport and	30	1

	Recreation Management	60	2
2/ yr 3	Middlesex Recognition and Accreditation of Learning Module	10 60(from portfolio)	2 1/2/3
2/ yr 3	Middlesex Programme Planning Module	10	2
	Middlesex Work Based Research Methods Module	20	3
2/ yr 4	Middlesex Work Based Learning Project Modules	80	3
	Total	360	1/2/3

The stage 2 (Middlesex) programme core modules were:

1. Recognition and Accreditation of Learning. This module provided structured support for individuals to review their experiences (ie not just paid work) and identify their own areas of learning which were relevant to Sport and Recreation Management.
2. Programme Planning. This module combined the individual learning of the individual with projects of a developmental nature of interest to the individual and of potential value to an organization in the sport and recreation management area eg an employer, voluntary sports association. The outcome was a three way learning agreement between the individual, the organization and Middlesex University as the academic awarding body. SPACE was represented on the Middlesex Programme Approval Panel. It is significant that the Programme Planning stage is likely to be the first stage at which the organization has engaged with the programme and the main contribution appears to be to provide the learning opportunity.
3. Work Based Research methods. The standard University module was used.
4. Project(s). Each programme must include at least 80 credit points of project work at academic level 3 (degree level), including at least one project of 40 or 60 credit points.

The degree programme depended upon the combination of the structural capital of SPACE and Middlesex.

Phase 2: Implementation of the Work Based Learning Approach

Stage 2 of the BA Hons Work Based Learning Studies (Recreation and Sports Management) commenced in May 2000 with 12 participants recruited from previous graduates of the SPACE Diploma.

Feedback at early module group sessions and subsequently in module evaluation questionnaires and Board of Study discussions indicated that participants were surprised by the learner centred nature of the programme and at first did not fully appreciate the concept of reflective practice. This appears to have been in part due to cultural and language issues. However feedback also indicated that participants grew

to appreciate the potential value of this new way of learning during the course of the module. There were two withdrawals from the pilot group, one of which cited the nature of the programme as the reason. In response to the pilot feedback more local examples were used to illustrate points and greater use was made of SPACE staff to help contextualise the work based learning approach.

Based upon the success of the initial pilot a second cohort of 25 commenced the BA Hons Work Based Learning Studies in Sport and Recreation Management in May 2001 and a third cohort is planned for May 2002. Encouraged by the success of the pilot group SPACE approached Middlesex about the possibility of extending the partnership to cover qualified Nurses and Teachers. The Middlesex experience in the UK suggested that these professional groups were highly appropriate for the work based learning approach and so it was agreed to extend the existing partnership to include customised degree pathways building upon their professional qualifications, including modules from SPACE and the Middlesex core modules (as outlined above for the Sports and Recreation Management pathway). The new pathways commenced with a pilot cohort of 24 in May 2001 and a second entry is planned for May 2002.

Middlesex is highly dependent upon SPACE nominated tutors to act as programme advisers and project supervisors on the Middlesex core modules. Thus a key and ongoing Middlesex input has staff development to enable new staff to quickly become involved in the Middlesex work based learning programme. This has been achieved by a combination of formal staff development sessions, working alongside new advisers and assessors and ensuring that the formal accreditation, programme approval and assessment boards are also valuable learning opportunities.

Conclusion

The case study of the partnership between SPACE and Middlesex highlights the crucial role of structural capital to:

- Enable the two Universities to work together – this required a formal alignment of the structural capital as expressed in the Memorandum of Co-operation and individuals willing and able to exploit the possibilities created by the pooled structural capital.
- Enhance the joint programme offer to provide a unique opportunity to a growing number of professionals in Hong Kong.

Table 16: Mapping of factors for enhancing the intellectual capital of an organization applied to the work based learning partnership between SPACE and Middlesex University and the joint programme offered.

Factor	Partnership	Programme
1. Vision	X	-
2. Leaders	X	X
3. Empower	X	?
4. Culture	X	-
5. Learning Opportunities	X	X
6. Community of Practice	X	?
7. Knowledge Creation	X	X
8. Knowledge Capture	X	X
9. Knowledge Share	X	?
10. Knowledge Use	X	?
11. External Environment	X	X
12. Partnering	X	X
13. Business Focused	X	?
Total x	13	6

1. Strategic vision that highlighted the significance of knowledge was strongly in evidence throughout the development of the partnership. It is not apparent in the Programme as it is driven by the individual participants not their organizations.

2. Leadership in the development of the project came from a range of figures eg Director EAWBLC, Director NCWBLP, SPACE Director and Deputy Director, SPACE Programme Co-ordinators. It continues to be evident in the programme.

3. Empowerment of individuals, within the established structural capital of the two Universities, to create and operate the partnership was present. An organization signature is required to the learning agreement so to this extent there was empowerment.

4. Culture of both Universities was supportive of this innovative development. It is difficult to generalize due to the wide range of organizations involved.

5. Providing learning opportunities of a formal and informal nature about both sides of the partnership was essential. Programme participants were able to find their own learning opportunities.

6. The joint programme teams are gradually emerging as Communities of practice. The programme cohort might be regarded as a very diverse community of practice with a broad interest in work based learning applied to Sport and Recreation Management.

7. Support for knowledge creation was strongly evidenced in partnership development with both Universities wanting to understand how a work based partnership between them might work. The programme provides support for knowledge creation, support across the range of organizations represented by participants seems highly variable.

8. Knowledge capture was also strongly evident in the partnership as both partners sought to learn from each other. Knowledge capture is supported in the programme, especially in relation to the SPACE Diploma, and the Recognition and Accreditation of Learning Module.

9. Two way Knowledge sharing was a key feature of the partnership with Middlesex sharing knowledge about work based learning and SPACE sharing knowledge about the local market, subject and related professional expertise. Opportunity to share knowledge will vary according to the circumstances of individual participants.

10. Knowledge use is essential to the operation of the partnership. The programme supports knowledge use but this will ultimately be determined by individual circumstances.

11. Connection to the external environment was evident in the partnership eg it coincided with an increased emphasis on lifelong learning by the Hong Kong Government. Connection to the external environment is a programme feature.

12. Partnering between East Asia Work Based Learning Centre, NCWBLP and SPACE is fundamental to the development and operation of the programme. Partnering with employers and other associations is likely to vary but is not yet strongly in evidence.

13. The partnership has been fundamental to the achievement of the EAWBLC Business plan. The financial annexe to the Memorandum of Co-operation ensured that the distribution of income generated was agreed in advance. For both partners the partnership is opening up new business opportunities. The programme is structured to enable alignment to business objectives but the extent to which this is achieved is likely to vary from case to case.

At present the real significance of this case study in respect of structural capital is the role it played in enabling the two Universities to work together to provide an innovative programme. The extent to which the programme will contribute to the intellectual capital of the organizations represented by the programme participants remains to be seen.

