# MANAGEMENT EDUCATION AND TRAINING FOR REFURBISHMENT WORK WITHIN THE CONSTRUCTION INDUSTRY

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By

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## **DEDICATION**

The author dedicates this thesis to his family: Margaret, Anthony, Juliana and Henry, without whose help and support during the past three years would have made it all impossible.

Also, to my late father, Lawrence, who laid for me, a sound academic foundation to work from. May his soul rest in peace.

#### <u>ABSTRACT</u>

The study is concerned with the management of refurbishment work within the UK construction industry, from a contractors' perspective. It investigates the main difficulties and problems which managers face in refurbishment work, together with the management skills and knowledge which they need and bring to their work. Management education and training needs of the organisation is also considered.

The methodology is a combination of both semi-structured interviews and a postal questionnaire. A total of 142 completed questionnaires from senior, middle and junior managers of 32 large refurbishment (general and specialist) organisations, formed the data base for the quantitative analysis. The quantitative data was augmented by qualitative information derived from semi-structured interviews with 32 training officers and 22 refurbishment managers.

Analysis of both quantitative and qualitative data determined the relative degree of difficulty associated with managing refurbishment tasks, and the qualities and attributes associated with successful management of refurbishment projects. It also allowed for the evaluation of management education and training provisions within refurbishment, together with education and training backgrounds of managers. Course duration, location and factors affecting their selection and attendance also received consideration.

The major characteristics and difficulties associated with managing refurbishment works have been established. Results of the study show that refurbishment work is complex, highly specialised and contains elements of work which are unique to the refurbishment sector.

The educational background of refurbishment managers indicates that majority of refurbishment managers have a trades background, coming through the ranks mainly as joiners and bricklayers.

A skills and knowledge inventory for refurbishment management has also been devised.

The study also demonstrates that there is little, if any, management courses, inhouse or external, directly geared towards refurbishment.

The study recommends that guidelines advocating "how best" to overcome refurbishment problems and difficulties" for different types of refurbishment projects, and refurbishment works across industrial sectors, i.e. defence, hotel and health service sectors, be produced. Similarly, research to establish the core management skills/knowledge associated with successful accomplishment of the various types of refurbishment projects, and refurbishment works across industrial sectors is needed. Further research needs to be conducted on personal qualities and attributes of refurbishment managers who are associated with successful accomplishment of various types of refurbishment projects.

Research to establish the extent and degree of involvement of the client, contractor and the rest of the design team, especially refurbishment managers, in carrying out refurbishment work is recommended. Further research to establish management education and training needs of medium and small size refurbishment organisations is suggested.

Following the development of a model for postgraduate and continuing professional development (CPD) management education and training programmes, research into "how best" refurbishment management education can be successfully and widely introduced into undergraduate curricular is needed.

# CHAPTER ONE

<u>.</u> .

# INTRODUCTION

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#### **1.0. INTRODUCTION**

#### **1.1. The Statement Of The Problem**

As we approach the year 2000, the United Kingdom has yet to develop any widely used, clearly understood and accepted method of educating and training its managers. The situation is one of continuing national debate about improving the quality of UK management education and training, Maclagan and Snell (1992<sup>337</sup>), Hirsh and Bevan (1988<sup>261</sup>).

Similarly, there is a body of evidence which shows that managers in the UK are poorly educated and undertake little management training, Mangham and Silver (1986<sup>339</sup>), Handy et al.(1987<sup>244</sup>) and Constable and McCormick (1987<sup>123</sup>). The managers of the construction industry are no exception. Silver (1991<sup>450</sup>) has referred to this situation as a "crisis" in management education and training in the UK.

Yet, poor management education and training has been assailed as a culprit in contributing to a country's economic decline, (AACSB, 1985<sup>5</sup>; Wrap, 1982<sup>509</sup>; Samuelson, 1990<sup>435</sup>).

The benefits that could accrue from adequate provisions of management education and training in the construction industry have been well voiced. The UK construction industry has seen much emphasis and attention, in the last decade, targeted on the necessity of the management dimension in education and training for improving performance and efficiency by researchers, Bennett and Flanagan, 1983<sup>35</sup>; Naoum and Langford, 1987<sup>372</sup>;government bodies, NEDC, 1983<sup>376</sup>; CITB, 1986<sup>128</sup>; practitioners, Moore, 1985<sup>359</sup>; Birchall and Bottjer, 1986<sup>42</sup>; and construction clients, Andrews, 1982<sup>7</sup>, 1983<sup>8</sup>.

However, evidence from a literature review suggests that studies that do exist on management education and training in construction are directed at new build, with none being specific to the substantial refurbishment sector, Young and Egbu,  $1992c^{517}$ ,  $1993a^{518}$ .

It is, therefore, the purpose of this introductory chapter to review:-

- (i) The rationale for improving management education and training in construction, and the direction of construction management education and training for the future.
- (ii) The research needs in the management domain of refurbishment, especially as it relates to education and training of managers involved in refurbishment.

The suggestions drawn from the literature review will underpin both the theme and direction of the present study.

In April 1987, two reports were published simultaneously - "The making of managers" by Handy et al.(1987<sup>244</sup>) and "The making of British Managers" by Constable and McCormick (1987<sup>123</sup>). Handy et al. looked at the ways that managers were trained and educated in the United States, Germany, France and Japan and considered what lessons could be learnt by the UK. Constable and McCormick

looked in detail at the provision of management education and training in the UK. In the main, the findings of these two reports were the starting point of the current stance on management education and training in the UK. Some of the findings of these reports deserve mentioning:-

- (i) 85% of top managers in the USA and Japan have degrees, whilst the only comparative figure in Britain suggests 24%.
- Britain graduates only 1200 MBAs (Master of Business Administration) a year, whilst the USA produces 70,000.
- (iii) Large corporations (2,000 plus employees) in France spend 3.36% of their wage bills on training of all types (with 30% of that put aside for management training), when their law only requires 1.2%.
- (iv) 42% of the top 300 companies in the USA and many big organisations in Germany and Japan devote more than five days off-the-job training per year to each manager, but over half of all UK companies appear to make no formal provisions for training of their managers. Of the UK companies employing more than 1,000 people, one-fifth make no provision for training of their managers.
- (v) Fewer than one in ten of large UK companies provide training for their senior managers.

As reported in the 1985 Labour force survey, there are 3.3 million self defined managers of all types in Britain (see Table 1).

### Table 1: Education Of British Managers

Qualification	<u>Men(%)</u>	Women(%)
First or higher degrees	12.1	12.8
Member of professional institution	6.2	2.5
HNC/HND	5.6	1.4
Nursing or teaching qualification	1.6	13.4
Apprenticeship (completed)	9.6	3.0
ONC/OND, city & Guilds, 'A'Levels	24.2	15.2
'O' level or equivalent	15.0	18.9
CSE below grade 1	1.5	2.2
Other	3.3	4.6
No qualification	19.1	24.7
Don't know/ No reply	1.7	1.2
Total Number of men/women	2,541,000	729,000
Source: Labour force survey, GB. 1985.		

Of these, Handy et al. (1987<sup>244</sup>) note that 14% are senior managers, 33% are middle

managers and 53% are junior managers (Figure 1).



Figure 1: Levels Of Managers In The UK

Source: Handy et al. (1987<sup>244</sup>) Making of Managers

On the basis of the UK management population, Handy et al. (1987), estimated that if a 25 year managerial career is assumed, the UK would require a minimum of 130,000 potential new managers each year to replace the stock. Of these, 90,000 would be expected to have senior managerial responsibilities.

Handy et al., went further to add that of the 90,000 new managers we produce, 5,000 have first degrees in business and management, 1,600 have diplomas and 1,200 have British MBA. The study conducted by Handy et al. concluded that with four times the British population, the USA produces over 40 times these numbers i.e. the UK performs less by a factor of 10.

Evidence from these reports suggests that the UK needs to do more to educate and train her managers, and also to do it more systematically.

Although the reports did not distinguish the various sectors of the British Industry, it is generally agreed that no sector is any better or worse than any other in the provision of management education and training. (Silver, 1991<sup>450</sup>; Handy et al., 1987<sup>244</sup>; Constable and McCormick, 1987<sup>123</sup>).

In the Construction industry, especially in the 1960's, 1970's and 1980's, the route followed in educating and training managers was similar to that taken by most other industries. Management education and training were left to the more "sophisticated" contracting organisations, with individual managers undergoing traditional incompany training programmes, supplemented by intermittent periods at management training centres and/or Business Schools. Even until the late 1980's, there was no established career route in construction management, (Young, 1988<sup>510</sup>; CITB, 1988a<sup>129</sup>). There were also few construction related management (CITB 1988a<sup>129</sup>).

In the construction industry, the relationship between labour inefficiency and resultant business decline, coupled with loses and failure, is well known. Many construction writers contend that its root lies with management capability, Horner et al.<sup>268</sup>, 1987; Bufaied, 1987<sup>71</sup>; Oliver-Taylor, 1993<sup>388</sup>. As Oliver-Taylor (1993<sup>388</sup>) noted "over eighty (80%) of all controllable defects (in construction) are the result of management" p4.

In 1976, the National Economic Development Council (NEDC, 1976<sup>375</sup>) set out to establish specific areas for improving construction efficiency. The study revealed that

the area likely to make the greatest contribution to improving efficiency was construction management. In addition, the study recommended that an increase in education and training of site management coupled with a general improvement in skills acquisition of all construction management is needed.

As construction is a labour intensive industry (Hillebrandt, 1984<sup>257</sup>), improvement in labour efficiency can have significant improvement on both productivity levels and profit margins.

In appreciation of the effect of poor construction management education and training as well as the lack of any framework for construction management education and training in the UK construction industry, The Morley (1986<sup>360</sup>) report notes that:-

"...quality of higher management needs to be improved and that companies ought to make use of training programmes that are already available. Improved training would also be a means of improving profitability and competitiveness". p6

The Morley (1986<sup>360</sup>) report called for action to be taken on a number of issues, including:-

- (i) Undertake surveys into training needs and provisions.
- (ii) Identify gaps in the provision.
- (iii) Prepare a detailed structure plan of framework for management development in construction.

As a result of the recommendations of the Morley report, the CITB (1988b<sup>130</sup>) published a survey of supervisory and management training needs in the UK construction industry. Although, the study highlighted training needs in construction management, it did not give due consideration to sector differences, particularly, the refurbishment sector. Failure to address the special problems and characteristics of sector differences, could have profound consequences for construction in the future. This could lead to mis-matching of skills and jobs in the different sectors of the construction industry. Hirsh and Bevan (1988<sup>261</sup>), drawing on their study on "What makes a manager?", pointed out that management education and training, and any approach which aims to analyse management skills but does not address problems of diversity is likely to fail.

It is one thing to accept that construction management education and training is vital. It is another thing to address the content, length and direction of management education and training for construction.

In their study titled "Management Educators look to your Market", Reynier and Bennett (1979<sup>423</sup>) noted that recipients who had attended management courses, maintained that course content bore no relationship to the needs of managers. This view is also supported by Livingston (1971<sup>332</sup>), Pfeffer (1981<sup>399</sup>) and Mintzberg (1975<sup>355</sup>). Livingston (1971<sup>332</sup>) contends that 'crucial management tasks' are not taught in management education programmes. Similarly, according to Sir Peter Trench (1982<sup>482</sup>), management courses lack the practical edge of commerce.

The Council for National Academic Awards (CNAA, 1987<sup>136</sup>) Survey, sought views from the National Contractors' Association on the direction of construction management education. The central message of the survey was that postgraduate provision in construction management should be more directly applied to the needs of the construction industry. There was unanimity on the method of achieving this, through improving the construction research base.

There was also a general consensus among all those (academic and practitioners) who attended a research seminar<sup>418</sup> in 1987 titled "Education For The Professions of the Construction Industry", that improving the research base is the best way of satisfying the needs of the construction industry, since it was recognised as particularly inadequate across the construction management discipline.

In considering an overall strategy for education training in construction, a report by the Centre for Strategic Studies in Construction, (CSSC, 1989<sup>99</sup>) titled "Investing in Building 2001"notes that:-

"A council of Building Education and Training is needed to consider the total spectrum of education and training provision in a co-ordinated manner. In particular, it will need to reconsider and then keep under review the relationship between..., first degrees, postgraduate provision, experiential learning in the work environment and CPD" p38.

On the way forward for management education and training for construction, the CSSC (1989<sup>99</sup>) report advocates the following:-

- (i) There should be an increase in Modular Courses with credit accumulation and transfer between courses.
- (ii) Greater interaction between education and industry at all levels and in provision for Continuing Professional Development (CPD).

These views of the Centre for Strategic Studies in Construction had also been voiced by Constable and McCormick (1987<sup>123</sup>) in their study "The making of British Managers", cited earlier. This would seem to be the direction of management education and training in the UK. Some of the recommendations from Constable and McCormick's study can be summarised as follows:-

- (i) Management education and training should be seen as a career long process, involving in-company training and external education.
- (ii) Management training should be modular in form and designed in such a way that in-house programmes could be combined with external courses.
- (iii) There should be more than one level of qualification with level closely attuned to career development and related to on-the-job experience.
- (iv) There should be an established forum for management education and training to allow more effective consultation between all related parties.
- (v) There should be the establishment of a credit transfer system which covers both academic institution and programmes within companies.
- (vi) Management efforts should be made to increase the scale of continuing management education, training and development.

Continuing professional development is an issue which is currently receiving a great deal of attention in the construction industry. In 1988, the Centre for Strategic Studies in Construction, published a report titled "Building Britain 2001" (CSSC, 1988<sup>98</sup>). The report notes that:-

"Education does not stop with a degree or a professional qualification and continuing professional development is crucial to everyone in building. All professionals have an obligation to keep abreast of developments in their fields. We should all expect to learn new techniques over the course of our working lives" p73.

By January 1990, continuing professional development was made obligatory for all members of the Chartered Institute of Building (CIOB, 1989<sup>109</sup>). For other professional institutions, such as The Royal Institute Of British Architects (RIBA), The Institute of Civil Engineers (ICE), and The Royal Institution of Chartered Surveyors (RICS), continuing professional development is equally as important.

Similarly, the government White paper "Employment For the 1990's" (CM540 1988<sup>176</sup>) recognised the particular importance of training for all managers through out their working lives, reinforcing the view that if the UK is to maintain her competitiveness in the world market place, "We must invest in skills and knowledge for our people and build up industry's skill base through a strategy of training through life". p4.

The White paper saw the government's role as setting a framework to facilitate training to be taken forward by the Training Agency. The framework operates on three tiers. Firstly, at a national level, the task is the development of policies for training through a National Training Task Force. Secondly, at the industry level, a voluntary system of employer led organisations will identify an established national standards of competence - Management Charter Initiative (MCI). It will also secure

recognition either by sector or by occupational groups through accreditation by the National Council For Vocational Qualifications (NCVQ). Thirdly, it is the government's view that delivery of training should be closely related to the circumstances of local areas. This has led to the creation of Training and Enterprise Councils (TECs) which are to operate government's training programmes, and also to ensure that training efforts are of the scales and quality required to meet the needs of local labour markets.

In 1990, the Construction Industry Standard Conference (CISC) was formed through the joint efforts of the Construction Industry Council (CIC), the CITB and their leading members. The CISC is responsible for producing a framework of qualification for the NCVQ and accreditation covering professional management and technical occupations within the construction industry.

The NCVQ (1991<sup>374</sup>) has defined a National Vocational Qualification as "a statement of competence", which should incorporate:-

- (i) The ability to perform in a range of work-related activities.
- (ii) The skills, knowledge and understanding which underpin such performance in employment.

The framework of National Vocational Qualifications are defined under five levels of qualification. Levels 1-3 are at craft and operative levels. Levels 4 and 5 are at professional and management levels. At the time of writing, a framework at level 5 is currently being devised for the construction industry. There are other factors that are likely to shape the direction of construction management education and training in the late 1990's and through to the early part of twenty-first century. These need to be considered. Two factors can be addressed with this discourse, they are:-

- (i) Harmonisation of the European Community (EC) A single European Market 1992.
- (ii) Demographic changes.

The opening up of Europe is likely to increase opportunities and competition, as large number of workers and construction firms enter the UK construction industry. The CSSC (1988<sup>98</sup>) is of the view that the construction industry 'will suddenly' face a home market six times as the present one. Construction management education base will need to be flexible to accommodate multi-disciplinary teams of builders, designers, managers, as well as specialist skills and knowledge that are likely to ensue.

Demographic changes is another issue that is likely to influence the direction of construction management education and training. The number of school leavers (16-19 year olds) entering the labour market - a traditional source of recruitment (CSSC, 1989<sup>99</sup>) is predicted to decline (Employment Department, 1988<sup>176</sup>). In 1993, the number of school leavers in the population eligible for work stands at 2.5 million (see Figure 2), one million less when compared to 1983.

Such discouraging news also applies to the number of graduate intakes. The Institute for Manpower Studies (IMS, 1989<sup>277</sup>), estimated a severe shortfall in the number of graduates until the end of the 1990's.




Source: OPCS and Government Actuary's Department

In addition to this, the labour force in the late 1990's and early 21st century will contain more 25-54 year olds (see Figure 3), and as many over 55s as at present.

Figure 3: Population of Working Age: 1973 To 2025



Source: OPCS and Government Actuary's Department

The implication of these demographic changes to construction management education and training is two fold. Firstly, the construction industry will need to attract into management the best recruits and develop their skills, knowledge and talents to the full. Secondly, the construction industry will need to realise the great potential of existing managers through continuous management development.

However, as the CITB (1988a<sup>129</sup>) pointed out, and to reiterate, the direction of management education and training and any framework for education and qualification in construction must take account of "the particular problems and special nature of the construction industry such as the sector differences" p4.

### 1.2. A Review Of Research Needs In Refurbishment Management

The management of refurbishment projects is an activity that has been in existence since mankind started building shelters and needed to upgrade and improve his built assets. Yet, for the refurbishment sector of the construction industry, only a meagre amount of research in the UK has been conducted in the management domain (Quah, 1988<sup>410</sup>; Young and Egbu, 1992a<sup>515</sup>, 1992c<sup>517</sup>).

As Quah (1988<sup>410</sup>) noted, "there exists at present imperfect knowledge and understanding of the refurbishment processes within an industry which has traditionally been geared to new works" p2.

Norman Douglas (1988<sup>165</sup>), a Director of Costain Construction Limited (Refurbishment Division) is also in support of this view. He noted that "... there is concern within the Building Industry that for a sector such as refurbishment, rehabilitation, repair and maintenance, contributing a major proportion of the workload, all skills and management training are directed at new construction skills". p78.

There are construction writers who have also suggested that refurbishment work is less predictable than new build work, with higher elements of risk and uncertainty (Harrington, 1979<sup>248</sup>; Chapman, 1980<sup>102</sup>; Quah, 1986<sup>409</sup>, 1988<sup>410</sup>, 1991a<sup>412</sup>; Teo, 1990<sup>473</sup>).

Similarly, other writers are of the view that refurbishment processes are more difficult to manage than new build (Hoffman, 1978<sup>262</sup>; Koehn and Tower, 1982<sup>306</sup>) and that it demands management approach and skills which are different from new build (Hill, 1976<sup>256</sup>; Dixon, 1990<sup>163</sup>; BRE, 1990<sup>77</sup>).

In his keynote speech at the 1990 CIB W70 conference on "Building and Modernisation Worldwide", held in Singapore, Ian Dixon (1990<sup>163</sup>), Past President of the Chartered Institute of Building (CIOB), UK, emphasized that building modernisation, refurbishment, conservation and maintenance present considerable demands for an industry whose structure, occupational pattern, contractual arrangement and training reflect a pre-occupation with new construction. He noted that:

"It is not sufficient simply to modify these things slightly in order to address the maintenance market successfully. A fundamentally new approach is needed based upon an analysis of the managerial demands which maintenance presents" Vol 1. Pg xlii.

From the foregoing, this would mean that the validity of using existing (for new build) techniques, procedures, management systems and principles, modified on adhoc basis to cater for the vagaries of refurbishment characteristics, problems and other processes remains questionable.

Quah (1988<sup>410</sup>) in her study on "Evaluation of the risks and tendering for refurbishment work" pointed out that " a study into the managerial and technical skill needs for refurbishment work would be the first step towards improving productivity in this sector of the industry" p356.

Understanding the background of managers and the nature of refurbishment work was the central message of the 1981 report of the Construction Industry Research and Information Association (CIRIA, 1981<sup>126</sup>). CIRIA recommended that there should be an investigation of the type, background and training of managers and supervisory staff in the refurbishment sector and of the future needs. To this end, CIRIA commisioned a study on the management of renewal works. This study is being conducted at the School of Civil Engineering, University of Birmingham. In 1992, the present author visited University of Birmingham, and had two separate meetings with the researchers involved in the study so as to ascertain both the exact nature of the research and the progress made to date. Since 1992, several contacts have been made with University of Birmingham. However, as at the time of writing, a report on their study has not been published yet.

In 1985, the EDC<sup>173</sup> report titled "Strategy for Construction R&D" examined the inadequacy of construction industry research and development. The report noted that:-

"Repair and maintenance has increased 20% over the last decade ... a better R&D knowledge base is essential...even a 1% reduction in repair and maintenance because of better construction standards and improved durability would be a saving of over £100m a year". (EDC, 1985<sup>173</sup>).

In recognition of the importance of the refurbishment sector, the department of Environment (DOE) and the Science and Engineering Research Council (SERC) instituted a study in support of the government LINK programme on construction technology and management of maintenance and refurbishment. The study was carried out by the Centre for Construction Market and Information (CCMI). The published CCMI (1988<sup>97</sup>) report pointed out that the current education and training of managers is exclusively related to design and construction of new buildings. The report recommended that:-

"The curriculum of architects and professional consultants, construction managers and craftsmen need to embrace education and training that relate to the type of work...." Vol. 1, p13. Similarly, in one of their articles titled 'A need for appropriate management training and education for refurbishment within the construction industry', Young and Egbu ( $1992c^{517}$ ) emphasised that "...there is now an urgency to establish and identify appropriate education and training both in content and processes, for managers involved in refurbishment" p268.

Many researchers are of the view that an understanding of the manager's job is important, and needed before the design of any management education and training programme (Stewart, 1979<sup>465</sup>; Mintzberg, 1980<sup>356</sup>; and Kotter, 1982b<sup>313</sup>). These researchers have also argued the need for management education and training to take account of reality, i.e. both managers job and environment. As Revans  $(1966^{419})$  informed us, if any management course is to be worthy of attendance, it must be designed based on empirical investigation and embracing management operations as its field.

It follows, therefore, that an understanding of the nature and characteristics of the refurbishment processes, and the difficulties that confront managers is necessary, in conjunction with establishing management education and training needs.

This chapter assessed the extent to which construction management education and training is deficient, as well as the direction of management education and training for the future.

A number of reports, from government bodies, construction writers and those of the construction industry - contractors and clients, have highlighted that construction management education and training in the UK, is deficient both in content and processes. There are few management education and training courses and that there is no widely used, understood and accepted framework for educating and training of construction managers. Courses do not bear resemblance to the needs of construction.

With regards to the direction of construction management education and training:-

- (i) Construction management education and training should mirror the industry's needs in terms of skills and knowledge. Such skills and knowledge need to be research based, and take account of the particular problems and special nature of the sector differences.
- (ii) The structure of construction management education and training should be modular, and the contents transferable and geared to work based learning at a pace to meet the individual manager.

 (iii) Education and training should be for all throughout life - Continuing Professional Development (CPD).

Finally, from the literature review, a discovery was made of the meagre amount of studies conducted in the refurbishment management domain. Evidence has also shown that management education and training that exist in construction, are directed at new build, with little or none in the area of refurbishment.

#### **1.4. Objectives Of The Study**

The main objectives of the study are as follows:-

- (i) To establish the major characteristics and difficulties which confront managers in carrying out refurbishment work.
- (ii) To establish the educational and training backgrounds of managers involved in refurbishment.
- (iii) To ascertain the skills and knowledge needed for managing refurbishment work and to devise an appropriate body of management skills and knowledge for refurbishment - A skill and knowledge inventory.
- (iv) To examine the nature and extent of management education and training that exist within refurbishment organisations.
- (v) To ascertain the major factors that affect the provision of management education and training for refurbishment.
- (vi) To examine the current and future management education and training needs, both at organisational and managerial levels, for refurbishment.

#### 1.5 Benefits Of The Study

The study may be of benefit to individual managers, refurbishment organisations, course designers/educators, and clients of the construction industry as follows:

- (i) Awareness and the acquisition of relevant skills and knowledge for refurbishment should be of value to the individual managers; as it could lead to job satisfaction.
- (ii) For individual managers, appropriate courses based on the needs of refurbishment could help advance career prospects.
- (iii) The results of the study could assist refurbishment organisation in the selection and recruitment of personnel. Recruiting managers with appropriate skills and knowledge should help reduce mis-matching of skills and jobs.
- (iv) Refurbishment organisations could become more knowledgeable about refurbishment processes, and may become more attuned to clients needs.
- (v) An understanding of the characteristics, difficulties and demands of refurbishment processes will assist in both the identification of responsibilities and level of training provisions.

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- (vi) An establishment of management education and training needs for refurbishment, should allow educators to advise on and provide relevant courses for existing managers and those aspiring managers associated with refurbishment.
- (vii) Course designers, educators and those who are associated with the formulation of a national qualification framework for construction management, may wish to incorporate some of the findings of the results in national provisions.
- (viii) For the construction industry as a whole, managers with the relevant skills and knowledge could contribute to the productivity, labour efficiency and effective management of construction resources. The research may also have an added benefit of raising the profile and image of industry through a dissemination of the findings.

## 1.6. Structure Of The Thesis

The thesis has been organised in a logical manner in order to enable the reader to appreciate the thoughts of the author in achieving the objectives of the study. The structure is as follows:

(i) A review of literature will be conducted at each stage to enable a better understanding of the subject matter of the study. This should form the basis of the study, and allow working hypotheses to be formulated.

- (ii) Empirical investigations carried out by other researchers, when and where appropriate will be presented, and will enable comparisons of similar work to be made.
- (iii) Semi-structured interviews with training officers from refurbishment organisations, and refurbishment managers, will provide qualitative data for the study and will be reported at appropriate intervals throughout the study.
- (iv) Quantitative data from questionnaire distribution to refurbishment managersprovide the major source of hypotheses testing.

In chapter two, the main research methodology is discussed, including the selection and justification of research approach and sample frame adopted. The difficulties encountered and the various research instruments used in mitigating such difficulties also received attention.

Chapter three states the definition of refurbishment in the context of the present study. The importance and growth of the refurbishment sector are also discussed. Various factors have given impetus to the growth of refurbishment. These are duly considered.

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The nature and characteristics of refurbishment processes, from a management perspective, form the theme of chapter four. In addition, the major difficulties which confront refurbishment managers in the course of carrying out their work together with the frequency at which they occur, are established.

Chapter five discusses the educational and training background of refurbishment managers.

In chapter six, the skills and knowledge which managers need and bring to their work are highlighted. These skills and knowledge are also considered along managerial levels and on the basis of specialism of refurbishment organisations (general and specialist contractors). This chapter sees the derivation of an appropriate body of management skills and knowledge for refurbishment - A skill and knowledge inventory.

In chapter seven, the extent and nature of management education provisions within refurbishment organisations are discussed. Also considered are the preferences of managers and organisations as to the methods and delivery of management education and training. Besides these, management education and training needs for refurbishment are considered from both organisation and manager perspectives.

In chapter eight, a framework for management education and training of refurbishment managers is devised. The framework takes into account managers' preferences on methods and delivery of management education and training. Also, a model for postgraduate and continuing education is developed. The model takes into consideration the current trend in management education and training, especially as it relates to modular schemes, National Vocational Qualifications (NVQ), credit accumulation transfer (CAT) and accreditation to prior learning (APL).

Chapter nine discusses the future of refurbishment management. The requisite management skills and knowledge needed for a changing industry are also discussed. Besides these, future management education and training needs for refurbishment are also duly considered.

Finally, chapter ten summarises the main findings of this research and its contribution to research in the management domain, especially as it relates to education and training. It also provides recommendations for future research in this area.

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# CHAPTER TWO

# **RESEARCH METHODOLOGY**

# 2.0. RESEARCH METHODOLOGY

## 2.1. Introduction

This chapter sets out the research methodology adopted for the present study. One of the primary problems which this author faced at the outset was the lack of published literature, data and research findings relevant to management education and training needs for refurbishment work in the UK and international construction industry, which could be used as reference material.

The methodological procedure that had to be adopted for the present study needed to be one capable of providing in-depth, relevant, up-to-date and reliable information on the refurbishment industry. Also, it had to provide a means of evaluating the characteristics and difficulties of refurbishment processes from a contractors' perspective. The methodologies took account of the management skills and knowledge which managers need and bring to their work, as well as the nature and extent of management education and training provisions for refurbishment within the construction industry.

This chapter starts by identifying the sample population and sample frame for the study. The problems encountered in so doing, and the strategy adopted to mitigate such problems are also considered.

The social scientist is faced with a variety of options for data collection. The options adopted for the present study and the reasons underlying the choice of options are discussed in detail.

Finally, the statistical techniques and measures used for data analysis and transformation are presented.

## 2.2. Identification Of The Population Sample And Selection Of A Sample Frame

In a study of this nature, it was necessary to have a population sample which is homogenous, comprehensive, and one which gives a true representation of large construction organisations that carry out refurbishment work within the UK construction industry.

There are three main reasons for choosing large refurbishment organisations for this study, namely:-

- (i) It is generally accepted that the management training and education that exists in construction are mainly carried out by large organisations (CITB, 1988b<sup>130</sup>; Duff and Mankin, 1990<sup>169</sup>). It was, therefore considered, that the information sought on education and training for the study, are best obtained from large construction organisations.
- (ii) The period of this study, coincides with the poor economic climate in the UK construction industry, with record levels of insolvencies of firms, take-overs, restructuring amongst firms and many firms disposing of some of their better assets (Kynoch, 1992<sup>315</sup>; Whitmore, 1992<sup>500</sup>). It is also generally recognised

that larger firms are better placed to cope with difficult times than small sized firms, as smaller firms are more at risk from the vagaries of the market (Young, 1991<sup>512</sup>).

 (iii) By virtue of size, large organisations employ a large number of managers. This factor would assist in securing the co-operation of a large number of managers who are to participate in the study.

Non-existence of any official directory of refurbishment contractors in the UK, posed difficulties at the outset for this study, in obtaining a representative sample population.

Several efforts were made to obtain a suitable list of contractors in the UK who carry out refurbishment work. Initially, Kompass/CBS (1992) and Kellys' Business Directory (1992) were consulted for names of large refurbishment contractors. Although, both directories listed large contractors, it was impossible to ascertain which of the contractors carry out refurbishment work. With a large list of contractors in both directories, it was considered uneconomical to telephone each individual organisation to ascertain whether they carry out refurbishment work or not. The idea of using the two directories was abandoned.

Other attempts were also made in an effort to obtain a suitable population sample. The Construction Industry Training Board (CITB) was contacted in order to obtain a list of building companies, with details of the kind of work they carried out. Regrettably, the information sought could not be released due to reasons of confidentiality. The Directory of the UK Construction Industry (1990), published by the Building Economic Bureau Ltd., was also consulted. The directory contains major construction organisations. However, it was not possible to identify from the directory, which of the contractors carry out refurbishment work. The idea of using this directory was also discarded.

Another attempt in obtaining a suitable population sample frame was to obtain a list of national contactors from the Building Employers Confederation (BEC). This attempt proved successful. The current membership directory of the National Contractors Group (NCG, UK - 1990) was obtained. The NCG is one of five sectors of the BEC, the premier employers' organisation for the UK building industry. The group comprises the largest companies in membership of the BEC.

The directory details the types of work each member undertakes, the area in which they operate, as well as contact addresses of individual organisations. This directory has the characteristics of a good sample frame, in that it is comprehensive (Hoinville et al., 1978<sup>263</sup>). It was important and necessary that the selection of contracting organisations was made from one source - a homogenous sample frame. Reliance on more than one sample frame is ill-advised as this could lead to duplication or double counting.

From the NCG directory, seventy contracting organisations were identified as carrying out refurbishment work. The work they carry out includes, new build work, commercial, industrial, housing and historic building refurbishment. The procedure adopted in selecting refurbishment organisations, which were to participate in the study, was to contact the marketing and/or personnel departments of all the seventy contractors by telephone. It was essential to make sure that all the refurbishment organisations listed in the directory were large, still in business and carrying out refurbishment work. The telephone contacts made this possible. All the seventy refurbishment organisations make up the sample population for the present study.

Having arrived at the population sample the next stage was deciding whether the survey for the study should include all elements of the population, or targeted at certain elements of the population. As two of the main objectives of the study are to ascertain the extent of management education and training provisions that exist within refurbishment organisations, and the degree of importance of management skills/knowledge, which managers need and bring to their work, it became pertinent that training officers as well as managers involved in refurbishment (refurbishment managers) were to be targeted.

#### 2.3. Methods Adopted For Data Collection

The data derived for the present study was not found to be available from any other source. This meant that collection of primary data was not only preferred, but inevitable.

There are several methodologies open to a researcher for collection of data. Buckley et al. (1976<sup>70</sup>), have grouped these methodologies under four headings, namely opinion research, empirical research, archival research and analytical research. Jobber (1991<sup>283</sup>) demonstrated that it is impossible to say which method is superior in abstract terms, and that each method has its own strength and limitations. He further added that "... the task facing researchers is to assess each of them in the light of the survey objectives, the nature of the information required and the resources available. Pg 178".

In the present study, this author has chosen the opinion research approach. The main data collection procedure under this research method is a combination of survey research - semi-structured interviews and postal questionnaires. The postal questionnaire was piloted before the final version was sent off to respondents. The semi-structured interviews, the postal questionnaire and the piloting phases of the study are duly considered below.

Writers such as Moser and Kalton (1971<sup>362</sup>), Babbie (1973<sup>17</sup>) and Bouchard (1976<sup>51</sup>), have argued that a combination of research procedures is often more useful than a single one, since the different methods yield different kinds of data, which taken together facilitates more comprehensive analysis of the phenomenon studied.

## 2.3.1. Interviews

Two sets of semi-structured interviews were conducted for the present study. The first, involved training officers and the second, which involved refurbishment managers was a follow-up study subsequent to the postal questionnaire. The follow-up study will be discussed at a later stage in this chapter.

Having established that seventy contractors, from the membership directory of the National Contractors Group (NCG) carry out refurbishment work, the next step was to gain the co-operation of their training officers for face-to-face, semi-structured interviews. This was achieved through telephone contacts with training officers from participating organisations. A training officer in the context of this study, is a person employed by an organisation to see that the training, education and career development of the organisation's managers and other staff is managed.

Of all the seventy refurbishment contractors contacted, forty-four had training officers, and also have in place, a form of management training and education provision. Of the forty-four training officers, six declined participating in the study because of possible mergers expected in due course. Three declined a week before the start of the interviews, due to heavy work load. In the final analysis, the co-operation of thirty-two training officers were gained. The semi-structured interviews which lasted for between 1hr and  $1^{1}/_{2}$  hrs, were conducted between May and June 1992. These interviews took place at the head offices of the refurbishment organisation. Each participating firm has an annual turnover in excess of £75 million. The author has chosen turnover as a measure of size because of the availability of this data.

There are several size measures available for use by a researcher. Several studies in the field of construction have employed a variety of size measures, such as Net Assets, (Asenso and Fellows, 1989<sup>12</sup>); Number of employees (Young, 1988<sup>510</sup>); Turnover, (Quah, 1988<sup>410</sup>; Teo, 1990<sup>473</sup>) and Payroll (CITB, 1988b<sup>130</sup>; Duff and Mankin, 1990<sup>169</sup>). Other measures available include volume of work subcontracted, scale of operation and capital to labour ratio. All having their merits and de-merits.

The use of net assets suffer from the problems associated with variation in company accounts. For number of employees, depending upon the method of contracting service delivery; there will be variation in numbers employed for approximately the same turnover.

Turnover is not entirely satisfactory, as it suffers from the problem of possible unbalance yearly distribution of the assets. However, as Bates (1968<sup>28</sup>) and Newbould and Wilson (1977<sup>383</sup>) have concluded, the choice of size measure is flexible and it does not matter very much in practice, which measure is opted for, as most measures are highly correlated with each other. Newbould and Wilson (1977<sup>383</sup>) are also of the view that for practical reasons, only one measure has to be chosen.

The participating firms in the present study as suggested above, are all large with head offices spread throughout England. The head offices of the firms visited, which are all in England, are shown in Figure 4 below.

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The regional disparity largely indicates the volume and concentration of refurbishment work across the country. As can be seen from Table 2, much of the repair and maintenance work, which accommodates refurbishment work, carried out between 1988 and 1992 were carried out in the south east, followed by the North west.

#### Table 2: Repair And Maintenance (R & M) Output By Region

Regions	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>Total</u>
South East	6,235	7,211	7,782	7,426	7,030	35,684
North west	1.658	1,938	2,141	1,954	1,812	9,503
South west	1,579	1,857	1,953	1,860	1,767	9,016
West Midlands	1,476	1,744	1,857	1,706	1,655	8,438
Yorkshire + Humberside	1,455	1,699	1,828	1,689	1,616	8,287
East Midlands	1,174	1.351	1,395	1,330	1.320	6.570

million (1985 prices)

#### 2.3.2. Reasons For choosing The Semi-structured Interview Approach

The author had a choice of three main types of interview techniques; structured, semi-structured and un-structured. In the main, the survey objectives, the nature of the information required, time constraint and finance, dictated the technique chosen.

The reasons why a semi-structured interview approach was chosen are:

(i) With semi-structured interviews, responses to questions are likely to be spontaneous, which may in some circumstances more accurately reflect the true situation than a considered response. There is the likelihood in a considered opinion, for the respondent to give the response which he/she considers that the investigator wants or the response which the respondent feels comfortable with, and one which reveals him/her to be a "better person" than the "true" answer would. Through semi-structured interviews, the researcher can judge (through face to face) whether the interviewee is telling the truth.

- (ii) Semi-structured interviews allow for in-depth discussions in areas of concern. In so doing, new areas not already thought of, could emerge. This gives the researcher the flexibility of obtaining more information which are related to the area of concern while working towards the stated objectives of the study, and without deviating a great deal from the subject matter. A situation which could arise in un-structured interviews.
- (iii) With semi-structured interviews ambiguity in questions or answers may be clarified by the researcher immediately.

The following are the objectives for choosing the semi-structured interview approach:-

- (i) To examine and explore in depth the nature and extent of management education and training provisions that exist (if any) within refurbishment organisations.
- (ii) To ascertain if there is a need for management education and training for refurbishment (now and in the future), within refurbishment organisations.
- (iii) To ascertain the factors that affect the provisions of management education and training within refurbishment organisations.

- (iv) Also, interviews with company representatives, i.e. training officers on issues concerning refurbishment processes, would provide a framework for assessing not only the range, but the depth of questions necessary in the design of the questionnaire for the study.
- (v) To secure the support of training officers (company representatives) in obtaining names and office contact addresses of managers who have experience and are currently involved in the production function of refurbishment work within their organisations. These refurbishment managers were to participate in the postal questionnaire of the study.

This approach puts the researcher in control, when it comes to circulation and monitoring the return of questionnaires. A survey for the construction Industry Training Board (CITB, 1988b<sup>130</sup>), adopted this procedure. Also, Young (1988<sup>510</sup>), in her study on "Career Development in Construction Management", recommended this approach, and pointed out that it could make monitoring of postal questionnaires less problematic. This approach proved very useful in the present study.

(vi) Refurbishment management, being a relatively un-researched area; in-depth, qualitative information and selected viewpoints from those involved in training in the construction industry, the training officers, would not only improve, but would also enrich the content of the study. The views of the training officers will be continuously reported throughout the study at appropriate intervals. The semi-structured interview approach is however not without its critics. Shapiro  $(1970^{444})$  and Collins  $(1970^{120})$  are of the view that the problem of potential bias is endemic to the interview methods. With semi-structured interviews, leading questions may unintentionally be asked. Also, the interviewer may lead the responses by imposing too much over the conversation. These are possible sources of bias in conducting interviews. Nevertheless, as Bouchard  $(1976^{51})$  argues, '... the careful researcher will take all the precautions possible' p379 when conducting interviews.

The format of the semi-structured interviews with 32 training officers is appended (Appendix A). Training officers volunteered information relating to the following areas:-

## Characteristics Of Organisation/General Information

- This included the history of company, organisation size, market structure, company strategy on management training.

# Management Education And Training - Current Provisions

- This includes considerations of expenditure on training, methods of assessing and evaluating training, education and training needs, and management skills/knowledge for refurbishment (current needs).

# Management Education And Training - Future Needs

- This includes management skills/ knowledge needs for refurbishment (future), and changes (if any) which need to be made in management education and training provisions for refurbishment.

## Relevance And Preference Of Education And Training Methods

- This includes informal and formal training methods, in-company, external courses, on-the-job training, short courses and Continuing Professional Development (CPD).

## Factors Affecting Management Education And Training Provisions

- This includes promoting and inhibiting factors.

Other issues considered for the interviews, and discussed with participating training officers deserve mentioning. As random sampling was not a feasible option, the author adopted stratification of the population sample. Stratification was discussed at length with training officers. It implies the division of the population into subgroups, classes or strata. Proportionate stratification was adopted. This involves dividing the population into representative parts. In this case, stratifying refurbishment managers (managers involved in the production function of refurbishment processes) into three levels; senior, middle and junior. Senior managers include directors/executives and area managers. Middle managers are contracts and project managers. For junior managers, they include site managers, site agents and assistants. Foremen and other supervisory staff are excluded from this study. This method of categorising levels of management is generally accepted in the field of construction. Young (1988<sup>510</sup>) and CITB (1988b<sup>130</sup>) adopted similar methods of classification in their studies.

Other sampling techniques that depart from random sampling are well known. Moreover, random sampling initiated after applying stratification technique is accepted (Fowler, 1984<sup>201</sup>).

The training officers agreed to provide names of managers representing all levels of refurbishment management in their organisations.

## 2.3.3. Postal Questionnaire

In meeting the objectives of the study within the constraints of time and finance, postal questionnaire techniques for data collection was adopted, for the following reasons:-

- (i) With this technique, the coverage of a wide spread of sample of refurbishment managers is possible. It is, therefore of special value for scattered populations, such as the population of the present study, which is spread all over England.
- (ii) As a method of data collection in social research, the postal questionnaire is relatively cheap, simple and easy to administer.

The main objective for choosing a postal questionnaire approach for data collection is:

(i) To obtain quantitative data, which would be used to statistically test hypotheses of the study, and also, used in making comparisons with other studies adopting a similar methodological approach. In this respect, a questionnaire provides the opportunity to analyze data through a variety of statistical techniques.

The use of postal questionnaires as a method of data collection has received severe criticisms from a number of quarters (Adams, 1956<sup>2</sup>; Dillman, 1972<sup>161</sup>; and Kerlinger, 1973<sup>301</sup>). The technique has several disadvantages, such as poor response rates, response bias, wording of questions, as well as the inability of the investigator to verify the information provided. Nevertheless, other writers have suggested that the de-merits of the postal questionnaire method could be overcome by utilising a variety of techniques. Each technique having the effect of increasing the response rate. The techniques will be duly considered in the later part of this chapter, when discussing the administration of the postal questionnaire for the present study.

## 2.3.4. Design And Content Of The Questionnaire

The literature abounds with many sources of advice on questionnaire design. Sudman and Bradburn (1982<sup>469</sup>) and Dillman (1978<sup>162</sup>) provide comprehensive advice on the whole process of questionnaire design, lay-out and use of postal questionnaires. Information gleaned from the works of these authors was found to be useful in the preliminary stages of the questionnaire lay-out for the present study.

However, in the design of the questionnaire for the present study, guidelines from writers, notably, Moser and Kalton  $(1971^{362})$ ; Lewis and Fox  $(1969^{330})$  and Sinclair  $(1975^{451})$  were noted.

Sinclair (1975<sup>451</sup>) proposed five main issues worthy of consideration when designing a postal questionnaire:-

- (i) Define objectives
- (ii) Coverage
- (iii) Sampling method
- (iv) Probability of non-response
- (v) Wording of the questionnaire

Questionnaire length is another factor to be considered in the design of a postal questionnaire. Moser and Kalton  $(1971^{362})$  pointed out that the temptation with investigators involved in questionnaire construction, is to cover too much and ask questions on everything that might turn out to be interesting. This happens to be true with this author. The original questionnaire design was 18 pages long.