CHAPTER 6 THE RELATIONSHIP BETWEEN MIDDLESEX UNIVERSITY WORK BASED LEARNING PARTNERSHIPS AND STRUCTURAL CAPITAL

Introduction

The three case studies (Bovis, the Corporation of London and SPACE) have highlighted the significance of structural capital in the development and operation of work based learning partnerships between Middlesex University and three very different types of organization. The case studies indicate that the enhancement of structural capital (of the University as well as the partner organization) is a significant potential benefit of a work based learning partnership.

Structural Capital and Partnership Development

In each of the three case studies there is extensive use of the structural capital of Middlesex University at the partnership development stage to:

- Establish the academic value of learning held as structural capital by the potential partner ie the use of Middlesex University accreditation, especially the distinctive general credit approach, to quantify the learning achievement from formal higher education programmes (SPACE case study), in-house or third party training courses (Bovis and Corporation of London), specially developed in house CD based learning units (Bovis SDP) and organizational core competency frameworks (Bovis).
- Provide models of possible partnerships eg Bovis was initially informed by the simple model of progression from accredited activity to standard work based learning postgraduate core programme; Corporation route 1 is the standard work based learning programme approach.
- Provide frameworks for the operation of partnerships, including how the structural capital of Middlesex would relate to the structural capital of the partner organization in the form of standard templates for Memorandum of Co-operation (Bovis, Corporation, SPACE).
- Provide a validated structure to construct customised work based learning pathways to University qualifications (Bovis, Corporation and SPACE).

The role of the structural capital of the potential partner institution has been to:

- Facilitate the development of the partnership eg by the provision of leadership, access to appropriate decision making bodies, commitment of resources to support partnership development.
- Provide existing learning activity to become part of the joint programme (Bovis, Corporation route 2, SPACE).
- Facilitate alignment to the business needs of the organization (Bovis, Corporation-especially route 3, SPACE).

Thus the interaction and inter-relationship between the structural capital of Middlesex University (especially but not exclusively that of NCWBLP) and the structural capital of potential partner organizations has been crucial in partnership development. The closer the alignment of structural capital that can be achieved the more customised and thus more closely aligned to partners business focus the partnership is likely to become.

Figure 6: Alignment of structural capital and customisation of work based learning partnerships.

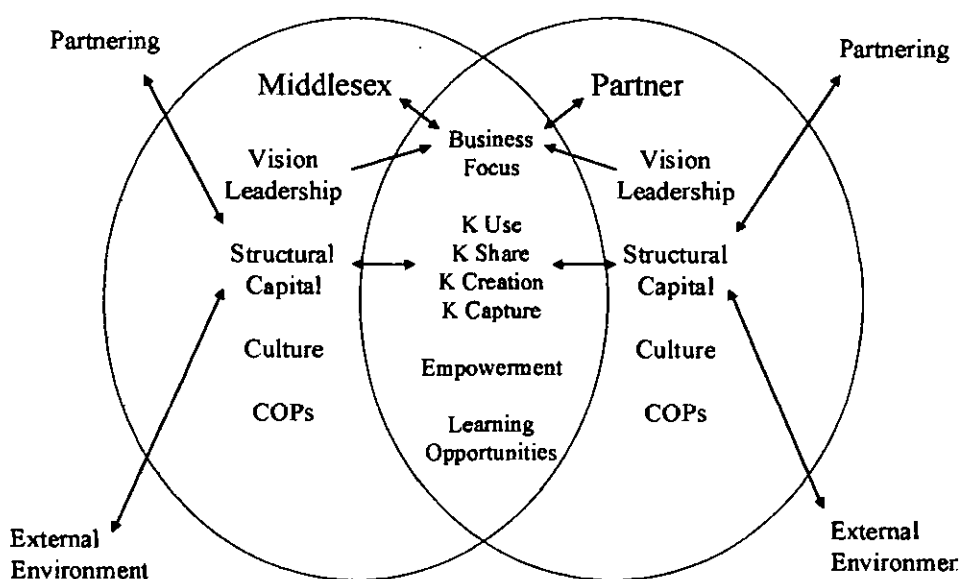


Figure six highlights the role of structural capital in bringing two organizations together and supporting knowledge based activity in the partnership (ie the area where the two circles overlap).

The case studies also highlight the importance of the roles of individuals in bringing together and effectively utilizing structural capital in order to develop the partnership.

Thus while the central argument of this report relates to the importance of structural capital it is essential to realize that structural capital facilitates (or in some cases frustrates) the endeavours of individuals and groups. Structural capital influences but it needs individuals and groups to use the structural capital in order to achieve the objectives of the organization. Structural capital needs active agents who understand it, are motivated and have the opportunity and ability to use it.

Structural Capital and partnership operation

In partnership operation the structural capital of Middlesex University appears most effective in dealing with the academic operation and quality assurance of the work based learning studies programme. The focus of this report has been on the potential of the Middlesex approach to work based learning and the elements of structural capital which support it (see chapters 3 and 5). It should be recognized that there are problematic areas outside the main focus of this study arising from the significant difference between the requirements placed upon the administrative structures of the University by a customised, off-campus, work based learning partnership approach and the mass market needs of individual students who follow traditional programmes on campus. The case studies suggest that use of the administrative structures of partner organizations can help mitigate this difficulty eg the bulk of the administration for the SPACE partnership is carried out by SPACE and the EAWBLC.

The distinctive Middlesex approach to work based learning as a field of study means that the programme is well suited to supporting work based knowledge creation, capture and use:

- The Recognition and Accreditation of Learning module provides a facilitative structure for the identification and accreditation of learning from work (paid and unpaid) of individuals; requiring the application of reflection to experience in order to identify learning (Bovis phase 2 and 3, Corporation route 1 and SPACE). This is potentially a knowledge creation as well as a knowledge capture exercise as it can facilitate the conversion of tacit knowledge to explicit knowledge which can then be shared. The Bovis case study illustrates how this approach can be further customised to the needs of the organization through alignment to organizational core competencies.
- Programme Planning Module. Through the negotiation of a learning agreement this module has the potential to facilitate individual empowerment, access to learning resources, links to the external environment, a business focus and a platform for the sharing and use of knowledge within the organization ie it is an opportunity to secure significant structural capital support for the programme not just from the University but also from the partner organization. In practice it appears that this range of benefits is going to be difficult to achieve unless the rationale for the programme in terms of business benefit is accepted by an appropriate decision maker.
- Work Based Research and Development Module. This module directly addresses issues of knowledge creation and culture through the central concept of the "worker researcher". It has the potential to facilitate knowledge use and knowledge sharing.
- Work Based Project. All the case studies suggest that the work based project has the potential to enhance the structural and hence the intellectual capital of the partner organization. Although the project is represented in programmatic terms as a discreet entity from the preceding modules it would be a mistake to think

that it could be simply extracted from the other components of the Middlesex approach. In the Middlesex approach the project is grounded in the work based learning of the individual (RAL module), focused on the business and supported by the structural capital of the organization (Programme Planning module) and refined as a purposeful knowledge creation project (Work Based Research and Development module).

Table 17: The Work Based Learning Core modules as facilitators of the development of Intellectual Capital

Factor	RAL	Prog Pl	Res Meth	Project
1. Vision	-	X	-	?
2. Leaders	-	X	-	?
3. Empower	X	X	X	?
4. Culture	-	?	?	?
5. Learning Opportunities	X	X	X	X
6. Community of Practice	-	?	?	?
7. Knowledge Creation	X	X	X	X
8. Knowledge Capture	X	-	X	?
9. Knowledge Share	X	X	X	X
10. Knowledge Use	X	X	X	X
11. External Environment	X	?	X	?
12. Partnering	-	X	?	?
13. Business Focused	?	X	X	X
Total x	7 to 8	8 to 11	8 to 11	5 to 13

1. Strategic vision. The programme should ideally be aligned to strategic vision at programme planning stage.
2. Leadership. The programme should ideally be aligned to an appropriate champion/decision maker at programme planning stage. This will directly enhance the potential impact of the project if it is seen as a commissioned piece of work.
3. Empowerment can be explicitly gained at programme planning stage.
4. Culture is considered, especially in programme planning and research methods. An individual programme is unlikely to impact upon the culture of an organization.
5. Providing learning opportunities- enhanced awareness of the learning opportunities at work is central to the programme.
6. Communities of practice. The extent to which the core modules can tap into existing work based communities of practice or create a programme based on one depends largely on the structural capital of the partner organization.
7. Support for knowledge creation is a constant focus of the programme. It is most explicit in the research and development and project modules.
8. Knowledge capture is explicitly supported in the RAL and research and development modules.

9. Knowledge sharing is facilitated by all the modules.
10. Knowledge use is the guiding rationale for all the core modules.
11. Connection to the external environment is likely to be addressed in RAL and the Research and development module. The significance to the project is likely to vary.
12. Partnering is fundamental to the programme and is made explicit in programme planning in the learning agreement between the individual, the University and the Organization.
13. Business focus should be central to the programme planning module and hence to the project and by extension the research and development module.

Not all these elements have to be represented as modules but for the project to achieve its fullest expression in terms not just of knowledge creation but also dissemination and use all the elements (see figure 7 below) of the core programme need to be addressed:

1. Learning Review – personal knowledge and skills audit in order to establish what knowledge and skills the individual brings to the programme which may be applicable to it.
2. Programme Planning – alignment to business focus, stakeholder commitment and access to related structural capital.
3. Work based research and development methods – plan for knowledge creation/capture and use utilizing and enhancing the structural capital of the organization.
4. Project – knowledge creation (drawing from structural capital), dissemination (using structural capital to communicate) and use (potential benefit to structural capital).

If the project is a collaborative one then the project team rather than individual programme participant become the active agents and the four stages corresponding to the four work based learning core modules apply across the team.

Figure 7: The work based learning project as the climax of the work based learning approach.

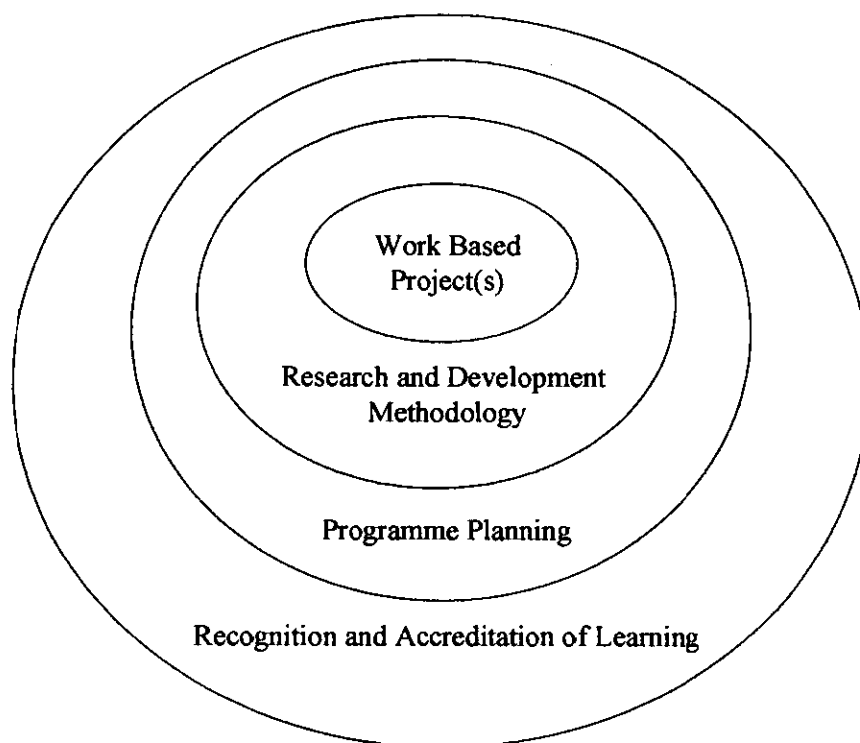


Figure seven shows the work based project as the apex of understanding developed through the other core modules.

The use of the structural capital of the partner organization in the operation of the work based learning partnership is to:

- Support the partners accredited learning activity (eg Bovis MDP, Corporation route 2, SPACE).
- Facilitate communication, between the University and participants and between participants.
- Facilitate the provision of learning opportunities, knowledge creation and knowledge capture (ie this reinforces and is reinforced by the work based learning core modules, especially programme planning).
- Provide appropriate organizational learning resources (eg Bovis, the Corporation and SPACE all have significant library and IT based resources).
- Facilitate knowledge dissemination and use within the organization.
- Provide an interface with the structural capital of the University that is customised to the needs of the organization and individual participants.

All of the above are present to a greater or lesser extent across the three case studies. The list illustrates the potential of the Middlesex approach to utilize the structural

capital of partner organizations (in effect making it the customer capital of the University).

Table 18: A comparison of the distinctive features of work based learning (Boud and Solomon, see chapter 2) and the three case studies.