The evidence from the literature review suggested that the effect of questionnaire length on response rates have been mixed. Clausen and Ford (1947<sup>116</sup>), Scott (1961<sup>442</sup>) Kanuk and Berenson (1975<sup>290</sup>), have shown that there is no correlation between questionnaire length and lack of response.

However, there has been less support, especially when considering industrial and business populations, to the fact that length is not critical to response rate (Jobber, 1986<sup>282</sup>). Jobber emphasised that business managers work under rigid constraints, and any attempt to distract them from their business, would be viewed as intrusion on their time, and is likely to be resented.

Heberlein and Baumgartner  $(1978^{251})$  and Forsgren  $(1986^{200})$  are of the view that the most important factor in assuring high response rates, is whether the respondents perceive the survey as important and current to him/her, i.e. whether the respondents is interested in the subject matter of the survey. Forsgren  $(1986^{189})$ also noted that a high response rate can be attained if the respondent is knowledgeable about the issues covered by the survey.

As for the present study, the matters under consideration are management education and training needs, and management skills/knowledge for refurbishment. These are important issues; and it is the perception of the author that the respondents are knowledgeable, well placed, and are able to supply the information needed.

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Having considered suggestions from both quarters of the debate on the effect of length of questionnaire on response rate, a balance was reached between obtaining as much information from the questionnaire in order to satisfy the objectives of the study, and ensuring that an "acceptable" response rate will be achieved. In the end, a postal questionnaire, 8 pages long, which could be completed without taxing the respondents a great deal would be satisfactory for the study, and would provide sufficient information to satisfy the objectives of the study.

The foundation of any questionnaire is the questions. The questionnaire must translate the research objectives into specific questions. In the present study, refurbishment managers supplied answers on 22 separate and specific questions. These questions which were developed through discussions with practioners involved in refurbishment, leading authorities in the areas of general and construction management education, and a thorough review of literature in the areas of refurbishment, management skills/knowledge and management education and training, were grouped under four sections. The summary of the questions is listed below. The questionnaire format is appended (Appendix A).

## Section A: General Information

- Specialism of organisation, manager's current job title, length of time in present job, length of time working in the construction industry, length of time involved in managing refurbishment work, managers career structure and the qualifications obtained to date.

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#### Section B: Characteristics Of Refurbishment Management

- Degree of difficulty of refurbishment characteristics, frequency of occurrence of refurbishment characteristics, how best managers overcome difficulties encountered in refurbishment.

## Section C: Management Skills/Knowledge For Refurbishment

- Degree of importance of skills/ knowledge (job dimensions) in present job, degree of difficulty of job dimensions in present job, need for education and training.

## Section D: Management Education And Training Needs In Refurbishment.

- Preference for course duration, time of year, training providers, type of course delivery, in-house training methods, place of training.

- Perception of how best management skills/knowledge for refurbishment, are best developed.

- Number of courses attended within last 2 years, degree of satisfaction with amount, and quality, of management education and training received within last 2 years.

- Factors influencing course selection and attendance.

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- Likelihood of attending education/ training courses for refurbishment, if suitable and relevant courses are available.

An allowance was also made for comments from managers, concerning questionnaire content, or any opinion respondents wished to express regarding related topics. The reader may refer to appendix (A) for a summary of the comments made by respondents.

There are other issues concerning the design and layout of the questionnaire that deserve mentioning.

As one of the objectives of the present study is to devise an inventory of management skills/knowledge for refurbishment management, the preparation of a list of management skills/knowledge instead of asking job content questions seemed a laudable approach.

It is important to have a layout which is suitable for respondents to rate themselves with speedy completion (Gael, 1983<sup>211</sup>). With this in mind, a question and answer approach was discounted. Listing skills/knowledge as opposed to asking job content questions, has the advantage of allowing respondents to concentrate and focus on the object of the exercise. Also, as respondents could identify with the object of the research, this approach could have contributed to increasing the number of responses.

For this study, where possible, management skills/knowledge 1-75, were grouped according to function. In assisting respondents in channelling and coordinating his/her thought process, a systematic ordering of skills and knowledge instead of random selection was preferred. This approach was adopted by Young (1988<sup>510</sup>) in

her study on "Career development in construction management". An advantage of this approach as Young (1988<sup>510</sup>) informs us, is that at a glance the individual can relate skills and knowledge to various management functions in the content of his present job. A similar approach was also adopted by Schein (1978<sup>440</sup>) with his Human Resources Inventory. Schein advised against disjointed listing.

One possible draw-back from listing skills/knowledge in this way, is the fact that the investigator may run the risk of conditioning the responses. However, feedback and responses from the pilot study did not indicate that this was happening.

The list of management skills/knowledge (see questionnaire in appendix A) was devised from a thorough review of literature on general management functions, notably the works of Whetten and Cameron (1991<sup>495</sup>); Cameron and Tschirhart (1988<sup>85</sup>); Constable (1988<sup>122</sup>), and on construction management skills/knowledge, Faulkner and Wearne (1984<sup>188</sup>); Finnigan et al. (1987<sup>195</sup>); Young (1988<sup>510</sup>) and CITB (1988b<sup>130</sup>). It was then modified after a review of literature on general areas of refurbishment activities, Hanley (1987<sup>245</sup>), Douglas (1988<sup>165</sup>) and Summers and Fellows (1987<sup>470</sup>), and after interviews with 32 training officers from 32 separate refurbishment organisations.

The layout adopted by Young (1988<sup>510</sup>), is most appropriate to the methodology of the present research, and therefore modified to meet the objectives of the study.
### 2.3.5. Pilot Questionnaire

Prior to sending out the final draft of the questionnaire to respondents, the questionnaire had to be piloted. An important part of the piloting process was to make sure that the questions provided the needed data. Furthermore, the pilot process was necessary so that difficulties, especially those of ambiguity and wording of questions were identified. In addition, it was important that the issues relevant in meeting the objectives of the study were not omitted.

The approach adopted followed that suggested by Dillman (1978<sup>162</sup>), who recommends that pre-testing should include different groups, such as colleagues, and potential users of the data.

The initial draft of the questionnaire was presented to colleagues at the University of Salford, and the author's supervisor, to invite comments and suggestions. As a result, a series of discussions were held separately with each of the persons mentioned. The results of the discussion proved to be useful, and led to refinement of the questionnaire.

By August 1992, the questionnaire was near completion, and the information gleaned from interviews with 32 training officers improved its validity. The questionnaire was now perceived by the author to be ready to be piloted, involving potential users of the data, i.e. refurbishment managers.

Questionnaires were sent out to sixteen managers from five different refurbishment contractors. After two follow-ups, twelve completed questionnaires were received, nine of which were duly completed without any comments regarding refinements to the questionnaire. Moreover, these respondents noted that the questionnaire was detailed, straight forward, and without ambiguity. The three remaining questionnaires were also completed, but the respondents highlighted areas that needed clarification. These three respondents were contacted by telephone, and asked for their co-operation in a face-to-face, short interview in order to further discuss the issues that they had raised concerning the questionnaire. The interviews took place three weeks after sending out the pilot questionnaire. The three managers helped to identify ambiguities and omissions. This eventually resulted in further refinement of the questionnaire.

The managers pointed out three variables in section B: Characteristics of refurbishment management - Question 10. (Questionnaire, Appendix A), which they perceived to be double barrelled questions that needed to be split up into separate variables. These were:- Material supply/handling; plant supply/restriction in usage and storage and disposal of site rubbish. The respondents' comments were duly attended to.

One of the managers also pointed out that there was an important characteristic of refurbishment which had to be included, namely, 'Liaison with tenant/occupiers'. This variable was included in the list as well. Apart from the comments on the list of characteristics of refurbishment, the respondents were of the view that the questionnaire was well structured, detailed and easy to understand.

After limited modification to the questionnaire, a more comprehensive questionnaire was finally developed, and ready to be sent out to refurbishment managers.

### 2.3.6. Administration Of The Questionnaire Survey

Questionnaire distribution occurred in October 1992, four months after completing the semi-structured interviews with 32 training officers. Postal questionnaires were mailed directly to 300 refurbishment managers, whose names were earlier obtained from the training officers interviewed. Each questionnaire was accompanied by a covering letter which contained inter alia, objectives of the study, sponsoring institution, benefits of the study to respondents, cut-off date for receipt of completed questionnaires, confidentiality of the identities of respondents and their organisations, as well as an inducement of a free copy of the summary of the results of the study, if interested. For those who indicated interest in having a copy of the summary of the result of the study, this was duly attended to. A thank you letter, a copy of which is appended (Appendix A) accompanying the summary conclusions was sent to the managers.

Several writers have shown that semi-personalised covering letters containing individually typed personalised salutations and individually signed by the investigator increases questionnaire response rate (Matteson, 1974<sup>350</sup>; Kerin and Harvey, 1976<sup>300</sup>; and Thompson, 1984<sup>478</sup>).

Similarly, the naming of the university sponsoring the research (Scott, 1961<sup>442</sup>; Albaum, 1987<sup>3</sup>), notification<sup>2</sup> of deadline for receipt of completed questionnaire

(Henley, 1976<sup>253</sup>) and granting anonymity and confidentiality (Futrell, 1981<sup>208</sup>; Futrell and Hise, 1982<sup>209</sup>) all have the effect of increasing response rate.

In addition, Linsky (1965<sup>331</sup>) has shown that explaining how respondents were selected and chosen for the sample, and why they were qualified to supply the information required, also increase response rate. All these guidelines were adhered to in producing the cover letter accompanying the questionnaire. A sample of the questionnaire and the covering letter are given in Appendix A.

By the end of the first week of sending out the questionnaires, 10 responses were received, this was followed by 17 in week 2. A follow-up was made to the non-respondents after 14 days of initial mailing, this took the form of a written reminder (see Appendix A). Having the names and office contact addresses of all participating managers, and also, as each questionnaire was reference coded (see top right-hand of the questionnaire (Appendix A), it was possible to target reminders to non-respondents.

The use of follow-up techniques have been widely accepted by researchers as having significant effects in improving the response rate ( Levine and Gordon 1958<sup>327</sup>; Robins, 1963<sup>425</sup>; Eckland, 1965<sup>172</sup>; and Bouchard, 1976<sup>51</sup>).

Forty responses were received in the third week, in addition to the 40 responses, 15 respondents wrote to the author, indicating that they had not received the questionnaire, and requested that another copy be sent to them. This was attended to immediately.

In week four, a second follow-up was made to non-respondents. This was also in the form of a written reminder. However, in this case, a copy of the questionnaire and the original covering letter were enclosed. This procedure followed the suggestion of Futtrell and Lamb (1981<sup>210</sup>) who noted that at least one follow-up with a questionnaire is required. In enclosing a replacement questionnaire, the respondents have something to return. As Futtrell and Lamb (1981<sup>210</sup>) pointed out, "For the return rate to increase, there are two necessary conditions - motivation and opportunity. The respondents must be willing to return the questionnaire which additional mailing may help and must have a questionnaire to fill out and return" p 15.

In week five, fifty more responses were received. In addition to this, five more of the participating refurbishment organisations telephoned and notified the author of the managers that were no longer in their employment.

In all, the author was notified of seventeen names. The recession and poor economic climate had forced the organisation to lay-off some of their managers. Also, twelve managers wrote directly to the author, to say that they would not be participating in the study because of heavy work-loads. In addition, two letters from the directors of two separate organisations sadly revealed that two managers had passed away.

In an attempt to further increase the response rate, non-respondents were contacted by telephone. Telephone contacts took place six weeks after initial mailing. This procedure followed the suggestion of Williams and Wechsler (1970<sup>502</sup>). Also, Kanuk and Berenson (1975<sup>290</sup>) noted that each follow-up effort appears to bring added returns. This view is also supported by Erodos (1970<sup>182</sup>), Goulet (1977<sup>225</sup>), Goldstein and Friedman (1975<sup>223</sup>) and Ferrel and Krugman (1983<sup>192</sup>). All the respondents contacted promised to "look into the issue" at their earliest convenience.

By the end of the eighth week after initial mailing, a total of 156 questionnaires were returned. Of these, five were incomplete and un-usable, five were blank and four questionnaires were ruled "out of scope" (Hoinville et al., 1978<sup>263</sup>). The questionnaires ruled as out of scope had been returned by two foremen and two public relations officers who are not in the sample population. As a result, the number of usable questionnaires was reduced. In total, 142 completed questionnaires provided quantitative data for analysis, representing a response rate of 47.33%. Of the 142 responses, 108 (76.06%) were managers of specialist refurbishment organisations and 34 (23.94%) were from managers of general refurbishment organisations (see Figure 5).

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In specialist refurbishment organisations, refurbishment work accounts for 50% or more of turnover of total construction work, and for general refurbishment organisations, refurbishment work accounts for under 50% of turnover of the total construction work.

In terms of responses received by level of management, 60 (42.25%) were received from junior managers, 59 (41.55%) from middle managers, and 23 (16.20%) from senior managers (see Figure 6). Without exception, all the 142 respondents to the questionnaire are male managers.



For statistical reasons, the percentage of usable returns was considered acceptable. As will be demonstrated in the following chapters, the data from 142 responses are capable of rigorous statistical treatment. The sample population is sufficient to allow statistical testing.

### 2.3.7. Follow-up Study: Semi-structured Interviews With Refurbishment Managers

In July 1993, it was necessary to carry out a one month follow-up study. This took the form of semi-structured interviews with 22 refurbishment managers (7 senior, 7 middle and 8 junior managers). These managers were from 10 of the 32 participating organisations, who had earlier participated in the questionnaire phase of the study. The co-operation of these managers was obtained through telephone contacts. These 22 managers are part of the 142 managers who received the postal questionnaire and responded to it. The objectives of the semi-structured interviews with refurbishment managers are:-

- (i) To validate and compare some of the results obtained from the questionnaire analysis, as well as results from the views of 32 training officers.
- (ii) To obtain further in-depth qualitative information and reasoning behind some of the vagaries of refurbishment processes, from those actually involved in the management of such projects.

The interview format with refurbishment managers is enclosed in Appendix A. Managers volunteered information concerning :-

## Structure Of Organisation

- Formal structure, centralised/decentralised nature of organisation, reporting relationships between levels of management, frequency of site visits by managers.

## **Refurbishment Characteristics**

- Degree of difficulty of refurbishment characteristics in general, and the degree of difficulty by type of refurbishment work.

## Management Skills/Knowledge For Refurbishment

- Degree of importance of management skills/knowledge (present and future).

#### Management Education And Training Needs

- Degree of need for management education and training (present and future).

- Attendance of training courses for refurbishment within the last two years.

- Likelihood of attending courses for refurbishment, if relevant and suitable courses are available.

#### Miscellaneous

Qualities and attributes needed to effectively accomplish a refurbishment project.
The effect of managers' education/training background on ability to manage refurbishment work.

## 2.4. Statistical Techniques And Measures Used In The Study

The purpose of the data collection is analysis. The methods adopted for the data analysis invariably depend on the nature and complexity of research questions employed at meeting the objectives of the study.

For this study, the Statistical Package for the Social Sciences (SPSS: PC Version 5) was used for data transformation and analysis. In most cases, the results are presented in tabular format and include summary statistics.

Data for the study also received rigorous treatment. The following are test statistics employed in hypotheses testing, reduction of data or in preparation of typology:-Fisher's (1970<sup>197</sup>) Chi-square, Kendall's (1967<sup>299</sup>) Tau<sub>c</sub>, Factor analysis associated with Spearman's 1904 pioneering work (Kendall, 1980<sup>298</sup>), Kendall's coefficient of concordance W (Kendall, 1980<sup>298</sup>; Siegel, 1956<sup>448</sup>); Spearman's coefficient of correlation (Siegel, 1956<sup>448</sup>; Rees, 1989<sup>417</sup>). Statistical formulae for these measures are given in Appendix A.

The test statistics employed for testing hypotheses, was at a 5% level of significance.

## 2.5. Summary And Recommendations

This chapter attempted to describe in detail the methodological approach adopted in this study. The methodologies adopted comprise semi-structured interviews with 32 training officers from 32 separate refurbishment organisations (general and specialists) and postal questionnaires which yielded a response rate of 47.33%. This was further reinforced by semi-structured interviews with 22 refurbishment managers, primarily to validate results of the study.

The problems encountered and the strategies employed to minimise them, have been discussed. Also, the statistical techniques and measures used for data analysis were presented.

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On the whole, the methodological approach proved successful. The research instruments applied have provided the kind of information needed for the study, information which relates to management education and training, management skills/knowledge, and the nature and characteristics of refurbishment work.

The methodology adopted in the present study is recommended to researchers who are interested in exploring the difficulties and characteristics associated with other sectors of construction and other industries. Also, for researchers involved in establishing skills, knowledge, attributes, and education and training needs of managers/personnel from different industrial sectors, the methodology employed in the present study may be useful.

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# **CHAPTER THREE**

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# THE IMPORTANCE AND GROWTH OF THE REFURBISHMENT SECTOR

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#### **3.0. THE IMPORTANCE AND GROWTH OF THE REFURBISHMENT SECTOR**

## 3.1. Introduction

This chapter starts by defining refurbishment in the context of the present study. It also provides background information on the importance and growth of this sector of the UK construction industry. There are many factors that have given impetus to the growth in the refurbishment market. These factors are duly considered. However, the growth in refurbishment has not been matched by comparable research in the management domain. Attention is also given to this.

### 3.2. Defining Refurbishment Work For The Present Study

One of the difficulties which confronts anyone interested in construction works carried out on existing buildings, is the fact that there is no distinction between the various activities conducted on existing buildings. This results in overlapping definitions in terminology.

For refurbishment, this has led to various definitions put forward by practitioners, researchers and professional institutions.

In defining refurbishment, Marsh (1983<sup>346</sup>) notes:-

"This is the hard-headed business of making use of what is usable in the ageing building stock; the skilful adaptation of a building shell (which is valuable in its own right and not due to any historic mystique) to a new, or an updated version of its existing use". p3

Norman Douglas (1988<sup>165</sup>), Director of Costain Construction Limited (Refurbishment Division), defined refurbishment as:-

"A process of changing a building or indeed an area previously unusable or unsuitable, to a condition where it becomes usable at a standard acceptable to the community. It may involve substantial change of use. This also includes improvement which is less dramatic and does not usually involve change of use. Repair and maintenance also enters into this section of the building industry, which implies the continuing up-keep of a building stock to existing standards". p67

As regards maintenance, the British Standard Institution (BSI, 1974<sup>66</sup>) is of the view that maintenance is a combination of any actions carried out to retain an item in, or restore it to, an acceptable condition.

In attempting to distinguish building maintenance from the refurbishment and modernisation market, Ian Dixon (1990<sup>163</sup>), Past President of the Chartered Institute of Building (CIOB) notes that building maintenance "is that process concerned with the restoring to good condition any part of a building that is in any way defective, or non functioning" p xlii. He further adds that refurbishment and the modernisation market are concerned with alteration, addition and enhancement to buildings on both small and large scale" p xlii.

Marsh (1983<sup>346</sup>) emphasised that "refurbishment is also nothing to do with maintenance, although, in the process of adapting a building shell for revised use, maintenance will have to be carried out on the existing structure. But this is a secondary component of refurbishment and should not be confused with its primary purpose" p 3.

In its code of estimating practice, supplement number one, the CIOB (1987<sup>107</sup>) defines refurbishment as :-

"The alteration of an existing building designed to improve the facilities, rearrange internal areas and/or increase the structural lifespan without changing its original function". p2

A definition put forward by Hall (1984<sup>238</sup>) is that "refurbishment refers to the process of repair, conversion and alteration of existing buildings to permit their reuse for various specified purposes".

Hall (1984<sup>238</sup>) classified refurbishment work into four main categories, which are:-

- (i) Alteration: Work which is carried out to change the structure of a building to meet new requirement. For instance, changing the internal layout of a building.
- (ii) Adaptation: Work which is carried out to accommodate a change in use of a building.

- (iii) Extension: Work which is carried out to increase the floor area of a building and includes both horizontal and vertical extensions.
- (iv) Improvement: Work which is carried out to bring a building and its facilities up to an acceptable standard.

In the context of the present study, refurbishment works should be understood to mean such works as improvement, adaptation, upgrading, rehabilitation, renovation, modernisation, conversion, retrofit, repair and fitting out, carried out on existing buildings for varying specified reasons. However, this definition excludes repair and maintenance works which are carried out on a routine basis, such as cleaning, painting and decorating, as well as emergency maintenance work.

## 3.3. The Refurbishment Sector Of The UK Construction Industry

The Repair and Maintenance (R&M) sector has traditionally been regarded as the "poor cousin" of the new build sector and the "Cinderella" of the construction industry.

However, within the last two decades, there has been a significant increase in refurbishment work in relation to total volume of the UK construction output. In 1970, the R&M sector accounted for £1,109m or 22.46% (DOE 1981a<sup>154</sup>) of total construction output. By 1990, it accounted for £18,743m or 42.88% (DOE 1992<sup>158</sup>), an increase of 90.92%.

The R&M sector rose steadily during 1986 to 1989 as illustrated in Figure 7, commanding over 40% of total construction output, thus contributing significantly to overall construction output.

Following several years of steadily rising output which peaked in 1989, output fell sharply as the economy plunged into recession; dropping to  $\pounds 6,411$  billion in 1992, the lowest level in real terms since 1983.

In the UK construction industry, the decline in new work is set to continue with marginal growth forecast (JFC, 1993<sup>284</sup>) for 1994 - 1995. The R&M sector is expected to recover by six percent by 1995.

Figure 8 shows a breakdown of the components of the R&M output, with the greatest proportion of the work carried out on private housing.

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Sourcei- JFC Construction Forecasts; Winter 1993; p4



Source: JFC construction forecasts, Winter 1993, p78

At present (1994), in the UK, there are unfortunately no official statistics that exist on the actual value of refurbishment work. Although, the DOE's statistics on the R&M sector are generally accepted by practitioners, government establishments and academics as the basis for monitoring trends in the refurbishment sector, they do not take account of "DO-IT-YOURSELF" work, which is carried out by many house owners. The black economy is not represented either. The actual size of refurbishment work is probably much larger in view of the DOE's classification and unreported work.

In recognition of the shortcomings of the DOE statistics, and the importance of the refurbishment sector, there have been moves to provide separate and more accurate statistics (CCMI, 1988<sup>97</sup>) on the value of work carried out on existing buildings.

## 3.4. Factors Influencing The Growth Of Refurbishment Work

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The growth in refurbishment work, especially in the 1970's and 1980's has been fuelled by a number of factors, which are, in the main, related to social, political, economic, technology, planning constraints, large stocks of redundant and ageing buildings, and health & safety controls.

### 3.4.1. Social Factors

Increasing and sustained pressure from social and preservationist groups such as SAVE Britain's Heritage formed in 1975, the Society for the Protection of Ancient Buildings, and the Building Conservation Association founded in 1977, in favour of maintaining and keeping communities together as opposed to slum clearance, have contributed to the growing demand for refurbishment. The strong movement towards conservation and preservation and away from demolition as championed by the English Heritage (formerly the Historic and Monument Commission) has further fuelled the growth in refurbishment (Catt, 1992<sup>94</sup>).

Shortages of land (Turner, 1987<sup>483</sup>), and the "explosion in land prices" (Robinson, 1987<sup>426</sup>) especially in the South East of England, during the mid-late 1980's, have increased demand for refurbishment of buildings as opposed to redevelopment. In the same vein, the gradual decline in the average household size in the UK (Fleming and Nellis, 1992<sup>199</sup>) has fuelled the conversion of larger houses into smaller units, thereby increasing residential refurbishment.

Also, taste and fashion in shopping and retail developments have led many developers and investors, each independently, to upgrade and modernise their premises in order to stimulate demand.

### 3.4.2. Political Factors

The growth in the refurbishment market has been influenced by changes in the political climate of the UK. Within the last fifteen years, under the Conservative government, the economy has seen drastic restructuring. This is particularly evident in the decline of old forms of sea port and manufacturing activities (Raftery, 1988<sup>416</sup>). A resultant of this, is a stock of redundant industrial buildings requiring upgrading, modernisation or conversion for residential and/or commercial use.

The 1980's saw a great amount of interest and importance placed on regenerating and renewal of the existing building stock. Many buildings, especially those in the inner cities as observed by Hillebrandt (1984<sup>257</sup>), have been under-utilised, wrongly utilised or have even become dilapidated. The result of this is that these buildings and run-down areas tend to generate social problems, such as vandalism and graffiti. This has led both the government and the private sector to embark on new initiatives to tackle the problem.

Similarly, there has been growing interest in the regeneration of City Centres, which is seen not only as socially necessary, but politically desirable.

In July 1981, the government launched an "urban programme" scheme requesting all local authorities to embark on such a scheme (DOE, 1981b<sup>155</sup>; Stewart & Whitting, 1983<sup>463</sup>). The initiative would improve, not only the physical environment, but also upgrade local services and amenities of the communities in the urban areas.

In general terms, in a favourable economic climate with low interest rate, a low level of inflation, a high level of employment and a growing gross domestic product, there is increased commitment from the government to increase its public expenditure on construction activities, including refurbishment. The reverse is the case during depressed market conditions.

During recession, there is an added need for conservation of resources and waste avoidance. This means that the vacant building stock will have to be re-used. During these times, the government curtails expenditure on new programmes. The oil crisis and the market crash of the 1970's in the UK are examples of recessionary times, so is the current economic condition of the early 1990's. More attention is focused on refurbishing existing buildings rather than in redevelopment.

## **3.4.4.** Technological Factors

Advances in technology, in office automation and computerisation, especially in the wake of the "Big Bang", coupled with the fact that tenants and firms are increasingly becoming image conscious, demanding higher standards of accommodation, modern communication systems and building services, have all fuelled the need for refurbishment.

Similarly, the advent of intelligent buildings and facility managers upgrading their properties to accommodate end users needs, have had the effect of increasing demand for refurbishment work.

Office buildings of the 1960's and 1970's in comparison with modern buildings, do not provide adequate floor to ceiling heights (IMR, 1987<sup>275</sup>) needed to accommodate modern electronic equipment and communication systems, as well as suspended ceilings needed for air conditioning systems. Extensive refurbishment and upgrading work are therefore called for if the requirements of tenants and firms are to be met.

## 3.4.5. Planning Constraints

Constraints on planning have also contributed to the growth of the refurbishment market. Many buildings of architectural and historical value are "listed". These buildings are only permitted to be refurbished and upgraded and not redeveloped.

In accordance with section 55(2)(a) of the Town and Country Planning Act (TCPA) 1990 and its predecessors, planning permission is not required where work is carried out for the maintenance, improvement or other alteration of a building which will affect only the interior of the building, or will not materially affect the external appearance of the building.

Also, Class A of Part 1 of the Town and Country Planning General Development (Amendment) Order 1989 (SI No 603), automatically confers planning permission on the enlargement, improvement or other alteration of a dwelling house provided its cubic content is not exceeded by more than 50 cubic metres or 10% whichever is greater, or in other cases, 70 cubic metres or 15% whichever is the greater. These limits must be applied to the original building as existing on 1 July 1948, or if built later, as first built; and right to extend is a "once and for all" right. This possible extension associated with refurbishment accounts in some cases for the combination of refurbishment with new build activities.

Most older buildings have a higher plot ratio than new buildings (Highfield, 1987<sup>255</sup>). Applications of plot ratio control in the restriction of new developments favour refurbishment and rehabilitation work. Also, in some cases, the sheer difficulty in obtaining planning consent will push developers and investors alike towards refurbishment than redevelopment.

## 3.4.6. Large Stock Of Redundant And Ageing Buildings

A large stock of redundant and ageing buildings has also contributed to the growth in the refurbishment market. The English Housing Condition Survey (DOE,  $1988^{156}$ ), indicated that in 1986, of the 18.8 million dwellings in England, there were 1.05 million dwellings unfit to live in, 0.54 million dwellings which lack basic amenities and 1.11 million having "serious" disrepair. This extensive catalogue of unsatisfactory properties necessitates an investment in the range of £18 - 30 billion (Thomas and Acher,  $1989^{477}$ ). This report, augmented by the declining conditions of not only residential buildings, but also industrial and other commercial buildings, have exerted great pressure on both the government and individual home owners alike to carry out refurbishment and rehabilitation work.

## 3.4.7. Health & Safety And Statutory Controls

Regulations imposed by the government to ensure the health and safety of occupants and building workers, which in some cases are stringent, have influenced the growth of refurbishment work. Also, building regulations concerning means of escape and other fire safety regulations, access, ventilation, energy conservation and, the use of acceptable building materials, result in many buildings failing to meet the minimum standards. This has meant that buildings, especially those of the 1950's, 1960's and 1970's have to be refurbished and improved to meet these requirements.

Unfortunately, the growth in the refurbishment sector, especially in the 1970's and 1980's has not been matched by comparable research in the management domain of refurbishment. Little is known about the major characteristics and difficulties which confront managers in the course of carrying out refurbishment work, and the frequency at which they occur. Similarly, the strategies and means which refurbishment managers employ in mitigating refurbishment difficulties remain unclear.

#### 3.5. Summary

This chapter has provided a working definition for refurbishment for the present study. The importance and place of refurbishment in the UK construction industry also received attention. Besides, this, the underlying factors for the growing demand for refurbishment namely, social, political, economic, technology, planning constraints, large stock of redundant and ageing buildings were duly considered. In addition, health, safety and statutory controls were also taken into account.

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Evidence provided suggests that the refurbishment sector will keep contributing significantly to the overall UK construction output for many years to come.

# **CHAPTER FOUR**

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# CHARACTERISTICS AND DIFFICULTIES ASSOCIATED WITH MANAGING REFURBISHMENT WORK

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## 4.0. CHARACTERISTICS AND DIFFICULTIES ASSOCIATED WITH MANAGING REFURBISHMENT WORK

## 4.1. Introduction

The subject of general management has attracted endless attention and volumes of published material. Few researchers such as Melles et al.  $(1990^{352})$  and Hutcheson  $(1990^{273})$  have specifically commented on the difficulties and problems associated with managing construction work.

A thorough review of literature on management of construction does not inspire confidence, and it gives little comfort. Published material tends to be subjective and with mainly anecdotal elaborations. Limited to a handful of empirical studies, researches focus on the normative aspect of construction management domain (British Property Federation, 1983<sup>65</sup>) with particular emphasis on new build work; and on problem areas facing professional practice in construction (Birchall and Newcombe, 1985<sup>43</sup>). As for the area of refurbishment management, it remains relatively unresearched (Hanley, 1987<sup>245</sup>; Dixon, 1990<sup>163</sup>; Quah, 1991b<sup>413</sup>; Young and Egbu, 1992a<sup>515</sup>, 1992b<sup>516</sup>).

Perhaps, the limited amount of empirical studies in the management domain of refurbishment, and indeed, in construction management, is an indication of how problematic it is to study and measure the content of complex phenomena. Researchers such as Stewart (1979<sup>465</sup>), Mintzberg, 1980<sup>356</sup>; and Stone, (1982<sup>467</sup>) are in agreement that measuring management job content is difficult, as management tasks are numerous and unsystematic. The characteristics of the construction

industry, it would appear, does not make the task any easier. The construction industry is regarded as a "special" and "unique" industry (International Labour Organisation (ILO), 1983<sup>278</sup>; and Hillebrandt, 1984<sup>257</sup>). If construction is a special industry, the ILO (1983<sup>278</sup>) maintains, it follows that construction management must also contain approaches that differ in emphasis from general management practice.

Most of what differentiates the construction industry from other industrial sectors stem from the characteristics of the construction industry itself, and the activities carried out within it. Eight main characteristics associated with construction activities can be considered with this discourse. They are:-

(i) Construction projects (apart from repetitive housing) are in the main, of a oneoff discrete nature (ILO,1983<sup>278</sup>), necessitating a flexible organisation structure to cope with constant change. This contrasts with the "steady state" organisations, such as hospitals and mass-production factories, where a good proportion of tasks can be reduced to a routine.

(ii) Construction work is carried out in the open and therefore, subject to weather forces (ILO, 1983<sup>278</sup>; Hillebrandt, 1984<sup>257</sup>; and Bufaied, 1987<sup>71</sup>).

(iii) Construction activities, especially public works, are frequently used as a form of economic regulator (Hillebrandt, 1984<sup>257</sup>, 1985<sup>258</sup>; ILO, 1983<sup>278</sup>; and Turner, 1987<sup>483</sup>), resulting in the industry being unable to rely upon a steady workload to ensure continuous employment of its resources. Government public spending on house building, roads, bridges, hospitals and schools has a direct effect on construction activities. On the other hand, government policy, for example, on interest rates, wages and expenditure, has an indirect influence on issues such as demand for housing, offices and shops (Turner, 1987<sup>483</sup>). Also, the national preference of certain construction materials, helps to ensure that import penetration of construction materials is reduced. Thus, in this way, the construction industry is used by government to expand the economy without exerting direct pressure on the trade balance. As Turner (1987) pointed out, the construction industry "... is also one of the most sensitive to government influence, since it is affected directly and indirectly by changes in economic policy". p16.

(iv) Construction works involve a high volume of specialist works, such as building services, mechanical and electrical (M & E) works which includes such activities as lifts and air conditioning services. Construction works also involve a wide range of trades and activities, for example, bricklaying, plastering, joinery, plumbing and painting.

(v) Construction activities are labour intensive (Clark, 1992<sup>115</sup>; Hillebrandt, 1984<sup>257</sup>; Weatherhead, 1985<sup>490</sup>; and Turner, 1987<sup>483</sup>), since the various trades and activities involved in construction involve manual labour craft skills. Unlike manufacturing products and activities that lend themselves to mass-production, construction products are, in the main, one-off products involving more labour input in its production. Weatherhead (1985<sup>490</sup>) notes that "labour costs are an expensive element of construction". pg 183.

(vi) The construction industry has a casual nature of employment, and this hinders the development of work patterns (ILO, 1983<sup>278</sup>). Construction workers adopt a nomadic way of life, moving not only from job to job, but also from employer to employer as opportunities arise. This makes the organisation of casual workers difficult. Similarly, for trade unions, this reduces their negotiation and bargaining capabilities for more favourable conditions of employment.

(vii) The construction industry is fragmented. According to the DOE (1992<sup>158</sup>) Housing and Construction Statistics, the UK construction industry consists of more than 207,000 firms, 195,000 of these employ fewer than eight people. Although only about 100 firms employ 600 or more people, they account for about 20% of the industry's output. Typically, the industry contains a small number of relatively large firms and a very large number of quite small firms.

The fragmentation of the construction industry reflects the economics of production, encouraging small firms organised by trade or craft. Two issues are important. Firstly, construction products (eg. houses, roads and bridges) are immobile, construction firms have to go to the customer, and each construction site or location is a temporary place of work. Secondly, every construction order is specific to a given type of construction activity. These two factors reduce the scope of economics of large scale production. Turner (1987<sup>483</sup>), is of the view that, as some buildings can be produced in factory conditions and assembled on site, "only few large contracts exist for such projects, and therefore smaller companies are at no disadvantage" p16.

(viii) The absence of entry and exit barriers, limited scope of collusion and the large number of small firms, (94% of firms employ fewer than eight people), make construction a competitive industry. Low barriers to entry are a consequence of the industry's limited capital requirement (Turner, 1987<sup>483</sup>).

It is under these conditions that the managers of construction activities have to work. In addition to these, new contractual procedures; new technology; and clients becoming more sophisticated than ever, emphasizing and demanding tight completion dates and high quality standards, will compound the issues for those managing construction work. As Mustapha and Langford (1990<sup>368</sup>) note "management of construction work is getting tougher. Projects are becoming much more complex and difficult" p346.

With the opening up of Europe, with different construction practices that are likely to ensue, and also greater competition, the situation is not going to get any easier.

Similarly, in the UK construction industry, self employed labour and sub-contracting are on the increase (CSSC, 1988<sup>98</sup>; and Clark, 1992<sup>115</sup>). "Although accurate information on the numbers employed in construction is impossible to collect" (CSSC, 1988) because of the casual nature of the construction industry, Clark (1992<sup>115</sup>) notes that there was a 62% growth in self-employment between 1970 and 1986.

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Increased subcontracting on a project is associated with project complexity (Bufaied, (1987<sup>71</sup>). Clark (1992<sup>115</sup>) maintains that the amount of management on site has not been reduced as a result of increased sub-contracting, rather, the reverse is the case, thereby creating an extra layer of supervision.

The discussion so far has concentrated on the characteristics of the construction industry, and their impact on managers, from a general construction management perspective. The management of refurbishment processes, it has been noted, demands greater management attention and supervision (Koehn and Towers, 1982<sup>306</sup>; Whiteman, 1987<sup>497</sup>; Charmer, 1985<sup>103</sup>, 1987104<sup>99</sup>; and Dixon, 1990<sup>163</sup>) than general construction management. Sidwell (1984<sup>446</sup>) is of the view that refurbishment work is more labour intensive than new build construction. This view is also supported by NEDO (1978<sup>377</sup>) and Weatherhead (1985<sup>490</sup>). The NEDO (1978<sup>377</sup>) report titled 'How Flexible Is Construction', states that "preliminary results for housing repairs indicate that the input of man-days per £1,000 is considerably higher than that required for new work". Productivity levels are also lower in refurbishment work, when compared to new build (Sidwell, 1984<sup>446</sup>; Weatherhead, 1985<sup>490</sup>; Bland, 1978<sup>47</sup>; and Willenbrock et al., 1987<sup>501</sup>). Sidwell, 1984<sup>446</sup>, concludes that "... the nature of refurbishment projects places great emphasis on the flexibility and management skills of the building team".p.23.

A better understanding of the characteristics and difficulties associated with managing refurbishment work within an industry which, in itself is complex and difficult, is important and needed. It would not only facilitate our knowledge of a manager's job, but is needed to improve theoretical study and practical utility. It is therefore the purpose of this part of the study to evaluate the characteristics and difficulties of refurbishment management in order that:-

(i) Refurbishment organisations could become more knowledgable about refurbishment processes, and may become more attuned to client's needs.

(ii) An understanding of the characteristics, difficulties and demands of refurbishment processes will assist in both the identification of responsibilities and level of training.

(iii) Awareness and knowledge of the difficulties of refurbishment characteristics, and how they can be best overcome, should be of value to the individual manager; as it could lead to an increase in job satisfaction.

## 4.2. Characteristics And Difficulties Associated With Managing Refurbishment Work

To commence the analysis, the difficulties that confront managers in carrying out refurbishment work will be presented at the aggregate level. This will be followed by the degree of difficulty of refurbishment characteristics at senior, middle and junior management levels. Data by types of organisation - specialist and general refurbishment organisations will also be presented.

Another dimension will be taken into account in order to explore in more detail, the difficulties associated with managing refurbishment work. From the literature review, the most common and widely undertaken types of refurbishment projects in the UK

were identified. Manager's perceptions, through semi-structured interviews, were sought as to the difficulties associated with the different types of refurbishment projects. Similarly, the difficulties associated with working in occupied and unoccupied buildings received attention.

A list of refurbishment characteristics was derived from a thorough review of general literature on refurbishment, especially that of Koehn and Tower, 1982<sup>306</sup>; Catt, 1983<sup>93</sup>; Jothiraj and Fellows, 1986<sup>287</sup>; Summers and Fellows, 1987<sup>470</sup>; Willenbrock et al, 1987<sup>501</sup>; Hanley, 1987<sup>245</sup>; and Douglas, 1988<sup>165</sup>; and then modified after interviews with 32 training officers from 32 refurbishment organisations.

From this list which comprised 33 characteristics, refurbishment managers were asked to identify those characteristics which they find difficult in managing refurbishment work, "very difficult", "difficult", "fairly difficult" and "not difficult". These categories were coded 1, 2, 3 and 4 respectively. (See Questionnaire in Appendix A). Average scores are then computed from ordinal coding of these data.
### <u>Table 3: Degree Of Difficulty Of Refurbishment Characteristics: Refurbishment</u> <u>Managers</u>

<u>Characteristics</u> <u>M</u>	$lean \ Score \ (N = 142)$	<u>Rank</u>
Cost control	1.528	1
Dust control	1.641	2
Influence of tenants on regular progress of	works 1.669	3
Pricing of the works	1.711	4
Variation/change order to the works	1.739	5
Noise control	1.746	6
Site security	1.754	7
Storage of building materials and plant	1.782	8
Site access	1.873	9
Time prediction for completion of the work	ts 1.908	10
Handling and disposal of hazardous/toxic su	ubstances 2.014	11
Keep site tidy	2.028	12
Maintaining existing services	2.056	13
Productivity control and maintenance	2.106	14
Maintaining site safety and welfare standard	ds 2.141	15
Decanting buildings for commencement of	work 2.155	16
Protecting the general public	2.162	17
Programming and scheduling of works	2.169	18
Quality control and assurance	2.169	19
Contract documentation/arrangement	2.225	20
Restriction on working hours	2.246	21
Protecting the works & adjacent buildings	2.246	22
Materials handling	2.261	23
Handling and disposal of site rubbish	2.317	24
Long and unsociable working hours	2.408	25
Restriction in plant usage	2.430	26
Supervision of the works	2.444	27
Liaison with tenant/occupier	2.458	28
Selection and recruitment of workforce	2.648	29
Materials supply	2.732	30
Coping with employee stress & absenteeisn	ı 2.817	31
Building regulations & other statutory contri	col 3.035	32
Plant supply	3.338	33

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As mean score increases, the degree of difficulty decreases. It was necessary that managers were not specifically asked to identify those characteristics they find difficult in their present job. This has the benefit of allowing manager's perceptions of the degree of difficulty of refurbishment characteristics, to be based on their general experience and involvement with refurbishment work. Table 3 presents the full list of the degree of difficulty of refurbishment characteristics as perceived by 142 refurbishment managers who participated in the questionnaire phase of the present study.

An inspection of Table 3 shows that managers ranked cost control as the most difficult refurbishment characteristic. The high risk and uncertainty (Quah, 1988<sup>393</sup>; Teo, 1990<sup>473</sup>) associated with refurbishment work, make cost control and the cost planning processes difficult. As Pickford (1983<sup>401</sup>) maintains, "It is easy to calculate the cost of new building quite accurately, but with restoration the cost is a great unknown" p95. Similarly, as Ferry and Brandon (1991<sup>193</sup>) noted, "... being aware and keeping the client aware of the current cost situation is even more important than usual on this [refurbishment] type of project, where in spite of everybody's effort the cost commitment is always liable to escalate at fairly short notice". p 250.

In his article titled "Refurbishment: Formulae for Success", Walters (1991<sup>486</sup>) pointed out three underlying problems in refurbishment costs. These are :-

(i) More design variables such as re-alignment of floors in order to provide space for services, and underpinning operations to strengthen foundations, contribute to greater total cost than in new build and therefore less useful cost data is available for estimating purposes.

(ii) Refurbishment "can be viewed differently by individual tenderers", creating wide tender ranges and adversely affecting the price base stability for collection of data. The view that tender bids for refurbishment work are more variable than new build work is supported by the Chartered Institute of Building (CIOB, 1987<sup>107</sup>) and Quah (1990<sup>411</sup>, 1992a<sup>414</sup>). The CIOB (1987<sup>107</sup>) notes that "... comparative statistical studies of tender bids for refurbishment and new building projects show that the bidding range for refurbishment projects is consistently more variable than new work" p1. Quah (1992a<sup>414</sup>) in her article on "Comparative variability in tender bids for refurbishment is 0.0075 (Mean CV = 7.5%). This value is 1.6 times higher than that of new build work. Quah, 1988<sup>410</sup>, is of the view that the variability in tender bids for refurbishment work has its origin in a variety of factors such as :-

- Unsuitablilty of tender documentation which often fails to convey the scope and extent of the work.

- High reliance on domestic sub-contractor's quotation.

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- An assortment of different sized contractors involved in competition to win work.

(iii) Tender price levels for refurbishment will often not move in parallel with new work. Sparrow (1989<sup>458</sup>) maintains that there is an abundance of data for estimating the cost of new build, but this is not so for refurbishment work. This view is shared by Smith, 1983<sup>456</sup>; Chapman, 1980<sup>102</sup>; Quah, 1986<sup>409</sup>; and Walters, 1991<sup>486</sup>.

Dust control is one characteristic of refurbishment work which managers find very difficult, even with the use of dust control equipment and screens. This characteristic is ranked second in degree of difficulty. (See Table 3).