Feature	Bovis	Corporation	SPACE
1.Partnership to foster learning	X	X	X
2.Learners are employees of the partner and negotiate learning plans	X	X	Not the employer
3.Programme derived from needs of the workplace and the learner	X	X	SPACE Diploma is subject discipline driven
4.Starting point and level determined after structured review of learning	Core competency approach made this concurrent with other parts, guide to entry level was accredited course.	X for Route 1 only Route 2 determined by level of accredited course Route 3 not bound by level	Starting point and entry level determined by accredited SPACE Diploma
5.Work Based Projects	X	X	X
6.Assessment by the educational institution	X, but also by Webb Associates	X for Route 1 Route 2 is shared Route 3 may not involve summative assessment	X but this involves both partners as both are educational institutions

While the table indicates broad correspondence with the standard features of work based learning partnerships it is important to note the following distinctive features:

- Middlesex partnerships all involve others as providers, and hence assessors, of high level learning (eg Bovis, Corporation Route 2, SPACE).
- Middlesex partnerships have the potential to use the intellectual (especially structural) capital of partners as customer capital.
- Accredited courses rather than individual accreditation can be used to determine level of course entry (eg Bovis, Corporation Route 2, SPACE). This is a key feature of the customisation of a partnership with Middlesex.
- Accreditation of learning from experience does not always have to be the first stage of the course (eg Bovis phase 2). The accreditation of organizational

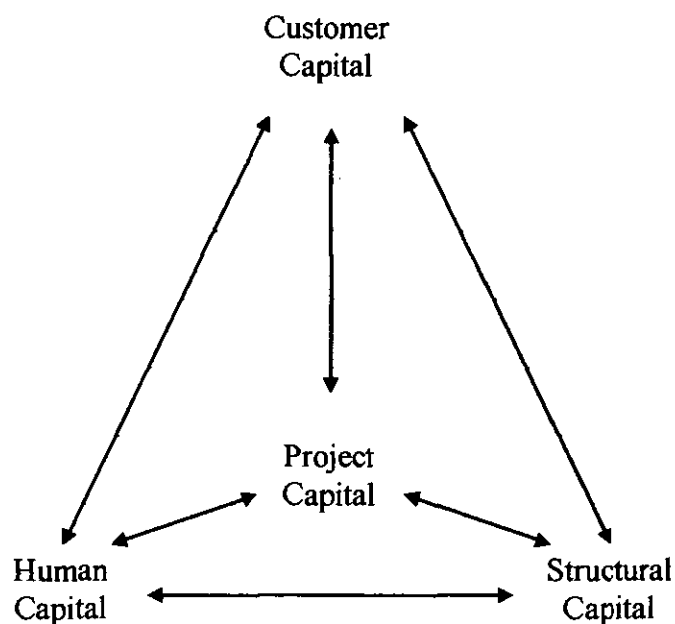
competency frameworks extends this approach beyond accreditation to determine point of course entry.

- Middlesex projects focus on work based learning to create knowledge of value to the work situation- they are thus intimately linked to decision making and the use of structural capital.

The engagement with the structural capital of the partner organization which is a distinctive feature of the Middlesex approach provides a much fuller expression of partnership than that identified by Boud and Solomon (2001).

All the case studies demonstrate the potential of the work based project to contribute to knowledge creation, often by impacting upon structural capital. It is interesting to note that the project is a robust knowledge creation vehicle which is not dependent upon the full range of factors identified in chapter 2 as enhancing the development of intellectual capital. The project serves as a focal point for the application of human, structural and customer capital as it has a definite end product which can be used by the business. In order to highlight the importance of the knowledge creating project to the Middlesex approach to work based learning and the contribution it can make to intellectual capital I have used the term “project capital”. Project capital is transitory, it has a beginning and an end. It draws upon human, structural and often customer capital and in turn often contributes to all three (see figure 8 below). It energizes and directs the other forms of intellectual capital to meet the needs of the business.

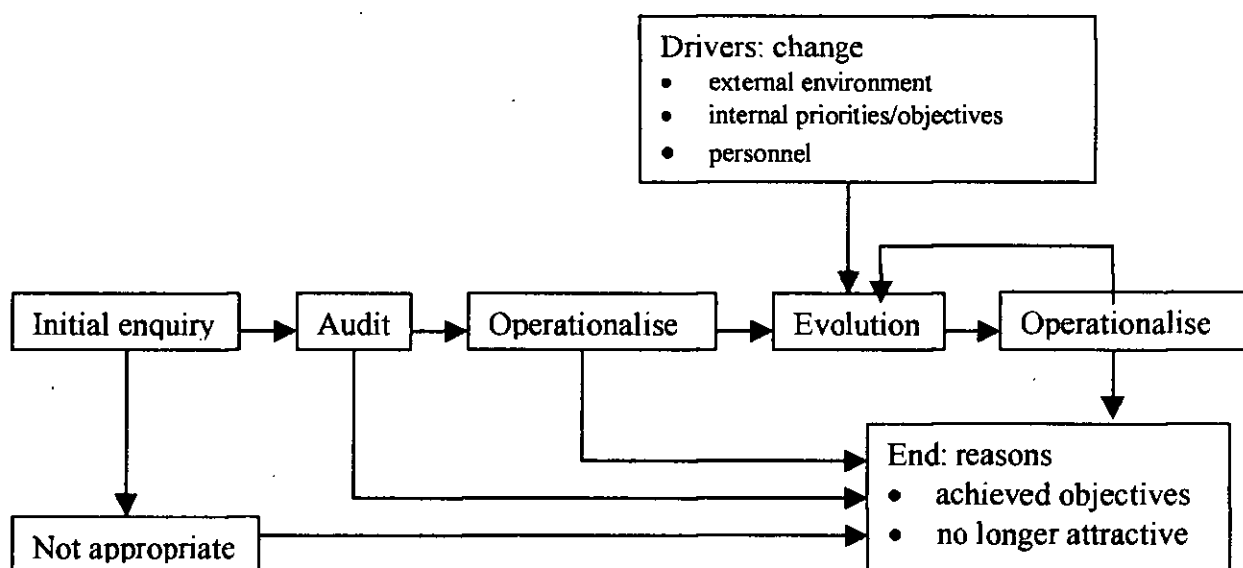
Figure 8: The central role of Project Capital



Limitations and opportunities suggested by the case studies

The Bovis Case study is particularly interesting as it spans a seven year period during which it extended in scope and customisation and then contracted. The Corporation case study demonstrated the need for the partnership to respond to organizational restructuring. This suggests that a partnership approach which seeks close alignment of structural capital in order to achieve a high degree of customisation must be sufficiently flexible and responsive to change in order to maintain relevance to the partners business. This need to understand and respond to the business needs of other organizations is very different from the demands traditionally placed upon the University as the monopoly provider of predetermined and prescribed courses and makes particular requirements on the human and structural capital of the University. The Bovis and Corporation case studies indicate that the structural capital of Middlesex University is sufficiently flexible to allow for change in response to new partner needs. Figure nine below illustrates a model for the development and evolution of a work based learning partnership. The case studies illustrate the need for the University to pay attention to the drivers for change and the range of responses available.

Figure 9: The development and evolution of a work based learning partnership

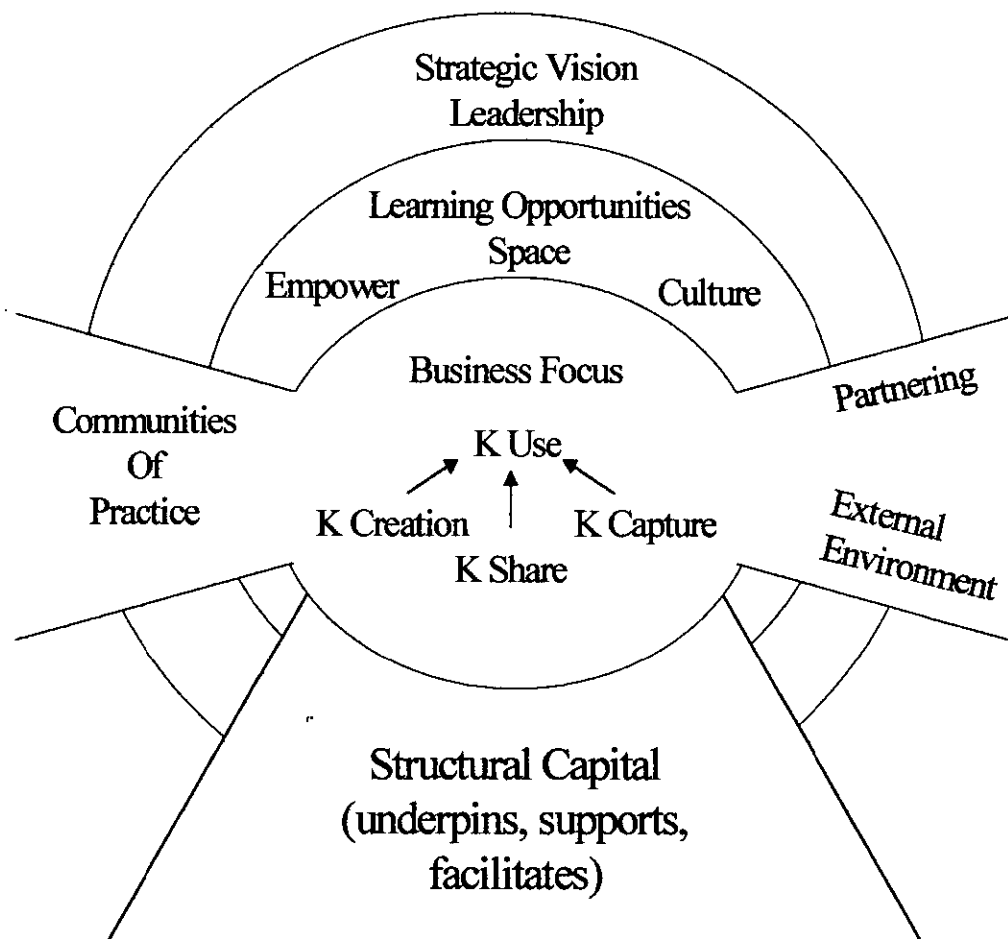


Generalization and Transferability

Abductive reasoning has been applied to deepen understanding of the Middlesex approach to work based learning by relating three specific case studies Bovis, the Corporation and SPACE to the broader concepts of structural capital, knowledge management and work based learning partnerships (identified in chapter 2 and depicted in Figure 10 below). The case study methodology recognizes that Middlesex and each of the partner organizations are complex social, political, economic and goal driven entities within which unique actors respond to and impact upon their environment (especially structural capital). The case studies and the structural capital focus of this report are framed within a knowledge management paradigm. This is not to suggest that the work based learning approach is not highly relevant to other agendas and other discourses. The case study organizations were chosen to illustrate that the Middlesex approach to work based learning and the relationship with intellectual capital in general and structural capital in particular is applicable in the local government and educational as well as the commercial sector. The case studies provide illustration and explanation to inform future action.

It is suggested that the case studies provide new insight into the development and operation of work based learning partnerships and indicate how this might be a way in which Universities can make a contribution to the development of intellectual (especially structural) rather than just human capital. The 13 factors for enhancing intellectual capital identified in chapter 2 have served to highlight the relationship between the work based learning partnerships and intellectual capital.

Figure 10: Structural capital supporting and facilitating the development of intellectual capital



A core proposition developed in this report is the distinctive nature of the Middlesex approach to work based learning. The foundation of the claim to distinctiveness is the acceptance by the University of work based learning as a field of study. Consideration of theoretical generalization must take into account this fundamental feature of the Middlesex work based learning structural capital and the implications it holds for transferability.

CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

The Middlesex work based learning structural capital asset has been accumulated and refined over a ten year period and represents a significant strategic investment by the University. The value to the University in terms of student numbers and prestige is evidenced in chapter 3 and illustrated in the case studies (chapter 5). Examined in the light of the intellectual capital and knowledge management concepts identified in the literature review (chapter 2), the case studies highlight a close two way relationship between the Middlesex approach to work based learning and the use and potential enhancement of the structural capital not only of the University but critically of the work based learning partner organization.

The case studies suggest that the Middlesex approach to work based learning represents a major structural capital asset which facilitates:

- A high degree of customisation of programme design, especially due to Middlesex use of accreditation and employer signed learning agreements.
- The use of the structural and human capital of partner organizations, making them customer capital assets of the University.
- The capacity to evolve the structure of the partnership programme in response to changing partner needs.
- The development of the intellectual capital of the partner organization, especially through knowledge creating projects of a research and development nature.
- The enhancement of the intellectual (especially structural) capital of the University eg developing the Bovis partnership highlighted the relationship between work based learning and organizational development and the possibility of applying accreditation to organizational core competencies; provision of practice based insight to knowledge management

Much of this project has been exploratory in nature and thus the range of conclusions and recommendations are broad, many relate to enhancing the structural capital of the University:

Conclusion 1: Middlesex University has a distinctive and successful approach to work based learning which encompasses the full range of University qualification levels and is capable of working overseas. There is an opportunity to further enhance the distinctiveness and effectiveness of the work based learning (Work Based Learning Studies and Doctorate in Professional Studies) curriculum by drawing upon current intellectual capital and knowledge management thinking with the specific intention of refining and highlighting the potential of the curriculum to contribute to the structural capital and of organizations.

Recommendation 1: That the Work Based Learning Studies core modules be revised to make explicit and enhance the linkage and potential impact upon

structural capital. Action: to be considered by the WBS Subject Group and progressed as part of the WBL Development Project.

Recommendation 2: That the Doctorate in Professional Studies Programme Planning module be revised to make explicit and enhance the linkage and potential impact upon structural capital. Action: to be considered as part of the DProf review and progressed as part of the WBL development project.

Recommendation 3: That consideration be given to the development of an MProf in Knowledge Leadership. Action Director NCWBLP in consultation with Dean LLE.

Conclusion 2: The breadth and depth of the work based learning curriculum offered by Middlesex offers practice based insight to the development of intellectual capital, especially the development and use of structural capital. This experience and developing expertise has the potential to form the basis for consultancy and CPD activity. The practice based approach focusing on real life projects with the capacity to contribute to structural capital would be a distinctive Middlesex response to the knowledge needs of organizations. Focusing on a work based learning “approach”, which was specifically designed to engage with and enhance the structural capital of organizations, rather than just award bearing programmes would significantly extend the way in which the University could engage with organizational partners. This idea has already been considered and endorsed by the NCWBLP Advisory Group and a short course “Introduction to Knowledge Management” successfully piloted at the Corporation of London.