The problem of dust control is compounded when working on buildings with a high content of demolition work, and also buildings with tenants in occupation, such as hospitals and hotels. Even if most of the work is carried out at weekends and at night, the dust problem is still difficult to overcome. Finding stocks, papers and furniture covered in dust every morning, maintains Ferry and Brandon (1991<sup>193</sup>), is one of the greatest irritants to occupants and tends to lead to complaints about everything else.

Tenants influence on regular progress of the works is another most cited characteristic which managers find very difficult. Tenants can influence the progress of the work in a variety of ways. Two examples are useful at this point :-

(i) In housing refurbishment, with tenants still in occupation, the tenants may not allow refurbishment operatives into the house until breakfast is completed and children sent to school. Similarly, operatives may be made to stop work while lunch is served and eaten. (ii) In refurbishment projects such as offices, banks, schools, hospitals and churches, there may be stipulated times where refurbishment operatives will have to stop work and vacate the building for safety, security and religious reasons.

The dilemma faced by managers in this instance, especially with occupied buildings, is two fold, making progress with the works; and maintaining good relations with tenants and satisfying their needs. Influence of tenants on regular progress of the works leads to abortive time in refurbishment, i.e. time lost through restrictions imposed by tenants. This has the effect of reducing labour productivity.

Pricing of the works, variations to the works and noise control are ranked 4th, 5th and 6th respectively (see Table 3).

The high ranking of pricing of the works by managers as being difficult is not surprising, since for most refurbishment work, the content of the work cannot be ascertained before commencement. For example, refurbishment work, when "opened up", could reveal deterioration of the fabric and fittings damaged by adjacent building works. It could also reveal asbestos and other toxic substances, such as lead, which would have to be made safe. This means that the price of the works is difficult to ascertain, especially at the outset. Price control and monitoring of the works become necessary.

A similar explanation can be offered for variation/change order to the works. As work progresses, variations/changes would have to be made to the works, in order to accommodate the unexpected. Such changes could involve underpinning to strengthen foundations, strengthening walls and floors, or even a complete change of roof structure because of structural weakness. As Albert Murcutt (1979<sup>367</sup>), a Director of Shepherd Construction Limited (UK), noted "It is impossible to determine before hand all the work to be undertaken, and although sensible provisions can be made at tender stage, nevertheless, the hidden detail and the unexpected will always arise" p109. Increased variations means that the works would need to be monitored more closely and regularly.

As refurbishment work frequently involves stripping out, demolition and the use of small powerful tools, this increases the levels of noise and vibrations on refurbishment sites. The responsibility for protecting the workforce, tenants, adjacent building users and the general public from noise, rests with the site management team. There might be the need to employ noise control measures such as mufflers on tools, ear defenders and sound acoustic sheets.

Site security is ranked 6th in order of difficulty. The issue of site security is heightened when works are carried out on sensitive premises such as Ministry of Defence (MOD) buildings, airports, banks, and where the sensitivity of documents and equipment demand attention and protection. When working in these sort of environments, the workforce and the site management team may be submitted to random searches for the bringing in or removal of 'unwanted' materials to and from site. Site access restriction was also cited as being difficult, and ranked 9th. This is compounded when work is undertaken which involves refurbishing on very restricted urban sites, between existing buildings and in close proximity to the public and highways. Access restrictions on refurbishment sites have far reaching implications on the works. It may exacerbate the problems of handling and storage of materials. Inadequate site storage will invariably restrict the amount of materials purchased and brought to site, which means that the contractor will not benefit from the economies of scale. This may also lead to increase in transportation costs, double handling and more management time and effort in the co-ordination of materials on site. Site access restrictions also have implications on labour and plant resources. Site restriction means that the workspace and physical movement of the workforce will be hampered, leading to increase labour hours and additional costs. This could ultimately impinge on both productivity and efficiency levels, and profit margins.

Similarly, for plant and machinery, use is restricted. This has the effect of reducing the choice of plant and machinery employed for the works, thereby making the work more labour intensive (NEDO 1978<sup>377</sup>; Weatherhead 1985<sup>490</sup>). Plant/machinery like tower cranes and hoists are more difficult to be brought on to site.

Maintaining site safety and welfare standards, protecting the general public and contract documentation/ arrangement are ranked mid-way, being rated 15th, 17th and 20th respectively.

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Refurbishment works are prone to site fatalities, especially when refurbishing historical and old buildings with a high content of demolition work; and when work involves the removal or stripping out of asbestos, lead and other toxic materials. As statistics published by the Health and Safety Executive (HSE, 1988<sup>250</sup>) suggest, the repair, maintenance and improvement sector accounts for between 30 and 50% of the total number of construction fatalities in the UK. The same source revealed that over the five year period of 1981 to 1985, the figure averaged 43%. It is the responsibility of the site management team that a high safety standard is maintained and enforced at all times; and that everyone on site is knowledgable and conversant with the safety code and procedures applicable to the type of work being carried out.

A similar explanation can be offered for the difficulty of protecting the general public. It is paramount that the general public is protected from dust, debris and dangerous site conditions. Marino et al. (1990<sup>344</sup>) in their article titled "A case report of lead paint poisoning during renovation of a victorian farm house", described a series of four cases of childhood lead poisoning and two cases of lead toxicity from lead dust and fume during renovation of a rural farmhouse.

As for contractual documentation and arrangement, the validity of adopting contractual procedures which are suitable in new build work for refurbishment work, have been questioned (Enflo-Jensfelt, 1978<sup>179</sup>; Fine, 1983<sup>194</sup>; Quah, 1986<sup>409</sup>; Pearson, 1988<sup>393</sup>; and Sidwell, 1984<sup>446</sup>).

The Royal Institution of Chartered Surveyors (RICS, 1982<sup>432</sup>) in their publication titled "Refurbishment and Alteration Work", noted that "... traditional bills of quantities prepared in accordance with Standard Method of Measurement, are generally not suitable for the average refurbishment project" p1.

Similarly, Hakman (1975<sup>236</sup>) argued that repair and alteration work "have their own special problems and conditions which need to be addressed in the preparation of the bills of quantities". In their study on "Client Control of Commercial Refurbishment Projects", Fellows et al (1985<sup>189</sup>) observed that the traditional contractual procedures which distribute responsibilities directly between members of the building team were "inappropriate" on refurbishment projects. Their survey on the usage of contract forms and tendering procedures for commercial refurbishment projects found unorthodox management systems and contract forms to be more popular than traditional contractual procedures.

Table 4 summarises the usage of contract forms and procedures for refurbishment projects from Fellows et al's (1985<sup>189</sup>) study involving structured interviews and 32 postal returns from clients, consultants and contractors.

An inspection of Table 4 shows a widespread of management systems used for refurbishment work. It also shows that the use of the traditional contractual system in association with firm Bills of Quantity is favourable to new build and limited in commercial refurbishment work. This is mainly due to the fact that it is not possible to define refurbishment work with the requisite degree of accuracy, because of the uncertainty and risk associated with the works.

#### <u>Table 4: Usage Of Contract Forms And Procedures For Commercial Refurbishment</u> projects

Management Systems	<u>Refurbishment</u>	New Build
Traditional Project management Management contracting Design & build	28% 25%] 28%] 72% 19%]	64% 15%] 13%] 36% 8%]
Contract Forms		
JCT With Quantities JCT With Approx. Quantities JCT Without Quantities] JCT Fixed Fee ] JCT Contractors Design]	18% 22% 35%	65% 10% 14%
Contractors'/Clients' own for	orms 25%	11%
Tendering Procedures		
Single Stage	39%	71%
Two Stage ] Negotiated ] Cost - plus ]	61%	29%

Source: Fellows et al (1985<sup>189</sup>) Client Control Of Commercial Refurbishment Projects p. 7

As Ferry and Brandon (1991<sup>193</sup>) advised, "the uncertainties of refurbishment work mean that it will be almost impossible, and certainly inadvisable, to undertake the [refurbishment] project on the basis of lump sum competitive tenders for the works, and other more collaborative methods of procurement will have to be used - either cost-plus or some form of management contracting" p 247. From Table 4, it can be seen that 28% of refurbishment projects are carried out under management contracting. Fellows et al (1985<sup>189</sup>) observed that management contracting were used frequently when time is of the essence. The drawback to management contracting, according to Fellows et al (1985<sup>189</sup>) is the fact that it does "not provide sufficient incentives to contractors to complete the project on time; such situation necessitates stringent client control" p 8.

As for design and build, Fellows et al's (1985<sup>189</sup>) study noted that it was used on less complex projects.

As regards tendering procedures, Table 4 shows that the most commonly used procedures for refurbishment projects are two stage tendering and negotiation. The criticisms levelled at the single stage tendering procedures, as maintained by Fellows et al (1985<sup>189</sup>), are that :-

- (i) They do not provide sufficient importance to clients' time requirements on refurbishment projects.
- (ii) They are cost-oriented and may restrict savings which could be realised from a shorter project duration.

Fellows et al's (1985<sup>189</sup>) study shows that for refurbishment management, a more participative and flexible approach to contactual arrangement and procedures are needed. Refurbishment managers ranked coping with employee stress and absenteeism, building regulations & other statutory controls, and plant supply as being the least difficult characteristics. These were ranked 31st, 32nd and 33rd respectively (see Table 3).

Through semi-structured interviews with twenty-two refurbishment managers, an attempt was made to ascertain the reasons for the low ranking of these characteristics. As for coping with employee stress and absenteeism, this author found it necessary to differentiate 'stress' from 'absenteeism'. This was done on the premise that the causes of employee stress might not necessarily lead to an employee being absent from work (see Appendix A for the questions asked during semi-structured interviews with managers).

Although conceding that refurbishment work is relatively more stressful than new build work, the 22 refurbishment managers noted that employee stress does not constitute a problem to the extent that it is detrimental to the works. This view supports the views of 142 managers who participated in the questionnaire phase of the study, and validates the result. Refurbishment managers who participated in the questionnaire phase of the study ranked stress and absenteeism 31st in terms of degree of difficulty (See Table 3).

The reasons given by the managers who were interviewed, are that refurbishment works are largely of short duration, in work packages, and less repetitive. This means that employee stress patterns and levels are easily dampened before they become detrimental to the works. Perhaps, this may also be a reflection of the

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degree of job satisfaction employees experience from their work. Their work is satisfying and rewarding. It may also be reinforced by the fact that managers at all levels appear close to the workface, in which case there is a sense of belonging, an identity amongst the workforce. A view also expressed by all 32 training officers from 32 refurbishment organisations who were interviewed as part of the present study.

The twenty-two managers who were interviewed were also asked 'to what extent the nature of refurbishment work can lead to frustration of the workforce ?'. It was the managers' views that the nature of the work does not affect employees to such an extent as to lead them to be absent from work.

The views of the 22 managers interviewed, and those of the 142 managers who participated in the questionnaire survey, are in agreement. One hundred and fortytwo (142) refurbishment managers ranked stress and absenteeism 31 out of 33 in terms of degree of difficulty of refurbishment characteristic (see Table 3). This is a further validation of the results of the present study.

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Regarding employee absenteeism, it also deserves mentioning, that in the present economic climate, with high job losses and redundancies (Kynoch, 1992<sup>315</sup>; Whitmore, 1992<sup>500</sup>) in the construction industry, employees will tend to hold on to their jobs, and as a result there may be less absenteeism.

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Building regulation and other statutory controls, such as fire regulations, means of escape and ventilation requirements was ranked 32 out of 33 in terms of degree of difficulty of refurbishment characteristics. Although very limited in its application as it does not have much bearing on the major part of the building stock, the DOE circular 23/77 para.81, "Historic Buildings and Conservation Area : Policy and Procedures", encourages local authorities to relax regulations and normal planning requirements where old buildings are to be rehabilitated. Also, planning delay is avoided since planning permission may not be required under the Town and Country Planning Act (TCPA 1990), s55(2)(a), for refurbishment works that will affect only the interior or do not materially affect the external appearance of the building.

The perceptions of the managers who were interviewed, were sought on the extent to which Building regulation/other statutory controls pose any difficulty to refurbishment work. Of the 22 managers interviewed, 20 (90.91%) responded that coping with Building regulation/other statutory controls was either fairly difficult or not difficult. Two managers rated it difficult, and none rated it very difficult.

The two managers who found Building regulation/other statutory controls difficult, cited fire regulations, means of escape, strengthening of structural components, and meeting the requirements of ventilation and other services to be difficult. The views of the managers who participated in the questionnaire phase of the study and the managers interviewed are in agreement; and further validates the results of the study. Plant supply was ranked the least difficult and rated 33 out of 33, in terms of degree of difficulty, by 142 managers who responded to the questionnaire survey of the study. Similarly, 18 (81.82) of the 22 managers interviewed responded that the supply of plant and machinery to the works was not of a concern, and noted that it was either fairly difficult or not difficult. 18 of the 22 managers who responded that the supply of plant was either fairly difficult or not difficult, also noted that their organisations have a plant/machinery department; and that they also maintain a good relationship with their local plant suppliers.

The views of the managers who participated in the postal questionnaire survey are consistent with the 22 managers who were interviewed. There is consistency in the results of the present study.

For plant supply, it could be argued that on small work packages the fragmentation of the work and often restricted access are not conducive for heavy use of plant. Even though there is a wide variety of plant and machinery available, because the work is labour intensive, hand tools are more appropriate.

Having considered the degree of difficulty of refurbishment characteristics at the aggregate level, the next section of this chapter will focus attention on the degree of difficulty of refurbishment characteristics at the dis-aggregate levels, namely at senior, middle and junior management levels.

## 4.3. Degree Of Difficulty Of Refurbishment Characteristics And Levels Of Management.

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The approach adopted in analyzing data at the aggregate level will also be employed at the dis-aggregate levels for senior, middle and junior managers respectively. As mean score increases, the degree of difficulty of refurbishment characteristics decreases.

To commence data analysis, a thorough observation of Tables 5, 6 and 7 reveals that of the eight characteristics ranked by senior, middle and junior managers as being the most difficult, cost control, pricing of the works, variations/change order to the works and dust control were cited by all levels of management.

However, cost control was ranked 1st by senior and mid-level managers, and 5th by junior managers. The need for regular cost control and monitoring in refurbishment work is of utmost importance, since refurbishment work is full of the unexpected which have cost implications. Ferry and Brandon (1991<sup>193</sup>) informs us that in refurbishment work, "the cost commitment is always liable to escalate at fairly short notice". Moreover, as the overall responsibility for cost of construction and the success or failure of projects, rest on those in senior management positions, namely the area managers and directors, the issue of cost control on refurbishment projects need to be taken very seriously by those in the senior management positions.

### Table 5: Degree Of Difficulty Of Refurbishment Characteristics: Senior Managers

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Characteristics N	<u> 1ean Score (N = 23)</u>	<u>Rank</u>
Cost control	1.087	1
Variation/change order to the works	1.348	2
Storage of building materials	1.391	3
Dust control	1.565	4
Site access	1.609	5
Pricing of the works	1.609	6
Materials handling	1.783	7
Productivity control & maintenance	1.826	8
Handling & disposal of site rubbish	1.826	9
Maintaining existing services	1.870	10
Noise control	1.913	11
Time prediction for completion of the world	ks 1.913	12
Maintaining site safety and welfare standar	ds 1.957	13
Programming and scheduling of works	2.000	14
Influence of tenants on regular progress of	the works 2.000	15
Handling & disposal of hazardous/toxic sub	ostances 2.174	16
Contract documentation and arrangement	2.217	17
Keep site tidy	2.217	18
Protecting the works and adjacent buildings	s 2.261	19
Supervision of the works	2.304	20
Site security	2.304	21
Decanting building for commencement of v	work 2.348	22
Quality control and assurance	2.348	23
Liaison with tenant/occupier	2.435	24
Protecting the general public	2.478	25
Restriction in plant usage	2.565	26
Restriction on working hours	2.609	27
Long and unsociable working hours	2.783	28
Selection and recruitment of workforce	2.826	29
Coping with employee stress & absenteeisn	a 3.130	30
Building regulations & other statutory cont	rol 3.217	31
Materials supply	3.217	32
Plant supply	3.565	33
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## Table 6: Degree Of Difficulty Of Refurbishment Characteristics: Middle Managers

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<u>Characteristics</u> <u>N</u>	Mean Score (N = $59$ )	Rank
Cost control	1.576	1
Influence of tenants on regular progress of	the works 1.627	2
Site security	1.729	3
Storage of building materials and plant	1.763	4
Pricing of the works	1.763	5
Variation/change order to the works	1.797	6
Dust control	1.831	7
Noise control	1.864	8
Quality control and assurance	1.932	9
Keep site tidy	1.949	10
Handling & disposal of hazardous/toxic sul	ostances 1.949	11
Site access	1.966	12
Protecting the general public	2.068	13
Maintaining site safety and welfare standar	ds 2.102	14
Time prediction for completion of the wor	ks 2.102	15
Productivity control and maintenance	2.102	16
Maintaining existing services	2.169	17
Decanting building for commencement of v	work 2.186	18
Restrictions on working hours	2.254	19
Materials handling	2.271	20
programming and scheduling of the works	2.288	21
Handling and disposal of site rubbish	2.399	22
Long and unsociable working hours	2.356	23
Protecting the works and adjacent building	s 2.356	24
Restriction in plant usage	2.373	25
contract documentation/arrangement	2.373	26
Liaison with tenant/occupier	2.441	27
Supervision of the works	2.458	28
Selection and recruitment of the workforce	2.729	29
Coping with employee stress & absenteeisr	n 2.814	30
Materials supply	2.814	31
Building regulations and other statutory co	ntrol 3.034	32
Plant supply	3.119	33

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### Table 7: Degree Of Difficulty Of Refurbishment Characteristics: Junior Managers

<u>Characteristics</u>	$\underline{Mean \ Score \ (N = 60)}$	<u>Rank</u>
Dust control	1.483	1
Site security	1.567	2
Noise control	1.567	3
Influence of tenants on regular progress of	f the works 1.583	4
Cost control	1.650	5
Pricing of the works	1.700	6
Time prediction for completion of the wor	ks 1.717	7
Variation/change order to the works	1.833	8
Site access	1.883	9
Storage of building materials and plant	1.950	10
Handling and disposal of hazardous/toxic s	substances 2.017	11
Maintaining existing services	2.017	12
Keep site tidy	2.033	13
Decanting building for commencement of	work 2.050	14
Contract documentation and arrangement	2.083	15
Restrictions on working hours	2.100	16
Programming and scheduling of the works	2.117	17
Protecting the general public	2.133	18
Protecting the works and adjacent building	s 2.133	19
Productivity control and maintenance	2.217	20
Maintaining site safety and welfare standar	rds 2.250	21
Long and unsociable working hours	2.317	22
Quality control and assurance	2.333	23
Materials handling	2.433	24
Restriction in plant usage	2.433	25
Materials supply	2.467	26
Supervision of the works	2.483	27
Handling and disposal of site rubbish	2.483	28
Liaison with tenant/occupier	2.483	29
Selection and recruitment of workforce	2.500	30
Coping with employee stress & absenteeisr	n 2.700	31
Building regulations & other statutory cont	rol 2.967	32
Plant supply	3.467	33

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For junior managers, dust control was ranked as the most difficult characteristic, followed by site security. Dust control and site security are both activities associated with site management, hence it is not surprising that junior managers rated them as they did.

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Influence of tenants on regular progress of the works was ranked 15th, 2nd and 4th by senior, middle and junior managers respectively. Middle managers (contracts and project managers) and junior managers (site agents and site managers) are normally more in contact with tenants. in occupation when carrying out refurbishment work than do senior managers (directors/area managers). Middle and junior managers are more likely to be faced with the difficulties associated with tenants in occupation than senior managers, in managing refurbishment work. Similarly, site security is ranked 2nd, 3rd and 21st by junior, middle and senior managers respectively.

However, looking at the three least difficult refurbishment characteristics, namely materials supply, building regulation/other statutory controls, and plant supply on Tables 5, 6 and 7, it will be observed that there is agreement amongst all levels of management.

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An attempt was made to establish if there is a significant correlation between the degree of difficulty of refurbishment characteristics and levels of management. In other words, to ascertain if managers in the senior management positions perceive refurbishment characteristics to be less difficult than managers in the junior management positions.

In testing the null hypothesis, that there is no significant negative correlation between levels of management and degree of difficulty of refurbishment characteristics, the computed value of Spearman rank-order correlation coefficient  $(r_s)$  is -0.086. Although a negative correlation, this is not significant at the 0.05 level. The null hypothesis is not rejected. This means that there is not sufficient evidence to suggest that managers at the higher levels of management perceive refurbishment characteristics to be less difficult than managers at lower levels of management. Perhaps, this is an indication that managers at the higher levels of management are not necessarily more experienced than managers at the lower management levels.

To clarify this further, Tables 8 and 9 show that managers who occupy the senior management positions have not necessarily spent longer time in the construction industry, or been involved in managing refurbishment work for a longer period, than managers who occupy junior management positions.

#### <u>Table 8: Length Of Time Spent Working In The Construction Industry And Level</u> <u>Of Management</u>

	-	Frequency Distri	bution
	Senior	Middle	Junior
1 - 5 years	-	-	1
6 - 10 years	1	4	5
11 - 15 years	5	8	6
16 - 20 years	6	6	5
More than 20 years	<u>11</u>	<u>41</u>	<u>43</u>
•	23	59	60

For example, an inspection of Table 8 reveals that whilst 11 (47.83%) of senior managers have worked in the construction industry for more than 20 years, 41 (69.49%) of middle managers and 43 (71.67%) of junior managers have worked in the industry for that same period of time.

Similarly, Table 9 shows that no manager at the senior management position has spent more than 20 years managing refurbishment work, whilst 7 middle managers and 6 junior managers have been involved in managing refurbishment work for more than 20 years.

Table 9: Length	Of Time	Involved ]	<u>In Managing</u>	<b>Refurbishment</b>	Work And	<u>Level Of</u>
<u>Management</u>						

	•	Frequency Distril	<u>bution</u>
	<u>Senior</u>	Middle	Junior
Less than 1 year	-	1	2
1 - 5 years	9	18	22
6 - 10 years	4	16	19
11 - 15 years	4	12	6
16 - 20 years	6	5	5
More than 20 years	-	7_	<u>6</u>
•	23	59	60

When the age of managers is considered it would be noticed that managers at the senior management levels are not necessarily older than managers in the junior management positions. From Table 10, it can be seen that 8 (34.78%) of senior managers are aged 46 years and above, when compared to 27 (45.76%) of middle managers and 30 (50.00%) of junior managers.

Free	quency Distribution	
<u>Senior</u>	Middle	<u>Junior</u>
<u>:</u>		
-	-	-
4	11	12
11	21	18
8	19	20
-	<u>8</u>	<u>10</u>
23	59	60
	<u>Free</u> Senior - 4 11 8 <u>-</u> 23	SeniorFrequency DistributionSeniorMiddle4111121819-82359

#### Table 10: Age Of Manager And Level Of Management

When educational and professional background of managers are considered, as in Table 11, it can be seen that the majority of the managers with first or higher degrees are in the senior management positions. Nearly 67% of senior managers have first or higher degrees, when compared to 20.00% of middle managers and only 13.33% of junior managers.

## Table 11: Educational And Professional Backgrounds Of Refurbishment Managers And Levels Of Management

	First/Higher Degrees (%)	Professional <u>Bodies (%)</u>	Crafts Background (%)
Senior	66.67	58.33	6.38
Middle	20.00	29.17	42.56
Junior	<u>13.33</u>	<u>12.50</u>	<u>51.06</u>
	100.00	100.00	100.00

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Similarly, over 58% of senior managers are members of one of the three professional bodies in the Construction Industry, The Chartered Institute of Building (CIOB); The Institution of Civil Engineers (ICE); and The Royal Institution of Chartered Surveyors (RICS). 29.17% of middle managers, and only 12.50% of junior managers have professional qualifications.

Also, from the current study, 67.61% of all managers; senior, middle and junior managers, have a crafts background. In terms of hierarchy, these managers have followed one of the three following routes :-

(i) Joiner - Foreman joiner - General foreman - Site agent/Site manager.
(ii) Bricklayer - Foreman bricklayer - General foreman - Site agent/Site manager
(iii) Apprentice Steel fixer - Steel fixer - Foreman - General foreman - Site agent/
Site manager.

The remainder of the managers, 32.39%, have come through the Building, Civil Engineering, Quantity Surveying and Estimating routes.

Of the managers who have come through the crafts route, only 6.38% are senior managers (see Table 11). More than 51% of all managers with crafts background are junior managers. Middle managers make up the remainder (42.56%) of the managers with crafts background.

These results would suggest that managers with first or higher degrees tend to rise faster into senior positions, irrespective of age, length of time in construction and length of time in managing refurbishment work. This would mean, as will be shown later on in Section 4.5 of this Chapter, that managers in the senior positions do not necessarily have more experience of managing refurbishment processes than those in the junior management positions. Similarly, managers with professional qualifications, and from non-craft backgrounds tend to move faster up the hierarchy of management structure, than their counterparts with crafts background and without professional qualifications.

## 4.4. Degree Of Difficulty Of Refurbishment Characteristics And Types of Organisation.

Another dimension on data analysis on the degree of difficulty of refurbishment characteristics, is to ascertain how managers of specialist refurbishment organisations perceive the degree of difficulty of refurbishment characteristics, when compared to their counterparts in general refurbishment organisations. Tables 12 and 13 report on the degree of difficulty of refurbishment characteristics as perceived by managers of specialist and general organisations respectively.

The characteristics ranked at or near the top of the Tables are most difficult. Conversely, those characteristics ranked at the bottom are relatively least difficult.

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### <u>Table 12: Degree Of Difficulty Of Refurbishment Characteristics: Managers Of</u> <u>Specialist Refurbishment Organisations</u>

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<u>Characteristics</u> <u>M</u>	fean Score (N = 108)	<u>Rank</u>
Cost control	1.583	1
Influence of tenants on regular progress of	the works 1.694	2
Site security	1.722	3
Dust control	1.741	4
Variation/change order to the works	1.759	5
Pricing of the works	1.769	6
Storage of building materials and plant	1.787	7
Noise control	1.870	8
Site access	1.898	9
Time prediction for completion of the work	ks 2.019	10
Keep site tidy	2.056	11
Maintaining existing services	2.065	12
Productivity control and maintenance	2.083	13
Decanting building for commencement of v	vork 2.139	14
Handling and disposal of hazardous/toxic su	ubstances 2.148	15
Programming and scheduling of the works	2.185	16
Maintaining site safety and welfare standar	ds 2.185	17
Protecting the general public	2.213	18
Quality control and assurance	2.222	19
Restrictions on working hours	2.287	20
Contract documentation and arrangement	2.306	21
Materials handling	2.333	22
Protecting the works and adjacent buildings	s 2.333	23
Handling and disposal of site rubbish	2.426	24
Liaison with tenant/occupier	2.454	25
Long and unsociable working hours	2.509	26
Supervision of the works	2.509	27
Restriction in plant usage	2.556	28
selection and recruitment of workforce	2.667	29
Materials supply	2.741	30
Coping with employee stress and absenteei	sm 2.778	31
Building regulations and other statutory con	ntrol 3.074	32
Plant supply	3.380	33

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## Table 13: Degree Of Difficulty Of Refurbishment Characteristics: Managers Of General Refurbishment Organisations

<u>Characteristics</u> <u>N</u>	<u>1ean Score (N = 34)</u>	<u>Rank</u>
Dust control	1.324	1
Cost control	1.353	2
Noise control	1.353	3
Pricing of the works	1.529	4
Time prediction for completion of the work	ks 1.559	5
Influence of tenants on regular progress of	the works 1.588	6
Handling and disposal of hazardous/toxic s	ubstances 1.588	7
Variation/change orders to the works	1.676	8
Storage of building materials and plant	1.765	9
Site access	1.794	10
Site security	1.853	11
Keep site tidy	1.941	12
Contract documentation and arrangement	1.971	13
Handling and disposal of site rubbish	1.971	14
Protecting the works and adjacent buildings	s 1.971	15
Maintaining site safety and welfare standar	ds 2.000	16
Quality control and assurance	2.000	17
Protecting the general public	2.000	18
Materials handling	2.029	19
Maintaining existing services	2.029	20
Restriction in plant usage	2.029	21
Long and unsociable working hours	2.088	22
Programming and scheduling of the works	2.118	23
Restriction on working hours	2.118	24
Productivity control and maintenance	2.176	25
Decanting building for commencement of w	vorks 2.206	26
Supervision of the works	2.235	27
Liaison with tenant/occupier	2.471	28
Selection and recruitment of workforce	2.588	29
Materials supply	2.706	30
Building regulations and other statutory con	ntrol 2.912	31
Coping with employee stress and absenteeis	sm 2.941	32
Plant supply	3.206	33

When comparing both Tables 12 and 13, the relative ranking by managers of both types of organisation on four characteristics deserve mentioning, especially as there is a wide disparity in ranking as shown below in Table 14.

Refurbishment	<u>Speci</u>	<u>alist</u>	General	
<u>Characteristics</u>	<u>Mean</u>	Rank	Mean	Rank
Site security	1.722	3	1.853	11
Handling/disposal of site rubbish	2.148	15	1.588	7
Contract documentation/arrangement	2.306	21	1.971	13
Restriction in plant usage	2.556	28	2.029	21

Table 14 : Comparison Of Degree Of Difficulty Of Refurbishment Characteristi	<u> çs:</u>
Specialist And General Refurbishment Organisations	

Apart from site security in Table 14, it would appear that managers of general refurbishment organisations find the handling/disposal of hazardous and toxic substances; contract documentation; and restriction in plant usage, more difficult than managers of specialist refurbishment organisations, as can be seen from their relative rank positions.

It is therefore necessary to test statistically if a significant correlation exists between the degree of difficulty of refurbishment characteristics, and specialism in refurbishment work. Put differently, to ascertain if specialist refurbishment organisations perceive refurbishment characteristics to be less difficult than general refurbishment organisations.

Spearman rank-order correlation co-efficient  $(r_s)$  is an appropriate test statistic, and one which is employed to test the null hypothesis, that there is no significant negative correlation between specialism in refurbishment operations and degree of difficulty of refurbishment characteristics. The computed value of Spearman rankorder correlation co-efficient  $(r_s)$  is -0.192. This is significant at the 0.05 level. The null hypothesis is rejected. This means that there is a significant negative correlation between specialism in refurbishment operations and difficulty of refurbishment characteristics. The more an organisation is specialised in refurbishment work, the less difficult refurbishment characteristics are perceived to be. It can be concluded that specialist refurbishment organisations find refurbishment characteristics less difficult than general refurbishment organisations.

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As the majority of work carried out by specialist refurbishment organisations are refurbishment work, their managers are more likely to have gained greater experience and understanding of refurbishment processes than managers of general refurbishment organisations by virtue of being more exposed to refurbishment difficulties. This could account for specialist refurbishment organisations' perceptions of refurbishment characteristics to be comparatively less difficult.

The implication of this result is that refurbishment clients may prefer to appoint a specialist contractor where managers with a range of experience are likely to find refurbishment characteristics less difficult to handle. Similarly, clients may prefer to appoint specialist refurbishment contractors with track records in a particular type of project, e.g. Kyle Stewart, UK, specialises in hospital refurbishment.

# 4.5. Management Experience In Refurbishment And Degree Of Difficulty Of Refurbishment Characteristics.

To further confirm the extent to which experience in refurbishment work affects perceptions of the difficulty of refurbishment characteristics, three hypotheses are tested :-

(i) There is no significant negative correlation between the length of time a manager has worked in the construction industry and the degree of difficulty of refurbishment characteristics.

(ii) There is no significant negative correlation between the length of time a manager has been involved in managing refurbishment work, and the degree of difficulty of refurbishment characteristics.

(iii) There is no significant negative correlation between age of manager and the degree of difficulty of refurbishment characteristics.

Table 15 shows a frequency distribution of length of time managers have worked in the construction industry.

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	Frequency $N = 142$	Percentage <u>(%)</u>	Cumulative Percentage (%)
Less than 1 year	· •·	-	-
1 - 5 years	1	0.7	0.7
6 - 10 years	10	7.00	7.70
11 - 15 years	19	13.40	21.10
16 - 20 years	17	12.00	33.10
More than 20 years	95	66.90	100.00

Table_	<u>15:</u>	<b>Freque</b>	ncy	<b>Distribution</b>	<u>Of</u>	Length	<u>Of</u>	<u>Time</u>	<u>Refurbishment</u>	<u>Managers</u>
Have	Worl	ked In '	The	Construction	In	dustry				_

Table 15 reveals that nearly 80% of the sample group have spent 16 or more years working in the construction industry, whilst only 7.70% have been in the construction industry for less than 10 years.

Spearman rank-order correlation coefficient  $(r_s)$  was used to test the null hypothesis, that there is no significant negative correlation between the length of time a manager has spent working in the construction industry, and the degree of difficulty of refurbishment characteristics.

The value computed for Spearman rank-order correlation coefficient  $(r_s)$  is -0.285. This is significant at 0.05 level. The null hypothesis is rejected. This means that the longer the time a manager spends working in the construction industry, the less difficult he/she finds refurbishment characteristics.

Table 16 shows a frequency distribution of length of time managers have been involved in managing refurbishment work.

Frequency $N = 142$	Percentage <u>(%)</u>	Cumulative Percentage (%)
3	2.10	2.10
49	34.50	36.60
39	27.50	64.10
22	15.50	79.60
16	11.30	90.80
13	9.20	100.00
	Frequency N = 142 3 49 39 22 16 13	Frequency $N = 142$ Percentage $(\%)$ 32.104934.503927.502215.501611.30139.20

Table 16: Frequency Distribution Of Length Of Time Refurbishment Managers Have Been Involved In Managing Refurbishment Work

An inspection of Table 16 shows that 36.60% of the sample population have been involved in managing refurbishment work for 5 years or less; and 27.50% of managers have been involved in managing refurbishment work for between 6 and 10 years. Only 9.2% of the managers have been involved in refurbishment work for more than 20 years. As shown in Table 9, earlier in Section 4.3 of this Chapter, of the 9.2% of managers who have spent more than 20 years managing refurbishment work, none are from the senior management positions.

In testing the null hypothesis that there is no significant negative correlation between the length of time spent managing refurbishment work and the degree of difficulty of refurbishment characteristics, Spearman rank-order correlation coefficient  $(r_s)$  was used. The value of  $r_s$  obtained from computation is -0.294. This is significant at the 0.05 level. The null hypothesis is rejected. This means that the longer the time a manager is involved in managing refurbishment work, the less difficult he/she finds refurbishment characteristics. Perhaps, this is a reflection of the experience and knowledge gained in working with refurbishment operations over a long period of time. As was shown in Section 4.3 of this Chapter, being in senior management positions does not necessarily mean more time has been spent managing refurbishment work than their junior counterparts. Hence, it can be deduced that senior managers are not necessarily more experienced about refurbishment processes than junior managers.

In Table 15, it would be recalled that 66.90% of managers in the sample frame have worked in the construction industry for more than 20 years. Table 16 shows that 9.2% of the managers have spent more than 20 years managing refurbishment. This means that managers who have spent 20 years or more managing refurbishment work would have spent some time working in other areas and sectors of the construction industry. Some managers might have been involved in new build work, as was the case with all the 22 managers who were interviewed by the author. As mentioned in section 2.3.7 of chapter two, these managers also participated in the postal questionnaire phase of the present study.

An understanding of both new build and refurbishment work should be useful to managers involved in refurbishment work, since refurbishment work could involve some elements of new construction, such as in carrying out extension work.

The author attempted to establish the ease at which managers move from one sector to another, i.e. from new build to refurbishment work and vice-versa. From the semi-structured interviews with 22 managers, managers were asked to what extent they agreed with the statement :-

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"A manager with new build experience finds it relatively difficult to manage refurbishment work".

Of the 22 managers interviewed, 18 (18.82%) either strongly agreed or agreed with the statement. The remainder of the managers, 4 (18.18%) disagreed with the statement.

Similarly, when asked to what extent they agreed with the statement :-

"A refurbishment manager finds it relatively easy to manage new build work".

Sixteen (16) or 72.73% of the managers interviewed either strongly agreed or agreed. The remainder of the managers, 6 (27.27%), disagreed.

Those who disagreed with both statements noted that it was not possible to make comparisons, since the two types of work are totally different. The majority of the managers, however, agreed with both statements and are of the view that:-

- (i) Refurbishment work does not lend itself to systematic planning as does new build work, and that:
- (ii) Refurbishment work is more risky and uncertain than new build.

The relationship between the age of manager and the degree of difficulty of refurbishment characteristics deserve considering. Table 17 shows a frequency distribution of age of managers.

	Frequency $N = 142$	Percentage (%)	Cumulati <b>ve</b> Percentage (%)
Less than 25 years	-	-	-
25 - 35 years	27	19.00	19.00
36 - 45 years	50	35.20	54.20
46 - 55 years	47	33.10	87.30
56 - 65 years	18	12.70	100.00
More than 65 years	-	-	100.00

#### Table 17: Frequency Distribution Of Age Of Managers

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From Table 17, it can be seen that no manager is below the age of 25, also, no manager is above the age of 65. The age of retirement for men in the U.K. is 65 years. All the respondents in the current study are male, as earlier mentioned in section 2.3.6 of chapter 2.

An inspection of Table 17 also reveals that 54.20% of the managers are between the ages of 25 and 45, while 68.30% are between 36 and 55 years of age. Only 12.70% of the managers are aged between 56 and 65 years.

To test the null hypothesis that there is no significant negative correlation between age of manager and degree of difficulty of refurbishment characteristics, Spearman rank-order correlation coefficient  $(r_s)$  test statistic was used. The computed value of  $r_s$  is -0.163. This is significant at the 0.05 level. The null hypothesis is rejected. This means that older managers find refurbishment characteristics less difficult than their younger managers. As have been shown in Section 4.3 of this chapter, younger managers are not necessarily junior level managers.

By virtue of spending longer time in the construction industry, and obtaining knowledge and experience about general construction and refurbishment processes, older managers are more likely and able to cope with refurbishment difficulties than younger managers.

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The results obtained so far in this chapter, have implications to clients, clients' advisers and contractors who are involved in refurbishment work. For clients and their advisers, it would be beneficial to choose contractors with specialist knowledge of refurbishment operations to carry out their refurbishment work. Also, at tender presentation stage, it would be advantageous, and indeed necessary for clients and their advisors to establish at the outset, the experience of the site management team on refurbishment operations. Experience can be considered in terms of length of time a manager has spent working in the construction industry, length of time a manager. The three measures of experience are, however, not mutually exclusive.

For contractors, especially those who are in new build and have the intention of diversifying into refurbishment work, it would be advantageous to select and recruit managers who have experience of refurbishment work. These managers are likely to find refurbishment work less difficult to manage. The recruitment of managers with refurbishment experience should be beneficial to a contractor's organisation, as these managers bring in the relevant expertise associated with refurbishment work. Added benefits to the contractor would also accrue if managers with experience of refurbishment work are involved in on-site coaching, as well as acting as mentors to their subordinates, and to younger managers within the organisation.
The importance of relevant experience of refurbishment work to contractors is well expressed by Quah (1988<sup>410</sup>) and Building (1984b<sup>73</sup>) magazine. Quah (1988<sup>410</sup>) in her study on "An Evaluation of the Risks in Estimating and Tendering for Refurbishment Work" notes that when competing to win refurbishment contracts, "refurbishment specialists performed significantly better than general contractors measured in terms of the success rates in tendering, bid spreads in tenders won, and in the margin of failure in unsuccessful tenders". pg 351.

Similarly, in an interview with the Building (1984b<sup>73</sup>) magazine Refurbishment Supplement, Denis Thornton, the Group Marketing Manager of Ashley & Horner, a specialist refurbishment contractor based in London, notes that the refurbishment market requires its own skills, and also,"...people who come into it from new-build don't make money at it initially". pg 10.

The analyses on difficulty of refurbishment characteristics have so far focused on the generality of refurbishment operations. The next section of this chapter will take the analyses one step further. It will consider the most commonly undertaken types of refurbishment projects in the United Kingdom, and the major characteristics and difficulties associated with them. The purpose is to ascertain which type of refurbishment project is most difficult to manage.

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### 4.6. Degree Of Difficulty And Characteristics Of Types Of Refurbishment Projects.

From a thorough review of literature in the general area of refurbishment, notably the works of the Centre for Construction Market and Information, CCMI (1988<sup>97</sup>); IMR (1987<sup>275</sup>) and Teo (1990<sup>473</sup>), the most commonly undertaken types of refurbishment projects in the U.K. were established. In all, fifteen types of refurbishment projects were established. From a list of fifteen types of refurbishment projects, managers were asked to rank these in terms of degree of difficulty to manage. Also, managers' perceptions as to the characteristics associated with the most difficult types of refurbishment projects were sought.

Table 18 reports the rank order of difficulty to manage refurbishment projects by 22 refurbishment managers who were interviewed as part of the present study. As mean scores increase, the degree of difficulty to manage refurbishment project decreases. Refurbishment projects at or near the top of the table are most difficult to manage. Conversely, refurbishment projects at or near the bottom of the Table are the least difficult to manage.

An inspection of Table 18 shows that managers ranked hospital refurbishment as the most difficult type of refurbishment project to manage. Hotels and Ministry Of Defence (MOD) buildings were ranked 2nd and 3rd respectively, as being difficult to manage.

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Industrial and agricultural buildings were the least difficult types of refurbishment projects to manage, and were ranked 14th and 15th respectively.

Types Of Refurbishment	Mean	Rank Order Of Difficulty
Projects	Rank	To Manage
Hospitals	2.00	1
Hotels	2.14	2
MOD Buildings	3.14	3
Shopping Centres	4.09	4
Listed Buildings	4.86	5
Prisons	6.00	6
Housing	7.27	7
Banks	7.86	8
Airports	9.00	9
Offices	9.77	10
Educational Buildings	11.00	11
Religious Buildings	11.86	12
Recreational Buildings	12.91	13
Industrial Buildings	13.86	· 14
Agricultural Buildings	14.23	15

### Table 18: Rank Order Of Difficulty To Manage Types Of Refurbishment Projects

No. of managers = 22, W = 0.889, Chi-square = 273.936, D.F. = 14, Significance level = 0.05

It is useful to test if there is agreement amongst the 22 managers in their rating of the degree of difficulty to manage refurbishment projects. If there is agreement amongst managers, then this would further add consistency to the results of the study.

To test the null hypothesis, that there is no agreement amongst refurbishment managers in their rating of the difficulty of managing refurbishment projects, Kendall's Coefficient of Concordance W, is appropriate (Kendall, 1980<sup>298</sup>; Siegel, 1956<sup>448</sup>; and Siegel and Castellan, 1988<sup>449</sup>) to measure the relation.

The method for determining whether the observed value of W is significantly different from zero, depends on the size of N (the number of objects ranked). When N is larger than 7, Kendall suggests the computation of a value of chi-square. This is so, since the probability associated with the occurrence of any value as large as W may be determined by chi-square. Also, the probability associated with the value of chi-square can be tested. If the 15 ranks are related because chi-square exceeds a particular value (critical value from statistical table) at the 0.05 level of significance, then the null hypothesis is rejected.

An inspection of Table 18 shows that W = 0.889, is substantially different from zero; and chi-square (= 273.936) at the 0.05 level is significant. This means that there is agreement amongst the 22 refurbishment managers in their ranking of the difficulty of managing refurbishment projects.

Managers' perceptions on the characteristics associated with the most difficult types of refurbishment projects were also sought. These are listed below in decreasing order of difficulty.

#### Hospital Refurbishment

For hospital refurbishment, the major difficulties managers face are :-

(i) Working and being sensitive to the needs of patients, especially in meeting stringent dust, noise and vibration controls.

(ii) Meeting hygiene standards of the hospital.

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(iii) Satisfying hospital requirements for safety of patients and staff, especially as they relate to wet and slippery floors, and regular removal of debris and rubbish from construction areas.

Hotel Refurbishment

The major difficulties associated with hotel refurbishment are :-

(i) Noise and dust control.

(ii) Restricted access.

(iii) Working around guests, with minimal interference to services.

(iv) Maintaining privacy of the guests.

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### Ministry Of Defence Buildings (MOD)

The major difficulties associated with refurbishing MOD buildings are :-

(i) Tight security observance including, in some cases, the need for the management team to be knowledgable about the Official Secrets Acts.

(ii) Strict checks and control over materials and plant supplied to site.

(iii) Access restrictions.

(iv) Management team and operatives can be searched at random.

It would appear from the ongoing discussions, that in the main, all types of refurbishment projects are characterised by similar difficulties. However, the difficulties can be severely heightened depending on the particular project.