Recommendation 4: That a consultancy tool based upon a work based learning project approach to enhancing structural capital be developed. Action: Director NCWBLP.

Recommendation 5: That the pilot introduction to knowledge management short course be refined in the light of the final version of this report and repeated for another organization. Action Director NCWBLP and Head of Business Development in consultation with MUP.

Conclusion 3: NCWBLP insight into the relationship between work based learning and intellectual (especially structural) capital provides a major research opportunity which has the potential to attract external funding (eg the current ESRC call for proposals relating to “the evolution of business knowledge”). This should be developed as a priority by NCWBLP in partnership with others across the University and with key external partners.

Recommendation 6: That the relationship between work based learning and intellectual capital is a core theme of NCWBLP Research Centre activity. That particular emphasis be placed upon the relationship between work based learning and structural capital (both its enhancement and limitations). Action: Head of

NCWBLP Research Centre in consultation with Director NCWBLP and Research Centre members.

Recommendation 7: That the capacity to mount bids relating to business knowledge (intellectual capital) be developed by NCWBLP and on a pan-University basis. Action: Head of NCWBLP Research Centre in consultation with Director NCWBLP and Director of Research and Postgraduate Studies LLE.

Recommendation 8: That consideration be given to the structural capital required to support a pan-University research facility focusing on the nature and development of structural capital. Action: Director of NCWBLP to develop a proposal for consideration by Deputy Vice-Chancellor.

Recommendation 9: That further research be undertaken on the role of pre-understanding, organizational decision making and bounded rationality for appropriate methodologies and signifiers of validity for work based knowledge projects. Action Director NCWBLP and Head of NCWBLP Research Centre.

Conclusion 4: Work based learning partnerships can be conceived as having a number of stages which will include development, operation and obsolescence or evolution. In order to extend the commitment to the partnership over time and in response to changing circumstances it is necessary for the form of the partnership to evolve in order to try and retain and if possible increase the linkage to the business focus of the partner. The imperative to achieve alignment with the business focus of the partner organization thus has importance not just at the initial design stage but also at the operational stage. The insights gained into the facilitating role of partner structural capital could be developed to provide better advice to potential partners and to assist the University in making judgements about the potential for partnership development. This places a premium on the range and flexibility of the structural capital of the University and the ability of University staff to use and if necessary develop the structural capital appropriately.

Recommendation 10: To develop a structural capital checklist to assist in partnership design and operation. Action Head of NCWBLP Business Development and Director NCWBLP to draft for consideration by Dean LLE and Deputy Vice-Chancellor.

Recommendation 11: To modify the background information required as part of the accreditation proposal to focus on structural capital features which would be likely to facilitate partnership development. Action Director NCWBLP for consideration by the Deputy Vice-Chancellor.

Recommendation 12: To apply the facilitating factors for knowledge creation to the work based learning development project. Action Director NCWBLP and WBL Project Steering Group.

Conclusion 5: The relationship between the Middlesex approach to work based learning and the development of structural capital has considerable marketing potential given the large knowledge management market.

Recommendation 13: A plan to capitalize on this linkage should be developed. Action Head of NCWBLP Business Development in consultation with Director NCWBLP.

Conclusion 6: The SPACE case study illustrates the potential of WBS as a top up to significant sub degree level programmes. This is a model which appears to have potential for development with the Associate Colleges of the University.

Recommendation 14: A model drawing upon the SPACE case study is developed for discussion with the Associate Colleges. Action Director NCWBLP and Head of Business Development to produce model for consideration by Deputy Vice-Chancellor.

Conclusion 7: The case studies effectively illustrate key features of the Middlesex approach to work based learning, its relationship to structural capital and knowledge management.

Recommendation 15: Case study summaries are prepared for staff development (internal and external eg partner organizations) and marketing purposes. Action Director NCWBLP and Head of Business Development.

Recommendation 16: The Corporation and SPACE case studies are developed as collaborative articles for academic publication. The project report be developed into a book proposal. Action: Director NCWBLP.

Conclusion 8: The ability to exploit the relationship between the Middlesex approach to work based learning and structural capital will depend upon the ability and motivation of individuals in NCWBLP and elsewhere in the University. Staff development will be required to help others realize the potential offered by the structural capital of the University in respect of work based learning.

Recommendation 17: A staff development programme on the theme of the relationship between the Middlesex approach to work based learning and structural capital be developed, for NCWBLP Academic Group and the WBL Project Developers network in the first instance. Action: Director NCWBLP.

(Word Count: 33,778)

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APPENDICES

Introduction

The appendices illustrate different types of outputs associated with the project work. They address different audiences and have different purposes but each is an illustrative of the potential for impact of the project.

Appendix I Capitalising on the potential of work based learning

A joint paper prepared for consideration by the Academic Planning and Corporate Strategy Committee. This was a joint paper with the Assistant Vice-Chancellor and the Dean of the School of Lifelong Learning and Education. I was the junior partner in this collaboration but the lead author of the detailed proposition (pages 2-4). The approval of the proposal demonstrates the strategic significance of work based learning to the University. The paper highlight significant areas of activity which need to be addressed:

- Curriculum and materials development
- Research and consultancy
- Staff development.

This project is of direct relevance to the areas identified in the proposal.

Appendix 2 Work based learning and the intellectual capital of universities and employers

A paper produced for publication in an academic journal and aimed primarily at an academic audience. I was sole author. The paper introduces the application of intellectual capital concepts to University work based learning partnerships.

Appendix 3 The introduction to the City of London Corporation of a work based learning approach to individual and organizational development

A joint paper prepared for the Steering Group of the City of London Corporation Work Based Learning Project. I was lead author. For a discussion of NCWBLP team roles and significance of the paper see Case Study 2 in chapter 5. **Not included in public access copy.**

ACADEMIC BOARD

ACADEMIC PLANNING AND CORPORATE STRATEGY COMMITTEE

CAPITALISING ON THE POTENTIAL OF WORK BASED LEARNING

1. This topic was discussed at the last meeting of APC. Since then some further work has been done which has lead to the attached proposal.
2. The proposal shows that for an initial net investment of £128,500 over two years, a new income stream of £246,400, or more, can be opened up. The proposal also shows that the project covers its investment costs in year 3.
3. It is recommended that this project should go ahead, in view of the strong payback to the University and the strengthening of the University's programmes which results.

Terry Butland
Richard Tufnell
Jonathan Garnett

7/2/2001

cc Richard Tufnell

J. Garnett
Signature

from T. Butland.

NCWBHP Academic Group:

For information this is the paper Richard & I will present to the committee on 15/2

Jonathan
12/2

Good news - It was passed by APCs - now all that has to happen is for it to be worked into the budget!