Refurbishment works can also be classified under two main headings, namely :-

(i) Work carried out on occupied buildings.

(ii) Work carried out on un-occupied buildings.

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This study also attempted to ascertain if managing refurbishment work on occupied buildings is more difficult than on un-occupied buildings.

When the twenty-two managers were asked this question, all the managers (100% response rate) responded positively, because the issues of safety, dust, noise, vibrations, supervision of the work, maintaining existing services and access restrictions are compounded. For example, in refurbishing a hotel with guests in occupation and a business running as normal, existing services such as water and electricity would have to be maintained when carrying out refurbishment work; similarly, the safety of guests would have to be taken seriously, unlike when the building is un-occupied.

The result supports the work of Summers and Fellows (1987<sup>470</sup>). In their study on "How to Refurbish Occupied Buildings", which involved a series of structured interviews with eleven contractors, Summers and Fellows (1987<sup>470</sup>) noted that "refurbishment of buildings is problematic; when the buildings are occupied the difficulties are compounded" p34.

The view that refurbishing occupied buildings is more difficult than un-occupied buildings is also supported by Glover and Dyer, 1989<sup>218</sup>; Russell, 1989<sup>433</sup>; Glover, 1989<sup>217</sup>; Prodgers, 1989<sup>406</sup>; Banton, 1980<sup>21</sup>; and CIOB, 1981<sup>105</sup>.

Glover and Dyer (1989<sup>218</sup>) note that "The project management of a refurbishment involving an empty building is complex enough. Carrying one out with tenants in-situ can easily become a management nightmare p69".

Similarly, as Russell (1989<sup>433</sup>) pointed out, "... the refurbishment of a vacant building creates problems. Doing the job in an occupied building is like walking into a veritable minefield" p 89.

Having also established that all the twenty-two refurbishment managers interviewed have had experience of new build work, the managers' perception on whether refurbishment work is more difficult to manage than new build work was sought. All the managers (100% response) responded that this is so.

The reasons given are :-

- (i) Refurbishment work does not lend itself to systematic planning as does new build work.
- (ii) Refurbishment work is more risky and uncertain than new build work.
- (iii) Working around tenants in occupation makes refurbishment work more difficult to manage; and also reduces productivity.
- (iv) There are more variation/change orders to the works, and the valuation of variation is more difficult than in new build.

The view that refurbishment work is more difficult to manage than new build work has also received support from the Building Research Establishment (BRE, 1990<sup>77</sup>); Jothiraj and Fellows (1986<sup>287</sup>); Whiteman (1987<sup>497</sup>); Willenbrock et al. (1987<sup>501</sup>) and Quah (1991a<sup>412</sup>).

It is one thing to establish the characteristics and difficulties that pose problems to managers in carrying out refurbishment work, it is another thing to understand how these difficulties are best overcome by managers. Understanding this would be beneficial in at least two main ways :-

(i) For younger and new managers in the refurbishment field, an understanding of how best to manage refurbishment difficulties should assist greatly in advancing their career in refurbishment management. This could also lead to an increase in job satisfaction. (ii) For course tutors, it could assist in the teaching of the difficulties of refurbishment work and how best to overcome the difficulties. In so doing, preparing students, in the best possible way for a real life situation when the opportunity arises to work in a refurbishment context.

# 4.7. Managers' Perceptions On How Best To Overcome Difficulties Of Refurbishment Characteristics.

The perceptions of managers who participated in the questionnaire phase of the study were sought on how they considered the difficulties of refurbishment characteristics to be best overcome (see questionnaire in Appendix A).

Based on majority responses, of all levels of managers, the results are presented under each refurbishment characteristic. Refurbishment characteristics are arranged in decreasing order of difficulty. Only managers' perceptions on the five most difficult characteristics are presented below, within the text, the remainder are included in Appendix B.

### Cost Control

- Conduct weekly cost reviews.
- Have a system to record variation orders (V.O.) and Architects instructions (A.I.'s). Document written confirmation of all site variations.
- Work closely with architects, surveyors and the rest of the design team.
- More intensive Quantity Surveyors input than similar size new build projects.
- On-site Surveyor and Client's representative at all times.

- Faster agreement of costs of changes to the design.
- A thorough understanding of the building before commencement of work; including site visits and availability of structural survey reports.
- Weekly reconciliation of material, plant, labour and subcontractor's work.
- More use of schedule of rates and day works.

## Dust Control

- Use of dust control equipment and screens.
- Make sure that the Control of Substances Hazardous to Health (COSHH:1988) regulations are adhered to by all.
- Keep tight control over labour and the plant/machinery they employ in the works.
- Employ correct work methods.
- Employ reputable specialist subcontractors.

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## Influence Of Tenants On The Regular Progress Of The Works

- Appoint a Tenant Liaison Officer/ Public Relations Officer.
- Conduct regular meetings with tenants prior to job commencement and during the construction stage.
- Offer tenants alternative accommodation/ temporary residence, if cost effective.

### Pricing Of The Works

- Much of the work contents remain unseen either on drawings or until work is opened up. A percentage mark-up is to be allowed when pricing, to take account of the "risk items".
- Site visits to be conducted before pricing the works.
- More use of schedule of rates and dayworks.
- Need for more detailed information, and more time to be spent at the tender stage.
- A detailed structural survey is essential. Report on structural survey should be made available to the contractor.

### Variation/Change Orders To The Works

- Close liaison between client's and contractor's Quantity Surveyors, and members of the design and construction teams.
- Better investigative work and site visits before commencement of work.
- Constant monitoring and documentation of A.I's and V.O's.
- Obtain speedy decisions on variations.
- Tight site control by Site Agent and Quantity Surveyor.

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Since cost control is perceived as the most difficult characteristic, weekly cost reviews are suggested as part of the solution. Systematic recording of data, and closer working relations with the client and the professional team are the other ways of keeping tighter control of costs.

The avoidance or reduction of dust is largely down to common sense and strict working practices.

Good communication seems to be an appropriate way of handling tenants, with the appointment of a full time public relations officer or tenants liaison officer.

Effective risk management may prevent price escalation providing all information is sought in conjunction with site visits prior to pricing the works. Preparation is often the key to securing a contract which invariably involves the collection and interpretation of accurate, up-to-date information. Even after securing the contract, pricing against actual costs needs careful monitoring.

Regarding ways in which the difficulties with variation orders to the works can be overcome, these are best dealt with in close consultation with the client and the rest of the professional team. This enables speedy decisions to be obtained with approval.

Guidelines advocating 'how best to overcome refurbishment problems and difficulties' for different types of refurbishment projects, and refurbishment work across industrial sectors, especially, defence, hotel and health service sectors, will be useful.

The discussion so far has centred on the difficulties of refurbishment characteristics. It is not just sufficient to establish the major difficulties that confront managers in carrying out refurbishment work. The frequency at which refurbishment characteristics occur is equally relevant, and deserves attention. It adds another dimension to knowledge and understanding of refurbishment management.

A refurbishment characteristic which is perceived to be very difficult may not necessarily occur frequently in managing refurbishment work, and the reverse. However, if a characteristic is found to be very difficult, and at the same time occurring frequently in the course of managing refurbishment work, the management team would need to pay particular attention to that characteristic.

The next section therefore considers the frequency of occurrence of refurbishment characteristics in managing refurbishment work. Analysis of data will be presented at the aggregate level. This will be followed by testing statistically, if there is a relationship between those characteristics managers ranked as most difficult, and their frequency of occurrence.

### 4.8. Frequency Of Occurrence Of Refurbishment Characteristics

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Adopting the same methodology as in the degree of difficulty of refurbishment characteristics, managers were asked to identify from a list of 33 refurbishment characteristics, how frequent these characteristics occur in managing refurbishment work, "very frequent", "frequent", "fairly frequent" and "not frequent".

The categories were coded 1, 2, 3 and 4 respectively (see questionnaire in Appendix A). Average scores were computed from ordinal coding of these data. As mean score increases, the frequency of occurrence of refurbishment characteristics

decreases. Table 19 presents the full list of rank order of frequency of occurrence of refurbishment characteristics as perceived by 142 managers who participated in the questionnaire phase of the study.

An inspection of Table 19 shows that variation/change order to the works is rated the most frequently occurring characteristic. This is not surprising, since for most refurbishment works, the content of the work cannot be fully appraised before commencement. This means that as work progresses, variations/changes would have to be made to the works. This has far reaching implications on the works, as it means that the cost of the works would have to be controlled, monitored and updated regularly. Also, the programming and scheduling of the works would have to be reviewed constantly. All of these, inevitably, make the time prediction for completion of the works difficult and requiring regular reviews. These are shown in Table 19, where cost control, programming and scheduling of the works; and time prediction of the works are ranked 3rd, 5th and 8th respectively.

Keeping site tidy was ranked 2nd. Since many refurbishment works are carried out on residential or commercial buildings with tenants still in occupation and business continuing as usual, managers would have to make efforts to keep the site tidy at all times. Safety would be an important consideration in conjunction with good housekeeping.

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# <u>Table 19: Frequency Of Occurrence Of Refurbishment Characteristics:</u> <u>Refurbishment Managers</u>

Refurbishment Characteristics	Mean Score (N = $142$ )	<u>Rank</u>
Variation/change order to the works	1.254	1
Keep site tidy	1.387	2
Cost control	1.408	3
Maintaining site safety and welfare standards	1.437	4
Programming and scheduling of the works	1.451	5
Quality control and assurance	1.465	6
Dust control	1.479	7
Time prediction for completion of works	1.479	8
Storage of building materials and plant	1.486	9
Supervision of the works	1.493	10
Site security	1.577	11
Productivity control and maintenance	1.592	12
Protecting the general public	1.599	13
Handling and disposal of site rubbish	1.620	14
Materials handling	1.648	15
Liaison with tenant/occupier	1.676	16
Maintaining existing services	1.697	17
Pricing of the works	1.746	18
Protecting the works and adjacent buildings	1.761	19
Noise control	1.796	20
Materials supply	1.803	21
Site access	1.852	22
Contract documentation/arrangement	1.915	23
Influence of tenants on regular progress of the w	orks 1.937	24
Restrictions on working hours	2.120	25
Building regulations and other statutory control	2.204	26
Decanting building for commencement of work	2.282	27
Long and unsociable working hours	2.338	28
Handling and disposal of hazardous/toxic substan	ices 2.373	29
Plant supply	2.387	30
Selection and recruitment of workforce	2.387	31
Restriction in plant usage	2.394	32
Employee stress and absenteeism	2.993	33

Liaison with tenant/occupier was ranked mid-way, being rated 16th. This takes on a heightened dimension when carrying out refurbishment work in hotels, hospitals and housing. Of the 32 refurbishment organisations who participated in the present study, eight have employed Public Relations Officers/Tenant Liaison Officers to manage this important function.

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Restriction in plant usage and employee stress and absenteeism were ranked least at 32nd and 33rd respectively. Site access restrictions may limit the type of plant/machinery brought on to site, e.g. cranes and hoists. Clients' demands on control of noise and vibrations, for example in carrying out refurbishment work in hospitals and hotels, may restrict the selection and use of plant/machinery for a job. In order to minimise noise from plant/machinery, contractors may be forced to use less powerful hand tools which might have an effect on productivity and efficiency levels. Similarly, in meeting the clients' demands on noise control, contractors might need to use noise control materials, such as mufflers on tools. These have cost implications to contractors.

For employee stress and absenteeism, the low rating may be a reflection of the degree of job satisfaction employees experience from their work. Their work is satisfying and rewarding. It may also be reinforced by the fact that managers at all levels appear close to the workface, in which case there is a sense of belonging, a view supported by 32 training officers from 32 refurbishment organisations who were interviewed as part of this present study. Training officers noted that refurbishment managers at all levels of management co-operate with one another to a great extent, and that all managers are close to site.

Having considered both managers' perceptions on degree of difficulty of refurbishment characteristics; and the frequency at which they occur, it is in order to ascertain if there is a significant positive correlation between the two.

A close observation of Table 3 (Degree of Difficulty of Refurbishment Characteristics: Refurbishment Managers) and Table 19 (Frequency of Occurrence of Refurbishment Characteristics: Refurbishment Managers) show that nine out of the fifteen most difficult characteristics appear also amongst the fifteen most frequently occurring characteristics, these characteristics being :-

- (i) Cost control
- (ii) Dust control
- (iii) Variation/change orders to the works
- (iv) Site security
- (v) Storage of building materials and plant
- (vi) Time prediction for the completion of the works
- (vii) Keep site tidy
- (viii) Productivity control and maintenance
- (ix) Maintaining site safety & welfare standards.

It would appear that there is a positive correlation between those characteristics ranked most difficult and their frequency of occurrence.

To statistically test the null hypothesis, that there is no significant positive correlation between those characteristics managers ranked most difficult and their frequency of occurrence, Spearman's rank-order correlation coefficient  $(r_s)$  is an appropriate measure (Siegel, 1956<sup>448</sup>; Siegel and Castellan, 1988<sup>449</sup>; Rees, 1989<sup>417</sup>). Siegel and Castellan (1988<sup>449</sup>) advise that if  $r_s$  exceeds a certain critical value at 0.05 level of significance, reject the null hypothesis. The computed value of  $r_s$  is 0.333, and it is significant at the 0.05 level. The null hypothesis is rejected. This confirms

that there is a significant positive correlation between the characteristics which managers ranked most difficult and their frequency of occurrence.

As refurbishment characteristics occur during refurbishment operations, it is compounded by the highly unpredictable and risky (Quah, 1988<sup>410</sup>; Teo, 1990<sup>473</sup>; and Chapman, 1980<sup>102</sup>) nature of refurbishment works. This heightens the difficulties associated with refurbishment characteristics.

### 4.9. Conclusions And Recommendations.

This chapter concentrated on exploring in detail, the major characteristics and difficulties which confront managers in carrying out refurbishment work. The purpose of this approach is to increase the knowledge and understanding of refurbishment processes, an area which remains relatively unresearched (Douglas, 1988<sup>165</sup>; Quah, 1988<sup>410</sup>; and Dixon, 1990<sup>163</sup>). In doing so, it could facilitate individual managers, organisations, clients and course tutors, so that each, in their own way, can prepare for, or provide a career in, refurbishment management.

Secondary aspects of refurbishment management theory and practice received attention, directly arising from this research. The issues of similarity and differences in perceptions of difficulty of refurbishment characteristics across three tiers of management levels, two types of organisations, and fifteen types of refurbishment projects, received due consideration. Also investigated, was the frequency of occurrence of refurbishment characteristics in managing refurbishment work. The conclusions that follow from this part of the study can be documented as follows :-

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(i) The major characteristics and difficulties which confront managers in carrying out refurbishment work have been established. In all, 33 refurbishment characteristics are identified. Cost control, dust control, influence of tenants on the regular progress of the works, pricing of the works and variation/change orders to the works are the most difficult refurbishment characteristics. The least difficult characteristics is are: coping with employee stress/absenteeism, building regulations/other statutory controls, and plant supply.

(ii) Refurbishment work is complex, highly specialised and contains elements of work which are unique to the refurbishment sector.

(iii) The frequency of occurrence of refurbishment characteristics in managing refurbishment work has been established. Variation/change orders to the works, keeping the site tidy, cost control, maintaining site safety & welfare standards, and programming and scheduling of the works are the most frequently occurring characteristics. The least frequently occurring characteristics are plant supply, selection & recruitment of workforce, restriction in plant usage, and employee stress & absenteeism.

(iv) There is no significant negative correlation between management levels and degree of difficulty of refurbishment characteristics. In other words, managers at higher levels of management do not necessarily find refurbishment characteristics less difficult than managers at lower levels of management.

(v) Specialist refurbishment organisations find refurbishment characteristics less difficult than general refurbishment organisations. This can be explained by the fact that as the majority of work carried out by specialist refurbishment organisations is refurbishment work, their managers are more exposed to refurbishment difficulties and are, hence, more likely to have gained greater experience and understanding of the refurbishment processes. General refurbishment contractors would need to engage in more training geared towards refurbishment, given the degree of difficulty of refurbishment characteristics.

Clients may prefer to appoint a specialist refurbishment contractor where managers with a range of experience in refurbishment are less likely to find difficulties in handling refurbishment characteristics.

(vi) There is a significant negative correlation between the length of time a manager has spent working in the construction industry, and the difficulty of refurbishment characteristics. The longer the time a manager spends working in the construction industry, the less difficult he/she finds refurbishment characteristics. A wealth of experience accumulated over the years on construction processes would be useful for refurbishment operations.

(vii) There is a significant negative correlation between the length of time a manager has been involved in managing refurbishment work; and the degree of difficulty experienced with refurbishment operations. The longer the time a manager

spends in managing refurbishment work, the less difficult he/she finds refurbishment operations. Personnel officers should be looking to recruit managers for refurbishment, based on the length of time involved in managing refurbishment work. Similarly, clients and their advisors would need to ascertain, during the tender presentation stage, the experience of the contractor's management team on refurbishment operations. The experience of managers on refurbishment work, could make or break a refurbishment contract.

(viii) There is a significant negative correlation between the age of manager and the degree of difficulty of refurbishment characteristics. Older managers find refurbishment characteristics less difficult than younger managers. Older managers, have spent longer time in the construction industry and therefore obtained knowledge and experience concerning general construction and refurbishment operations. They are more likely to cope with refurbishment difficulties. Personnel officers should be looking to recruit managers based on experience of refurbishment processes.

(ix) In terms of refurbishment projects, hospitals, hotels and MOD buildings are the most difficult to manage. Contractors involved in refurbishment, would need to staff these projects with managers of relevant experience of refurbishment work. The least difficult refurbishment projects to manage are recreational buildings, industrial buildings and agricultural buildings.

(x) Refurbishment managers perceive work on occupied buildings to be more difficult to manage than work carried out on unoccupied buildings.

(xi) Refurbishment managers perceive refurbishment works to be more difficult to manage than new-build work.

(xii) There is a significant positive correlation between those characteristics managers ranked most difficult and their frequency of occurrence. Where a characteristic is perceived to be very difficult and occurs very frequently, then the management team would need to pay particular attention to that characteristic.

(xiii) Managers with refurbishment experience and knowledge find it relatively easier to move into new-build work than the reverse.

(xiv) Managers who are able to gain considerable experience in managing different types of refurbishment contracts are less likely to find their work problematic. Contractors would therefore be well advised to prepare potential managers for a career in refurbishment management, through a process of job enrichment.

(xv) For those individuals wishing to embark upon a career in refurbishment, a specialist contractor may provide a rich vein of opportunity rather than working for a general contractor with a range of services.

(xvi) It is recommended that guidelines advocating "how best to overcome refurbishment problems and difficulties" for different types of projects and refurbishment work across industrial sectors, especially in the defence, hotel and health service sectors, be produced.

# CHAPTER FIVE

# EDUCATIONAL BACKGROUND OF REFURBISHMENT MANAGERS

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### 5.0. EDUCATIONAL BACKGROUND OF REFURBISHMENT MANAGERS

### 5.1. Introduction

This chapter investigates the educational background of refurbishment managers. The objectives being to establish the types of education and training managers involved in refurbishment receive, together with their educational achievements. An investigation of this kind would be useful in ascertaining 'where refurbishment managers come from', together with the calibre of managers involved in managing refurbishment work.

Educational characteristics of managers will be presented using frequency distribution. Managers' educational background will be analyzed by age, main area of study, and levels of management.

A comparative analysis will be made with a similar study. The selection of study is based on similarity in research objectives, industrial setting (construction industry), and compatibility with the methodology of the present study.

This chapter will also attempt to examine whether further qualifications are beneficial to refurbishment managers in attaining higher management positions. Kendall's (1962<sup>297</sup>) Tau<sub>c</sub> is employed for hypothesis testing.

### 5.2. Qualifications Obtained To Date By Refurbishment Managers

Respondents to the postal questionnaire were asked to record what qualification they have obtained to date (see questionnaire in appendix A). Figure 9 presents these data.

Nearly 70% of respondents have obtained Ordinary Levels (O/Levels) qualification or equivalent, when compared to 28.17% who have obtained Advanced level (A/Level) or equivalent qualifications. Figure 9 also shows that nearly 68% of the respondents are City & Guild (C&G) qualified.

Only four managers in the present study have obtained the Business and Technology Education qualifications (BTEC). Three of these qualifications are BTEC National Certificates (NC), and the remainder is the BTEC Higher National Certificate (BTEC HNC). These managers have obtained these qualifications through part-time courses.

Most courses which in the past would have led to Ordinary National Certificates (ONC) and Diplomas (OND), and the Higher National Certificates (HNC) and Diplomas (HND) have almost entirely been succeeded by, at the lower level, BTEC National Certificates and Diplomas and, at the higher level, by BTEC Higher National Certificates and Diplomas.



Figure 9: Types Of Qualifications

For data analysis, in the present study, BTEC National Certificates and ONC qualifications will be combined. Similarly, BTEC Higher National Certificate and HNC qualifications are combined together.

There are slightly more managers with Higher National Certificate (HNC)/ BTEC HNC/Higher National Diploma (HND) (37.32%), than with Ordinary National Certificate (ONC)/BTEC NC/Ordinary National Diploma (OND) (34.51%).

It can also be seen from Figure 9 that nearly a quarter (24.65%) of the respondents are qualified to first degree or higher degree levels.

To take the educational achievements one step further, qualification obtained by age of manager will be considered.

Qualification	Age (%)					
	(N = 27)	(N = 50)	(N = 47)	(N = 18)		
	<u>25 - 35</u>	<u> 36 - 45</u>	<u>46 - 55</u>	<u>56 - 65</u>		
O/Levels	88.90	70.00	63.83	55.55		
A/Levels	22.22	46.00	23.40	-		
C & Guild	44.44	56.00	65.96	83.33		
ONC	22.22	24.00	21.28	11.11		
BTEC. NC	11.11	-	-	-		
OND	3.70	10.00	10.64	11.11		
HNC	18.52	22.00	21.28	-		
BTEC. HNC	3.70	-	-	-		
HND	14.81	26.00	14.89	-		
F/Degree	11.11	44.00	21.28	-		
H/Degree	-	2.00	-	-		
DMS	-	10.00	2.13	-		

Table 20: Qualification By Age

Table 20 shows that younger managers, aged between 25 and 35 years have obtained more O/levels than older managers. However, when A/level qualification is considered, managers aged between 36 and 45 years have obtained more A/levels

(46.00%) than younger managers aged between 25 and 35 years (22.22%). Similarly, managers aged between 46 and 55 years (23.40%) have obtained more A/Levels than younger managers in the 25 - 35 age band (22.22%). Older managers in this sample who are aged between 56 and 65 have obtained no A/level qualification.

First degree qualifications also feature among managers in the 36 - 45, and 46 - 55 age bands. This is consistent in view of the percentage of managers who obtained A/level qualifications, and therefore help to confirm the reliability of these data. As Zeller and Carmines (1978<sup>520</sup>) remind us, without reliability, results may be questioned on the grounds of inconsistency.

As would be expected, none of the managers in the 56 - 65 age band have obtained first degrees. These managers it will be recalled have obtained no A/level qualification. Only one manager in the present study had obtained a higher degree (MSc. Civil Engineering). He is of a civil engineering background, and as Table 20 shows, is in the 36 - 45 age band.

An inspection of Table 20 reveals that the older managers in the sample have obtained more City & Guild qualification than their younger counterparts. 83.33% of managers aged between 56 and 65 are City & Guild certified, when compared to 44.44% of managers in the 25 - 35 age band.

Further inspection of Table 20 shows that only younger managers in the 25 - 35 age band have obtained BTEC qualifications (BTEC NC or BTEC HNC). This result supports the view that BTEC qualifications are relatively new when compared to ONC and HNC qualifications. It also helps to confirm the reliability of the data of the present study.

With the exception of managers aged between 56 and 65 years, the attainment of ONC and HNC show little variation across age groups. Similarly, apart from managers in the 25 - 35 age band, there is little variation in the attainment of OND qualifications across age groups.

As regards the Diploma in Management Studies (DMS), only six managers in the sample population have obtained this qualification. This represents 10.00% of the managers aged between 36 and 45 years, and 2.13% of managers in the 46 - 55 age band.

### 5.3. Managers' Main Area Of Study

Managers were also asked to indicate their main area of study (see questionnaire in appendix A). The data presented in Table 21 shows that while building is the most popular area studied below first degree, the attainment of first degrees are mostly in civil engineering.

This result supports the observation made by Young (1988<sup>510</sup>) in her study on "Career development in construction management". It also lends support to Morley/Lighthill (1986<sup>360</sup>) report which suggests that there are more first degrees obtained in civil engineering than in building.

The result of the current study would suggest that civil engineers tend to be more qualified than builders. Builders tend to hold certificates or diplomas in their chosen courses, while civil engineers tend to graduate. Further inspection of Table 21 shows that while 29.41% of builders have achieved first degrees, nearly 53% of civil engineers are first degree holders. Also as previously mentioned, the only higher degree (MSc. in Civil Engineering) is obtained by a manager whose main area of study is civil engineering.

Main area							-			
of study	}	Qualifications								
	N=33	N=3	N=13	N=28	N=1	N=24	N=96	N=34	N=1	N=6
	ONC	BTEC	OND	<u>HNC</u>	BTEC	<u>HND</u>	<u>C&amp;G</u>	F/Deg	<u>H/Deg</u>	<u>DMS</u>
		<u>NC</u>			<u>HNC</u>					
	ļ									
Building	66. <b>67</b>	100.00	84.62	57.15	-	58.33	18.75	29.41	-	100.00
Civil Eng.	15.15	-	-	25.00	100.00	12.50	3.13	52.94	100.00	-
Q.S.	12.12	-	15.38	7.14	-	29.17	1.04	17.65	-	-
Estimating	6.06	-	-	10.71	-	-	1.04	-	-	-
Craft	-	-	-	-	-	-	76.04	-	-	-

### Table 21: Qualifications By Main Area Of Study

Only 17.65% of quantity surveyors in the sample population have obtained first degrees.

From Table 21, it can be seen that the three managers with BTEC National Certificates (NC) have a building background, while the only manager with a BTEC HNC qualification is of a civil engineering background.

Table 21 clearly shows that over 76% of managers with City & Guild qualification indicated that craft is their main area of study. Also from Table 21, it can be seen that ninety-six (96) of the 142 managers who participated in the study have obtained City & Guilds at one stage or the other as part of their education/training. This represents over 67% of the total sample. This suggests that majority of managers have trades backgrounds, a point made earlier in section 4.3 of chapter four of this thesis. An understanding of the technical aspects of construction, it would appear, is useful for those managing refurbishment work.

Further analysis of the study suggests that in terms of trades backgrounds, joinery, bricklaying, and steel fixing are the main areas associated with managers in this study. This finding supports the view of Hanley (1987<sup>245</sup>), when, in answering the question - 'Where do refurbishment managers come from?', in his article on "Management Research Needs - Refurbishment", pointed out that:-

"Refurbishment management is one area where ex-tradesmen (generally joiners) can and do make up a significant proportion of the available resource. They are, because of their technical training and exposure to both new build and repair works, good at practical aspects and the logic necessary for programming. The more academic requirements, quantities, administration, building law, can be, and generally are learnt through further education such as leading to ONC, HNC or Chartered Institute of Building (CIOB) examinations" p30.

### 5.4. Professional Qualifications And Membership Of Institutions

Respondents were asked to indicate the professional institution to which they belong (see questionnaire in appendix A). Only 25.30% of the sample population claim to hold professional qualification other than diplomas and degrees. These managers

are from building, civil engineering, and quantity surveying backgrounds. These are also the same managers who are members of professional institutions.

Table 22 shows that while nearly 64% of managers with professional qualifications are members of The Chartered Institute of Building (CIOB), 22.22% and 13.89% of the respondents are members of The Institution of Civil Engineers (ICE), and The Royal Institution of Chartered Surveyors (RICS) respectively.

### Table 22: Membership Of Professional Institutions

	<u>N = 36</u>
	%
The Chartered Institute of Building (CIOB)	63.89
The Institute of Civil Engineers (ICE)	22.22
The Royal Institution of Chartered Surveyors (RICS)	13.89

This result is not surprising, considering the proportionally higher number of managers whose main area of study is building (see Table 21). Managers involved in refurbishment it would appear tend to come from a building background rather than a civil engineering background.

Of the managers who claim membership of the ICE, 75% are graduates. Graduates make up 21.74%, and 20.00% of membership of the CIOB and RICS respectively. The inference that can be drawn from this result is that more graduates apply for membership of the ICE than apply for membership of CIOB or RICS. This finding

lends support to Young's (1988<sup>510</sup>) study. Only 18% of civil engineering graduates in Young's (1988<sup>510</sup>) study are not members of the ICE.

It would appear that the majority (78.26%) of managers in the present study, who are members of the CIOB, and who do not hold degree qualifications, would have gained membership through other qualifications which they have obtained (e.g BTEC NC, ONC, OND, HNC, HND and DMS), in conjunction with an indication of professional competence in their areas of discipline.

### 5.5. A Comparative Study: Educational Qualifications Of Refurbishment Managers And Construction Managers

In the UK, a series of studies have been conducted to discover more about the educational background of British managers. These include studies by Melrose-Woodman (1978<sup>353</sup>), Mansfield et al (1980<sup>341</sup>), and Lee (1981<sup>326</sup>). Studies on educational background of British managers tend to have different objectives. These are conducted using different methodologies, vary in sample size and industrial setting, and therefore prevents meaningful comparison. For example, the study by Lee (1981<sup>326</sup>) is heavily concentrated towards the manufacturing industry.

To the best knowledge of this author, no study exists which specifically attempts to obtain data on educational background and achievements of refurbishment managers. In 1988, Young in her study on Career Development in Construction Management, investigated the educational background of construction managers in the UK. Seventy-three (73) managers who participated in her study, were in the main, involved in new build work. For reasons of scarcity of current studies, compatibility of research objectives and methodology, and similarity in industrial setting (construction), a comparative exercise will be undertaken between Young's (1988<sup>510</sup>) study and the present study.

Table 23 presents summary data on educational qualifications/achievements from managers from both studies.

# Table 23: Educational Qualifications/Achievements Of Refurbishment Managers And Construction Managers

Types of Qualification	<u>Refurbishment</u> <u>Managers</u> *	Construction Managers **		
	$\frac{N = 142}{\frac{\%}{2}}$	$\frac{N = 73}{\frac{\%}{2}}$		
O/Levels	69.72	83.00		
A/Levels	28.17	51.00		
BTEC NC/ONC/OND	34.51	35.00		
BTEC HNC/HNC/HND	37.32	37.00		
F. Degree/H. Degree	24.65	45.00		
DMS	4.22	4.00		
Professional Qualifications	25.35	48.00		

\* The Present Study (1994)

\*\* Young (1988<sup>510</sup>), Career Development In Construction Management

An inspection of Table 23 shows that even in spite of a lapse in time between studies, refurbishment managers in this study appear to be less qualified than their counterparts in construction management. While 51% of respondents in Young's study have A/level qualifications, only 28.17% of respondents in the present study have similar qualifications. Similarly, as can be seen from Table 23, 45% of managers in Young's study have first or higher degrees when compared to 24.65 %

in the present study. In general, it would appear that people who become refurbishment managers have a lower level of knowledge than their counterparts in new build.

In terms of professional qualifications and membership of institutions, 48% of managers in Young's study have obtained professional qualifications compared to 25.35% of managers in the present study.

This result further supports the view that there is under-course provisions geared towards refurbishment management. For refurbishment organisations and educators, more effort is needed to increase the level of qualification of managers involved in refurbishment work. The provision of more, and relevant courses which are qualification oriented will be a move in the right direction. This should also help in improving the image of both refurbishment managers and the refurbishment sector.

### 5.6. Qualifications And Management Hierarchy

The purpose of this section of the chapter is to analyze the effect of qualifications on manager's job. In other words, to ascertain if in refurbishment, managers with higher qualifications occupy higher management positions.

The positive influence which higher education and qualifications have on manager's level of attainment, e.g. in their present job is well recognised. The 'Human Capital' school as championed by Schultz (1963<sup>441</sup>) and Becker (1975<sup>32</sup>) is of the view that higher education and qualifications is beneficial to career development. The central

message by Becker (1975<sup>32</sup>), is that individuals in the early part of their career make investments in the form of being educated and obtaining qualifications, in order to reap the benefits in the future. Such benefits include higher salaries, promotion, greater opportunities and a better job.

Human Capital theory is not without its critics (Rosenbaumn, 1984<sup>428</sup>; and Blaug, 1976<sup>48</sup>). Rosenbaumn (1984<sup>428</sup>) critically outlined the flaws in human capital theory by testing hypotheses from a collection of data. The central message from Rosenbaumn (1984<sup>428</sup>) is that human capital theory is flawed in that it does not take due consideration of organisational strategies and product market. Organisational strategy in the product market directly affects the labour market, together with the resultant opportunities to the organisation. In effect, this means that an organisation experiencing difficult times, such as difficulties with cash flows, reduced sales, and falling profit margins, are less likely to promote individuals within their organisations, irrespective of their qualifications.

For the present study, to engage in an analysis of the effect of qualification on management positions require a working hypothesis. Thus it is hypothesised that there is a significant positive relationship between level of management, and qualification obtained to date, by a manager in his present job. For the purpose of this analysis, management levels will be divided into three levels, senior, middle and junior. The senior level position consists of directors, and area managers. Middle level managers are contracts and project managers. Site managers and site agents occupy the junior level position. The qualifications considered are First & Higher degrees; BTEC HNC, HNC & HND; BTEC NC, ONC & OND; and City & Guild.
A number of test statistics which can be used as measures of association is well documented in the literature. Pearson (1904<sup>394</sup>), Cramer (1946<sup>142</sup>), Kendall (1962<sup>297</sup>), Kendall and Stuart (1967<sup>299</sup>), Everitt (1977<sup>184</sup>), and Goodman and Kruskal (1979<sup>224</sup>) are all well renowned for their contributions to the subjects of contingency tables and measures of association. The choice of any test statistic is dependant not only on preference, because of popularity or common usage, but also on the appropriateness of the data which is to be tested. Kendall's (1962<sup>297</sup>) Tau<sub>c</sub> is appropriate when one or both of the variables is ranked ordered (Blalock, 1979<sup>46</sup>; Siegel and Castellan, 1988<sup>449</sup>). Kendall's (1962<sup>297</sup>) Tau<sub>c</sub> also identifies the strength of the relationship and direction, whether it is positive or negative.

In the present analysis, since one of the categories is ordered, i.e. management level, Kendall's (1962<sup>297</sup>) Tau<sub>c</sub> will be employed as the test statistic.

In Table 24, managers are classified by the highest qualifications they have obtained to date and cross tabulated according to management level. An inspection of Table 24 shows that there are proportionally more managers in the senior positions with first/higher degrees than in middle or junior positions.

Management	Qualifications				
Level	F/H Degrees	BTEC HNC/HNC/HND	BTEC NC/ONC/OND	C & G	4
Senior	15	4	2	2	23
Middle	12	15	9	23	59
Junior	8	13	10	29	60
L	35	32	21	54	142

Kendall's  $Tau_c = 0.299ns$  Significance level = 0.05

Table 24: Management Level By Highest Qualification Obtained To Date

While fifteen (15) of the respondents in senior management positions have first or higher degrees, only eight (8) of respondents in junior management position have obtained similar qualifications. Table 24 also shows that while twenty-nine (29) of the junior managers have obtained City & Guild, only two (2) senior managers have obtained similar qualification. These two senior managers would have progressed through the ranks from a trades background on the basis of their personality and practical abilities.

Tau<sub>c</sub> as shown in Table 24 is close to 0.3, and away from zero (0). This value is significant at 0.05 level. There is significant positive relationship in the rank ordering of qualifications on management level. In other words there is sufficient evidence from this study to suggest that managers with higher qualifications are more likely to reach senior positions than managers with lower qualifications e.g City & Guild.

The inference which can be drawn from this result is that refurbishment managers would have to strive to obtain higher qualifications, preferably, first/higher degrees, if they are to increase their chances of attaining senior management positions. However, as previously discussed in section 4.5 of chapter four, the highly qualified managers in refurbishment are not necessarily the more experienced managers, both in terms of length of time spent working in the construction industry, and length of time involved in managing refurbishment work.

The findings of this study supports that of Nickell (1982<sup>384</sup>). Nickell (1982<sup>384</sup>) applied regression techniques to measure the impact of 'human capital' variables on occupational variables. Data for Nickell's (1982<sup>384</sup>) study was obtained from a National Training Survey 1975, and embracing a number of occupations. The regressors in Nickell's (1982<sup>384</sup>) study included degrees, higher professional qualifications, and City & Guilds. The conclusion from Nickell's (1982<sup>384</sup>) study is that higher qualifications are of significant importance for career success. Nickell (1982<sup>384</sup>) also showed that if personal characteristics are held constant, higher professional qualifications and degrees raised the individual's occupational level by 3% and 7% respectively.

#### 5.7. Conclusions And Recommendations

This chapter considered the educational backgrounds of refurbishment managers, highlighting their educational achievements. An attempt was also made to establish whether higher qualifications are beneficial to managers in attaining higher management positions. The conclusions of this study are as follows:- (i). The majority (67.61%) of refurbishment manager have had a trades background. The three main trade areas being joinery, bricklaying and steel fixing. An understanding of the technical aspects of construction is necessary for managers involved in refurbishment.

(ii). Managers involved in refurbishment work tend to come from a building background when compared to civil engineering, quantity surveying and estimating.

(iii). Managers involved in refurbishment appear to be less qualified than their counterparts involved in other aspects of construction management. More efforts would have to be made by refurbishment organisations and educators in order to improve the level of qualifications of managers involved in the refurbishment sector. Courses for refurbishment management which lead to qualifications will be a step in the right direction.

(iv). There is evidence to suggest that in refurbishment management, higher qualifications are beneficial in the attainment of senior management positions. For refurbishment managers seeking career advancement and higher positions, obtaining the relevant higher qualifications is important.

# CHAPTER SIX

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# REFURBISHMENT MANAGEMENT: AN APPROPRIATE BODY OF MANAGEMENT SKILLS AND KNOWLEDGE

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### 6.0 REFURBISHMENT MANAGEMENT: AN APPROPRIATE BODY OF SKILLS AND KNOWLEDGE

#### 6.1. Introduction

Many of the problems and ailments affecting construction enterprises and often, the construction industry of a country, are only symptoms of the underlying problems of a weak enterprise management. This is a central message of the 1984 study by the World Bank (1984<sup>508</sup>) on construction management. This view is also reinforced by the International Labour Organisation (ILO, 1983<sup>278</sup>) which states "... a positive response to the problems facing the industry would be to strengthen the managerial capability of those individuals and groups responsible for implementing construction programmes" p6. Similarly, according to Austen and Neale (1987<sup>16</sup>), a major bar to the progress in the construction industry "has been a lack of construction management skills" p 1046.

The importance of management to individual managers and organisations, both in general management perspective (Revans, 1966<sup>419</sup>; Drucker, 1979<sup>167</sup>; and Margerison, 1988<sup>342</sup>), and in construction management (Bennett and Flanagan, 1983<sup>35</sup>; NEDC, 1983<sup>376</sup>; CITB, 1986<sup>128</sup>; and Lansley, 1987<sup>318</sup>), is well documented. To this effect, the literature abounds with studies which have given attention to the contents of managerial work, and what managers actually do. Some of the more accomplished works include Carlson, 1951<sup>88</sup>; Sayles, 1964<sup>439</sup>; Stewart, 1976<sup>464</sup>, 1986<sup>466</sup>; Mintzberg, 1980<sup>356</sup>; Kotter, 1982a<sup>312</sup>, Luthans et al, 1985<sup>335</sup>; Hales, 1986<sup>227</sup>; and Martinko and Gardner, 1990<sup>347</sup>.

Sayles (1964<sup>439</sup>) informs us that without the knowledge of management activities, there can be no rationale for staging management courses. Other writers are also in agreement that the analysis of management activity is essential, and indeed, of practical value in designing management courses (Revans, 1966<sup>419</sup>; Drucker, 1981<sup>168</sup>; and Mintzberg, 1980<sup>356</sup>).

In the construction industry, few studies, notably, Faulkner and Wearne 1979<sup>187</sup>, 1984<sup>188</sup>; Finnigan et al, 1987<sup>195</sup>; CITB, 1988b<sup>130</sup>; and Young, 1988<sup>510</sup>, have been conducted in the area of skills and knowledge (job dimensions) for construction management. These studies appear, in the main, directed towards new build activities, and to the best knowledge of this author, none specific to refurbishment. The management domain of refurbishment work still remains relatively unresearched (Quah, 1988<sup>410</sup>, 1991b<sup>413</sup>; Douglas, 1987<sup>165</sup>; Dixon, 1990<sup>163</sup>, Young and Egbu, 1993a<sup>518</sup>, 1993b<sup>519</sup>).

According to Mintzberg (1980<sup>356</sup>), "There are certainly essential features common to all managers' jobs, and that there are also uniqueness that distinguish every type of management job" p 26. This view is reinforced by the Construction Industry Training Board (CITB, 1988a<sup>129</sup>) when they pointed out that management of construction work and the framework of construction education, training and qualification must take account of the particular problems and special nature of the construction industry such as the sector differences.

Construction management, we are told, is the art of utilising and integrating men, money, materials and methods for the production of built facilities (Imbert, 1987<sup>259</sup>), and maintaining the organisation in a state of dynamic equilibrium with the environment (Phatak, 1983<sup>400</sup>). If as the Centre for Strategic Studies in Construction (CSSC, 1988<sup>98</sup>, 1989<sup>99</sup>) informs us, the construction environment is rapidly changing, with new materials and methods employed in construction, improved technology, shortage of skilled workforce, more complex projects, greater competition and clients becoming more sophisticated; then the need for managers in refurbishment activities to acquire and develop the relevant management skills and knowledge has never been greater.

A better understanding of the job of refurbishment managers, and the skills and knowledge they need and bring to their work should be of theoretical and practical value. It is the concern of this study to investigate and evaluate refurbishment managers' work so that:-

- i. Awareness and acquisition of relevant management skills and knowledge for refurbishment will be of value to individual managers; as it could lead to increase in job satisfaction.
- ii. For individual managers, appropriate management courses based on the needs of refurbishment could help advance career prospects.
- iii. For refurbishment organisations, it could assist in the selection and recruitment of the right calibre of personnel. Recruiting managers with relevant skills and knowledge should help reduce mis-matching of skills and jobs.

This chapter addresses the issues of management skills and knowledge for refurbishment. It commences with definitions and characteristics associated with management skills and knowledge. Next, it briefly reviews literature on the theory and practice of management skills and knowledge from both general and construction management perspectives. Data will be presented from the sample population of refurbishment managers on skills and knowledge which they perceive to be important in their present jobs in managing refurbishment work. An attempt would be made to compare data from the present study with other studies based on same methodology, similar objectives, and/or statistical representation.

The study takes another dimension as it reports on the qualities and attributes which managers need to possess in order to successfully accomplish a refurbishment project. A knowledge of the qualities and attributes associated with successful management of refurbishment works should assist organisations in the recruitment and selection of the right calibre of managers who are likely to fit into managing in a refurbishment environment.

It is not just sufficient to consider the management skills and knowledge which refurbishment managers perceive to be important, the degree of difficulty in handling those skills and knowledge in refurbishment is equally important, and demand attention. The establishment of the relative degree of difficulty associated with handling job dimensions could assist organisations in directing attention to areas of refurbishment that need more managerial input and support. For organisations and educators, it could help trigger attention to job dimensions in which managers might need education and training. This is also considered.

#### 6.2. Management Skills And Knowledge: Definition And Characteristics

The needs and benefits of management skills and knowledge to managers and industry are well recognised (Livingston, 1971<sup>332</sup>; Katz, 1971<sup>292</sup>; Constable, 1988<sup>122</sup>; and Whetten and Cameron, 1991<sup>495</sup>). Also, it is generally accepted that an appropriate body of skills and knowledge is fundamental, not only in demonstrating competence, but also in promoting a professional image in construction (Batley, 1987<sup>29</sup>; Guest, 1988<sup>234</sup>; Gale, 1989<sup>212</sup>; and Young and Duff, 1990<sup>514</sup>). But what is management skill, and what is knowledge?

Boyatzis (1982<sup>56</sup>) in his study on the "Competent Manager", describes skill as an ability to perform a specific job or task. In the same vein, Constable (1988<sup>123</sup>) defines skill as the ability to perform a job to a prescribed standard. As for knowledge, Constable (1988<sup>123</sup>) sees knowledge as the received concepts, ideas, theories, schools of thought and even traditional wisdom about management functions and problems.