Capitalising on the potential of Work Based Learning

Introduction

It is recognised that Middlesex University has a unique strength in the area of work based learning. This strength has been exploited to:

1. increase part time student numbers, particularly at postgraduate and Professional Doctorate Level through the programmes offered by NCWBLP;
2. increase the number of overseas students eg Greece, Hong Kong and Cyprus;
3. enhance the curriculum offer of other Schools in the University, most notably by HEBES where WBL has been used to provide top up routes and component parts within innovative degree programmes as well as for CPD and more recently by ADPA where the WBL approach is central to MAPP and Social Science in respect of Environmental and Trade Union programmes;
4. begin to develop a distinctive research profile for NCWBLP; and
5. develop partnerships with external organisations eg Professional Development Foundation, Bovis, Corporation of London, Institute of Marine Surveyors, Forum for the Future who might not otherwise have been attracted to Middlesex.

There is also evidence that there is scope to develop consultancy in the use of a work based learning approach for individual and organisational development.

To date NCWBLP has led these developments and the delivery of programmes. If the University is to fully capitalise the potential of Work Based Learning (WBL and MProf/DProf) expertise needs to be spread more widely across the University and successful initiatives need to be reinforced and made more cost effective by, for example, customised learning materials.

Proposal

This, two year pan-University work based learning development project, seeks to exploit the position which has been established to:

1. provide staff/curriculum development for all Middlesex Schools and collaborative partners (linking with HEROBAC and Learning and Teaching Strategy initiatives);
2. establish and support a network of School and Service work based learning developers;
3. ensure that the University's administrative and financial processes are responsive to the requirements of work based learning;
4. support the work of established overseas Centres in Greece and Hong Kong and developing initiatives in Cyprus, Australia and the EU;
5. investigate the potential for new overseas centres;
6. provide customised programme materials on-line and in hard copy;
7. investigate the potential for the use of an on-line expert answering system and develop such systems; and
8. develop inter school-capability to engage in research and consultancy in the area of individual and organisational learning.

The Structure of the Project

Establish a Development Team with two full-time staff. The Project team will consist of:

- An academic with first hand experience of work based learning to act as Project Officer; (This may be a current member of the University's academic staff seconded to the project for a two year period or may be recruited externally.)
- An administrator with first hand experience of work based learning to act as a project administrator ; (This may be a current member of the University's administrative staff seconded to the project for a two year period or may be recruited externally.) and
- a network of School WBL developers.

The Development Team will have a budget to pay for work internally and externally. The Project Officer will be line-managed by the Dean of Lifelong Learning and Education via the Director of NCWBLP. The project steering group will consist of: Head CLD, Head MUI, Dean of LLE and Director NCWBLP. The projects budget will be managed by the Project Officer in consultation with the DORA of LLE.

Outcomes

Year 1

1. Minimum of 12 staff development sessions held
2. Establish and support network of School WBL developers
3. Minimum of 4 new programmes being developed including a work based learning approach or specialist DProf pathway
4. Interim report on the effectiveness of the University's financial and administrative systems and procedures in relation to the continued development of work based learning
5. Increased enrolment (50) of overseas WBS/DProf students for current academic year and recruitment of an additional 100 for the following year.
6. Feasibility study of a new overseas centre, including identification of an appropriate partner
7. Production of on-line and hard copy materials for part 1 MProf/DProf with the potential use on specialist DProf pathways developed outside NCWBLP
8. Production of all WBS core modules on-line and enhanced hard copy
9. Feasibility report on development of expert system
10. Development of inter-school research and consultancy offer for pilot

Year 2

1. Minimum of 8 staff development sessions held
2. Support network of School WBL developers
3. Support launch of 3 new programmes and contribute to development of at least a further 3
4. Final report on the effectiveness of the University's financial and administrative systems and procedures in relation to the continued development of work based learning - to include recommendations

5. Increased enrolment (90)of overseas WBS/DProf students and recruitment of an additional 160 for the following year
6. New overseas centre launched (subject to approval of business case)
7. Feasibility study of a second new overseas centre, including identification of an appropriate partner
8. Customisation of WBL materials for major external partners
9. Pilot of inter-school research and consultancy offer

Project Budget

A spreadsheet is provided which indicates the costs of the project and the likely surplus via the increase in overseas students which the project projects.

Income surplus is based upon an average 1.4k profit per overseas student (40% year 1 and 60% in year 2). Surplus on additional UK students will be variable and has not been included in this analysis. There will however be an additional income surplus from home students. Additional consultancy income could also be expected by year 2. Given these factors, the income forecast is conservative.

Work based learning and the intellectual capital of universities and employers

Jonathan Garnett

The author

Jonathan Garnett is a Director, National Centre for Work Based Learning Partnership, Middlesex University, London, UK.

Keywords

Workplace learning, Universities, Partnering, Knowledge management

Abstract

This paper draws upon the extensive operating experience of work based learning programmes by the National Centre for Work Based Learning Partnerships (NCWBLP) at Middlesex University to identify the potential for work based learning to contribute to the intellectual capital not only of employer partners but also to the university. The paper argues that work based learning has the potential to provide the university with a unique opportunity to develop a new kind of knowledge based partnership. The characteristics of such partnerships are discussed with reference to the description of intellectual capital advanced by Stewart and the typology of work based learning put forward by Portwood.

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Introduction

In the age of the "knowledge driven economy" and the "corporate university" the creation and evaluation of knowledge is now recognised as too important and all pervasive to be left to higher education. The once elite knowledge workers of the university are now joined by management gurus, chief executives and stock market analysts seeking to leverage and evaluate the "intellectual capital" of organisations (Davenport and Prusak, 1998). Thomas Stewart (1997) divides intellectual capital into:

- Human capital – concerned with knowledge and capabilities of individuals and groups of workers (a key issue is making individual tacit knowledge explicit).
- Structural capital – the means by which the organisation captures, develops, codifies and shares knowledge so that it can be effectively applied.
- Client capital – systems and processes by which the organisation taps into the human and structural capital of client organisations (e.g. suppliers, partners, customers).

It is not the intention of this paper to provide a full exposition or critique of Stewart's work on intellectual capital. Stewart's three categories are used as a descriptive tool and to provide a simple framework to analyse the impact and value of university facilitated work based learning to organisations working in partnership with the university. The use of Stewart's three simple categories helps highlight the relationship between human, structural and client capital. In particular the notion of client capital is useful when considering the role of work based employer/university partnerships. It is important to note that while intellectual capital as described by Stewart clearly relates to paid and profit orientated employment its use in this article is not intended to imply that work based learning is limited to business.

The role of the university – human, structural and client capital

The role of the university has conventionally been to develop the individual student and thus, depending upon the extent to which the

course is also vocational preparation, to explicitly or implicitly contribute to the intellectual capital of a future employing organisation. Recently the focus on the university as provider of continuous professional development (CPD) has extended and sharpened this link but has not fundamentally impacted upon the role of the university as knowledge provider. In Portwood's (1993) terms it is now commonplace for the higher education curriculum not only to be "transported" to the workplace but also "translated" for use in the workplace. The current emphasis on gradueness and graduate employability (DfEE, 1998) has highlighted the value of collaborative as well as individual academic endeavour and placed a premium on skills which were formerly implicit rather than explicit in being a graduate. Yet this is still a "translation" often carried out as a bolt-on within existing discipline based courses; i.e. it is in essence drawing solely upon the existing intellectual capital of the university and applies it to develop human capital of the student.