Katz (1971<sup>292</sup>) is one of the earlier writers to dispel the myth that skill is inborn and cannot be developed. Katz (1971<sup>292</sup>) informs us that skill is an ability to translate knowledge into action, and also an ability which can be developed and not necessarily inborn. He also notes that skill is manifested in performance, not merely potential. Katz's views are supported by Anderson (1984<sup>6</sup>), who pointed out that skills are learned and developed with experience and practice.

From the definitions given above, there would appear to be agreement amongst researchers as to the definition of management skill and knowledge. Effective action seems to be the principle or standard by which skill is judged. In other words, the action must lead to a desired outcome.

A working definition of management skill and knowledge is useful, and needed. In the context of this study, and in consideration of the above definitions, management skills for refurbishment should be understood to mean the activities or patterns of behaviour which managers undertake in order to accomplish a given desired outcome. Knowledge on the other hand, is the ideas, wisdom and facts managers acquire through experience, theory and practice; the acquisition of which gives them an ability to understand. Knowledge can be potential or manifested in performance. Management skills and knowledge should complement one another.

Several attempts have been made to distinguish management skills from other types of skills, e.g. professional skills (Whitley, 1987<sup>499</sup>; Larson, 1977<sup>321</sup>; Whetten and Cameron, 1991<sup>495</sup>; and Bigelow, 1983<sup>41</sup>). Whetten and Cameron (1991<sup>495</sup>) argue that management skills are interrelated and overlapping. No effective manager performs one skill or one set of skills independent of the other. For example, in order to effectively motivate others, a variety of skills such as communication, influence and delegation are also required. This characteristic of management skill allows flexibility in managing diverse situations. The fact that management skills are complimentary depending on situations is also supported by the work of Young (1988<sup>510</sup>) on construction management skills and knowledge across the management strata.

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Whetten and Cameron (1991495) are of the view that management skills are linked to a more complex base than other types of skills, and also, are inherently connected to interaction with other individuals. They emphasised that a standardised approach to welding or shooting baskets may be feasible, but no standardised approach to managing human beings is possible. The nature of managerial activities (Mintzberg, 1980<sup>356</sup>) limits the standardisation of managerial tasks and problems. This in turn limits the ability of highly standardised skills to deal with them. Since tasks are quite interdependent and embedded in a particular context, it follows that general problem solving procedures which treat them as isolated problems will be less useful than methods and approaches that take account of their contextual nature. As Whitley (1987499) noted, "Managerial skills that are relatively specific to particular organisations and industrial sectors, are, then, more likely to be effective than those based on idealised models of general processes abstracted from particular context" p 13. The limited standardised nature of managerial skills and their situational specificity, which implies flexibility and an ability to develop, is also supported by Larson (1977<sup>321</sup>). Larson (1977<sup>321</sup>) is of the view that limited standardisation of managerial tasks means that reliance on a narrow cognitive base would render managerial skills far too narrow and specialised to be useful. Kotter

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general managers.

(1982b<sup>313</sup>) is also in agreement with this way of thinking. Given the interdependent

and contextual nature of managerial positions, useful skills incorporate considerable

knowledge of "local" contexts and networks, as he claims was true of successful

Bigelow (1983<sup>41</sup>) noted that a useful skill has four attributes, namely :-

- i. It is based around explicitly identified problematic situations a person can expect to encounter in early career.
- ii. It provides a way of thinking about these situations which enables the personto develop effective situational action i.e. based on past experience.
- iii. It provides opportunities for action oriented learning.
- iv. It provides a means of feedback to the person about his/her situational effectiveness.

From the ongoing, it would appear that management skills are characterised by being situationally specific, collective and interdependent, complimentary, linked to a broad base and can be developed.

#### 6.3. Management Skills And Knowledge: Theory And Practice

It is the aim of this section of the chapter, to briefly review individual contributions to the theory and practice of management skills and knowledge, from both general management and construction management perspectives. By so doing, theories and research relevant to the kinds of managerial behaviour, skills and knowledge that contribute to management success and performance in a variety of forms are discussed. A great deal of attention has been levelled on the area of management skills and knowledge in general management, especially in the U.S.A. and U.K. Less research has been carried out in construction management.

One of the earliest studies on management skills and knowledge was conducted in 1966. In their study on "Perception of managerial needs and skills in two national samples (America and British managers in progressive firms)", Heller and Porter (1966<sup>252</sup>) observed that the higher ranked skills are those dealing with people at work, such as leadership, motivation and communication. The lower ranked skills are the ones concerned with the functional and technical demands of the job. In his study of skills of an effective administrator, Katz (1971<sup>292</sup>) suggests that effective management depends on three basic personal developable skills. Katz (1971<sup>292</sup>) identified three skills for effective management, namely:-

- i. Technical skill: This involves specialised knowledge, analytical ability within that speciality, and also, faculty in the use of tools and techniques of the specific discipline.
- ii. Human skill: This is concerned with working with people. Unlike technical skill which is concerned with physical objects or processes. Human skill is demonstrated in the way the individual perceives his superior, peers and subordinates, and in the way he behaves subsequently.
- iii. Conceptual skill: This involves the ability to see the enterprise as a whole. It also extends to visualising the relationship of the individual business to the industry, the community and the socio-economic and political forces of the nation as a whole. Conceptual skill can be said to show that the various function of the organisation depends not just on one another but also on how changes in any part affect all others.

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Katz (1971<sup>292</sup>) informs us that all levels of managers require competence in each of the three skills mentioned above, although the relative importance of them vary according to a manager's level in the organisation. According to Katz (1971<sup>292</sup>), at lower levels, the major need is for technical and human skills, but at higher levels, the managers' effectiveness depend largely on human and conceptual skills. Kast and Rosenzweig (1985<sup>291</sup>) are also in support of this view, noting that at top management level, conceptual skills become the most important.

Mintzberg (1980<sup>356</sup>), in his description of managerial work suggests a number of important managerial skills. He classified management skills under eight broad headings, namely:-

- i. Peer skills
- ii. Leadership skills
- iii. Conflict resolution
- iv. Information processing skills
- v. Skills in decision making under ambiguity
- vi. Resource allocation skills
- vii. Entrepreneurial skills
- viii. Skills of introspection

Mintzberg (1980<sup>356</sup>) also points out that there are some features that are common to each type of management job, and also there is uniqueness with each type of managerial activity. This would imply that there are managerial skills which are applicable to all managerial jobs, but because of the uniqueness of managerial jobs and situations, the relative degree of importance or level of application is likely to differ in different jobs. Burgoyne (1989<sup>80</sup>) reminds us that "The simple reality is that all managerial jobs are different at a detailed level of resolution and all managerial jobs the same at high level of abstraction" p58. A comprehensive study on management skills was conducted by Whetten and Cameron (1991<sup>495</sup>) in the U.S.A. Their study involved interviews with 402 highly 'effective' managers from organisations in the field of business, health care, education, and state government. In their interviews, they aimed to discover what made managers successful. Analysis of their interviews produced sixty characteristics of effective managers. They however, listed ten most cited skills of effective managers. These are listed below:-

i. Verbal communication (including listening)

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- ii. Managing time and stress
- iii. Managing individual decisions
- iv. Recognising, defining, and solving problems
- v. Motivating and influencing others
- vi. Delegating
- vii. Setting goals and articulating vision
- viii. Self awareness
- ix. Team building
- x. Managing conflict

Notice that these ten skills are all behaviourial skills. Other studies using a variety of kinds of respondents with similar results include Prentice, 1984<sup>405</sup>; Margerison and Kakabadse, 1984<sup>343</sup>; and Hunsicker, 1978<sup>272</sup>. Also in the United States, the study conducted by Cameron and Tschirhart (1988<sup>85</sup>) to assess the skill performance of 500 mid-level and upper middle managers of 150 organisations lend support to Whetten and Cameron's (1991<sup>495</sup>) ten most cited skills which are listed above. Some of the skills used in the study by Cameron and Tschirhart (1988<sup>85</sup>), were adapted from the work conducted by Ghiselli (1963<sup>215</sup>), Campbell et al (1970<sup>87</sup>), Miner (1973<sup>354</sup>), and Flanders (1981<sup>198</sup>).

According to Cohen and Cohen (1984<sup>118</sup>), the ten essential skills for successful management are:-

- i. Problem solving and decision making
- ii. Communication
- iii. Motivating subordinates and co-workers
- iv. Leadership
- v. Marketing oneself to the boss
- vi. Time management and goal achievement
- vii. Stimulating innovation and creativity
- viii. Stress management
- ix. Planning
- x. Productivity management

Studies in Management skills have also been conducted in the United Kingdom. Burgoyne and Stuart (1978<sup>82</sup>), in their study on management skills and development, observed that the manager interacts with his environment by carrying out inner plans or programmes with some purpose in view which he/she then modifies according to the feedback he/she receives from the environment. Burgoyne and Stuart (1978<sup>82</sup>) also acknowledge that effectiveness is related to the appropriateness of the plans, and the feedback a manager receives from the environment, and is determined by ten skills. These skills derived by Burgoyne and Stuart are related to three different kinds of learning which could be seen to correspond to Katz's (1971<sup>292</sup>) three skills; learning facts, learning new forms of response, and learning how to abstract and conceptualise. The ten skills which Burgoyne and Stuart (1978<sup>82</sup>) arrived at which are not ranked in order of importance are:-

- i. Command of the basic facts of the situation
- ii. Relevant professional understanding
- ii. Perceptive skills
- iv. Problem solving and decision making skills
- v. People skills

- vi. Coping with stress
- vii. Proactivity, achievement of needs, persistence
- viii. Creativity
- ix. Mental agility
- x. Balanced learning

Mumford et al's (1987<sup>366</sup>) study involving interviews with British directors noted that planning for the future, influencing and maintaining relationships are necessary skills. Similarly, a study conducted by Cox and Cooper (1988<sup>141</sup>), which involved interviews with 45 male top managers of most successful (with good financial records) British companies, list three managerial skills which directors perceive as important. These are, in order of importance:-

- i. Interpersonal skills
- ii. Analytical abilities and decision making
- iii. Long term planning and coping with changes

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From the discussion of general management skills, there seems to be agreement amongst writers that management skills that relate to people, i.e. interpersonal and behavioral skills are the most important set of skills for management. The review of literature on management skills has also shown that at higher levels of management, the need for human and conceptual skills is greater than at lower levels of management. There also appear to be consensus amongst writers that the relative importance of management skills and knowledge vary across managerial levels and managerial jobs. The next stage of the review on managerial skills will focus on the studies carried out in the construction industry.

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Fryer (1979<sup>207</sup>), after discussions with 29 site and contract managers, noted that the most important skills for project management are social skills.

Young (1988<sup>510</sup>) conducted a study involving in-depth interviews with eleven personnel managers, and postal questionnaires were completed by seventy-three managers (senior, middle and junior) from eight different building and/or civil engineering firms. Her study produced 56 job dimensions (skills/knowledge). The core management skills and knowledge from her study were classified under three main headings, namely:-

- i. Financial Business Management: These skills/knowledge are normally associated with senior construction managers.
- ii. Operational Management: These skills/knowledge tend to involve middle and junior construction managers.
- iii. Interpersonal skills (Management of people): These skills/knowledge involve personal contact with people, include leadership, and supervision of others; and concerns all levels of management.

Other studies on construction management skills include those of Finnigan et al (1987<sup>195</sup>), Faulkner and Wearne (1979<sup>187</sup>, 1984<sup>188</sup>), CITB (1988b<sup>130</sup>), and Mustapha and Langford (1990<sup>368</sup>). These studies show that interpersonal skills i.e. communication, leadership, supervision, and motivation are the most required or important skill for construction management.

Finnigan et al (1987<sup>195</sup>) conducted a study on 'Managerial Needs Of Chartered Builders'. Three hundred and thirteen (313) CIOB members, the majority (52%) of whom were employed by contracting organisations, participated in the study. Respondents were categorised under four levels of responsibility: director, senior, middle, and junior members. These respondents were asked to record from a list of skills or expertise, whether they 'sometimes' or 'frequently' required them in their present job. The investigators did not attempt to analyze these sets of data independently to establish relative skills frequencies. Instead they took the view that participants would be more selective in responding, and since the primary objective was to establish skill dimensions, Finnigan et al (1987<sup>195</sup>) decided to aggregate the data. When levels of responsibility are combined, the skills/expertise required is presented below in decreasing order of requirement in present job.

Skills/Expertise	Frequently/Sometimes Required Skill/Expertise (%)
	(N = 313)
1. Motivation of others	84
2. Direct supervision of others	83
3. Estimating	81
4. Costing	79
5. Plan and control budgets	79
6. Evaluate projects	75
7. Negotiate with supplier/subcor	ntractor 74
8. Select personnel	71
9. Plan and schedule projects	68
10. Negotiate contracts with client	s 68

Source: Finnigan et al (1987<sup>195</sup>) "Managerial Needs For Chartered Builders". Technology Management Unit, Bradford Management Centre, University of Bradford. Report TMR 154, p 18.

It can be observed from Finnigan et al's (1987<sup>195</sup>) study, that motivation, and supervision, the interpersonal skills are ranked highest as requirements for construction management.

Faulkner and Wearne's (1984<sup>188</sup>) study on 'Civil Engineers Needs In Construction Management', involving 839 corporate, associates and graduate members of the Institute of Civil Engineers, also supports the view that interpersonal skills are the ones most required for construction management.

These studies conducted on construction management skills/knowledge, are in the main geared towards new build work, and not directed towards refurbishment work. Yet, refurbishment work is perceived to have higher elements of risks and uncertainty (Quah, 1988<sup>410</sup>; Teo, 1990<sup>473</sup>; Chapman, 1980<sup>102</sup>), more complex (Briscoe et al, 1980<sup>64</sup>; Chandler, 1991<sup>101</sup>; Koehn and Towers, 1982<sup>306</sup>), and more dangerous (HSE, 1988<sup>250</sup>) than new build work.

The next section of this chapter will concentrate on deriving a list of management skills and knowledge that are important for refurbishment, a skills and knowledge inventory.

## 6.4. Perceived Importance Of Management Skills And Knowledge For Refurbishment

The analysis of management skills and knowledge that are important for refurbishment will commence with data on managers' perception of the relative importance of management skills and knowledge in their present job, at the aggregate level. This will be followed by an evaluation of the importance of skills and knowledge at senior, middle, and junior management levels.

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A list of management skills and knowledge for refurbishment was devised from a thorough review of literature on general management skills and knowledge, especially those of Constable, 1988<sup>122</sup>; and Whetten and Cameron, 1991<sup>495</sup>; and from construction management skills/knowledge, notably,the works of Young, 1988<sup>510</sup>; CITB, 1988b<sup>130</sup>; Finnigan et al, 1987<sup>195</sup>; and Faulkner and Wearne, 1979<sup>187</sup>, 1984<sup>188</sup>; as well as literature on the general area of refurbishment (Douglas, 1987<sup>165</sup>; Hanley, 1987<sup>245</sup>; and Charmer, 1985<sup>103</sup>. The list obtained was then modified after interviews with 32 training officers from 32 refurbishment organisations. From this list which comprised 75 management skills and knowledge, refurbishment managers were asked to identify those skills/knowledge which they perceived to be important in managing refurbishment work, and to categorise them as 'Very important', 'Important', 'Fairly important' and 'Not important'. This four category rating system was adopted to avoid respondents aiming for the middle column.

It is worth mentioning that this study is concerned with management skills and knowledge, as opposed to technical skills, such as building/construction technology. In dealing with management skills and knowledge, the author assumes that refurbishment managers have the relevant technical skills and knowledge for their job. Also, in devising management skills and knowledge for refurbishment, it was essential that all the skills and knowledge had two things in common. Firstly, they can all be taught, and secondly, they all have the potential for improvement through practice.

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A mention also has to be made of the layout of the list of skills and knowledge from which managers have to rank their relative degree of importance. Suggestions from Gael (1983<sup>211</sup>) and Young (1988<sup>510</sup>) on the importance of layout was adhered to. Skills and knowledge were grouped according to functions. Systematic ordering as opposed to disjointed listing was adopted (see questionnaire, appendix A). Schein (1978<sup>440</sup>) with his Human Resource Inventory, is also in support of this approach. This approach has the advantage of assisting respondents (managers) to co-ordinate their thought processes in completing the questionnaire. It also has the added advantage of assisting managers with speedy completion of the questionnaire, since the managers can easily relate the skills and knowledge to various managerial functions in their present job (Young, 1988<sup>510</sup>). There is the risk that listing of skills and knowledge in the format adopted may lead to the conditioning of responses.

Table 1 in Appendix B shows the aggregate percentage responses of management skills and knowledge which managers find important in their present job.

Management skills and knowledge are reported by majority frequencies 'Fairly important' and 'Not important'. 'Very important' and 'Important' are combined to form the skills and knowledge which managers perceive as most important, in managing refurbishment work. Majority frequencies were established by analyzing for each skill/knowledge, whether majority of the sample population find these skills/knowledge important in their present job. If they did, then for each skill/knowledge, the category which recorded the highest frequency was chosen and presented in Tables 25, 26 and 27, headed most important, fairly important not important in managing refurbishment work. For each category of importance, the majority responses are then ranked to their average scores.

Average scores are computed from ordinal coding of these data. The categories 'Very important', 'Important', 'Fairly important' and 'Not important' were coded 1, 2, 3 and 4 respectively (see questionnaire in appendix A). As the mean score increases, the relative importance attached to management skills/knowledge decreases.

Two examples can be useful at this instance. In Table 25, Team building is ranked 10th, besides a frequency of 95.8%. This is the sum of the two columns 'Very important' and 'Important' (see Table 1 in Appendix B). Employment legislation is of importance to 92.2% of managers, of which 41.5% (Table 26), the majority, perceive this skill/knowledge fairly important in their present job. Analyses of data by levels of management are carried out using the same procedure. This procedure allows the reader to see the majority responses as well as the relative importance attached to management skills/knowledge for refurbishment.

Analysis of data can now commence. An inspection of Table 25 shows that managers rated leadership, communication (oral/written), motivation of others and health & safety as the four most important skills and knowledge in their present job, for managing refurbishment work. These skills and knowledge, are respectively ranked 1st (99.3%), 2nd (97.9%), 3rd (98.6%) and 4th (97.9%). Other skills and knowledge which receive high rating in terms of the most important skills/knowledge include decision making, forecasting and planning, budgetary control and supervision

of others. Mid way down Table 25 are skills/knowledge such as conducting meetings, managing conflict/crisis, tenant welfare and public relations. Lower down Table 25, the skills/knowledge of analysis of project risks/uncertainty, costing and estimating, competitor awareness and managing change are evident.

## <u>Table 25: Management Skills And Knowledge Perceived As Most Important In</u> <u>Managing Refurbishment Work: Refurbishment Managers</u>

Job Dimensions (skills/knowledge)	Average Scores	V.imp/imp(%) N=142
	9 <i>0420</i> 000	
Leadership	1.197	99.3
Communication (oral/written)	1.197	97.9
Motivation of others	1.218	98.6
Health and safety	1.246	97.9
Decision making	1.338	95.7
Forecasting and planning	1.359	97.2
Site organisation	1.394	93.7
Budgetary control	1.408	96.5
Supervision of others	1.415	95.8
Team building	1.423	95.8
Quality control and assurance .	1.528	90.2
Managing time	1.542	91.5
Materials planning and control	1.549	90.1
Manpower planning and control	1.563	92.9
Settling goals and objectives	1.492	89.4
Conducting meetings	1.606	95.8
Managing conflict/crisis	1.606	90.1
Recruit/select: supervisor/foreman	1.627	85.2
Delegating responsibilities	1.634	90.2
Programme maintenance (update)	1.641	85.2
Tenant welfare	1.676	88.0
Public relations	1.676	84.5
Recruit/select: subcontractor	1.683	84.5
Employee training: supervisor/foreman	1.683	89.5
Competitive tendering	1.690	83.1
Analysis of project risk/uncertainty	1.690	89.5
Programme design	1.711	83.1
Identify personal strength/weaknesses	1.725	85.2
Employee training: management	1.739	86.7
Site security	1.746	84.5
Productivity maintenance and control	1.754	83.1
Negotiate: client	1.761	81.7
Costing and estimating	1.789	78.9
Competitor awareness	1.810	78.2
Managing change	1.831	83.1

Table 26 lists the skill and knowledge which respondents perceived as fairly important in their present job. Recruitment/selection of management, negotiation with main contractors, and subcontractors, were ranked 1st, 2nd and 3rd respectively. Organisation of communication systems, managing job stress and creativity also received high ranking in terms of skills/knowledge considered to be fairly important.

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Refurbishment managers may need to apply business management skills in the work they do. There are occasions when they have to be skilled in company accounting and company (strategic) planning. Mid way down Table 26, are skills of career development/appraisal, company accounting, company (strategic) planning, and construction law.

Lower down Table 26, the skills and knowledge associated with contract drafting, sources of finance, employment legislation and client/consumer protection law, are evident. The skills/knowledge associated with contract drafting is important for winning work in refurbishment. Refurbishment managers also need to understand the legal aspects of refurbishment management.

Table 27 presents management skill and knowledge which the respondents suggested are not important in their present job, for managing refurbishment work. Foreign language, demotion & retirement, and managing other national cultures are the three management skills/knowledge ranked highest by the sample population as not important for refurbishment.

### Table 26: Management Skills And Knowledge Perceived As Fairly Important In Managing Refurbishment Work: Refurbishment Managers.

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Job Dimensions (Skills/knowledge)	Average Scores	Fairly imp(%) N=142
Recruit/select management	1.831	14.1
Negotiate: main contractors	1.859	13.4
Negotiate : subcontractor	1.894	14.8
Organisation of communication systems	1.923	16.9
Managing job stress	1.951	19.0
Recruit/select : manual labour	1.993	22.5
Employee training: manual labour	2.021	22.5
Plant planning and control	2.028	26.8
Negotiate : supplier	2.077	20.4
Creativity	2.077	26.8
Career development/appraisal	2.077	26.1
Decanting buildings	2.183	31.0
Company accounting	2.218	29.6
Company (Strategic) planning	2.239	31.7
Construction law	2.246	31.7
Property insurance	2.246	25.4
Organisation structure	2.261	34.5
Termination/dismissal :subcontractor	2.282	30.3
Job analysis/ specification	2.303	31.7
Code of practice/working rule agreement	2.331	31.7
Termination/dismissal :supervisor/foreman	2.352	28.2
Contact drafting	2.373	33.8
Sources of finance	2.387	26.1
Employment legislation	2.415	41.5
Client/consumer protection law	2.472	40.8

Other skills/knowledge which the respondents claim not to be important for refurbishment include, organisation culture, company law, advertising and promotion, and promotion & transfer.

Job Dimensions (Skills/knowledge)	Average scores	Not Imp(%) N=142
Foreign Language	3.507	64.1
Demotion and retirement	3.049	33.8
Managing other national culture	2.873	31.0
Planning law	2.761	23.9
Organisation culture	2.634	16.9
Use of computer technology	2.599	16.2
Company law	2.592	19.7
Termination/dismissal: manual labour	2.592	16.2
Negotiate: Trade unions	2.577	21.1
Termination/dismissal: Management	2.542	18.3
Market research	2.521	22.5
Advertising and promotion	2.521	18.3
Negotiate: Government bodies	2.507	19.7
Employee welfare/counselling	2.479	11.3
Promotion and transfer	2.472	9.9

#### Table 27: Management Skills And Knowledge Perceived As Not Important In Managing Refurbishment Work: Refurbishment Managers

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Adopting the same procedure, analysis of management skills and knowledge for each level of management; senior, middle and junior will now commence. The majority frequencies of management skills/knowledge ranked by average score will be presented under the categories of 'Most', 'Fairly ' and 'Not important'. The data will be presented in such a way that the relative changes in skills and knowledge across the three tiers of management levels can be readily seen. Firstly, the skills and knowledge perceived as most important at each level of management, followed by skills/knowledge perceived as fairly important, and then skills and knowledge which respondents at each level of management claim not to be important for refurbishment. An inspection of Tables 28, 29 and 30 relating to management skills and knowledge which respondents perceived as most important reveals that of the six most important skills/knowledge for all levels of management, four are cited by managers at all levels. These are:-

- i. Leadership
- ii. Communication
- iii. Motivation of others
- iv. Health and safety

Leadership, communication and motivation of others are interpersonal skills. In refurbishment, with increase of contract labour, together with a corresponding increase in fragmented specialised work, and the difficulties associated with labour on site, the skills of leadership and communication become even more necessary. Also, with the increase need for speed of response to address the issues arising from variations to the works, the skill of communication becomes vitally important.

Supervision of others, which is also an interpersonal skill, is also ranked highly in importance. This skill was ranked 9th by senior managers, 10th by middle managers and 11th by junior managers. In an uncertain environment, as is the case with refurbishment projects, with variations/change orders to the works, the need for constant supervision of subordinates and co-workers is of immense importance.

# <u>Table 28: Skills And Knowledge Perceived As Most Important By Senior Managers</u> <u>In Managing Refurbishment Work</u>

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Job Dimensions (Skills/knowledge)	Average Score	V.imp/imp(%) N=23
***************************************		
Communication (oral/written)	1.217	100.0
Health and safety	1.217	95.6
Leadership	1.261	100.0
Decision making	1.261	100.0
Budgetary control	1.304	100.0
Motivation of others	1.304	95.6
Forecasting and planning	1.348	100.0
Costing and estimating	1.435	91.3
Supervision of others	1.478	100.0
Team building	1.478	95.6
Managing conflict/crisis	1.478	91.3
Identifying personal strength/weaknesses	1.522	100.0
Managing time	1.522	95.7
Site organisation	1.522	91.3
Analysis of project risk/uncertainty	1.565	91.3
Recruit/select: Supervisor/foreman	1.565	91.3
Quality control and assurance	1.565	86.6
Conducting meetings	1.609	100.0
Manpower planning and control	1.609	95.7
Recruit/select: Subcontractor	1.609	87.0
Materials planning and control	1.609	86.9
Employee training: management	1.652	95.6
Setting objectives and goals	1.652	86.9
Delegating responsibilities	1.652	86.9
Employee training: Supervisor/foreman	1.696	91.3
Tenant welfare	1.696	86.9
Competitor awareness	1.696	82.6
Managing change	1.739	87.0
Recruit/select: management	1.739	86.9
Organisation of communication systems	1.739	82.6
Competitive tendering	1.739	78.2
Programme maintenance (update)	1.783	78.2
Programme design	1.783	82.6
Public relations	1.826	78.3
Productivity control and maintenance	1.870	78.2

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# <u>Table 29: Skills And Knowledge Perceived As Most Important By Middle Managers</u> <u>In Managing Refurbishment Work</u>

Job Dimensions (Skills/knowledge)	Average Scores	V.imp/imp(%) N=59
		***=======
Health and safety	1.203	100.0
Leadership	1.220	98.3
Motivation of others	1.220	98.3
Communication (oral/written)	1.220	95.0
Budgetary control	1.288	100.0
Decision making	1.305	98.3
Forecasting and planning	1.356	94.9
Site organisation	1.356	93.2
Team building	1.373	94.9
Supervision of others	1.424	93.2
Recruit/select: Supervisor/foreman	1.492	94.9
Conducting meetings	1.508	96.6
Delegating responsibilities	1.525	94.9
Recruit/select: Subcontractor	1.559	93.2
Quality control and assurance	1.559	88.1
Managing time	1.576	89.8
Programme maintenance (update)	1.576	86.4
Setting objectives and goals	1.593	91.6
Managing conflict/crisis	1.610	89.8
Manpower planning and control	1.627	91.6
Employee training: Supervisor/foreman	1.661	91.6
Recruit/select: Management	1.661	84.8
Analysis of project risk/uncertainty	1.678	89.9
Site security	1.678	<b>89.9</b>
Negotiate: Client	1.678	84.7
Negotiate: Subcontractor	1.712	89.8
Materials planning and control	1.712	86.5
Programme design	1.712	84.8
Public relations	1.712	84.8
Competitive tendering	1.712	83.1
Competitor awareness	1.729	84.8
Negotiate: Main contractor	1.746	89.8
Employee training: Management	1.746	86.5
Identifying personal strength/weaknesses	1.763	83.1
Tenant Welfare	1.780	83.1

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# <u>Table 30: Skills And Knowledge Perceived As Most Important By Junior Managers</u> <u>In Managing Refurbishment Work</u>

Job Dimension(Skills/knowledge)	Average score	V.imp/imp(%) N=60
		**======
Leadership	1.150	100.0
Communication (oral/written)	1.167	100.0
Motivation of others	1.183	100.0
Health and safety	1.300	96.7
Forecasting and planning	1.367	98.3
Materials planning and control	1.367	95.0
Supervision of others	1.383	96.7
Site organisation	1.383	95.0
Decision making	1.400	91.7
Team building	1.450	96.6
Manpower planning and control	1.483	93.3
Quality control and assurance	1.483	93.3
Managing time	1.517	91.7
Productivity control and maintenance	1.533	90.0
Budgetary control	1.567	91.6
Tenant welfare	1.567	91.6
Setting objectives and goals	1.567	88.5
Public relations	1.583	86.6
Managing conflict/crisis	1.650	90.0
Programme maintenance (update)	1.650	86.6
Competitive tendering	1.650	85.0
Programme design	1.683	81.6
Conducting meetings	1.700	93.4
Employee training: Supervisor/foreman	1.700	86.7
Delegating responsibilities	1.733	86.7
Site security	1.733	85.0
Analysis of project risk/uncertainty	1.750	88.4
Identifying personal strength/weaknesses	1.767	81.7
Employee training: Management	1.767	81.7
Recruit/select : supervisor/foreman	1.783	73.4
Negotiate: Client	1.800	80.0
Managing job stress	1.817	78.4
Managing change	1.833	78.3
Costing and estimating	1.833	76.6
Recruit/select: Subcontractor	1.833	73.4

Koehn and Tower (1982<sup>306</sup>), in their article on "Current Aspects Of Construction Rehabilitation", are of the view that refurbishment work demands greater supervision than new build work. Koehn and Tower (1982<sup>306</sup>) also noted that for refurbishment, "more time and effort are needed on the part of the superintendent (supervisor), project manager and the designer to enable a rehabilitation project to run smoothly and efficiently" p337.

The high degree of importance attached to supervision by respondents of the postal questionnaire, is also supported by the 22 managers who were interviewed as part of the current study. All the 22 managers interviewed noted that it was either very important or important. Having had experience of new build work, all the 22 managers noted that refurbishment work demands more frequent and closer supervision than new build work.

Willenbrock et al (1987<sup>501</sup>) in their study on "Factors affecting Outage Construction Efficiency" are of the view that the nature of refurbishment work, coupled with a long working week and overtime work by construction personnel leads to low morale and low productivity of refurbishment work. To this end, the skill/knowledge of motivating others is needed.

Health and safety received high ranking by all levels of management, being ranked 2nd by 95.6% of senior managers, 1st by 100% of middle managers and 3rd by 100% of junior managers. This is not surprising, given the fact that refurbishment work is dangerous (HSE, 1988<sup>250</sup>). More often than not, it involves demolition work, and can also involve the disposal of hazardous substances such as asbestos and lead.

As statistics from the Health and Safety Executive (HSE, 1988<sup>250</sup>) show, the repair and maintenance sector, including refurbishment, accounts for about 43% of the total number of construction fatal accidents in the UK. Another reason for the high ranking of health and safety could be due to the increasing coverage of health and safety issues by the media (Employment Gazette, 1988<sup>177</sup>), and threat of personal prosecution.

The result of a recent European Community (EC) directive on health and safety regulations, known as "Temporary or Mobile Sites Directive" (Birkby, 1994<sup>44</sup>), makes every one concerned in construction (including clients, contractors, project managers and quantity surveyors), liable for the breach of health and safety regulations. This directive which came into effect on 31st December 1993, means that accidents arising out of failure to comply with the new regulation could lead to prosecution by the Health and Safety Executive, and also a fine or imprisonment. This would further increase awareness in health & safety issues.

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The need to understand and be able to control substances hazardous to health, such as asbestos and lead, especially by the site management team is of utmost importance. Managers would need to be knowledgeable and conversant with the 1988 regulation on Control of Substances Hazardous to Health (COSHH).

Decision making skill was also rated highly by all levels of management. This skill was ranked 4th by 100% of senior managers, 6th by 98.3% of middle managers, and 9th by 91.7% of junior managers. Refurbishment work is characterised by high risk, uncertainty and high variation orders to the works. Working under such conditions,

and at the same time attempting to achieve the stipulated time for project completion, managers would be required to make impromptu and sound decisions. The skill of decision making is therefore of great importance at all levels of management. This view is also supported by most of the refurbishment managers who were interviewed. Of the 22 managers interviewed, 18 (81.82%) were of the view that it is of immense importance that site managers, and any manager for that matter, involved in refurbishment, should be entrusted to take decisions, since the works demand quick and on-the spot decisions. There was also general consensus amongst all the 22 managers, that the organisation structure at project level needs to be decentralised, to allow for flexibility and quick decisions and response, which refurbishment work demands.

In an environment of uncertainty, increased variation to the works, and costs likely to escalate at short notices, the skills and knowledge associated with forecasting and planning become necessary. Not surprising therefore, that all level of managers ranked the ability to forecast and plan of very high importance [Forecasting and planning, being ranked 7th by 100% of senior managers, 7th by 94.9% of middle managers and 5th by 98.3% of junior managers]. Managers would need to be able to plan and forecast the amount of labour, materials and plant resources needed for the works. The effects of unavailability and/or insufficient resources on the time for project completion, quality of workmanship and cost, are issues that need attention.

Controlling the financial requirements of refurbishment processes are considered to be part of the duties of all managers, more so for senior managers than junior managers. As was mentioned earlier, with costs liable to escalate at fairly short

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notice, managers would need to maintain firm control over finances. Budgetary control was ranked 5th in terms of the most important skill/knowledge by 100% of senior managers, 5th by 100% of middle managers, and 15th by 91.6% of junior managers. Unlike middle and junior managers who are responsible for their own individual operating departments, directors, area and regional managers take overall responsibility of their divisions or regions. It would therefore be expected that senior managers attach more importance to budgetary control than would junior managers. A similar explanation can be offered for the high ranking of costing and estimating by senior managers, when compared to middle and junior managers.

Site organisation was ranked 8th by 95.0% of junior managers, 8th by 93.2% of middle managers and 14th by 91.3% of senior managers. Senior managers it would seem ranked site organisation highly, in degree of importance, bearing in mind that senior managers are mainly office based and relatively speaking, away from site. The semi-structured interviews with 22 managers sought to explore the reasons behind the relatively high importance attached to site organisation by senior managers.

Firstly, of the 22 managers interviewed, all (100% response) ranked the skill/knowledge of site organisation as either very important or important for refurbishment. Seven of the twenty-two managers were senior managers. They were targeted, and asked of their perceptions of the importance of site organisation. Explanations for the relatively high level of importance attached to site organisation were also sought from senior managers
The following explanations were given by senior managers for the high importance attached to site organisation:-

- i. Senior managers would need to know what is happening on site, as it is on the basis of this information that further work for the organisation is secured.
  Since senior managers are also heavily involved in tendering and putting bids together, a thorough understanding of site organisation is needed, if the organisation is to put in a competitive bid.
- Senior managers are responsible for the recruitment of supervisors/foremen.
   They would need to know the job roles of supervisors/foremen, as well as whether the people they recruit are of the right calibre. To be able to do this in any meaningful way, an understanding of site organisation, and the demands of the site are important.
- iii. In order to be able to communicate confidently with the client, regarding site progress, and the demands of site, senior managers need to be knowledgeable about site organisation.
- iv. By virtue of their position, senior managers are responsible for works carried out by their organisation. This means that they need to be satisfied with the way in which the site is run, and that the overall work on site is in compliance with the organisation's requirements. In order to be able to assess this in any meaningful way, the skill/knowledge of site organisation becomes necessary.

v. Another reason for ranking site organisation highly, in degree of importance, is that some senior managers are a product of it. Some of the senior managers have gone through the ranks, and have spent considerable amount of time on site, during which they have appreciated the importance of site organisation.

A view expressed by the 32 training officers who were interviewed as part of the current study, that all refurbishment managers are close to site might also explain the high degree of importance attached to site organisation by managers at all levels. As will be seen from the discussion below, the training officers' view of all managers being close to site; is also supported by majority of managers who were interviewed.

All the twenty-two managers (8 junior, 7 middle and 7 senior) who were interviewed, were asked how frequently they visit site; 'very frequently', 'frequently', 'fairly frequently', or 'not frequently'. All the junior managers responded that they visit site very frequently. This is expected since site managers are site based, and expected to be close to the work face at all times, and are responsible for the site they manage.

Of the seven middle managers, three responded that they visit the site very frequently, and the remainder of the managers responded that they make frequent visits to the site. In other words, middle managers visit the site either very frequently or frequently.

Of the seven senior managers, three visit the site very frequently, one visit the site frequently, and one makes fairly frequent visits to the site. Only two of the managers responded that they do not visit the site frequently. By virtue of their position, one would expect the rate at which senior managers visit the site to be limited. To take this issue one step further, having established that all senior managers, and indeed all the managers interviewed have had experience of new build work, senior managers were asked, if in comparative terms, they visit refurbishment site more frequently than they do for new build site, all the senior managers responded that this is the case. The reasons given were:-

- i. The likelihood of problems occurring in refurbishment sites are greater than on new build site, and there is a need for closer attention to site.
- Clients visit refurbishment sites more regularly than they do new build site.
   Senior managers would need to avail themselves of visits to show the client the progress of work on site, when necessary.
- iii. Senior managers visit refurbishment sites to lend morale support to staff and operatives, since as senior managers pointed out, refurbishment work is relatively more stressful than new build work, and can lead to fatigue and frustration.

In order to validate the results of senior managers frequency of visits on site, junior and middle managers who were interviewed were asked 'how frequently senior managers visit sites'? Of the 15 junior and middle managers, 12 (80.0%) responded that senior managers either visit sites very frequently or frequently. Only 3 of the junior and middle managers responded that senior managers do not visit site frequently. This result supports the senior managers views on their frequency of visit to site. It also supports the view of the training officers that all refurbishment managers are close to site.

An observation of Tables 28, 29 and 30 shows that the need to work as a team is perceived to be of high importance by managers at all levels. Team building is ranked 10th by 95.6% of senior managers, 9th by 94.9% of middle managers and 10th by 96.6% of junior managers. The importance of team building in refurbishment has also been expressed by Cole and Hutton (1987<sup>119</sup>), partners in a large UK Architectural practice with experience of refurbishment work. They note "Co-operation between architects and contractors -and for that matter the other members of the building team - is at a premium" p22.

The nature of refurbishment work with high levels of uncertainty and variations to the works, lends itself to project time over-run. The skill and knowledge associated with time management is therefore necessary. Managers would need to exert control over construction activities so that the time stipulated for project completion is not exceeded. To this end 95.7% of senior managers, 89.8% of middle managers and 91.7% of junior managers, ranked it as being of immense importance. The importance of time management is supported by Jothiraj and Fellows'(1986<sup>287</sup>) study on 'Clients control on commercial refurbishment projects'. In their study, they observed that time performance was the major factor in determining clients' overall satisfaction with commercial refurbishment projects. Marston and Skitmore (1990<sup>345</sup>), in accepting the importance of time management in refurbishment, have called for the need to improve methods of time forecasting by using a resource based, non-deterministic approach. This would involve automating and simulating the planning process. The resource based approach should reflect actual production processes, while the non-deterministic approach would allow for uncertainties and risk assessment.

The ability to cope with the unexpected, changes, conflicts and crisis, is needed in refurbishment work. To this end, the skill/knowledge of managing conflict/crisis is ranked relatively high in importance by managers at all levels of management, being ranked 11th, 19th and 19th by senior, middle and junior managers respectively. As directors/area and regional managers have overall responsibility for the outcome of refurbishment contracts, it is expected that their requirement for the skill/knowledge of managing conflict and crisis is greater than those of middle and junior managers.

Quality control and assurance also received relatively high ranking, being ranked 12th, 15th, and 17th by junior, middle and senior managers respectively. Senior managers also have to be knowledgeable and conversant with the management of quality assurance. Similarly, they also need to be conversant with quality control which involves the delivery of products and services. Moreover, clients are demanding a quality service and BS 5750 is becoming widely recognised as the standard. To this end, efforts would have to be made in achieving that aim.

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The skill/knowledge associated with the analysis of project risk/uncertainty is also of high importance to all levels of management, with senior managers placing more emphasis on its importance. Competitor awareness and competitive tendering are also ranked higher in importance by senior managers when compared to junior managers. The three sets of skills/knowledge of project risk/uncertainty, competitor awareness, and competitive tendering are used greatly in the securement of contracts, which in the main, is the domain of senior management. However, the high degree of importance attached to project risks/uncertainty by all levels of management, reflects the nature of refurbishment work - (High levels of risk and uncertainty, Quah, 1988<sup>410</sup>; Teo, 1990<sup>473</sup>; and Chapman, 1980<sup>102</sup>). Refurbishment work therefore demands the required skill/knowledge associated with being able to assess and analyze risks/uncertainty in construction work.

As clients of refurbishment contracts increasingly want to see that the contractor and members of the management team have the necessary expertise for the works, middle and junior managers would need to show requisite skill/knowledge in being able to analyze and cope with the risks/ uncertainties associated with projects. As Cole and Hutton (1987<sup>119</sup>) pointed out, "more and more we interview not just the directors of contracting companies, but their contract managers and site agents - the individuals the contractor expects to put in as responsible for site development" p23.

The importance of managing project risks and uncertainty for refurbishment work is also supported by Teo (1990<sup>473</sup>). He advised on the necessity for refurbishment contractors to be able to manage risks in refurbishment work. Teo (1990<sup>473</sup>) developed a decision support and risk management system model which provides a systematic and objective approach to risk management in competitive bidding for refurbishment work.

An observation of Table 28 shows that recruitment/selection of supervisors and foremen was ranked relatively high in importance, by senior managers who responded to the postal questionnaire. The semi-structured interviews with managers allowed the relatively high ranking of this skill/knowledge to be explored. Of the twenty-two managers who were interviewed, and asked of their perception on the importance of recruitment/ selection of supervisors and foremen, 18 (81.82%) responded that it was very important. The remainder of the managers, 4 (18.18%), noted that it was important. Put differently, all the managers interviewed, responded that the task of recruiting/ selecting supervisors and foremen is either very important or important in refurbishment. This result supports the views of managers who participated in the postal questionnaire of this study. Of the seven senior managers interviewed, 6 (85.71%) ranked recruitment/selection of supervisors/foremen very important. Only one manager ranked it as important. Senior managers' view, which is consistent with other managers' views are that having the right calibre of supervisor/foreman is vital in refurbishment. The person supervising at the workface, is the one who is representing the organisation, and he needs to demonstrate the organisation's expertise and abilities. He also needs to project the right image of the organisation and be able to initiate the operatives to conduct their work to the required standards expected by the organisation.

The extent to which managers were involved in recruiting and selecting supervisors/foremen was also explored through the interviews with refurbishment

managers. Managers were asked 'To what extent are you involved in recruiting/selecting supervisor/foreman, in your present job - (very much involved, involved, fairly involved, or not involved?)'. All the seven senior managers interviewed responded that they are very much involved in the recruitment/ selection of supervisors/foremen, and that they conduct the last interviews and take decisions for their employment.

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Of the seven middle managers interviewed, five responded that they are much involved and also play and important part in the recruitment/selection of supervisors/ foremen. Apart from one middle manager (contracts manager) who responded that either himself or the director conducts the last interviews before the employment of a supervisor/foreman, the main role of middle managers is that of recommendation of the supervisors/foremen to the senior managers. For junior managers, although accepting that they are not very much involved, note that their assistance might be called upon in recommending suitable candidates to the middle managers. This result is clear, and leaves no doubt that senior managers are fully responsible for the recruitment and selection of supervisors/foremen. This, to some extent, could also explain the relatively high level of importance which senior managers attach to this task.

Mid way down Tables 29 and 30, emphasis are placed on the importance of skills/knowledge in operational programming of the construction phase of projects, by middle and junior managers. Such skills as manpower planning and control, programme maintenance (update), programme design, and site security are evident.

Tenant welfare is also recognised to be of most importance by 91.6% of junior managers, 83.1% of middle managers and 86.9% of senior managers. As many refurbishment works are carried out with tenants still in occupation, and businesses still in operation, the welfare of tenants become necessary. Also, being able to relate to the public is recognised to be of immense importance by all levels of managers, with the greatest emphasis being placed on public relations by junior managers. Site managers/agents are closer to site, and are more in contact with the public and tenants in occupation. They are therefore more likely to require the skill/knowledge of public relation in their work than do middle or senior managers.