Work based learning offers the opportunity to fundamentally extend the intellectual capital of the university. Focusing on a university work based learning programme as a process for recognising, creating and applying knowledge through and for work rather than simply at work challenges the position of the university as sole validator and evaluator of high level knowledge. The criteria for success for this type of work based programme have not only to satisfy the academic scrutiny of the university but also to fully embrace the supercomplexity (Barnett, 1999) of the specific context and demonstrate fitness for purpose at the level of the individual, the immediate community of practice and in some cases the wider professional community. The need to demonstrate "fitness for purpose" typically not only requires traditional higher education cognitive abilities (analysis, synthesis, evaluation), but also demands that these be applied within complex situations to maximise resource effectiveness while taking into account stakeholder expectations and time constraints. This focused application of knowledge challenges the traditional role of the university in the recognition and evaluation of high level (high status) knowledge.

It can be argued that constructing work based learning as a university programme of study perpetuates the power base of the university; i.e. while work based learning may incorporate experiential learning or in-company courses it is still the university which provides the recognition and academic value through accreditation and ultimately through the award of an academic qualification. This argument is not without weight but it does not do justice to the extent to which work based learning is challenging the intellectual dominance of the university (Costley and Portwood, 2000). Not only does work based learning demonstrate alternative and equally valid ways to acquire and exhibit higher level learning, it also recognises the intellectual and hence academic legitimacy of critical thought leading to critical action (recognised as the hallmark of higher level learning by Barnett (1997)) within the context of "bounded rationality" provided by the imperatives of the real life situation (Simon, 1976). The key difference between traditional university knowledge production and the traditional "lower" level knowledge of the practitioner rests within the confines of our understanding of the complexities of the boundaries to rational, in the sense of pure research, enquiry. An important part of the boundary definition for work based learning is "fitness for purpose" i.e. a solution to a real life problem may not have been "fully researched" but sufficient may have been discovered within the confines of the time and resources available to take critical action based upon critical thought. For a work based learner a vital part of the critical analysis leading to critical action is the exploration and consideration of "bounded rationality".

The real challenge to the university is not that work based learning provides a novel alternative route to university qualifications but that such a university validated route should also have to meet the needs of employees who are also students as well as employers who are also developers and users of the high level knowledge incorporated in and generated by the work based programme. Such a programme would be the genuine knowledge based partnership envisaged by Portwood (1993) and evidenced by Boud and Solomon (2000). This draws the university beyond the arena of human capital into the less well understood areas of structural and client capital.

At the familiar level of the individual student it is not difficult to conceive that an individual work based programme might impact upon the immediate sphere of operation of the student employee. The intellectual capital lens focuses our attention on the structures required within the organisation to ensure that learning of significance to others is made explicit and available where and when needed. The significance of this is well understood in knowledge management literature (e.g. Myers, 1996) but is less frequently translated into practice when considering either the development, delivery or the impact of the higher education curriculum.

At Middlesex part of the structural capital of the university is the validated framework of work based learning modules and the mechanisms for accreditation of learning and coconstruction of individually customised programmes via learning agreements. Within this structural framework programmes are designed to enhance the human capital of the individual student and the university is dependent upon the human capital of its employees to facilitate and support the programme. At the core of the work based programme is one or more major work based projects. The project demonstrates the ability to create and apply work based knowledge and adds to the structural capital of the employer. By partnership with the university the employer is clearly drawing upon the client capital of the university in order to enhance its own human and structural capital. Less obviously the university, through the structural capital of its accreditation procedures, has the potential to access the client capital (e.g. in the form of training courses) of the employer partner. It is the contribution of the project to the structural capital of the employer partner as much as the development of transitory human capital which is emerging as the distinctive "added value" of a work based learning partnership with Middlesex University.

Work based learning programmes and intellectual capital – an example

The established work based learning partnership between Middlesex University and a leading international construction management company effectively illustrates

the potential of work based learning to challenge the deficit model of education by recognising and then extending the intellectual capital of the company and the university (Garnett *et al.*, 2000). The company originally approached Middlesex seeking accreditation for their Management Development Programme i.e. seeking to enhance its structural (the course) and human (course participants) capital via the use of client capital (accreditation structures) of the university. Middlesex was able to accredit the programme as carrying academic credit points at postgraduate level. Further discussions about the development of a postgraduate scheme for managers identified the "core competencies" developed by the company as a potential key source of organisational learning which the company wished to be incorporated into the programme. The learning underpinning competent performance in the competency areas was identified and accredited (see Garnett (1998) for a discussion of APEL and competency frameworks) i.e. client capital provided by Middlesex was used to codify and thus enhance the structural capital of the company. The accredited learning (client capital from the point of view of Middlesex University) provided over half of the stock of learning available to employees embarking on a Middlesex work based learning masters programme.

The company highly valued the customisation of the scheme to reinforce and further develop knowledge and skills which are at the heart of its performance management scheme. Research carried out by the UK training manager of the company showed that participants in the postgraduate scheme had a much better understanding of the organisation's core competencies and were better able to relate them to their work than any other group by role or seniority within the organisation. The work based projects provide the company with a significant in-house research and development capacity which can draw upon university support. Each participant was required to undertake a work based project of a research and development nature which was of relevance to their current work role and of wider interest within the organisation i.e. knowledge creation within bounded rationality enhancing human and structural capital of the organisation. Projects often had the potential to improve performance and thus produce a direct bottom

line benefit e.g. by improving reporting and thus the ability to learn from construction defects.

This example highlights the interplay between the use of client capital by the university (i.e. the company course and competency framework) and the use of client capital by the company (i.e. the human and structural capital of the university deployed in the development and support of work based learning programmes). The scheme has greatly enhanced the intellectual capital of the university by providing a model of partnership which is based around organisational core competencies. This has transformed the NCWBLP approach to Accreditation of Prior Experiential Learning (APEL) by providing a corporate dimension to what was previously a highly individualistic process (Garnett, 1998). The scheme has also demonstrated how the university can benefit from the client knowledge and industry expertise of an independent training provider (a further extension of client capital by the university).

Conclusion

The discussion of work based learning in intellectual capital terms gives due prominence to the important role of the university in contributing not only to human but also structural capital by acting as a source of client capital. The concept of client capital can usefully be applied to use of employee/employer learning accredited and used by the university. The reciprocal use of learning resources (human and structural capital) is fundamental to genuine work based learning partnerships. The essence of the learning partnership has to be that it offers added value to both partners through the development of joint provision which is unique to that particular partnership and makes a genuine contribution to the

intellectual capital of each of the partners. In the typology of work based learning advanced by Portwood (1993) such a partnership would necessarily result in the transformation of the higher education curriculum as it is no longer solely the construct of the university.

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Jonathan Garnett
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