The importance of public relations and liaison with tenants is also supported by the 32 training officers from 32 refurbishment organisations, who were interviewed as part of the present study. To this end, of the 32 participating organisations involved in the study, eight have employed Public Relation Officers (PRO's)/Tenant Liaison Officers (TLO's) to manage these important functions. The author attempted to ascertain if the employment of PRO's and TLO's in any way suggest that refurbishment managers are not able to perform that role. Refurbishment organisations pointed out that their refurbishment managers do perform that role, and it is important that they do so. However, due to the heavy workload which managers are faced with, and the variety of refurbishment projects carried out by refurbishment organisations, it is economical and practicable to appoint a separate individual to carry out that role. This is more so in housing refurbishment, with tenants in occupation. All the PRO's and TLO's appointed by eight of the thirty-two refurbishment organisations are female. The reason given being that women PRO's/TLO's appear to be more sympathetic to tenants than their male

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The government's Citizen Charter published in 1991 and the Tenant's Charter published in February 1992, could also have accounted for the high level of importance attached to tenant welfare and public relations by managers. The government's Citizen Charter contains proposals relevant to council tenants, three of which refer to repair and refurbishment. These are:-

- i. Improving the right of council tenants to the repair of their home.
- ii. Ensuring all tenants receive information about the standard and performance of their local authority, such as repair times, target times for dealing with enquiries, and complaint procedures, with tenant representation for arbitration.
- iii. Encouraging local authorities to introduce refurbishment contracts, where contractors as well as direct labour organisations who exceed the agreed completion date would face financial penalties under the contract.

The Association of Metropolitan Authorities (AMA, 1991<sup>14</sup>), however, argues that the government proposal will stifle decision making on housing repair and refurbishment by local authorities. Lusk (1992<sup>334</sup>) is also of the view that the charter initiative has not addressed what he considers as the "great bulk of repair problems", such as coping with the vast amount of requests from tenants, some not evidently urgent, and dealing with increased inspection time. For refurbishment contractors and managers, the requisite skills/knowledge needed to relate with tenants and the public, in the wake of the Tenant's Charter, becomes much more important.

In summary, the data presented in Tables 28, 29 and 30, clearly show that refurbishment managers at all levels, consider the interpersonal skills i.e. leadership, communication, motivation of others, and supervision of others, as being highly important to refurbishment. Health and safety is also a concern for managers at all levels. Forecasting and planning, managing time, and analysis of project risks/uncertainty are also perceived as being of immense importance at all level of management.

The top echelon of management considers the skills and knowledge associated with financial control, i.e. budgetary control, and costing and estimating to be relatively more important than less senior management.

Junior, middle and to a lesser extent, senior managers, require working knowledge of management skills in operational programming of construction phase of projects, e.g. programme maintenance (update) and programme design.

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The study also sought to test if managers' jobs in refurbishment are totally different across levels of management, as defined by the relative importance attached to skills and knowledge. By testing the null hypothesis that there is no significant correlation between the degree of importance attached to management skills/knowledge for refurbishment, and levels of management, Spearman's Coefficient of Correlation( $r_{1}$ )

is equal to 0.01. This value is not significant at the 5% level The null hypothesis is not rejected. This finding in effect means that there is no substantial evidence to suggest that a managers' job in refurbishment is totally different across levels of management. In other words, this result suggests that there is similarity in refurbishment tasks across levels of management.

Tables 31, 32 and 33 below list management skills and knowledge which senior, middle, and junior managers of the sample population perceive as fairly important in their present job.

Senior managers in this sample responded that the ability to negotiate with clients, main contractors, and subcontractors are fairly important. The reliance on domestic subcontractors quotations, as observed by Quah (1988<sup>410</sup>), has a marked influence on variability of tender bids for refurbishment. To this end, the need for negotiation at high management levels, with subcontractors become important. Moreover, Quah (1988<sup>410</sup>) noted that:

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" The increasing important role assumed by domestic subcontractors in the pricing process, and the high variability in their quotations, underlie the need for detailed enquiry into the operational characteristics of such firms, in particular, their estimating and tendering procedures". p354

The skill and knowledge of site security is ranked fairly important by senior managers, when compared to middle and junior managers who ranked it as one of the most important skills/knowledge (Tables 29 and 30). This is not surprising since

junior managers are closer to site than are senior managers. Moreover, the site management team, is in the main, responsible for site security.

Employee training of manual labour is ranked high by junior managers. This is normally carried out on site, and involves coaching and job rotation. It is important that new recruits are trained and made to understand what is expected of them in the work they carry out, and in the way the organisation conducts its work on site.

#### <u>Table 31: Skills And Knowledge Perceived As Fairly Important By Senior Managers</u> <u>In Managing Refurbishment Work</u>

Job Dimensions (Skills/knowledge)	Average Scores	Fairly imp(%) N=23
Negotiate: Client	1.870	17.4
Negotiate: Main contractor	1.913	26.1
Negotiate: Subcontractor	1.957	26.1
Site security	1.957	26.1
Plant planning an control	2.043	30.4
Managing job stress	2.087	17.4
Career development/appraisal	2.130	17.4
Creativity	2.130	30.4
Decanting building	2.130	30.4
Employee training: Manual labour	2.174	30.4
Negotiate: Supplier	2.217	26.1
Market Research	2.261	21.7
Recruit/select: Manual labour	2.261	26.1
Company accounting	2.348	39.1
Property insurance	2.391	34.8
Advertising and promotion	2.435	30.4
Construction law	2.435	43.5
Organisation structure	2.435	34.8
Use of computer technology	2.435	52.2
Job analysis specification	2.478	43.5
Termination/dismissal: Subcontractor	2.522	13.0
Code of practice/working rule agreement	2.522	30.4
Sources of finance	2.522	26.1
Termination/dismissal: Supervisor/foreman	2.609	17.4
Company (Strategic) planning	2.609	43.5

Mid way down Tables 31, 32 and 33, the skill/knowledge of decanting building is considered as fairly important by all levels of management.

Decanting of a building is the term used to refer to the process whereby tenants/occupants are moved out of a building to allow repair and refurbishment work to be carried out. Although the process of decanting buildings is one normally carried out by the client, the client can, if he/she so wishes, instruct the contractor to carry out that job role. As the CIOB (1987) noted in their publication on 'Refurbishment and Modernisation - Code of Estimating Practice, "Usually it is the clients responsibility to arrange for dwellings to be decanted" p3.

Lower down Tables 31, 32 and 33, of fairly important skills/knowledge for refurbishment, are company accounting and property insurance. Perhaps these job dimensions are left to specialists at the head offices, and not frequently applied to the works by refurbishment managers.

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#### Table 32: Skills And Knowledge Perceived As Fairly Important By Middle Managers In Managing Refurbishment Work

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Job Description (Skills/knowledge)	Average score	Fairly imp(%) N=59
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Recruit/select: Manual labour	1.847	15.3
Managing change	1.864	11.9
Costing and estimating	1.881	20.3
Productivity maintenance and control	1.932	20.3
Termination/dismissal: Subcontractor	1.966	25.4
Negotiate: Supplier	1.966	16.9
Termination/dismissal: Supervisor/foreman	2.000	23.7
Career development/appraisal	2.017	20.3
Organisation of communication systems	2.017	18.6
Managing job stress	2.034	18.6
Employee training: Manual labour	2.034	20.3
Plant planning and control	2.051	27.1
Creativity	2.119	23.7
Organisation structure	2.153	32.2
Company (strategic) planning	2.169	27.1
Job analysis/specification	2.186	22.0
Company accounting	2.186	32.2
Termination/dismissal: Management	2.237	32.2
Property insurance	2.237	20.3
Construction law	2.254	28.8
Code of practice/working rule agreement	2.305	30.5
Decanting buildings	2.322	35.6
Contract drafting	2.322	35.6
Sources of finance	2.339	30.5
Termination/dismissal: Manual labour	2.356	37.3

Further down Tables 31, 32 and 33, the skills and knowledge of code of practice/working rule agreement, construction law are most evident. Refurbishment tasks clearly involves the knowledge and application of codes of lawful and voluntary working practices.

#### <u>Table 33: Skills And Knowledge Perceived As Fairly Important By Junior Managers</u> <u>In Managing Refurbishment Work</u>

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Job Dimension (Skills/knowledge)	Average Score	Fairly imp(%) N=60
Organisation of communication systems	1.900	16.7
Competitor awareness	1.933	21.7
Employee training: Manual labour	1.950	20.0
Negotiate: Main contractor	1.950	13.3
Plant planning and control	2.00	25.0
Creativity	2.017	28.3
Recruit/select: Management	2.033	16.7
Recruit/select: Manual labour	2.033	26.7
Negotiate: Subcontractors	2.050	16.7
Decanting building	2.067	28.3
Career development/appraisal	2.117	35.0
Negotiate: Supplier	2.133	21.7
Construction law	2.167	33.3
Company (strategic) planning	2.167	33.3
Company accounting	2.200	23.3
Property insurance	2.200	26.7
Contract drafting	2.250	31.7
Code of practice/working rule agreement	2.267	31.7
Employee welfare/counselling	2.283	31.7
Organisation structure	2.300	38.3
Client/consumer protection law	2.300	36.7
Negotiate: government bodies	2.333	25.0
Job analysis/specification	2.350	35.0
Employment legislation	2.350	41.7
Sources of finance	2.383	21.7

Finally, in considering the skills and knowledge which the majority of managers at each level of management perceives as not important in their present job, for refurbishment, these data are presented in Tables 34, 35 and 36. An observation of Tables 34, 35 and 36, reveals that there is agreement amongst all levels of managers as to the skills/knowledge ranked highest as not important for refurbishment. These are foreign languages, managing other national cultures, and demotion and retirement.

The study also sought the views of managers who were interviewed on the degree of importance attached to a foreign language and managing other national cultures in their present job. Of the 22 managers, 21 (95.5%) responded that foreign languages were not important in their present job. Similarly, 18 (81.8%) of the managers considers managing other national cultures as not important. These results support the views of 142 managers who participated in the postal questionnaire of this study. Explanations were requested from the interviewed managers regarding the way they perceived the skill/knowledge of foreign languages, and managing other national cultures. The interviewed managers responded that their organisations are national contractors, carrying out refurbishment work in the UK. Their workforce is largely indigenous, and personnel do not need foreign language skills in their jobs. Moreover, being national contractors, they do not anticipate that they will bid for work abroad, and so, do not anticipate facing foreign competition, where the skills/knowledge of foreign languages, and understanding other national cultures are likely to be needed.

#### Table 34: Skills And Knowledge Perceived As Not Important By Senior Managers In Managing Refurbishment Work

Job dimensions (Skills/knowledge)	Average Score	Not imp(%) N=23
	****	
Foreign language	3.652	69.6
Managing other national culture	3.348	47.8
Planning law	3.304	47.8
Demotion and retirement	3.217	43.5
Company law	2.957	26.1
Negotiate: Government bodies	2.913	26.1
Negotiate: Trade unions	2.913	34.8
Client/consumer protection law :	2.870	17.4
Employee welfare/counselling	2.870	21.7
Promotion and transfer	2.826	13.0
Termination/dismissal: Manual labour	2.783	26.1
Contract drafting	2.783	21.7
Organisation culture	2.739	21.7
Termination/dismissal: Management	2.739	6.1
Employment legislation	2.609	13.0
Company law Negotiate: Government bodies Negotiate: Trade unions Client/consumer protection law - Employee welfare/counselling Promotion and transfer Termination/dismissal: Manual labour Contract drafting Organisation culture Termination/dismissal: Management Employment legislation	2.957 2.913 2.913 2.870 2.870 2.826 2.783 2.783 2.783 2.739 2.739 2.609	26.1 26.1 34.8 17.4 21.7 13.0 26.1 21.7 21.7 6.1 13.0

### Table 35: Skills And Knowledge Perceived As Not Important By Middle Managers In Managing Refurbishment Work

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Job Dimensions (Skills/knowledge)	Average score	Not imp(%) N=59
Foreign language	3.559	67.8
Demotion and retirement	2.966	67.8
Managing other national culture	2.797	25.4
Planning law	2.695	20.3
Company law	2.644	22.0
Use of computer technology	2.576	13.6
Employee welfare/counselling	2.559	11.9
Advertising and promotion	2.542	16.9
Organisation culture	2.525	15.3
Market research	2.525	23.7
Negotiate: Government bodies	2.525	18.6
Negotiate: trade unions	2.508	16.9
Client/consumer protection law	2.492	16.9
Employment legislation	2.407	8.5
Promotion and transfer	2.390	6.8

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Table 36: Skills And Knowledge Perceived As Not Important By Junior Managers In Managing Refurbishment Work

Job dimensions (Skills/knowledge)	Average Score	Not imp(%) N=60
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Foreign language	3.400	56.7
Demotion and retirement	3.067	33.3
Managing other national culture	2.767	30.0
Termination/dismissal: Management	2.767	25.0
Termination/dismissal: Manual labour	2.750	20.0
Organisation culture	2.700	18.3
Use of computer technology	2.683	23.3
Market research	2.617	23.3
Planning law	2.617	18.3
Termination/dismissal: Supervisor/foreman	2.600	18.3
Advertising and promotion	2.533	21.7
Negotiate: Trade unions	2.517	20.0
Termination/dismissal: Subcontractor	2.500	11.7
Promotion and transfer	2.417	11.7
Company law	2.400	15.0

Little recognition was given to organisational culture, and was also ranked low in importance. From discussions with training officers, this is because of the interaction between managers and site operations, which underscores the notion that there is cultural awareness and it is exercised.

Middle and junior managers indicate that the use of computer technology is not important, whilst for senior managers, it is considered to be fairly important. Perhaps, being, in the main, office based, senior managers have computers more readily at their disposal.

Middle and junior managers in the sample claim that market research, and advertising & promotion are not important. This is not surprising given the fact that senior managers perceive these job dimensions fairly important in their present job. If experts are hired to undertake the tasks associated with market research, and advertising & promotion for the organisation, this may explain the relatively low importance attached to them by the managers.

# 6.5. Perceived Importance Of Management Skills/Knowledge Across Types Of Refurbishment Organisations

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The study took another dimension, by exploring the relative importance of skills/knowledge for refurbishment across two types of refurbishment organisations, i.e. specialist and general refurbishment organisations. As a result of question 1 of the postal questionnaire: 'Is your firm a refurbishment specialist'? (see questionnaire in appendix A), it was possible to target and isolate the responses of managers from both specialist and general refurbishment organisations.

Data on the relative importance of management skills/knowledge for refurbishment, by managers from both types of refurbishment organisations, are presented in Table 37. Only managers' responses on the 30 most important skills/knowledge are presented. The categories 'Very important' and 'Important' are combined to form the 'Most' important skills/knowledge. As mean score increases, this signifies less importance attached to skill/knowledge in manager's present job.

An observation of Table 37 shows that leadership, communication (oral/written), motivation of others and health & safety are perceived as the four most important skills/knowledge by managers from both types of organisations. Supervision, forecasting & planning, and site organisation are also ranked highly by managers from both types of organisations.

As for Decision making, it is ranked 5th by managers from specialist refurbishment organisations, when compared to managers from general refurbishment organisations who ranked it 14th. As refurbishment demands firm and quick decision making to cater for the unexpected, it is not surprising that managers from specialist refurbishment organisations attach 'more' importance to decision making. Majority of the work carried out by specialist refurbishment organisations are refurbishment work.

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	Specialist Organisation		General Organisations	
Rank	Job Dimensions	Average	Job Dimensions	Average
	(skills/knowledge)	Score	(skills/knowledge)	Score
1	Communication (oral/written)	1.213	Leadership	1.118
2	Leadership	1.222	Communication(oral/written)	1.147
3	Motivation of others	1.231	Motivation of others	1.176
4	Health and safety	1.241	Health & safety	1.265
5	Decision making	1.296	Supervision of others	1.353
6	Forecasting and planning	1.361	Forecasting and planning	1.353
7	Budgetary control	1.407	Site organisation	1.353
8	Site organisation	1.407	Team building	1.382
9	Supervision of others	1.435	Manpower planning and control	1.412
10	Team building	1.435	Budgetary control	1.412
11	Quality control and assurance	1.528	Materials planning and control	1.471
12	Managing time	1.565	Setting objectives and goals	1.471
13	Materials planning and control	1.574	Managing time	1.471
14	Recruit/select:supervisor/foreman	1.583	Decision making	1.471
15	Manpower planning and control	1.611	Employee training: Supervisor/foreman	1.500
16	Managing conflict/crisis	1.611	Quality control and assurance	1.529
17	Conducting meetings	1.620	Conducting meetings	1.559
18	Delegating responsibilities	1.630	Tenant welfare	1.588
19	Setting objectives and goals	1.630	Managing conflict/crisis	1.588
20	Programme maintenance (update)	1.639	Competitive tendering	1.618
21	Analysis of project risk/uncertainty	1.667	Public relations	1.618
22	Identifying personal strength/weakness	1.667	Delegating responsibilities	1.647
23	Recruit/select: subcontractor	1.667	Costing and estimating	1.647
24	Public relations	1.694	Programme maintenance (update)	1.647
25	Tenant welfare	1.704	Site security	1.735
26	Programme design	1.704	Negotiate: subcontractor	1.735
27	Competitive tendering	1.713	Productivity maintenance & control	1.735
28	Negotiate: client	1.731	Employee training: management	1.735
29	Employee training:supervisor/foreman	1.741	Programme design	1.735
30	Employee training management	1.741	Recruit/select: subcontractor	1.735

Analysis of project risk/uncertainty, and recruit/select: supervisor/foremen appear on the list of the 30 most important skills/knowledge as perceived by managers of specialist organisations, but not cited by managers of general refurbishment organisations. It would appear that organisations mainly involved in refurbishment work attach a greater degree of importance to these two skills/knowledge.

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A closer observation, however, of Table 37, reveals that 26 of the 30 (86.6%) skills/knowledge perceived as most important by managers of specialist organisations, are also cited as most important by their counterparts in the general refurbishment organisations, with some variation in the relative positions of the skills/knowledge.

This result suggests that in the main managers from both specialist and general refurbishment organisations are in agreement as to the most important skills/knowledge. Putting it differently, refurbishment managers jobs, as defined by their application of skills/knowledge are, on the whole, homogenous, with some overlap across types of organisations.

By testing the null hypothesis that there is no significant correlation between the degree of importance of management skills/knowledge for refurbishment, and types of organisations, Spearman's Coefficient of Correlations( $r_s$ ) is - 0.06. This value is not significant at the 5% level. The null hypothesis is not rejected. This in effect means that there is no substantial evidence to suggest that the skills/knowledge which specialist organisations perceived as important are different from those perceived as important by general refurbishment organisations. This finding dispels the view that management tasks, as defined by skills/knowledge perceived as important, are totally different across types of organisations within the same sector.

In summary, a skills and knowledge inventory for managing refurbishment work has been established, based on the degree of importance attached to management skills and knowledge. The inventory which is devised from the analysis of majority frequencies and decreasing average scores, gives some indication as to the tasks and responsibilities associated with each level of refurbishment management.

The inventory developed clearly shows the similarity which exists in refurbishment tasks across all levels of management, as depicted by management skills and knowledge. It would appear from the data, that there are skill/knowledge that increase relatively across levels of management, such as financial control, and securing jobs for the organisation. The skills/knowledge which are associated with programming the construction phase of projects are considered more important at lower levels than at higher levels of management. There is every indication of overlap across management levels.

These results support Young's (1988<sup>510</sup>) study on the similarity in construction management skills/knowledge across management levels, and that managers' skills/knowledge in construction are relatively homogenous. The results of the study also lend support to Mintzberg's (1980<sup>356</sup>) theory of the nature of management work, that there is similarity in managers' work across all levels of management. Also, the findings of the present study support the proposition by segmented labour analysts, Doeringer and Piore (1971<sup>164</sup>) on the specificity of skills to an industry based on the premise that they are both similar and transferable. The results of the study, however, do not support the views of researchers and writers who argue that managers work is totally different across all levels of management as championed by Stewart (1976<sup>464</sup>).

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The findings of the present study would suggest that refurbishment managers attach high importance to those skills/knowledge associated with their day to day job activities, by virtue of their positions within the management hierarchy. An extension of this line of thought being that refurbishment managers attach value and meaning to the work they carry out.

## 6.6. Management Skills And Knowledge: Comparison With Other Studies In Construction

As the management of refurbishment work is relatively unresearched (Quah, 1988<sup>410</sup>), and since no study has yet been conducted specifically on the relative importance of management skills and knowledge for refurbishment, a comparative analysis with studies of a similar nature in the area of refurbishment is not feasible. There have, however, been some studies conducted in the general area of construction management skills and knowledge. Comparisons with some of these studies will be made.

The selection of studies for comparative purposes will be based on one, two or all of the following three criteria:

i. Compatibility with the methodology of present study

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- ii. Similarity in research objectives
- iii. Compatibility in statistical representation

Studies which have evaluated the relative importance of construction management skills and knowledge include the Construction Industry Training Board (CITB, 1988b<sup>130</sup>), Construction Industry Institute, USA. (CII, 1990<sup>125</sup>), and Fryer, 1979<sup>207</sup>.

The CITB (1988b<sup>130</sup>) study included face to face interviews as well as interviews conducted by telephone with company representatives in senior positions. In addition, two sets of postal questionnaires were designed, each having different research objectives. One set of questionnaires was sent out to individual managers and supervisors, in order to elicit their views on the degree of importance they attach to their job activities. The other set of questionnaires requested the company's view on training needs of their managers.

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For comparative purposes with the present study, data obtained from 180 usable questionnaires (response rate is 25.7%) completed by managers and supervisors will form the basis for discussions. The respondents of the CITB study were from 55 companies of the following activity group:-

Building	27.4%
Civil Engineering	25.7%
Heating & Ventilation	16.2%
Electrical	13.4%
Building & Civil Engineering	10.1%
Other	7.3%

From a wide range of skills for managerial and supervisory staff (see CITB 1988b<sup>130</sup>, Vol II, appendices), respondents were requested to indicate, according to each job activity, if they thought it was 'not applicable', 'vital', 'very', 'moderately' or of 'little importance'. Table 38 shows those job activities which the respondents considered

to be vital, or very important at the senior, middle and junior positions. Note that sample sizes are omitted, they vary with each skill. See CITB main report (vol 1) for detail. The CITB study lists each of the job activities, as well as the corresponding percentage of those to whom it is applicable.

From the original list of 23 job activities in the CITB study, there are 18 activities of which more than 60% of senior managers perceived their jobs as very or vitally important. This represents 78% of senior management tasks being significantly important.

Similarly, for middle and junior managers, this denotes 65% and 47% of the proportion of their tasks perceived by 60% of middle and junior management as very or vitally important. There are differences in the perception managers have in the job they carry out at each level of the management hierarchy.

To commence the assessment of the importance of the job activities shown in Table 38, quality control is an activity which managers at all levels of management perceive as very or vitally important. Although the majority percentages differs across management levels, in the main, there is general agreement on its importance.

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Table 38: 'Very' Or 'Vitally' Important Job Activities In Construction Management And Supervision.

				66.7 65.5	e all sources of finance of Health & safety
			pay	72.4	ng See of finance
		61.7	Measurement:valuation/bonus	76.2	nent/control
		63.8	Cost estimating	76.0	ign pay schemes
		65.0	Tendering	80.0	subcontractor
		65.5	Industrial relations	80.0	ation/bonus pay
60.0	Negotiate all sources of finance	65.0	Employee recruit/dismissal	80.8	
58.9	Cost estimating	66.1	Employee training	81.3	bour
70.6	Forecasting staff/labour	68.3	Materials management/control	83.3	ning of work
73.7	Financial planning/control	78.1	Forecasting staff/labour	86.2	f work
78.4	Materials management/control	78.6	Financial planning/control	87.5	
86.3	Control of Health & safety	84.4	Control of health & safety	89.7	
86.0	Negotiate:supplier/subcontractor	84.6	Negotiate:supplier/subcontractor	90.06	
87.0	Progress control of work	89.7	Planning/programming of work	90.6	ent/dismissal
90.4	Planning/programming of work	89.7	Managing people	92.3	
90.9	Managing people	92.2	Progress control of work	91.9	
94.0	Quality control	93.9	Quality control	93.5	control
Kesponse	Job Activity	Kesponse	Job Activity	Kesponse	
%	Junior Management	%	Middle Management	%	nent

Source: CITB (1988b<sup>130</sup>) Survey Of Supervisory And Management Training Needs in The UK Construction Industry. Main Report, Vol. 1.

Managing people received a high rating by 90% or more of the respondents at each level of management. Managing people includes such tasks as leadership, motivation and supervision. In the present study, leadership, motivation, and supervision of others, are listed as separate skills/knowledge, and over 93% of managers at each level of management ranked each of these skill/knowledge as most important for refurbishment work. Thus both studies confirm the value attached to the behavioral aspects of management in a construction environment.

In the CITB study, 93% of senior management reported financial planning/control to be very or vitally important in construction management, when compared to 64% and 60% of middle and junior management respectively. In the present study, 100% of senior and middle refurbishment managers reported budgetary control to be of most importance for refurbishment, when compared to 91.6% of junior management positions, perceive the skills/knowledge associated with financial management to be 'more' important in their jobs than managers in the junior management positions. Financial management activities, it would appear, are more akin to senior than junior management positions.

An inspection of Table 38 reveals that planning/programming of the works is perceived to be important by 90% of junior and middle management, in comparison with 83% of senior management. In the present study, 78.2% of senior refurbishment managers ranked programme maintenance (update) as most important, compared with 86.4% and 86.8% of middle and junior managers respectively. Thus both studies confirm that operational activities are considered 'more' important by junior management than by senior management.

It is also evident from Table 38, that the majority of respondents perceive health and safety to be significantly important. Sixty-five (65%) of senior management, 84% of middle management and 86% of managers at the junior management positions responded to health and safety. This is comparatively low when compared to the present study, where 95.6% of senior, 100.0% of middle and 96.7% of junior refurbishment managers ranked the skill/knowledge associated with health and safety as most important for refurbishment. The fact that refurbishment work is dangerous, with a relatively high incidence of fatal accidents (HSE, 1988), explains to some extent, the relatively high level of importance attached to health & safety issues by managers at all levels in the present study.

Surprisingly, the skills/knowledge of site organisation was not ranked as very or vitally important in the CITB study, even at junior management level.

It is also important to mention, that the skills and knowledge associated with forecasting & planning, analysis of project risk/uncertainty, managing conflict/crisis, team building, and tenant welfare, which are ranked highly in importance in the present study, were not considered to be very or vitally important in the CITB study. Perhaps, this is a reflection of the nature of refurbishment work, and the skills/knowledge that it demands.

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In summary, despite the differences in perception across levels of management, there is general agreement as to the tasks that are very or vital or most important in managing in a construction environment. By comparing the CITB study with the present study, it has been shown that managers tend to attach greater importance to the tasks that are more akin to their job roles by virtue of their positions in the management hierarchy. The comparative analysis has also shown that although there are similarities in managing tasks in a construction environment, there are also differences, not only in perceptions across management levels, but also across types of construction sectors, e.g refurbishment sector.

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In 1990, the Construction Industry Institute, USA (CII, 1990<sup>125</sup>), conducted a study on 'The acquisition of skills and traits amongst construction personnel'. Apart from establishing 'benchmark' data on current and future needs for education in construction, the study sought to establish the skills/traits required as being of value or important for construction.

In the CII  $(1990^{125})$  study, postal questionnaires were sent out to contractors, owners, and educators who are knowledgeable about construction work. In all, 266 usable questionnaires (response rate of 33.5%) formed the basis for data analysis. Table 39 below presents information on the positions of respondents in the CII  $(1990^{125})$  study as well as types of organisations who participated in the study.

## Table 39: Data On Positions Of Respondents And Types Of Organisations In The CII Study

Positions ] of Respondents ]	<u>No of</u> Constructio Personnel	<u>n</u> <u>% Response</u>	<u>Types of</u> Organisations of Personnel %	<u>Response</u>
Senior executive	24	9.0	Union contractors	35.0
Mid-level executiv	e 54	20.0	Merit shop contractors	26.0
Project managers	86	32.0	Owners	30.0
Project engineers	47	18.0	Engineering	4.0
Estimators	12	4.5	Academic institutions	4.0
Site superintender	nts 18	7.1		
Field engineers	6	2.2		
Field superintende	ents 10	3.7		
Foremen	5	2.0		
Journeymen	4	1.5		

Source: Construction Industry Institute (CII, 1990<sup>125</sup>). "The Acquisition Of Skills And Traits Among Construction Personnel". Document 54, July.

From a list of ten skills/traits, respondents were asked to rank in order of value/importance, each of the skill/trait to effective performance in their positions. Respondents indicated whether skills/traits were 'very important', 'important', 'useful', or 'not a factor'.

For comparative purposes, only data from respondents from four positions will be discussed. These positions are senior executives, mid-level executives, project managers, and site superintendents. The present author attempted to combine data from senior and mid-level executives, in order to obtain one set of data representing construction personnel in senior positions. The limited amount of information available, and not knowing the make-up of mid-level executives in terms of individuals and their job roles, made this impossible. However, this temporary set back did not prevent a meaningful comparative exercise to be undertaken with the present study. Data from respondents in each of the four positions are presented in Table 40. The skills/traits on all four positions are listed in decreasing order of importance.

An observation of Table 40 shows that interpersonal skills i.e. communication (oral) and leadership are the most valued or important skills/traits for all levels of construction personnel involved in managing construction work. In relationship to the current study, these skills are ranked as the most important skills by refurbishment managers at all levels. Interestingly, Table 40 reveals that oral communication is ranked higher than either written or graphic communication. In the present study, no distinction is made between oral and written communication. However, the higher ranking of oral communication when compared to written and graphic communication, information relayed can be quickly received and readily applied or put into effect. The fact that oral/verbal communication can involve gestures from either or both parties involved, adds impetus to the value of the issue being relayed. Oral and verbal communication also allows for quick clarification of issues under discussions by different use of words or examples. In construction a quick and clear mode of communication is vital.

Table 40: Relative Ranking Of Skills/Traits By Importance/Value Across Various Positions/Functions

Senior Executives	Mid Level Executives	Project Managers	Site Superintendents
1. Oral communication	1. Oral communication	1. Oral communication	1. Oral communication
2. Leadership	2. Leadership	2. Leadership	2. Leadership
3. Personnel	3. Personnel	3. Written communication	3. Personnel
4. Financial management	4. Ethical decision making	4. Planning & control	4. Planning & control
5. Ethical decision making	5. Written communication	5. Ethical decision making	5. Ethical decision making
6. Written communication	6. Financial management	6. Personnel	6. Graphic communication
7. Planning & control	7. Planning & control	7. Financial management	7. Written communication
8. Numerical (Maths)	8. Numerical (Maths)	8. Graphic communication	8. Financial management
9. Graphic communication	9. Graphic communication	9. Numerical (Maths)	9. Manual
10. Manual	10. Manual	10. Manual	10. Numerical (Maths)

Source: Construction Industry Institute (CII, 1990<sup>125</sup>): "The Acquisition Of Skills And Traits Among Construction Personnel". Document 54, July. p25

An inspection of Table 40 also shows that the relative degree of importance attached to financial management increases with increasing levels of management. Financial management is ranked 4th, 6th, 7th and 8th by senior executives, mid-level executives, project managers and site superintendents respectively. The present study also confirms the relative increase in importance attached to financial management skills/knowledge as the management hierarchy is ascended. Similarly, the CII (1990<sup>125</sup>) study and the present study are in agreement as to the relative importance attached to operational skills i.e. planning & control increases as the management hierarchy is descended. Whilst planning & control is ranked 4th by site superintendents and project managers (Table 40), it is placed lower down in 7th position by mid-level and senior executives. These findings further validates the results of the present study.

Fryer's (1979<sup>207</sup>) study which has been cited earlier in this chapter, produced five important skills which 29 site and contracts managers perceived as important for project management. The five skills established by Fryer (1979<sup>207</sup>) after discussions with these managers are ranked below in decreasing order of importance. Increasing mean rank signifies less importance of the skill for project management

Management Skills	<u>Mean Ranking</u>
Social skills	1.7
Decision making	2.1
Handling problems	2.6
Recognising opportunities	3.5
Managing change	4.1

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With so few skills/knowledge options to choose from, variation in rank order of importance is minimal. The narrowness of choice of management skills/knowledge prevents comparative analysis with the present study.

The comparative analyses so far have been conducted on construction studies which have evaluated the importance of management skills and knowledge. Other studies have evaluated the skills and knowledge which are required for construction management. These include Young (1988<sup>501</sup>), Finnigan et al (1987<sup>195</sup>) and Faulkner and Wearne (1979<sup>187</sup>, 1984<sup>188</sup>). For reasons associated with compatibility with the methodology of the present study and statistical representation, comparative analysis will only be made with Young's (1988<sup>510</sup>) study.

Young's (1988<sup>510</sup>) study which has been cited earlier, and some of her findings highlighted throughout the text, requested production managers from three small, six medium, and two large UK building and/or civil engineering contractors, to indicate from a list of 56 job dimensions (skills/knowledge), those which they require in their present job, for construction management. In all, seventy-three managers (senior, middle and junior) responded whether they 'Never', 'Occasionally', 'Often', or 'Very' frequently required the skills/knowledge. The four categories 'Never', 'Occasionally', 'Often' and 'Very' were coded 0, 1, 2, and 3 respectively. Average scores were computed from ordinal coding of data. Decreasing mean score signifies less skill/knowledge requirement in manager's job.

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For comparative analysis, only data concerning the most required skills and knowledge, at each level of management will be discussed. These are presented in Table 41. The categories 'Often' and 'Very frequently' in Young's (1988<sup>510</sup>) study are combined to form the 'Most' required skill/knowledge.

An inspection of Table 41 shows that the interpersonal skills, i.e. communication, motivation and leadership are the most required skills/knowledge for construction management. This largely corresponds to the skills/knowledge which managers perceived as most important for refurbishment in the present study. A visual description, for comparison of the most required skills/knowledge for construction management, and the most important skills/knowledge for managing refurbishment work across management levels is provided in Figures 10, 11 and 12. There is a noticeable similarity in the results of the two studies.

The skills/knowledge which are mostly required for managing in a construction environment appears to be the most important skills/knowledge as detailed in the present study. An observation which Young (1988<sup>510</sup>) also made in her study.

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Table 41: Skills And Knowledge Most Required By Senior, Middle And Junior Construction Managers

Senior Managers			Middle Managers			Junior Managers		
Job dimensions(skills/knowledge)	Average	% Freq	Job dimensions (skills/knowledge)	Average	% Freq	Job dimensions (skills/knowledge)	Average	% Freq
	score	(N=20)		score	(N=22)		score	(N=31)
Communication	2.75	95	Communication	2.68	100	Supervision of others	2.92	100
Motivation of others	2.75	95	Motivation of others	2.59	8	Communication	2.84	100
Supervision of others	2.75	95	Leadership	2.59	91	Motivation of others	2.80	8
Leadership	2.70	95	Supervision of others	2.59	16	Leadership	2.60	8
Competitive tendering	2.55	8	Programme construction	2.27	8	Organisation/site	2.50	8
Budgetary control	2.50	8	Organisation/site	2.20	88	Health & safety law	2.28	2
Costing & estimating	2.50	85	Programme maintenance	2.18	11	Programme construction	2.24	2
Analysis of project risks	2.35	80	Budgetary control	1.95	11	Programme maintenance	2.20	8
Health & safety law	2.05	65	Management of quality assurance	1.95	88	Management of quality assurance	2.12	8
Programme construction	2.00	75	Manpower planning	1.90	22	Manpower planning	2.00	2
Company(strategic) planning	1.88	00	Negotiate/suppliers	1.90	63	Programme stock/materials distribution	1.96	72
Public relations	1.70	8	Negotiate/subcontractor	1.81	73	Negotiate suppliers	1.76	2
Recruit/select/Man./professionals	1.65	60	Health & safety law	1.77	8	Budgetary control	1.76	8
Negotiate/client	1.65	55	Programme design	1.77	59	Organisation of communication systems	1.68	52
Negotiate/subcontractor	1.65	55	Recruit/select:subcontractor	1.72	2	Negotiate/plant hire	1.60	8
Programme design	1.55	55	Analysis of project risks	1.68	54	Costing & estimating	1.44	52
Employee training:Man./professionals	1.55	50	Negotiate/plant hire	1.68	55	Public relations	1.40	<del>8</del> 4
Contract drafting	1.50	50	Costing & estimating	1.63	63	Negotiate/subcontractor	1.16	4
Manpower planning	1.50	50				Analysis of project risks	1.12	\$
Appraisal/career development	1.50	50				Programme design	1.00	32
Programme maintenance	1.45	50						
Recruit/select:Supervisor/foreman	1.15	45						
Employee training:Supervisor/foreman	1.10	35						
		-						

Source: Young, B.A (1988<sup>510</sup>) Career Development In Construction Management, PhD Thesis, UMIST. UK.

Figures 10, 11 and 12 show visually the high degree of requirement and importance attached to interpersonal skills by managers at all levels in both studies. Similarly, Figures 10, 11 and 12 shows that the relative degree of importance and level of requirement attached to skills/knowledge concerning financial planning/control i.e budgetary control increases as management hierarchy is ascended. For operational tasks, e.g. programme maintenance (update), both studies show that the relative degree of importance and level of requirement increases as the management hierarchy is descended. These results further validates the findings of the present study.

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Figures 10, 11 and 12 also show some interesting results. Although the relative importance and level of requirement attached to budgetary control decreases as the management hierarchy is descended, it can be observed from Figure 12, that junior managers (91.6%) involved in the present study ranked budgetary control highly in importance when compared to junior managers (60%) in Young's study who indicated that it was often or very frequently required. Young's respondents are managers who are in the main, involved in new build, and from building and/or civil engineering contractors. The nature of refurbishment work, with high levels of risks, uncertainty, and costs likely to escalate at very short notices, explains to some extent the high degree of importance attached to budgetary control by junior refurbishment managers. Junior refurbishment managers would need to be aware of financial matters, especially as it involves cash flows, the achievement of equitable payment for work undertaken, i.e bonus payment, considerations of the consequences of financial matters before decisions are taken, and profitability relating to site works.

Further inspection of Figures 10, 11 and 12, reveals that the analysis of project risk/uncertainty is ranked highly by refurbishment managers when compared to managers in Young's study who are in the main, of new build background. Whilst only 40% of junior managers (Figure 12) in Young's study ranked analysis of project risk/uncertainty as most required skill/knowledge, over 88% of junior refurbishment managers in the present study ranked it as most important in their present job. The skills/knowledge needed to contend with the issues arising from the high levels of risks and uncertainty associated with refurbishment work is vital.

Health and safety receives a relatively higher response, especially by senior managers in the present study when compared to managers in Young's study. Two explanations can be offered for this result. The dangerous nature of refurbishment work, and the increased safety precautions associated with demolition work, and strengthening of building elements, mean that the health & safety issue is of paramount importance in managing in a refurbishment environment. Also, as Young's study was conducted in 1988, the passage of time and improved awareness of construction issues, including liability and prosecution for default, could in part explain the higher responses from managers in the present study.

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Important For Managing Refurbishment : Senior Management For Construction Management With Skills/Knowledge Most A Comparison Of Skills/Knowledge Most Required Figure 10:



1988 - Young, Career Development In Construction Management 1994 - The Present Study

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Important For Manging Refurbishment: Middle Management For Construction Management With Skiils/Knowledge Most Figure 11: A Comparison Of Skills/Knowledge Most Required



1988 - Young, Career Development In Construction Management 1994 - The Present Study

Important For Managing Refurbishment: Junior Management For Construction Management With Skills/Knowledge Most A Comparison Of Skills/Knowledge Most Required Figure 12:



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In the present study, there are five noticeable skills/knowledge, namely:

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- i. Forecasting and planning
- ii. Managing conflict/crisis
- iii. Tenant welfare
- iv. Decision making
- v. Team building

which refurbishment managers cited as being of most important (see Tables 28, 29 and 30) in their present job, and which do not appear as most required skills and knowledge in Young's study.

In an environment, like the refurbishment environment, where the total content of the works cannot be ascertained until work is commenced, and where there is high level of variation/change orders to the works, and also with high level of uncertainty, the skills/knowledge associated with forecasting and planning, and managing conflict/crisis become necessary. Refurbishment managers would also need to take firm and impromptu decisions, especially as it relates to variation orders to the works.

Working as a team in refurbishment is necessary. There is a need for a closer relationship, not only between the design and construction team, but amongst managers at all levels of management. If the issues arising from variations, and cost escalation are to be addressed speedily to the satisfaction of the client and contractor, then the client's and contractor' quantity surveyors would need to work much more closely together.

Tenants in occupation, and the issues arising from their occupation in construction, are characteristics of refurbishment work, and not new build work. It is therefore not surprising that the skill/knowledge of tenant welfare does not appear as a required skill/knowledge in Young's (1988<sup>510</sup>) study. The five skills/knowledge listed above would appear to be akin to managing in refurbishment, rather than in a new build environment.

The comparison of both studies have further confirmed that there are similarities in management tasks in a construction environment. It has also shown that there appears to be a positive relationship between the skills/knowledge which managers require in their job and the degree of importance they attach to their jobs. In addition, the comparative analysis has shown that interpersonal skills are the most required skills not only in construction, but in the general management discipline. Both Young's and the present study support the works of Whetten and Cameron (1991<sup>495</sup>) and Cox and Cooper (1984<sup>141</sup>) in the general management field. These two studies have been cited earlier in this chapter, and show that interpersonal skills are most important for management.

The comparative analysis also confirms the view that although construction management tasks are similar, there are differences in perception across management levels and across construction sectors, on the importance of management skills/knowledge. The implication of this is that there are skills that are common to all construction management activities, and that there are skills that are needed, and considered of high importance, by virtue of the sector of construction management activity e.g. refurbishment. From the comparative studies, it can be seen that for refurbishment, the skills/knowledge of:

- i. Forecasting & planning
- ii. Managing conflict/crisis
- iii. Tenant welfare
- iv. Team building
- v. Decision making

are needed, over and above the skills/knowledge for construction management.

# 6.7. Qualities And Attributes Associated With Effective Management Of Refurbishment Projects

A considerable amount of effort has been devoted to searching for relationships between personal qualities/attributes, and various forms of managerial success and effectiveness (Jurgensen, 1966<sup>286</sup>; Campbell et al, 1970<sup>87</sup>; Burgoyne, 1976<sup>79</sup>; England, 1966<sup>180</sup>, 1967<sup>181</sup>; Piotrowski and Rock, 1963<sup>402</sup>). Burgoyne (1976<sup>79</sup>) notes that "In general, this body of research has shown beyond any reasonably doubt that such relationships do exist, but so far no universal set of qualities describing the effective manager has emerged" p 19.

In an attempt to ascertain qualities and attributes associated with management success, Jurgensen (1966<sup>286</sup>) asked 210 personnel men and executives to sort 120 adjectives which describe 'the type of person most likely to succeed as a key executive in top management'. Jurgensen's (1966<sup>286</sup>) study revealed a dozen adjectives most descriptive of successful key executives. These are presented below in decreasing order of importance:

i. Decisive ii. Aggressive iii. Self-starting

- iv. Productivev. Well informed
- vi. Determined
- vii. Energetic
- viii. Creative
- ix. Intelligent
- x. Responsible
- xi. Enterprising
- xii. Clear-thinking

Similarly, from various lists of 'desirable' managerial traits gleaned from many studies, Campbell et al (1970<sup>87</sup>) provide a summary of personal qualities said to be necessary for managerial effectiveness. These are shown below:

Able to sustain defeat Alert Ambitious : achievement-oriented Assertive Capable of good judgement Competitive Concrete Creative Decisive Dedicated Dynamic Emotionally stable Energetic Extroverted Fearful of failure Group-oriented Honest Intelligent Mentally healthy Optimistic and confident Pragmatic Predictable Reality-oriented Self-controlled but defensive Tolerant of frustration

These studies on qualities associated with management success are in the main, conducted in the general management field. The present study attempted to ascertain the qualities and attributes that managers need to possess in order to successfully accomplish a refurbishment project. To this end, the twenty managers who were interviewed as part of the study, were asked 'What qualities/ attributes would you say a manager needs to possess, in order to effectively accomplish a refurbishment project, at a given cost, time and quality ?" (see interview sheet,

appendix A). As can be noted from the question asked, effective accomplishment of a refurbishment project is defined in terms of a manager being successfully able to carry out a project to a stipulated time, cost and quality.

Table 42 below, lists, in decreasing order of importance, those qualities and attributes managers claim are associated with effective management of refurbishment projects. In all, sixteen qualities and attributes are presented.

An observation of Table 42 reveals that ability to relate and work with people, and patience are the two most ranked qualities and attributes associated with the successful accomplishment of refurbishment projects. As refurbishment work, especially in housing refurbishment, can involve tenants/ occupants with varying temperament, and of different social, religious and political beliefs, it is therefore not surprising that relating with people and patience are ranked most highly.

### <u>Table 42: Qualities And Attributes Associated With Successful Accomplishment Of</u> <u>Refurbishment projects</u>

Qualities and attributes	Rank order of importance	
Ability to relate and work with people	1	
Patience	2	
Visionary/forward thinking	3	
Flexible/adaptable	4	
Logical thinking	5	
Innovative/creative	6.	
Lateral thinking	7	
Persuasiveness	8	
Tactfulness/diplomacy	9	
Problem solving	10	
Charisma	11	
Methodical with records	12	
Pragmatism	13	
Ability to take quick decisions	14	
Have a good sense of humour	15	
Open mindedness	16	
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Forward thinking, flexibility/ adaptability and logical thinking are the qualities and attributes that are needed to cope with crisis, conflict, and an uncertain and changing environment. Innovation/creativity which appears as one of the qualities in both Jurgensen's (1966<sup>286</sup>) and Campbell et al (1970<sup>87</sup>) studies, is also cited by refurbishment managers in the present study. Pragmatism which is cited in the study by Campbell et al (1970<sup>87</sup>), is also cited by refurbishment managers in the present study.

Refurbishment managers are also expected to be tactful in the way they carry out their jobs, apart from being problem solvers. As Lionel Prodgers (1989<sup>406</sup>), a director of a large UK Facilities and Property management firm pointed out about refurbishment managers, "When a building is in progress, the day to day management can be troublesome. The manager has to be a 'mother hen' to some and a disciplinarian to others" p105.

Ability to take quick decisions over issues such as variations/change orders to the works, and also, having a good sense of humour are attributes associated with successful management of refurbishment projects.

The findings from the present study supports a recent exploratory study in the United States by Sanvido and Riggs (1993<sup>437</sup>) on managing successful retrofit projects. They noted that the key behavioral traits of members of a successful refurbishment team include cohesiveness, good chemistry, flexibility and decisiveness.

The results of the present study have implications for organisations, especially as it relates to the selection and recruitment of their managers for refurbishment work. In addition to the requisite management skills and knowledge for refurbishment, organisations would need to ascertain if managers to be recruited/selected for refurbishment, have the necessary qualities/attributes associated with successful accomplishment of refurbishment projects. Apart from being able to fit into managing in a refurbishment environment, managers with the relevant skills/knowledge, as well as the needed qualities/attributes are more likely to work better as a team.

In further discussions with the 22 refurbishment managers, 20 (90.91%) also noted that manager's interest in refurbishment, and the 'feel' for refurbishment are very important, especially since the nature of the works can lead to frustration and low morale. Even with the skills/knowledge necessary for refurbishment, and the attributes and qualities managers for refurbishment need to possess, all the 22 managers interviewed, contend that in the construction industry, refurbishment work is regarded as 'filthy', and 'second class work', and that refurbishment managers are seen as 'second rate' when compared to their new build counterparts. This, according to the views of those interviewed, explains to some degree, why managers shy away from refurbishment work. To this end, there is therefore, a need for a concerted effort from all those involved in the construction industry, especially those connected with refurbishment work, to improve the image of this substantial sector of the industry.

The next section of this chapter considers the degree of difficulty associated with handling management tasks in refurbishment, as defined by skills and knowledge. The purpose being to establish the relative degree of difficulty associated with each task for refurbishment, and how they are perceived across management levels.

#### 6.8. Degree Of Difficulty In Handling Management Skills And Knowledge (Job Dimensions) In Refurbishment

Like the procedure adopted for the importance of management skills/knowledge in the earlier part of this chapter, managers who participated in the postal questionnaire of the study were asked to indicate the degree of difficulty (very difficult, difficult, fairly difficult, and not difficult), in handling a list of management skills/knowledge (job dimensions), in their present job. See questionnaire in appendix A. Similarly, like the analysis of data on degree of importance of skills/knowledge, data on degree of difficulty of handling management skills/knowledge for refurbishment are reported by majority frequencies.

The categories 'very difficult', 'difficult', 'fairly difficult', and 'not difficult' are coded 1, 2, 3 and 4 respectively. Average scores are computed from ordinal coding of these data. As the mean score increases, the degree of difficulty which refurbishment managers attach to handling skills/knowledge decreases.

Table 2 in appendix B shows the full list, and aggregate percentage response of the degree of difficulty in handling management tasks in refurbishment.

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Within the text of this chapter, only the tasks which refurbishment managers perceive as most difficult to handle will be presented. The categories 'very difficult' and 'difficult' skills/knowledge are combined to form the most difficult tasks for refurbishment.

To begin the analysis of the tasks which respondents perceive as most difficult, data will be presented at the aggregate level. Evaluation at senior, middle and junior management will follow.

An inspection of Table 43, the most difficult job dimensions to handle in refurbishment, reveals that forecasting & planning, and analysis of project risks/uncertainty are the two most difficult management tasks, being ranked 1st and 2nd respectively, by over 82% of the sample population. This clearly suggests that refurbishment work is risky, uncertain, and difficult to plan and forecast. These results lend support to the views of Quah (1988<sup>410</sup>), Bennett (1983<sup>33</sup>) and Chapman (1980<sup>102</sup>), that refurbishment work is difficult to predict, with high elements of risks and uncertainty.

These findings have implications to contractors and their managers. Contractors would need to pay particular attention to the job dimensions of forecasting & planning, and analysis of project risks & uncertainty. There might be a need for more management staff input to cater for these difficult job dimensions. Also, having experienced managers with the requisite skills/knowledge to handle these job dimensions is of utmost importance. For contractors and individual managers involved in refurbishment work, they would need to have a clear and effective risk

management approach for the works, and one in which they believe in.

Competitive tendering and budgetary control, the job dimensions associated with winning contracts are also considered to be highly difficult, and ranked 3rd and 4th respectively by 75.5% and 66.2% of the sample managers. As refurbishment work is characterised by high elements of risks/uncertainty, with the total work content difficult to ascertain prior to commencement, putting in a realistic and competitive bid with expectation of winning a refurbishment contract, is one fraught with difficulty. It is therefore not surprising that managers ranked the way they did.

Quality control, Health and safety, and managing conflict/crisis also received high ranking in terms of most difficult job dimensions.

Mid way down Table 43, managers indicate difficulty in handling tasks associated with costing and estimating, manpower planning, and supervision of others. In recognising the difficulty associated with costing and estimating refurbishment work, and the need for good estimating practice, the Chartered Institute of Building (CIOB, 1987<sup>107</sup>), December 1987, published a code of estimating practice for refurbishment. The CIOB (1987<sup>107</sup>) pointed out in their publication, that "In refurbishment work, the estimator will require additional skills and knowledge to those used for new work" p 14. The estimator will need to be knowledgeable and conversant with the most economic ways of marrying new materials with those existing. Also, in situations where existing materials are unavailable or expensive, alternatives acceptable to the client would need to be found.

### <u>Table 43: Skills And Knowledge Perceived As Most Difficult In Managing</u> <u>Refurbishment Work: Refurbishment Managers</u>

Job Dimension (Skills/knowledge)	Average Score	Very diff/diff(%) N=142
Forecasting and planning	1.782	82.3
Analysis of project risk and uncertainty	1.852	82.4
Competitive tendering	1.894	77.5
Budgetary control	2.155	66.2
Managing time	2.162	64.8
Quality control and assurance	2.218	62.6
Health and safety	2.232	59.2
Site security	2.338	54.9
Use of computer technology	2.345	57.0
Managing conflict/crisis	2.352	54.9
Motivation of others	2.358	59.2
Tenant welfare	2.366	55.6
Communication (oral/written)	2.373	55.6
Costing and estimating	2.373	54.9
Manpower planning and control	2.380	57.0
Recruit/select: Management	2.401	53.5
Recruit/select: Subcontractor	2.430	53.5
Recruit/select: Supervisor/foreman	2.430	51.4
Supervision of others	2.444	55.0
Employee training: Supervisor/foreman	2.444	54.3
Materials planning and control	2.444	53.5
Programme design	2.451	51.4
Negotiate: client	2.458	53.5
Employee training: Management	2.486	52.2
Construction law	2.486	46.5
Leadership	2.507	51.4
Productivity control & maintenance	2.514	51.4
Setting objectives and goals	2.521	46.5
Managing change	2.521	45.8
Managing job stress	2.528	47.9
Negotiate: Government bodies	2.535	47.9
Decanting buildings	2.549	50.0
Public relations	2.556	46.5
Site organisation	2.563	48.6
Programme maintenance (update)	2.563	46.5

Lower down Table 43, job dimensions in negotiation with government bodies, decanting buildings, and maintaining and updating construction programmes are evident. With high incidence of variations in refurbishment work, construction programmes would have to be updated regularly.

In considering data on Tables 44, 45 and 46, job dimensions perceived as being most difficult by senior, middle and junior managers, it is clear that managers at all levels are in agreement that forecasting & planning, and analysis of project risks/uncertainty are very difficult tasks to handle.

Site security is ranked very highly by junior managers in terms of difficulty, when compared to middle and senior managers. Site managers are close to the work face, and they are directly responsible for site security. The issue of site security is heightened when refurbishment work is carried out in sensitive premises such as Ministry of Defence Buildings (MOD), banks, airports and prisons; and with businesses still in operation.

Whilst costing and estimating is ranked 8th by 78.3% of senior managers, 52.5% of middle and 48.4% of junior managers ranked it 19th and 20th respectively. The job dimension of costing and estimating are more akin to senior managers, than to middle or junior managers. Since senior managers frequently carry out this task by virtue of their positions, they are more likely to encounter the difficulties associated with the costing and estimation of refurbishment works.

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## Table 44: Skills And Knowledge Perceived As Most Difficult By Senior Managers

Job Dimensions (Skills/knowledge)	Average Score	Very diff/diff(%) $N = 23$
Forecasting and planning	1.783	87.0
Managing time	1.826	86.9
Analysis of project risk/uncertainty	1.826	86.9
Budgetary control	1.913	87.0
Quality control and assurance	1.913	78.2
Health and safety	1.913	73.9
Competitive tendering	2.000	73.9
Costing and estimating	2.043	78.3
Managing change	2.043	82.6
Communication (oral/written)	2.087	69.6
Managing conflict/crisis	2.087	69.5
Productivity control and maintenance	2.174	73.9
Manpower planning and control	2.217	65.2
Programme maintenance (update)	2.261	60.8
Programme maintenance (update)	2.304	65.2
Motivation of others	2.304	60.8
Supervision of others	2.348	65.2
Employee training: Supervisor/foreman	2.348	65.2
Decision making	2.348	65.2
Materials planning and control	2.348	65.2
Employee training: Management	2.348	60.9
Tenant welfare	2.348	56.5
Site security	2.348	52.1
Leadership	2.435	56.5
Negotiate: Client	2.435	52.1
Managing job stress	2.478	56.5
Use of computer technology	2.478	56.5
Recruit/select: Supervisor/foreman	2.478	52.1
Negotiate: Main contractor	2.522	47.8
Creativity	2.565	56.5
Recruit/select: Management	2.565	52.2
Recruit/select: Subcontractor	2.565	47.8
Employee training: Manual labour	2.565	43.5
Team building	2.565	43.4
Negotiate: Subcontractor	2.565	39.1

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## Table 45: Skills And Knowledge Perceived As Most Difficult By Middle Managers

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Job Dimensions (Skills/knowledge)	Average score	$\underline{V.diff/diff(\%) N = 59}$
Analysis of project risk/uncertainty	1.678	85.0
Forecasting and planning	1.797	81.4
Competitive tendering	1.881	79.7
Managing time	2.085	67.8
Quality control and assurance	2.119	64.4
Budgetary control	2.136	67.8
Health and safety	2.169	61.0
Manpower planning and control	2.237	64.4
Managing conflict/crisis	2.237	59.3
Use of computer technology	2.271	55.9
Recruit/select: Supervisor/foreman	2.288	61.1
Motivation of others	2.288	59.3
Recruit/select: Management	2.288	57.6
Tenant welfare	2.356	57.7
Materials planning and control	2.356	57.6
Construction law	2.356	54.2
Competitor awareness	2.373	57.7
Client/consumer protection law	2.390	55.9
Costing and estimating	2.390	52.5
Supervision of others	2.407	52.5
Recruit/select: Subcontractor	2.424	56.0
Negotiate: Subcontractor	2.424	54.3
Negotiate: government bodies	2.424	50.8
Managing change	2.441	47.5
Employee training: Supervisor/foreman	2.458	54.3
Communication (oral/written)	2.458	50.8
Company accounting	2.458	47.4
Termination/dismissal: Supervisor/foreman	2.458	47.4
Leadership	2.475	52.6
Negotiate: Client	2.475	50.9
Site security	2.475	47.4
Company (strategic) planning	2.492	49.2
Employee training: Management	2.508	50.9
Programme design	2.508	49.1
Site organisation	2.525	52.6

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## Table 46: Skills And Knowledge Perceived As Most Difficult By Junior Managers

Job Dimensions (Skills/knowledge)	Average score	$\underline{V.diff/diff(\%)} N = 60$
Forecasting and planning	1.767	81.6
Competitive tendering	1.867	76.6
Analysis of project risk/uncertainty	2.033	78.3
Site security	2.200	63.3
Budgetary control	2.267	56.6
Supervision of others	2.317	53.3
Setting of objectives and goals	2.350	58.3
Use of computer technology	2.367	58.4
Managing time	2.367	53.3
Tenant welfare	2.383	53.4
Recruit/select: subcontractor	2.383	53.3
Communication (oral/written)	2.400	55.0
Health and safety	2.417	51.7
Quality control and assurance	2.433	55.0
Motivation of others	2.450	59.4
Negotiate: Client	2.450	56.7
Recruit/select:Management	2.450	50.0
employee training: Supervisor/foreman	2.467	50.0
Programme design	2.467	50.0
Costing and estimating	2.483	48.4
Employee training: Management	2.517	50.0
Public relations	2.517	48.3
Managing job stress	2.517	45.0
Decanting buildings	2.533	51.7
Construction law	2.533	43.4
Productivity maintenance and control	2.550	48.3
recruit/select: Manual labour	2.550	46.6
Contract drafting	2.550	43.3
Recruit/select: Supervisor/foreman	2.550	41.7
Company (strategic) planning	2.550	38.3
Leadership	2.567	48.4
Negotiate: Government bodies	2.567	48.4
Managing conflict/crisis	2.567	45.0
Site organisation	2.567	45.0
Materials planning and control	2.567	45.0

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Similarly, junior managers ranked tenant welfare 10th in terms of the most difficult job dimensions, when compared to middle and senior managers who ranked it 14th and 22nd respectively. Site managers are close to the work face, and are expected to encounter the difficulties associated with carrying out refurbishment work with tenants still in occupation.

The study also sought to investigate the relative degree of difficulty attached to management tasks (job dimensions) across types of refurbishment organisations.

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Data on the relative degree of difficulty of handling management tasks, from managers of both specialist and general refurbishment organisations are presented in Table 47. As mean score increases, the degree of difficulty attached to management task decreases.

	Specialist Organisation		General Organisations	
Rank	Job Dimensions	Average	Job Dimensions	Average
Į	(skills/knowledge)	Score	(skills/knowledge)	Score
	Forecasting and planning	1.843	Forecasting and planning	1.588
2	Analysis of project risk/uncertainty	1.852	Competitive tendering	1.824
3	Competitive tendering	1.917	Analysis of project risk/uncertainty	1.853
4	Budgetary control	2.222	Managing time	1.941
5	managing time	2.231	Budgetary control	1.941
6	Health & safety	2.241	Quality control and assurance	2.000
7	Quality control and assurance	2.287	Materials planning and control	2.088
8	Communication (oral/written)	2.306	Manpower planning and control	2.176
9	Site security	2.324	Managing job stress	2.176
10	Recruit/select: management	2.370	Leadership	2.206
11	Costing and estimating	2.370	Health & safety	2.206
12	Use of computer technology	2.370	Tenant welfare	2.206
13	Managing conflict/crisis	2.389	Managing conflict/crisis	2.235
14	Motivation of others	2.389	Motivation of others	2.235
15	Recruit/select: subcontractor	2.389	Negotiate: government bodies	2.235
16	Recruit/select: supervisor/foreman	2.407	Site organisation	2.265
17	Tenant welfare	2.417	Supervision of others	2.265
18	Employee training: supervisor/foreman	2.444	Programme design	2.265
19	Manpower planning and control	2.444	Use of computer technology	2.265
20	Employee training: management	2.472	Negotiate: client	2.294
21	Construction law	2.481	Public relations	2.353
22	Supervision of others	2.500	Productivity maintenance and control	2.382
23	Negotiate : client	2.509	Costing and estimating	2.382
24	Programme design	2.509	Site security	2.382
25	Setting objectives and goals	2.537	Creativity	2.441
26	Managing change	2.546	Employee training: supervisor/foreman	2.441
27	Productivity maintenance and control	2.556	Client/consumer protection law	2.441
28	Materials planning and control	2.556	Managing change	2.441
29	Company (strategic) planning	2.556	Negotiate: subcontractor	2.471
30	Decanting building	2.574	Programme maintenance (update)	2.471
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# Table 47: The Relative Degree Of Difficulty Of Handling Refurbishment Management Tasks Across Specialist And General Organisations

It can be seen from Table 47, that managers from both types of organisations are in agreement as to the five most difficult tasks to handle, although the ranking positions vary. The five most difficult tasks to handle in refurbishment are:

Forecasting and planning Analysis of project risk/uncertainty Competitive tendering Managing time Budgetary control

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Table 47 also shows that there are some differences in the perceptions of managers from both organisations, as to the difficult tasks in refurbishment. Health & safety which is ranked 6th by managers from specialist organisations, in terms of the most difficult task, is ranked 11th by managers from general organisations. Since the majority of the works carried out by specialist refurbishment organisations are refurbishment, their managers are more likely to find a greater occurrence of problems and difficulties associated with health & safety issue in their jobs.

Materials planning/control is placed 7th and 28th respectively by managers of specialist and general refurbishment organisations respectively. Similarly, site security is ranked 9th and 24th by managers of specialist and general refurbishment organisations. Managers who are more involved in refurbishment work are more likely to face in their jobs the problems and difficulties associated with site security. This is especially so, on sensitive premises, such as MOD buildings, airports, prisons; and in occupied buildings where valuable goods and documents are housed.

Costing & estimating is ranked 11th and 23rd by managers of specialist and general refurbishment organisations respectively. This demonstrates that costing and estimation of refurbishment work is difficult. Those who are more involved in refurbishment work are more likely to be confronted with the difficulty and problems associated with costing and estimating the works.

A closer observation of Table 47, however, reveals that 21 of the 30 (70.0%) management tasks perceived as most difficult by managers of specialist organisations, are also cited as most difficult by their counterparts in general

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refurbishment organisations, although with variation in ranking positions. This result suggests that to a large extent, managers from both types of organisations are in agreement as to the most difficult management tasks in refurbishment.

In summary, the relative degree of difficulty associated with handling management tasks in refurbishment has been established. Forecasting and planning, and analysis of project risk/uncertainty are the most difficult tasks to handle. The similarities and difficulties in perception, associated with the degree of difficulty of refurbishment tasks across management levels have also been established. Managers tend to attach higher level of difficulty to those tasks which are more akin to their positions in the management hierarchy. Being frequently involved in a particular task, there is a high tendency of being confronted with the difficulties associated with that task.

By establishing the degree of difficulty associated with managing refurbishment tasks, contractors and managers can direct more management efforts to the most demanding and difficult tasks. The results of this study could assist training officers in validating areas that managers need training, when used in conjunction with information from a training needs analysis exercise.

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#### 6.9. Conclusions And Recommendations

This chapter considered management skills and knowledge which are important for refurbishment. The purpose of which is to assist refurbishment organisations in recruiting and selecting the 'right' calibre of managers, and to reduce mis-matching of skills and jobs. For individual managers, it could help advance career prospects.

The relative importance of management skills/knowledge across management levels, and across types of refurbishment organisations were also investigated.

The attributes and qualities associated with successful accomplishment of refurbishment projects were also considered in this chapter. For refurbishment organisations and organisations that anticipate entering into the refurbishment sector, the recruitment and selection of managers with the 'right' attributes and qualities are vital. These managers are more likely to fit into managing in a refurbishment environment, and are also likely to work together as a team.

The relative degree of difficulty in handling refurbishment tasks was investigated. Similarity versus dissimilarity in handling refurbishment tasks across management levels, and types of refurbishment organisations also received attention. The conclusions and recommendations that follow from this study are:

i. An appropriate body of management skills and knowledge has been established, a skills/knowledge inventory. The six most important management skills/knowledge for refurbishment are:-

- \* Leadership
- \* Communication (oral/written)
- \* Motivation of others
- \* Health & safety
- \* Decision making
- \* Forecasting and planning
- There is sufficient evidence to show that there is similarity in refurbishment tasks across levels of management, and types of refurbishment organisations. Refurbishment managers job as defined by their application of skills/knowledge are, on the whole, homogenous, with some overlap across levels of management, and types of organisations. This dispels the view that management tasks are totally different across levels of management, and types of organisations.
- iii. Refurbishment managers tend to attach 'more' importance to the tasks associated with their day to day job activities by virtue of their (managers) positions in the management hierarchy.
- iv. The relative degree of importance attached to financial management skills/knowledge, e.g. budgetary control, tends to increase with seniority.
- v. The relative degree of importance attached to operational management skills/knowledge, e.g. programme maintenance (update), tends to increase at lower management levels.
- vi. When the results of the present study on the relative importance of skills/knowledge were compared to similar studies in construction

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management, it was observed that for refurbishment, the skills and knowledge of:

- \* Forecasting & planning
- \* Managing conflict and crisis

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- \* Tenant welfare
- \* Team building
- \* Decision making

are needed, over and above the skills/knowledge required for construction management. For contractors, individual managers, and training officers involved in refurbishment, the acquisition of these skills/knowledge are vital for refurbishment work.

- vii. The attributes and qualities associated with successful accomplishment of refurbishment projects have been established. The six most important attributes/qualities are:
  - \* Ability to relate and work with people

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- \* Patience
- \* Visionary/forward thinking
- \* Flexibility/adaptability
- \* Logical thinking
- \* Innovative

Further research is needed to establish, not only the qualities/attributes, but also skills/knowledge that are associated with successful management of refurbishment work, across types of refurbishment projects, as well as across industrial sectors. This should assist organisations in resourcing refurbishment operations with the 'right' calibre of managers for the 'right' type of project in the different industrial sectors where refurbishment work is carried out.

- viii. The relative degree of difficulty in handling refurbishment tasks has been established. The six most difficult refurbishment tasks to handle are:-
  - \* Forecasting and planning
  - \* Analysis of project risks and uncertainty
  - \* Competitive tendering
  - \* Budgetary control
  - \* Managing time
  - \* Quality control and assurance

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ix. There is substantial evidence to suggest that, in the main, managers across management levels, and types of organisations are in agreement as to the most difficult management tasks in refurbishment.

The study is of benefit to contractors, managers and training officers. Contractors and their managers would need to pay particular attention to the most demanding and difficult tasks. Their might be a need for more staffing, or contractors would need to resource their work in such a way that the more experienced and skilled managers are put in place to manage the most demanding and difficult job dimensions.

The results on the degree of difficulty of handling refurbishment tasks could assist training officers in validating areas for which managers need training, when used in conjunction with a training needs analysis exercise.

Following the results on the degree of difficult of handling refurbishment tasks, research is needed into both forecasting/planning; and the risk analysis techniques which refurbishment contractors adopt in carrying out refurbishment work. Such a study should aim to produce guidelines for best practices for forecasting and

planning, and risk evaluation and assessment of refurbishment work. This could help in better monitoring of costs for the works, and also in improving the time for project completion.

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x. Evidence from the study suggests that there is closer involvement of all parties associated with refurbishment work, and that managers at all levels are close to site. It is recommended that research be carried out to establish the degree of involvement and contributions of the client, contractors and the rest of the design and construction teams, especially managers at all levels, to the success of refurbishment projects.

## MANAGEMENT EDUCATION AND TRAINING FOR REFURBISHMENT WORK WITHIN THE CONSTRUCTION INDUSTRY

A Thesis Submitted To The University Of Salford For The Degree Of

### DOCTOR OF PHILOSOPHY

In The Department Of Civil Engineering And Construction

By

CHARLES ODITA EGBU BSc. (Hons), MASI.

1994

# **CHAPTER SEVEN**

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# MANAGEMENT EDUCATION AND TRAINING FOR REFURBISHMENT

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General management education and training attracts endless volumes of published materials. In the UK, particularly within the last decade, much attention has been focused on the extent to which UK managers were educated and trained.

In 1986, Mangham and Silver (1986<sup>339</sup>) conducted a study of the extent of management training in the UK, by looking at the population of companies that undertake training, and the amount of training. Their study showed that over 56% of UK companies undertake no formal management training, relying mainly on onthe-job experience for managers to learn or do their job. No formal framework is set aside for the training of managers in large numbers of companies. Their study showed that the smaller the company, the more serious the problem. Their study also showed that the lack of management training extends across all types of industries and fails to discriminate in any substantive way between companies in high-tech industries, or the newly formed companies. Within a year of Mangham and Silver's (1986<sup>339</sup>) report, two reports, one by Constable and McCormick (1987<sup>123</sup>) and the other by Handy et al (1987<sup>244</sup>) were published. Constable and McCormick's (1987:12-17) found that most of the 2.75 million managers in the UK lack formal education and training. Their study suggests that Britain's managers lack the development, education and training opportunities of their counterparts. Their study also reveals that the UK has not yet developed any widely used, clearly understood methods of educating its managers.

The study by Handy et al (1987<sup>244</sup>) compared the UK with some of her major competitors, mainly the USA, Japan, France and Germany, in the provisions of management education and training. Handy et al (1987<sup>244</sup>) noted that "the conclusion that British managers are uneducated in business and management terms is inescapable. It must also be true that management training in Britain is too little, too late, for too few". p11

Handy et al further added that "By comparison Britain .... does not appear to take the preparation of her managers as seriously as the other countries". p2

Silver (1991<sup>450</sup>) has referred to this situation of management education and training in Britain as a "crisis" in management education and training.

The aforementioned reports on management education and training stressed the need for more managers to be educated and trained, and that education and training should be seen as a career-long process involving in-company training and external education and training. The need for collaborative actions from employers, government, individual managers, professional and academic institutions was also emphasised.

The necessity of management education and training courses to reflect the needs of managers and organisations both in the general management field (Braddick, 1984<sup>58</sup>, 1987<sup>59</sup>; and Davies and Easterby-Smith, 1984<sup>149</sup>) and in construction (Prosper, 1984<sup>408</sup>; Morley report, 1986<sup>360</sup>; and CITB, 1988a<sup>129</sup> and Ostwald et al, 1992<sup>389</sup>), also received attention in the UK within this last decade.

In the UK construction industry, it was not until fairly recently that greater attention began to be levelled on the content, length, and methods of delivery of management education and training in relation to construction managers needs (Young, 1988<sup>510</sup>; CITB, 1988b<sup>130</sup>, CSSC, 1989<sup>99</sup>; and Duff and Mankin, 1990<sup>169</sup>).

However, the attention and efforts levelled at construction education and training are, in the main, directed at the new-build sector of the construction industry and not at the refurbishment sector (CCMI,  $1988^{97}$ ; Douglas,  $1988^{165}$ ; and Young and Egbu,  $1992c^{517}$ ).

The CCMI (1988<sup>97</sup>) study on 'Market Appraisal for Research on Maintenance Repair and Refurbishment Operations in Construction' recommended that "the curriculum of architects and professional consultants, construction managers and craftsmen need to embrace education and training that relate to the type of work..." vol. 1. p13

Similarly, Young and Egbu (1992c<sup>517</sup>) in one of their articles entitled "A need for appropriate manager training and education for refurbishment within the construction industry", emphasised that "... there is now an urgency to establish and identify appropriate education and training both in content and processes for managers involved in refurbishment". p68 This chapter is concerned with management education and training for refurbishment, the objectives being to examine the nature and extent of management education and training, provisions that exist, if any, within refurbishment organisations. Besides this, issues concerning course duration, course timing, place of training and other factors affecting course selection and attendance are duly considered.

This chapter will also examine and establish management education and training needs, both on managerial and organisational levels. An establishment of management and training needs for refurbishment should benefit individual managers, educators, and course designers in the following ways:

- (i) For individual managers appropriate courses based on the needs of refurbishment could help advance career prospects.
- (ii) It should allow educators to advise and also to provide relevant courses for existing managers and those aspiring managers associated with refurbishment.
- (iii) Course designers, educators and those who are associated with the formulation of a national qualification frame work for construction management may wish to incorporate some of the findings of the results in national provisions.
Management education and training needs of managers, as defined by skills/knowledge (job dimensions) will be derived for each level of management. The study will also attempt to identify which sets of skills/knowledge are statistically correlated, that is, which skills/knowledge are distinct and required together, through a process of data reduction. Data reduction will be carried out by employing a statistical technique called Factor Analysis. Factor analysis simplifies an otherwise complex structure, and allows the skills/knowledge that are meaningfully related to be isolated and then grouped together. This procedure is beneficial to course designers in that they can evaluate groups of skills/knowledge that can be taught together from those which are not statistically or meaningfully related.

# 7.2. Definition Of Management Education And Training In The Context Of The Present Study

In order for the discussion on management education and training for refurbishment to be more meaningful, a working definition is needed for management education and management training in the context of the present study.

It is generally accepted that the objectives of most management education and training programmes are to teach, or improve, various managerial skills and knowledge in order to improve managers' job performance (Koudra, 1975<sup>314</sup>; Wexley and Latham, 1981<sup>494</sup>; Goldstein, 1980<sup>221</sup>, 1986<sup>222</sup>; Wexley, 1984<sup>493</sup>; and Siegel and Lane, 1987<sup>447</sup>). A statement of this sort, however, does not help to distinguish management education from management training.

Several attempts have been made by writers in the field of management training and education to distinguish between the two terms.

Goldstein (1980<sup>221</sup>) views training as "the acquisition of skills, concepts, and attitudes that results in improved performance in all the job environment". p230

The term education has typically been thought of as having to do with "the development of the whole person - socially, intellectually and physically". (Bass and Vaughan, 1966<sup>26</sup>: p73).

In distinguishing training from education, Morris (1971<sup>361</sup>: p33) considers training as the "use of specific learning, often with the use of techniques that can be identified and continually improved". For education, he noted that it is "a broader process of personal change in abilities and attitudes which may take place independently of its application to work".

Other writers have suggested the close relationship between education and training. Koudra (1985<sup>314</sup>) is of the view that management education and training are closely related and that "there is frequently some confusion about the precise meaning of each term". p6. Koudra, also adds that "one view is that management training provides specific knowledge and skills or develops attitudes of direct use to the manager in his present or future job, while management education is concerned with increasing background knowledge of management principles and techniques". p6. However, Koudra further notes that there is no strict adherence to the distinction between training and education. Stone (1982<sup>467</sup>) notes that the "term management education is often considered to be synonymous with management training". p89.

Bennett (1984<sup>36</sup>) defines training as a "process that is concerned with the acquisition and development of specific skills to do particular activities or jobs" p219. Thus, management training will be geared towards helping a manager carry out a particular function or sets of activities within that function.

Bennett (1984<sup>36</sup>) sees management education as being concerned with the "acquisition and development of knowledge and skill which fits a manager to take on a role in management" p219. Bennett (1984<sup>36</sup>) further notes that management education is more general and broad based than management training, yet "may be concerned with the development of certain skills. It, therefore overlaps with training". p219

From the definitions above, it appears that there is no strict dividing line differentiating management education and management training, although, the definitions would suggest that, in the main, the objectives of training are generally narrower and more specific than those of education.

In the context of the present study management education and training for refurbishment should be understood to mean the following:-

### Management Education:

Management education for refurbishment is the learning process whereby skills/knowledge for managing refurbishment work are acquired and developed by

an individual, in order to enable him/her to carry out his/her job. This learning process results in formal qualifications up to and including postgraduate qualifications, and also including professional qualifications by examination.

#### Management Training:

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Management training for refurbishment is the learning process whereby specific skills/knowledge which are necessary to carry out a particular job dimension, or sets of job dimensions, in refurbishment is acquired and developed. This learning process which may be formal or informal, may not lead to qualifications, and may be obtained at any time during the working career of a manager.

Management education and training for refurbishment should complement each other. Having set out working definitions for management education and training, the next section of this chapter examines the nature and extent of existing management education and training, if any, within refurbishment organisations. It also explores the preferences of organisations and managers for methods and delivery of management education and training.

# 7.3. Provisions Of Management Education And Training Within Refurbishment Organisations

From the semi-structured interviews, thirty-two training officers were asked if management education and training provision were considered within the overall corporate strategy of their organisation. Twenty nine (90.63%) reported yes (See Table 48).

# <u>Table 48: Management Education/Training As Part Of Corporate Strategy Of</u> <u>Organisation</u>

	Frequency of response	valid(%)	
Yes	29	90.63	
No	3	9.37	

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The three (9.37%) organisations which did not have management education and training as part of their corporate strategy indicated that a policy of training was under consideration, and that this, would enable education and training to be taken more seriously and also would allow more funds to be put aside for the purpose. These three organisations whose turnover are between £75m and £85m and employ between 450 and 600 people, are comparatively small, and do send their managers only on external courses.

Having established that the majority of the organisations involved in the study considered education and training provisions within the overall corporate strategy of their organisation, it was then necessary to ascertain whether there was any provision made specifically within management education and training for

refurbishment. To this end, the thirty refurbishment organisations were asked if there was any defined management education and training provision geared towards refurbishment, and the length of time that it has been in place within their organisation.

Of the thirty-two training officers interviewed, only two (6.25%) confirmed that they have education/training provisions targeted specifically to the needs of refurbishment management (Table 49).

## <u>Table 49: Management Education And Training Provisions Geared Towards</u> <u>Refurbishment</u>

	Frequency or response	Valid(%)
Yes	2	6.25
No	30	93.75
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The organisations that did not have any management education/training provision for refurbishment were then asked if there were any reasons for the lack of provisions for management education and training for refurbishment within their organisations.

The following reasons, in decreasing order of importance, were given:-

 (i) "Refurbishment is a specialised area of work and to the best of our knowledge, no external training providers offer management courses geared towards refurbishment. (20 responses)

- (ii) "The managers we recruit are experienced and familiar with refurbishment work, and do not need any further education/training in managing refurbishment work. All that is needed for refurbishment is lots of experience". (10 responses)
- (iii) "The budget allotted for management education and training in the organisation is only enough to cater for education in general management b construction. This caters for new build as well as refurbishment work".
  (8 responses)
- (iv) "Although, we carry out a substantial amount of refurbishment work, the greater proportion of our work is new build, so our education/training provision is biased towards new build. However, it is fair to say that there is need for education/training geared towards refurbishment, because it is a specialised field and needs specialised education/training". (6 responses)
- (v) "Do not see any difference between new build and refurbishment. Management of all construction work is the same and so there is no need for separate education and training". (3 responses)

The two organisations that have made specific provisions for refurbishment are specialist refurbishment organisations with refurbishment work accounting for over 75% of the total construction work that they carry out. The management education/training provisions that exist in the two organisations, and which have been in place for at least five years, are mainly in-house courses that relate to:-

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- (i) Materials management, including suitability of materials for historic buildings
- (ii) Specialised contractual arrangements relating to individual historic and complex refurbishment works.
- (iii) Health and safety (with particular emphasis on control of substances hazardous to health).
- (iv) Security (especially in projects, such as M.O.D. buildings, banks, airports and housing projects with tenants in occupation).

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 (v) Implications of the Official Secret Acts and relevance to managers (for works in sensitive premises).

The two organisations report that experts are sometimes brought in to supplement their in-house courses.

This result clearly shows that there is little, if any, formal education and training provision for refurbishment within organisations. One way of validating this result is to ask refurbishment managers if they have attended any courses directly geared towards refurbishment. To this end, the twenty managers who participated in semi-structured interviews as part of the current study were asked if over the past two years they had attended any in-house or external management education/training directly geared towards refurbishment (see questionnaire: appendix A).

## <u>Table 50: Attendance Of Management Education/Training For Refurbishment</u> <u>Within The Last 2 Years : Refurbishment Managers</u>

	Frequency of Response	Valid%
Yes	2	9.09
No	20	90.91

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Only two (9.09%) of the managers (see Table 50) interviewed attended management course directly geared towards refurbishment within the last two years.

These managers are from specialist refurbishment organisations, and the courses they had attended were organised in-house. The main themes of the courses attended were:-

- (i) Management of hazards in refurbishment and how best to cope with them
- (ii) Managing time
- (iii) Health and safety
- (iv) Security
- (v) Materials management

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(vi) Stress management

The author sought to establish if there is any need for management education and training for refurbishment.

Through interviews with thirty-two training officers, it was possible to ascertain whether, for refurbishment organisations, there was a need for management education and training for refurbishment. Interviews with twenty-two refurbishment managers allowed for the perception of managers on the need for education and training for refurbishment to be ascertained. Through postal questionnaires, managers were also asked how likely they are to attend management education and training for refurbishment if suitable, and relevant management courses were available (see questionnaire: Appendix A).

Out of the Thirty-two training officers interviewed, twenty-nine (90.62%) indicated that there was a need for management education and training geared towards refurbishment within their organisation (Table 51).

# Table51:NeedForManagementEducation/TrainingGearedTowardsRefurbishment:-TrainingOfficers

	Frequency of Response	Valid%
Yes	29	90.62
No	3	9.38

Only three training officers noted that there was no need for management education and training directly geared towards refurbishment within their organisations. These were the same training officers who noted that they do not see a need for separate education and training, and that management of all construction work is the same.

An attempt was also made to ascertain why most organisations indicated a need for management education and training for refurbishment. The responses of the training officers can be grouped into three on the basis of response:-

(i) Refurbishment is a specialised area and managers need to attend courses that are specifically geared towards refurbishment. (25 responses)

- (ii) The emphasis on management skills and knowledge in refurbishment are quite different from new build. This needs to be considered in the types of courses managers attend. (20 responses)
- (iii) There are skills that are not relevant in new build, but which are extremely important in refurbishment, such as tenant liaison. (18 responses)

Through postal questionnaires, managers were asked how likely they were to attend management education/training courses for refurbishment if suitable and relevant courses were available. One hundred and twenty-four or (87.3%) managers responded that they were most likely, or likely, to attend courses, as shown in Figure 13.





In an attempt to validate the views of managers who participated in the postal questionnaire, on the likelihood of attending courses for refurbishment, the twentytwo managers who were interviewed were asked the same question:-

'How likely are you to attend management education/training courses directly geared towards refurbishment, if relevant and suitable courses are available?'

Of the twenty-two managers, 18 (81.82%) responded that they were most likely, and 3 (13.64%) indicated that they were likely to attend refurbishment courses. Only one manager responded that he was unlikely to attend management courses for refurbishment. Further discussion revealed that the manager was due for retirement at the end of the year.

In summary, the results from this study leaves no doubt that there is little, if any, external provisions of management education and training for refurbishment, testifying to under course provision. Yet, evidence suggests, that for both organisations and refurbishment managers there is an urgent need for appropriate management education and training to satisfy the consumers of a specialised and substantial sector of the construction industry - the refurbishment sector. The challenge, therefore, is for educationalist to bridge the gap in the market place.

Although few educational institutions e.g. Heriot-Watt University, Edinburgh, Scotland, and also the Chartered Institute of Building (CIOB) offer courses in Maintenance Management, contacts made by the present author with academic institutions in the UK, and discussions with educationalists, including the Construction Industry Training Board (CITB) and the CIOB, reveal that no formal courses exist which are geared towards refurbishment management.

Discussions with the 32 training officers who were interviewed in the present study, reveal that, in the main, their managers (senior, middle and junior) attend general management courses irrespective of whether they are specialist or general refurbishment organisations. Lack of relevant courses for refurbishment is given as the main reason for this.

Having also established that there is an urgent need for courses directed at refurbishment management, training officers were asked if when provisions are made specifically for refurbishment management education and training, within their organisations, whether the format and procedures will differ from the current provisions in general management education and training. All the training officers responded that, apart from the content of the course programmes, similar procedures and methods of current provision within their organisations will apply.

The author further sought to explore a variety of issues concerned with management education and training provisions, and preferences within refurbishment organisations. This approach being adopted on the premise that the practices and methods that are currently employed in the provision of construction management education and training within organisations will equally apply for refurbishment.

An understanding of education/training delivery methods and preferences of managers should help in producing courses that are suitable and relevant to

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managers. The following issues concerning education/training methods and practices for refurbishment will be considered:-

- (i) How refurbishment organisations assess the management education and training needs of their managers.
- (ii) How management education/training is evaluated within organisations.
- (iii) Preferences on methods and delivery of education/training from both organisation and manager perspectives.
- (iv) Factors which promote and inhibit management education and training.
- (v) Factors that affect course selection and attendance.

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## 7.4. Assessing Management Education/Training Needs Within Refurbishment Organisations

It is generally accepted that the first step in any management education/training programme is the identification of the needs of those who are to participate in it (McGehee and Thayer, 1961<sup>351</sup>; Goldstein, 1974<sup>220</sup>, 1986<sup>222</sup>; Durra, 1991<sup>170</sup>; and Bramley, 1991<sup>60</sup>).

The success of the programme depends on the methods and extent of education/training needs being identified (Rossett, 1985<sup>430</sup>; Laird, 1985<sup>316</sup>; Stanley, 1987<sup>460</sup>; Durra, 1991<sup>170</sup>; and Fairbairns, 1991<sup>186</sup>).

The thirty-two training officers interviewed were asked if there were any formal management education/training needs assessment procedures within their organisations.

Of the thirty-two training officers interviewed all assess the management education/training need of their managers either formally or informally, however, twenty-two (68.75%) training officers stated that a formal method of needs assessment are in place, while ten (31.25%) adopt informal methods of needs assessment (See Table 52).

#### Table 52: Responses To Formal Methods Of Needs Assessment

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Frequency of Response(N=32) Valid%

Yes	22	68.75
No	10	31.25

All the organisations that conduct a formal approach to needs assessment have an annual appraisal system. In the main, this system is considered at two levels. The first level is where the training department sends out an annual assessment form/questionnaire to individual managers to ascertain if there are shortfalls to the skills/knowledge they need in their job. The second level, which often pertains to junior and middle managers, involves face-to-face interviews between area managers/contract directors and junior or middle managers. The face-to-face interviews focus on the progress of the manager and the areas of skills/knowledge that need strengthening through education/training. Results of the interviews are forwarded to the training department.

All the organisations that have a formal approach to needs assessment also supplement the formal approach with informal methods of assessment.

The way the informal methods of needs assessment works differ from one organisation to another. In the main, however, the area manager/contract director, using his experience may decide that certain managers need to attend courses, which he (area manager/contracts director) considers are worthwhile for the organisation.

Further discussions with training officers also revealed that attendance to general education/training courses can be initiated by individual managers. If the organisation considers the manager's choice of education/training course to be justifiable, both in terms of cost and meeting the needs of the organisation, then the manager is sent on the course.

There was, however, no substantiative evidence from the discussion with training officers to suggest whether most of the courses followed as a result of needs assessment by informal methods, are mostly manager-led or organisation-led.

The discussion with the training officers revealed, overwhelmingly, that organisations also use the formal approach to training methods assessment as an annual pay/salary review mechanism for their managers. It is important and necessary that clear distinctions are made as to the assessment of education and training needs.

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If the objectives and benefits of a training needs assessment are to be fully achieved, it is important, and indeed necessary, that organisations have in place a method of assessing education/training needs which is independent of the annual pay/salary review assessment methods for their managers. Discussions with training officers reveal that the personnel(mainly area managers/contract directors) who are involved in assessing the needs of managers, and who conduct many face-to-face interviews, appear to have no training related to training needs assessment. They tend to rely on their experience, and what they anticipate manager needs are likely to be. These personnel would need to undergo training on issues relating to the various methods that can be employed in determining education and training needs of managers. Consideration should be given to methods such observations, as questionnaires/forms and tests.

# 7.5. Management Education/Training Evaluation Methods Within Refurbishment Organisations

This study also sought to discover the evaluating methods which are adopted by refurbishment organisations in the provisions of management education/training.

Hamblin (1974<sup>240</sup>) notes that "the act of evaluating training is simply the act of judging whether or not it was worthwhile in terms of some criterion of value, in the light of the information available". p8

According to Goldstein (1986<sup>222</sup>) "evaluation is the systematic control of descriptive and judgemental information necessary to make effective training decisions related to the selection, value and modification of various instructional activities". p111 Since education and training programmes are effective to the extent that they contribute to improved job performance, then evaluation is necessary in order to eliminate ineffective programmes and to improve future, as well as present programmes.

The thirty-two training officers who were interviewed were asked if they had in place any form of evaluation methods for their education and training programmes. Only fifteen (46.87%), i.e. less than half, responded that they have in place one form of evaluation method. (Table 53).

## Table 53: Responses On Evaluation Methods For Management Education/Training

	Frequency of Response (N=32)	Valid%
Yes	15	46.87
No	17	53.13

The main evaluation method that exists within organisations entails the training department sending out course appraisal sheets (questionnaires) to managers who have attended courses within two weeks of course attendance. The appraisal questionnaires allow managers to give feedback on the courses they have attended by indicating their enjoyment of and satisfaction with the course. However, the Harbridge Consulting Group (1991<sup>246</sup>) is of the view that this 'reaction' end of course questionnaire in its various forms, remains widely used, although there is universal understanding of its limitations. With this approach to evaluation, on-the-job improvements (if any), resulting from course attendance, cannot be ascertained.

Only four (12.5%) organisations have a long term approach which relates their evaluation procedure to performance on site. Part of this on-the-job performance evaluation method includes work based projects, given to managers, which allows

There is general consensus among all the training officers interviewed that evaluating manager education/training is an area which they found the greatest difficulty. They all contend that they are still in search of "how best" to evaluate the courses which the managers attend. The implication of this is that there is a need for a formal and generally accepted approach for evaluating education and training programmes within organisations in the construction industry. Such evaluation methods should relate course attendance with on-the-job performance.

Similarly, all the training officers contend that the difficulties they face with evaluating management education/training, means that the benefits of training and education can not be fully ascertained. This would invariably affect the budget allotted for management education/training provisions as organisations can not fully justify increasing their management education and training budgets.

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The next section of this chapter explores the preferences of organisations and managers on the delivery and methods of management education and training. The establishment of managers' preferences on methods and delivery of education/training should assist educators when providing suitable courses for managers.

## 7.6 Preferences On Methods And Delivery Of Management Education And Training

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The thirty-two training officers who were interviewed, as part of the study, were asked what their organisations' preference was for methods of training, in-house or external training. In-house, or in-company training courses, in this study means those courses organised by the organisations for their managers whether the training staff used is from within the organisation or external sources.

External courses are those that are provided by outside organisations and which are generally available to the public.

Of the thirty-two training officers interviewed, the majority, twenty-nine (90.36%), responded that they preferred in-house courses to external courses. Only 9.37% preferred external courses (Table 54).

## <u>Table 54: Organisations' Preferences On Course Delivery Methods (Inhouse/External):</u>

	Freque	ncy	of Respo	nse (N=32)	Valid%
In-house	-	-	29 <sup>-</sup>		90.63
External		-	3		9.37

The two reasons given for their preferences are:-

- (i) In-house courses are cheaper than external courses.
- (ii) In house courses are directly geared towards meeting the objectives/needs of the organisation.

This study supports the CITB (1988b<sup>130</sup>) study which shows that most construction organisations prefer in-house training courses to external courses. Twenty-nine (90.6%) of all organisations interviewed provide in-house training courses. These organisations contend that they supplement their courses with external courses, especially for those areas that the organisations cannot provide for their managers. The organisations that do not have any kind of in-house courses rely on sending their managers on external courses.

It is worth noting that ten (31.25%) of organisations have in-house courses recognised by professional organisations (CIOB and RICS) for Continuing Professional Development (CPD).

Most of the organisations, 31 (96.87%) who send their managers on courses prefer short courses of not more than 2 days duration. This is mainly due to the fact that organisations can claim the training levy back from the Construction Industry Training Board (CITB).

Further discussion with training officers reveal that organisations send their managers on external courses run by a variety of training providers. These include:-

- (i) Universities/Polytechnics
- (ii) Colleges of Further Education
- (iii) Management consultants
- (iv) Professional/trade associations
- (v) CITB

There is no significant preference of one training provider over the other, a view supported by managers who participated in the postal questionnaire. Courses are attended because of their relevance to both organisation and managers, irrespective of the course provider.

There is general agreement among training officers that external courses that lead to qualifications should be designed as modular courses to give managers the flexibility of carrying out their jobs and also of meeting their education and training needs.

The managers who participated in the postal questionnaire of the study were also asked of their preferences on course delivery methods.

Of the 142 managers who participated in the study, 50.7% of the managers responded that they much preferred in-house courses compared to 39.4% who have much preference for the external courses (Table 55).

#### Table 55: Managers' Preferences On Course Delivery Methods (In-house/External)

Percentage Responses (N=142)			
Much Preferred	Preferred	Less preferred	Not Preferred
50.7	32.4	9.9	7.0
39.4	39.4	12.0	9.2
	Perce Much Preferred 50.7 39.4	Percentage RespMuch PreferredPreferred50.732.439.439.4	Percentage Responses (N=142)Much PreferredPreferred50.732.439.439.4

Table 55 also suggests that over 83% of managers either prefer, or have much preference, for in-house courses compared to 78.8% who either preferred or have much preference for external courses. Unlike the organisations' overwhelming preference for in-house courses, which appears to be mainly attributable to cost, the

managers' preference for in-house courses over external courses is not overwhelming. The implications of the results would suggest that in-house and external courses need to be considered in providing education and training for refurbishment managers. Whilst internal courses can be tailored to meet the needs of organisations, external courses can be used to supplement them, especially in areas where the organisation has no expertise. Managers can also benefit from the cross-fertilisation of ideas which can accrue from external courses, since managers from different organisations are in attendance at such courses.

Managers' preferences for in-house training methods were also established. In-house training methods were classified under three categories, namely:-

- (i) On-the-job with guidance
- (ii) On-the-job without guidance
- (iii) Off-the-job but in-house

On-the-job training for the purpose of this study is the term used to describe training given in the normal work situation. This includes coaching and counselling, attachments and job rotation.

Off-the-job (in-house training) refers to training which takes place within the organisation, but not during the normal work situation. This includes seminars group discussions, case studies and programmed instructions and lectures.

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Of the 142 managers who participated in the postal questionnaires, 81.7% responded that they either much preferred or preferred on-the-job training with guidance, while 76.7% of managers much preferred or preferred off-the-job, but in house training. Only 27.4% responded that they much preferred or preferred on-the-job training without guidance (Table 56).

without guidance	3.5	23.9	31.1	40.8	
On the job	, <u>-</u>				
Off-the-job	37.3	39.4	12.0	11.3	
On-the-job with guidance	44.4	37.3	8.5	9.9	
	Much Preferred	Preferred	Less preferred	Not Preferred	
	Percentage Responses (N=142)				

#### Table 56: Managers' Preferences On In-house Training Methods

From Table 56, it can be seen that while over 44% of the managers much preferred on-the-job training with guidance, under 4% of the managers have much preference for on-the-job (without guidance). Similarly, over 40% of the managers responded that they do not prefer on-the-job training without guidance. The relatively high response for on-the job training with guidance when compared to on-the-job training without guidance reflects the necessity for hands-on experience backed up with coaching and/or mentoring.

Off-the-job training as can be seen in Table 56 also received a favourable response from managers. The implication of this is that in-house training programmes for managers would have to include both on-the-job training with guidance as well as off-the-job training, but in-house.

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Managers' perceptions on how best management skills and knowledge for refurbishment are best developed were also sought. To this effect, managers who participated in the postal questionnaire, were asked to indicate to what extent they agree or disagree with the four main ways by which skills and knowledge may be developed. Table 57 shows managers' ranking on ways that management skills and knowledge are best developed.

## Table 57: Managers' Perception On How Management Skills/Knowledge For Refurbishment Are Best Developed

	Percentage Responses (N=142)				
	Strongly agree	Agree	Disagree	Strongly disagree	
On-the-job (with guidance)	56.4	38.0	4.9	0.7	
In-house course	s 26.8	61.2	12.0	0.0	
External courses	s 22.6	57.0	16.9	3.5	
Learning from experience (no guidance)	23.9	29.6	33.1	13.4	

Table 57 shows that 94.4% of the 142 managers who participated in the postal questionnaire noted that they strongly agreed with on-the -job training with guidance as a way of developing management skills and knowledge. An inspection of Table 57 also reveals that 88.0% and 79.6% also strongly agree or agreed that in-house courses and external courses respectively are ways of developing management skills and knowledge for refurbishment. Also, from Table 57, it can be seen that over 46% of the managers either disagreed, or strongly disagreed, that learning from experience without guidance is a way of developing management skills and

knowledge. This result supports managers' views that on-the-job training with guidance is preferred, to training without guidance, as discussed earlier. It further validates the results of this study.

The fact that 88%, and nearly 80% of managers agree with in-house courses and external courses respectively, as ways of developing management skills and knowledge, and also the fact that 94.4% of managers responded to on-the-job training, means that educators would need to give due consideration to these three methods when providing education and training for refurbishment managers.

Furthermore, these results seem to indicate that a mixture of course delivery methods are important if refurbishment managers are to acquire and develop the skills/knowledge which are necessary for the work that they do. Educators and refurbishment organisations should aim to provide the "right" mix of training methods. It is also recommended that further research be conducted to establish which of the course delivery methods is most appropriate for the acquisition and development of a given skill/knowledge or sets of skills/knowledge. For example, the method of developing the skills/knowledge for communication (oral/written) and leadership may, or may not, be most appropriate for developing the skills/knowledge associated with forecasting/planning and analysis of project risk/uncertainty.

The present study also explored managers' preferences for course duration, time of year to attend courses, and place of training. These results should be of benefit to organisations and educators as it will enable them to provide management courses that meet the needs of managers. The data displayed in Table 58 indicate managers' preferences for course duration.

	Percentage(%) Responses (N=142)			
	Much Preferred	Preferred	Less preferred	Not Preferred
2 - 3 days	40.1	38.8	14.8	6.3
1 day	40.1	24.7	15.5	19.7
4 - 5 days	12.0	24.6	43.0	20.4
1 week	14.7	14.1	28.9	42.3
1 - 2 weeks	4.2	2.8	14.8	78.2

#### Table 58: Managers' Preferences On Course Duration

Table 58 shows that in the main, managers prefer shorter courses to longer courses. Further inspection of Table 58 reveals that 78.9% of managers responded that they much prefer, or prefer, courses of 2 - 3 days duration when compared to 36.6% of managers who noted that they much preferred or preferred courses of 4 - 5 days duration. It can also be seen from Table 58, that over 78% of the managers do not prefer courses which run for between one and two weeks.

Although 64.8% of respondents noted that they much prefer, or prefer, courses of one day's duration, perhaps, courses of 2 - 3 days allow managers to receive the 'optimum' amount of education/training they need without being away from work more than is absolutely necessary. The result of this study lends support to the studies conducted by Koudra (1975<sup>314</sup>), Mangham and Silver (1986<sup>339</sup>) and CITB (1988b<sup>130</sup>). These three studies suggest that managers prefer shorter courses to longer courses.

Course providers should endeavour to provide short courses for refurbishment managers. Such courses, as suggested by the training officers interviewed as part of the present study, should be modular in design, and lead to qualifications. Modular courses would provide flexibility and encourage managers to become better qualified.

Managers' preferences on time of the year to attend education/training courses were also investigated. It is important to determine the preferred time of year to attend courses. Such information would benefit both construction organisations and educators. Organisations will be better placed to programme and schedule when their managers are to attend courses. For educators, they can plan and concentrate their efforts seasonally, rather than spreading courses throughout the year.

Data on managers' preferences for time of year to attend courses are presented on Table 59. An observation of Table 59 shows that nearly 48% of managers responded that they much preferred to attend courses during the winter months, while 25.4% of managers noted that they much preferred the autumn periods. Spring and summer months were ranked 3rd and 4th respectively by 15.5% and 10.6% of managers.

#### Table 59: Managers' Preferences On Time Of Year To Attend Courses

	Percentage Responses (N=142)				
	Much Preferred	Preferred	Less preferred	Not Preferred	
Winter	47.9	27.5	8.5	16.9	
Autumn	25.4	48.6	18.3	7.7	
Spring	15.5	43.0	28.2	13.3	
Summer	10.6	28.9	14.7	45.8	
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From Table 59, it can be seen that over 45% of managers do not prefer to attend courses during the summer months. The preference for winter months could be due to shorter working hours, and unfavourable working conditions during this season, which might necessitate work stoppage. Managers might find it more time effective to attend courses during these months.

The fact that many managers tend to put in for their annual holidays during spring and summer, leave the winter and autumn periods as times to attend courses. This could explain the relatively high percentage (45.8%) of managers who do not prefer to attend courses during summer months. Educators would therefore have to concentrate more effort in providing courses for managers during the winter months.

Managers who participated in the postal questionnaires were also asked their preferences for place/location of training courses. Data on managers' preferences for place of training are presented in Table 60.

	Percentage(%) Responses (N=142)			
	Much Preferred	Preferred	Less Preferred	Not Preferred
Within company premises	57.7	27.5	6.3	8.5
Within 20 miles from company	36.6	47.9	12.0	3.5
20 - 50 miles from company	4.9	23.9	45.8	25.4
More than 50 mile from company	4.3	7.0	16.9	71.8

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## Table 60: Managers' Preferences On Location/Place Of Training

Table 60 clearly shows that managers prefer to attend courses nearer their place of work. While nearly 58% of managers responded that they much preferred courses which are within company premises, only about 4% of managers much preferred courses which require more than 50 miles travel distance from company premises. Put differently, Table 60 shows that nearly 72% of managers do not prefer to travel more than 50 miles from company premises in order to attend courses.

This result clearly indicates the need for localised management courses and learning centres, and supports the in-house course preference, also, given the lower degree of inconvenience, the provisions of local courses could be a further source of attraction for managers to attend management courses, and in so doing, encourage managers to become better qualified.

The present study also investigated the factors that promote, and inhibit, management education and training within refurbishment organisations. Information from such an investigation would enable organisations to concentrate their efforts on those factors that are more likely to improve the provisions of management education and training within their organisations.

When the thirty-two training officers were asked 'what factors promote the provision of management education/training within your organisation?', the majority (26) of training officers responded to commitment to education and training from the top, as the highest promoting factor (see Figure 14). Since senior management normally control budgets, clearly a demonstration of intent would involve making adequate financial provision for education/training.

#### Figure 14: Perceptions Of Training Officers On Factors Which Promote Management Education And Training Provisions Within Their Organisations



In-house courses geared towards the needs of organisations, and the willingness of managers to learn, were ranked second and third respectively.

When training officers were asked 'what factors inhibit the provisions of management education/training within your organisation?', the two most cited factors were cost of provision, and timing courses to suit managers (See Figure 15).

Cost and timing of courses were cited by 30 and 22 training officers respectively. Nine (9) training officers responded that availability of courses was a factor that inhibits education/training. Reluctance or lack of commitment by managers to attend courses was least cited. Only six (6) training officers volunteered this information. The implication of these results is that even if educators respond to contractors' wishes by designing courses relevant to the needs of refurbishment managers, the costs and timing of such courses would be the contractors' major concerns.

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In the present study, an effort was made to determine the commitment of organisations to management education/training. Three issues were considered, namely:-

- (i). Expenditure on training as a percentage of turnover
- (ii). Expenditure on training per manager
- (iii). Number of days per year an organisation send her managers on external courses

The sensitive nature of the information regarding organisation's expenditure on education/training, meant that only 20 of the 32 organisations were able to supply information on (i) and (ii) above. From the information obtained, no substantive evidence was found to suggest what constitute an 'average' ratio of education/training expenditure per turnover, nor expenditure per manager. There was a wide variation on expenditure on education/ training even amongst organisations with similar turnover and similar employee numbers.

Interviews with training officers reveal that organisations send their managers on external general management courses, on average, twice a year. Similarly, when managers who participated in the postal questionnaire of the present study were asked 'how many general management education/training courses have you attended within the last two years?', the majority (38.7%) responded that they have attended 3 - 4 courses within the last two years (see Figure 16). This would mean that managers attend on average, about two courses a year. This result is in agreement with the training officers' view as to the number of courses their managers attend per year.





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From Figure 16, it can be seen that while 28.9% of managers responded that they attended 1 - 2 courses within the last two years, only about 14% attended 5 - 6 courses within the same duration. A closer observation of Figure 16 shows that just 26.8% of managers have attended more than 4 courses within the last two years. There is therefore a need for organisations to send their managers to more management courses.

It is worth pointing out that the period of the study coincides with the dramatic decline in the construction workload, profit margins, as well as cut-backs on education/training budgets of many organisations. This could to some extent explain the relatively low percentage (26.8%) number of managers who have attended more than four courses within the last two years.

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Of the 32 training officers interviewed, 28 (87.5%) noted that their budget allocation for management education/training had been reduced over the last two years. Percentage reduction of education/training budgets vary greatly, ranging from 5% to 65%. Generally speaking, the larger the organisation (in terms of turnover), the smaller the cut in the budget. Regardless of size, during terms of recession, organisations are hard pressed, and education/training is more often than not the first to be cut back.

Refurbishment managers who responded to the postal questionnaire supplied information regarding the degree of satisfaction with the amount and quality of management education/training courses they had received within the last 2 years. Information of this nature would give an indication whether organisations are

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providing the right amount, and the right quality, of management education/training which meet managers' needs.

When managers were asked 'How satisfied are you with the amount of education/training you have received within the last 2 years?', it can be seen from Figure 17, that under 27% responded that they were very satisfied. Nearly the same percentage number of managers noted that they were fairly satisfied with the amount of education/training they have received within the last 2 years.



Nearly 36% of managers responded that they were satisfied compared to 11.3% of managers who are not satisfied. However, a closer observation of Figure 17 reveals that over a third of all managers (38.4%) are either fairly satisfied or not satisfied with the amount of education/training they have received within the last 2 years. The implication of this is that there is a need for organisations to send their managers

on more courses. In addition, unless top management in organisations are prepared to invest in the education/training of their employees there will be shortage of high calibre managers.

When managers were asked 'How satisfied are you with the quality of management education/training you have received within the last 2 years?, about 26% of the managers indicated that they were very satisfied (see Figure 18).



Although 38.7% responded that they were satisfied, Figure 18 shows that 35.2% ofmanagers (over a third of all managers) responded that they were either fairly satisfied or not satisfied with the quality of education/training they have received within the last two years. The result suggest that for organisations and educators,
there is more work to be done in providing managers with quality courses. Management courses should be designed to meet the needs of managers.

It is important that a manager's education/training needs are identified before sending him/her on a course. There is therefore a need for a closer relationship between training departments and managers who are to attend courses.

The next section of this chapter considers the degree of importance which managers attach to factors which may influence the selection and attendance of courses.

From a list of eight factors which may influence course selection, managers who participated in the postal questionnaire were asked to identify those factors which they find important in selecting management courses. The categories were 'very important', 'important', 'fairly important', and 'not important'. These categories were coded 1, 2, 3, and 4 respectively. Average scores were computed from ordinal coding of these data. As mean score increases, the degree of importance attached to the factor decreases. Table 61 presents data on factors which influence managers in selecting courses.

#### Table 61: Factors Which Influence Managers In Selecting Courses

Factors	Average Score ( $N = 142$ )	<u>Rank</u>	
Course content	1.092	1	
Method of training delivery	1.401	2	
Duration of course	1.430	3	
Cost of attending courses	1.852	4	
Course timing	1.866	5	
Qualification/expertise of course presente	r 2.211	6	
Training provider	2.218	7	
Place of training	2.268	8	

It can be seen from Table 61 that managers ranked course content as the most important factor in course selection. This result means that if courses are to attract managers, then they need to be designed to meet the needs of managers. Methods of training delivery, and duration of courses were ranked 2nd and 3rd respectively by managers. Managers would prefer to select short courses as opposed to long courses, and courses that are delivered in such a way that meets their needs. Cost of attending courses was ranked 4th. If courses are paid for by the manager's organisation as opposed to the manager footing the bill then it is not surprising that managers attach lower importance to the cost of attending courses in comparison to course content, and method of delivery.

The qualification of the course presenter was ranked 6th, whilst training provider and place of training were ranked 7th and 8th respectively. Those who present management courses would need to be knowledgeable about the materials they present, and also, would need to command credibility and trust from managers.

Place of training is of less importance if the course content is satisfactory, and the delivery method is acceptable to managers.

The degree of importance which managers attach on four factors which may influence course attendance was also sought through postal questionnaires. Table 62 presents these data. As mean score increases, the degree of importance attached to the factor decreases. Table 62 shows that willingness to learn more about the job managers do is the most important factor in attending courses.

Factors	Average Score (N = $142$ )	<u>Rank</u>
Willingness to learn	1.324	1
Promotion & career development	1.556	2
Obtaining qualification	2.268	3
Obtaining the respect of peers	2.500	4

#### Table 62: Factors Which Influence Managers To Attend Courses

Further investigation into the results of this study showed that younger managers responded that they were more willing to learn more about their jobs than older managers. Similarly, managers who have been in the construction industry for a relative short period of time are more willing to learn about their jobs than their counterparts who have spent longer time in the industry.

Promotion & career development, and obtaining qualifications were ranked 2nd and 3rd respectively. Courses that lead to qualifications would act as incentives to managers to attend them.

Obtaining the respect of peers was ranked least. Further investigation into the results indicated that more junior managers responded to this factor than did senior managers.

The present chapter has so far considered the nature and extent of management education/training provisions within refurbishment organisations, together with the various factors which affect course attendance and selection. The remainder of the chapter will focus attention on management education/training needs of both managers and organisations, as defined by skills/knowledge (Job dimensions).

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#### 7.7. Education And Training Needs For Refurbishment: Managers' Perspective

The analysis of management education and training needs for refurbishment will commence with data on managers' perceptions of the degree of need for education/training in their present job. Firstly, data will be presented at the aggregate level, and then followed by an evaluation of education and training needs at senior, middle and junior management positions.

From a list of 75 skills/knowledge (job dimensions), managers who participated in the postal questionnaire were asked to indicate their degree of need for education/training in each of the job dimensions (see questionnaire in Appendix A).

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The categories are 'Very much need', 'Much need', 'Need', and 'Not need'. These were coded 1, 2, 3 and 4 respectively. Average scores were computed from ordinal coding of these data. As mean score increases, this signifies a decreasing need for education and training. Table 63 presents data on education/training needs of managers at the aggregate level.

The two most cited job dimensions for which managers need education and training are forecasting & planning, and analysis of project risk/uncertainty. It will be recalled that in section 6.8 of chapter six, these two dimensions were found to be the two most difficult job dimensions to handle in managing refurbishment work. It is therefore not surprising that managers need education/training in these areas.

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## Table 63: Managers' Education/Training Needs For Refurbishment In Present Job

Job Dimensions (skills/knowledge)	Mean Score (N=142)	Percentage (%)	<u>Rank</u>
Forecasting and planning	1.493	78.20	1
Analysis of project risk/uncertainty	1.620	73.20	2
Use of computer technology	1.718	69.00	3
Employee training: supervisor/foreman	1.754	67.60	4
Health & safety	1.761	67.60	5
Quality control and assurance	1.789	66.20	6
Employee training: management	1.789	64.10	7
Budgetary control	1.796	64.80	8
Competitive tendering	1.824	64.10	9
Negotiate: client	1.873	61.30	10
Managing time	1.894	62.70	11
Setting objectives and goals	1.901	61.30	12
Costing and estimating	1.915	60.60	13
Managing conflict/crisis	1.923	59.20	14
Leadership	1.937	62.00	15
Construction law	1.965	59.20	16
Career development/appraisal	2.021	57.00	17
Communication (oral/written)	2.028	56.30	18
Motivation of others	2.035	57.00	19
Recruit/select: Subcontractor	2.049	54.20	20
Recruit/select: Supervisor/foreman	2.070	54.20	21
Organisation of communication systems	2.077	53.50	22
Programme design	2.092	52.80	23
Employee training: manual labour	2.092	52.10	24
Team building	2.099	54.20	25
Manpower planning and control	2.099	52.80	26
Managing job stress	2.113	54.20	27
Managing change	2.113	50.70	28
Public relations	2.120	51.40	29
supervision of others	2.127	53.50	30
Recruit/select: management	2.148	51.40	31
Productivity maintenance and control	2.155	50.00	32
Conducting meetings	2.176	50.70	33
Tenant welfare	2.183	50.00	34
Job analysis/specification	2.190	47.90	35
Identifying personal strength/weaknesses	2.204	47.90	36
Decision making	2.211	52.10	37
Site organisation	2.211	50.00	38
Materials planning and control	2.218	47.20	39
Company (strategic) planning	2.225	47.90	40
Contract drafting	2.239	45.10	41
Company accounting	2.246	47.20	42
Delegating responsibilities	2.254	46.50	43
Negotiate: government bodies	2.275	47.20	44
Client/consumer protection law	2.289	45.10	45
Recruit/select: manual labour	2.296	45.10	46
Negotiate: subcontractor	2.303	45.80	47
Negotiate: main contractor	2.310	45.80	48
Employment legislation	2.345	41.50	49
Programme maintenance(update)	2.359	42.30	50
Termination/dismissal: subcontractor	2.366	42.30	51
Company law	2.387	43.00	52
Competitor awareness	2.401	40.80	53

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Creativity 2.458 39.40	
Negotiate: trade unions 2.465 40.10	56
Site security 2.472 39.40	57
Negotiate: supplier 2.486 38.70	58
Organisation structure 2.521 34.50	59
Termination/dismissal: supervisor/foreman 2.528 36.60	60
Promotion and transfer 2.528 35.20	61
Sources of finance 2.542 38.00	62
Plant planning and control 2.549 35.90	63
Employee welfare/counselling 2.549 34.50	64
Planning law 2.577 33.80	65
Termination/dismissal: management 2.627 33.80	66
Termination/dismissal: manual labour 2.676 31.00	67
Market research 2.704 31.00	68
Managing other national culture 2.704 31.00	69
Advertising and promotion 2.718 31.70	70
Decanting buildings 2.732 28.20	71
Property insurance 2.789 26.80	72
Organisation culture 2.866 21.80	73
Demotion and retirement 3.000 21.10	74
Foreign language3.04923.90	75

This result further confirms the view that refurbishment work is risky, uncertain, and difficult to forecast and plan. Managers need appropriate education and training if they are to effectively manage these important job dimensions.

Interestingly, the use of computer is ranked 3rd by 69.00% of managers. It is well recognised that the development of user friendly micro-based software for the critical path analysis method of planning has expanded the application of construction management techniques (Charmer, 1987<sup>104</sup>; and Whiteman, 1987<sup>497</sup>). In refurbishment, the need becomes even greater as the necessity for flexibility and speed of response increases, particularly where variation in work content is high, therefore supporting the use of such software. In the construction industry, the application of computer technology in the forms of artificial intelligence, expert systems, and advanced knowledge based systems and modelling, are useful in cost control procedures (Anisi et al, 1990<sup>9</sup>), tendering and estimating (Teo et al, 1991<sup>474</sup>),

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interpretation of data (Then, 1990<sup>475</sup>; Westwood and Morris, 1990<sup>492</sup>) and in decision making (Brandon et al, 1988<sup>62</sup>; Bon, 1988<sup>49</sup>).

Health and safety also received a high weighting. The need to understand and be able to control substances hazardous to health is of utmost importance in refurbishment. Budgetary control is a high order need, ranked 8th, which is marginally more important than costing and estimating ranked 13th.

The high level of variations in refurbishment works, heightened by risks and uncertainty, and with cost commitments liable to escalate at fairly short notice, increase the need for education/training in the job dimensions of budgetary control, and costing & estimating.

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The interpersonal skills of leadership, communication, and motivation, are ranked 15th, 17th and 18th respectively. With the increase of subcontract labour, coupled with the corresponding increase in fragmented specialised works, and difficulties associated with locating labour on site, the skills of communication and leadership become necessary. A little way down Table 63, are the operational skills of productivity maintenance & control, site organisation, and materials planning & control.

The job dimensions of property insurance, organisation culture, and demotion & retirement received low ratings. As previously mentioned, the job dimension of property insurance would appear to be left to specialists in head offices.

Foreign language was ranked lowest. With the opening up of Europe, and the opportunities and challenges that might accrue, one would have expected a need to communicate in another language. Foreign languages it will be recalled from the last chapter, was also ranked the least important skill/knowledge for refurbishment. Discussions with senior refurbishment managers, who were interviewed as past of the present study, revealed that refurbishment organisations do not anticipate operating in foreign markets. Refurbishment organisations are generally smaller in size than organisations involved in new build (Griffith, 1992<sup>232</sup>), and as they are mainly national, as opposed to, international contractors, their workforce is largely indigenous and does not need a second language for their jobs.

The present study also sought to investigate if there is a relationship between:-

- (i). The job dimensions (skills/knowledge) which managers perceive as important in their present job, and their degree of need for education and training.
- (ii). The job dimensions which managers perceive as difficult in managing refurbishment work, and the degree of need for education/training for those job dimensions.

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By testing the null hypothesis that there is no significant correlation between the degree of importance of management skills/knowledge for refurbishment, and need for education and training, Spearman's coefficient of correlation  $(r_{\bullet})$  is 0.363. This value is significant at the 0.05 level. The null hypothesis is rejected. This means that the degree of need for education/training is higher for those skills/knowledge which managers perceive as important for the job they do. This result supports the view of the CITB (1988b<sup>130</sup>). In their study on 'Survey of Supervisory and Management

Training Needs in UK Construction Industry', the CITB (1988b<sup>130</sup>) noted that:

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"... the important activity areas closely resemble the areas where training is perceived as being important" vol 1, p67.

Similarly, by testing the null hypothesis that there is no significant correlation between the job dimensions which managers perceive as difficult to handle in refurbishment, and their degree of need for education/training, Spearman's coefficient of correlation  $(r_{s})$  is 0.573, and significant at the 0.05 level. The null hypothesis is rejected. This result suggests that refurbishment managers have a higher degree of need for education/training in those job dimensions which they find most difficult to handle in the job they do. If managers are to cope effectively with the difficulties of refurbishment, then, appropriate education/training is needed in order to acquire and develop the relevant skills/knowledge.

The next section of this chapter analyses education and training needs for each level of management; senior, middle and junior. Within the text, only the job dimensions for which managers most need education and training will be presented. The categories 'Very much need' and 'Much need' are combined to form the 'Most need' areas of education/training. The job dimension for which managers responded that they 'Need', and do 'Not need' education/training can be consulted in Appendix B.

Tables 64, 65 and 66 present data on job dimension for which senior, middle and junior managers most need education/training in their present job.

Job Dimensions (skills/knowledge)	Mean Score (N=23)	Very much need	<u>Rank</u>
		and much need	
		education/training(	<u>%)</u>
Analysis of project risk/uncertainty	1.826	73.90	1
Forecasting and planning	1.870	78.20	2
Use of computer technology	2.000	78.20	3
Health and safety	2,087	78.30	4
Budgetary control	2.130	65.20	5
Employee training: management	2.174	69.60	6
Competitive tendering	2.174	65.20	7
Employee training: supervisor/foreman	2.217	69.60	8
Quality control and assurance	2.217	65.20	9
Negotiate client	2.217	60.80	10
Managing time	2.261	65.20	11
Costing and estimating	2.261	56.50	12
Setting objectives and goals	2,304	60.90	13
Managing conflict/crisis	2,348	60.80	14
Motivation of others	2,348	60.80	15
Leadership	2.391	52.10	16
Communication (oral/written)	2,435	60.90	17
Career development/appraisal	2,435	56.50	18
Managing change	2.435	56.50	19
Recruit/select: subcontractor	2,435	56.50	20
Recruit/select: supervisor/foreman	2,478	43.40	21
Construction law	2.522	52.20	22
Recruit/select: management	2,522	52.20	23
Manpower planning and control	2.522	52.10	24
Supervision of others	2.522	47.80	25
Conducting meetings	2.522	47.80	26
Team building	2.565	52.10	27
Managing job stress	2.565	47.80	28
Identifying personal strength/weaknesses	2.565	43.50	29
Programme design	2.565	43.40	30
Productivity maintenance and control	2,609	56.50	31
Public relations	2,609	52.20	32
Organisation of communication systems	2.609	52.20	33
Decision making	2.609	43.40	34
Contract drafting	2.609	43.40	35

# Table 64: Job Dimensions For Which Senior Managers Most NeedEducation/Training For Refurbishment In Present Job

An inspection of Tables 64, 65 and 66 reveals that managers at all levels consider forecasting & planning, analysis of project risk/uncertainty, and health & safety as high order needs for education and training. Courses designed for refurbishment would need to accommodate these three areas. The content of any course in the area of refurbishment management would have to consider the different job roles

of managers according to their positions within the management hierarchy.

# Table65:JobDimensionsForWhichMiddleManagersMostNeedEducation/Training For Refurbishment In Present Job

Job Dimensions (skills/knowledge)	<u>Mean Score (N=59)</u>	Very much need and much need education/training(%)	<u>Rank</u>
Forecasting and planning	1.898	78.00	1
Analysis of project risk/uncertainty	1.898	74.60	2
Health and safety	1.898	74.60	3
Use of computer technology	1.966	66.10	4
Quality control and assurance	2.017	67.80	5
Employee training: supervisor/foreman	2.051	67.80	6
Budgetary control	2.119	64.40	7
Employee training; management	2.153	59.30	8
Setting objectives and goals	2.169	62.70	9
Managing time	2.186	66.10	10
Competitive tendering	2.186	66.10	11
Negotiate: client	2.186	64.40	12
Recruit/select: subcontractor	2.220	59.30	13
Costing and estimating	2.237	62.70	14
Managing conflict/crisis	2.237	61.00	15
Recruit/select: supervisor/foreman.	2.237	57.60	16
Recruit/select: management	2.237	54.20	17
Construction law	2.254	61.00	18
Employee training: manual labour	2.271	55.90	19
Team building	2.305	61.00	20
Leadership	2.322	59.30	21
Motivation of others	2.322	57.60	22
Manpower planning and control	2.339	54.20	23
Public relations	2.339	50.80	24
Communication (oral/written)	2.356	54.20	25
Programme design	2.390	55.90	26
Managing change	2.390	52.50	27
Materials planning and control	2.407	54.20	28
Career development/appraisal	2.407	54.20	29
Supervision of others	2.407	54.20	30
Programme maintenance (update)	2.407	49.10	31
Tenant welfare	2.424	54.20	32
Productivity maintenance and control	2.424	50.80	33
Organisation of communication systems	2.424	42.40	34
Managing job stress	2.441	59.30	35

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# Table 66: Job Dimensions For Which Junior Managers Most NeedEducation/Training For Refurbishment In Present Job

Job Dimensions (skills/knowledge)	<u>Mean Score (N=60)</u>	Very much need and much need education/training(	<u>Rank</u> %)
Forecasting and planning	1.833	81.60	1
Health and safety	2.033	75.00	2
Analysis of project risk/uncertainty	2.067	68.40	3
Employee training: supervisor/foreman	2.083	70.00	4
Quality control and assurance	2.083	65.00	5
Managing time	2.117	51.60	6
Employee training: manual labour	2.133	63.40	7
Use of computer technology	2.167	73.30	8
Public relations	2.233	58.30	9
Construction law	2.250	63.40	10
Recruit/select: supervisor/foreman	2.267	61.70	11
Communication (oral/written)	2.300	58.40	12
Team building	2.300	56.70	13
Supervision of others	. 2.317	61.60	14
Manpower planning and control	2.333	63.40	15
Motivation of others	2.333	56.60	16
Managing conflict/crisis	2.350	58.40	17
Recruit/select: manual labour	2.367	58.30	18
Setting objectives and goals	2.383	58.30	19
Programme design	2.383	48.30	20
Costing and estimating	2.400	55.00	21
Budgetary control	2.417	55.00	22
Materials planning and control	2.433	55.00	23
Tenant welfare	2.450	55.00	24
Competitive tendering	2.450	51.70	25
Productivity maintenance and control	2.467	50.00	26
Managing change	2.467	50.00	27
Leadership	2.483	55.00	28
Site organisation	2.483	46.60	29
Programme maintenance (update)	2.500	55.00	30
Managing job stress	2.500	53.40	31
Conducting meetings	2.500	51.60	32
Organisation of communication systems	2.517	53.30	33
Recruit/select: subcontractor	2.517	53.30	34
Identifying personal strength/weaknesses	2.517	46.70	35

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Use of computer technology is also a high order need, marginally higher for senior and middle managers, than to junior managers. Use of computer technology is ranked 3rd, 4th and 8th by senior, middle and junior managers respectively.

Managing time, and managing conflict/crisis also received high weighting at all levels of management. It is necessary that these job dimensions are also included in refurbishment courses for all levels of managers. In an environment of high levels of risk/uncertainty, conflict and crisis would be expected to be on the increase. Managers would need requisite skills/knowledge to handle such conflicts/crisis. These crisis could have significant consequences on time overrun of projects, in which case managers would be expected to have firm control over the time for project completion.

The job dimension of budgetary control is ranked 4th, 7th and 22nd by senior middle and junior managers respectively. Similarly, costing and estimating is ranked 12th, 14th and 21st by senior, middle and junior managers respectively in terms of the need for education and training. These results suggest that the need for education/training on job dimensions associated with financial management is higher for senior than for junior management. Senior management would benefit more from courses geared towards financial management than their junior counterparts.

While the job dimension of competitive tendering is ranked 7th by senior managers, the same job dimension is ranked 11th and 25th respectively by middle and junior managers. This result is not surprising since senior managers are more involved in tendering to win jobs for their organisations than are their junior counterparts. Mid-way down Tables 64, 65 and 66, the need for education and training in the interpersonal skills of communication, leadership, motivation, and supervision of others are evident. Courses designed for all levels of refurbishment management would need to include interpersonal skills. The actual content and structure of courses would need take account of the job roles of managers due to their positions in the organisation. For example, Leadership skill is ranked 16th by senior managers (see Table 64), while it is ranked 21st and 28th by middle and junior managers respectively.

Public relations are ranked 9th, 24th and 32nd by junior, middle and senior managers respectively. Similarly, junior managers ranked tenant welfare 24th in terms of need for education/training, while middle managers ranked it 32nd. Senior managers do not consider tenant welfare as a job dimension for which they 'most need' education and training.

These results are nor surprising since site management is closer to site and are more in contact with tenants and the general public when compared to their senior counterparts. Courses for junior managers would have to reflect their needs in public relations and tenant welfare.

The need for education and training in the job dimensions associated with operational management e.g. programme design, manpower planning & control, materials planning & control, and productivity maintenance & control is higher for junior management than for senior management. From Tables 64, 65 and 66, it can be seen that programme design is ranked 20th, 26th and 31st by junior, middle and senior managers respectively. Similarly, manpower planning and control is ranked 14th, 23rd and 24th by managers in the junior, middle, and senior positions respectively. These results are to be expected since the requirements of operational skills/knowledge are higher in junior than in senior management positions.

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Contract drafting was ranked least by senior managers, as a job dimension for which they 'most need' education and training (see Table 64). For middle and junior managers in the present study, contract drafting is not a high order need. Senior managers are more involved in the negotiation and formulation of contracts with the client's team than are middle and junior managers.

In their study on Supervisory and management training needs in the UK construction industry, the CITB (1988b<sup>130</sup>) highlighted seven core topic areas for training. These are, in order of importance:-

Quality control

Managing people

Planning (including financial planning)

Progress control (e.g productivity maintenance & control, and Manpower planning & control)

Health & safety

Materials control

Industrial relations (e.g. Employee welfare and training)

Source: CITB (1988b<sup>130</sup>) "Survey of Supervisory and Management Training Need In The UK Construction Industry. vol 1, p24 Apart from materials control, the above topic areas are also cited by managers in the present study as areas for which there is most need for education and training (see Tables 64, 65 and 66), however, the ranking positions for these topics areas differ in both the CITB study and the present study.

To summarise the discussions in this section of the chapter, there are job dimensions for which managers at all levels most need education and training. The five main areas for education/training are:-

(i) Forecasting & planning of refurbishment works

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- (ii) Analysis of project risks/uncertainty
- (iii) Health & safety
- (iv) Quality control
- (v) Use of computer technology

Courses designed for managers would have to take in to account managers' jobs as dictated by their positions in the management hierarchy.

The need for education/training in job dimensions associated with financial management is higher for senior than junior managers. Education and training needs for job dimensions associated with operational management are higher for junior than senior management.

#### 7.8. Management Education And Training Needs For Refurbishment: Organisations' Perspective

The present study also sought to investigate management education/training needs of refurbishment organisations, and to establish if there are similarities in the needs of organisations and managers. To this end, the 32 training officers who were interviewed were asked of the skills/knowledge (job dimensions) currently needed for refurbishment.

The ten most cited job dimensions needed by refurbishment organisations are presented in Table 67 in decreasing order of importance.

#### Table 67: Current Education And Training Needs Of Refurbishment Organisations

<u>Rank (N=32)</u>	Job Dimensions					
1.	Health and safety					
2.	Programming of the works					
3.	Public relations/Tenant liaison					
4.	Managing time					
5.	Communication					
6.	Security					
7.	Contract law					
8.	Pricing of the works					
9.	Quality management					
10.	Leadership					

For refurbishment organisations, health and safety is ranked highest in terms of need for education and training. This is not surprising as those involved in refurbishment are prone to site fatalities. Further discussions with training officers reveal that courses in the general areas of health and safety in construction are not only the most attended courses by managers, but courses for which organisations are most willing to make money available. For organisations, it is necessary that they instil in their managers, the importance of health and safety in refurbishment. Health and safety courses for refurbishment would need to take into consideration, the control of substances hazardous to health. It is important that managers are able to handle, and relate to the workforce, when confronted with substances such as asbestos and lead in the course of their work.

Programming of the works, and public relations were ranked 2nd and 3rd respectively (see Table 67). With high levels of variation/change orders in refurbishment work, it is necessary that the programme schedule for the works is updated regularly to accommodate these changes.

Regarding public relation, eight of the thirty-two organisations as earlier mentioned have employed Public Relation Officers/Tenant Liaison Officers to manage this important function. Managing time and communication also received high weighting by organisations.

Rather surprisingly, quality management received a low rating, however, training officers recognised quality management as being of immense importance in the future, since clients are demanding better quality service, and BS 5750 is being widely recognised as the standard (CSSC, 1988<sup>98</sup>; 1989<sup>99</sup>).

Although considered as an important skill for refurbishment, the need for education and training in leadership is a low order need when compared to health & safety, and public relations.

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Of the ten most cited job dimensions by refurbishment organisations, only two i.e. security and contract law do not appear as the job dimensions for which all levels of management, senior, middle and junior, most need education and training (see Tables 64, 65 and 66). Although there are differences in priority and rank positions of job dimensions between managers and organisations, the result would suggest, that in the main, there seem to be agreement between organisations and managers as to the job dimensions for which there is most need for education and training.

When an attempt was made to ascertain if education/training needs differ between managers of specialist organisations, and managers of general refurbishment organisations, no significant or substantive differences were noted. The implication of this is that courses for refurbishment can be attended by managers from both specialist and general refurbishment organisations.

#### 7.9. Grouping Of Job Dimensions (Skills/Knowledge): Data Reduction

In this chapter, education and training needs of refurbishment managers, as defined by skills/knowledge job dimensions (skills/knowledge) were established. It is the aim of this section of the chapter to extend the analysis by attempting to identify which set(s) of job dimensions are statistically correlated. In other words, to identify the job dimensions that are distinct and required together.

Data reduction allows an investigator to ascertain and isolate set(s) of job dimensions that are meaningfully related. This approach should benefit course designers. It should assist them in evaluating groups or sets of job dimensions which ought to be taught together. The job dimensions which are not statistically related also deserve consideration as they are part of refurbishment management practice.

In the context of the present study, data reduction means the identification of groups/sets of job dimensions for which managers need education/training, and which can be arrived at by employing a statistical technique called Factor Analysis.

It is important to point out at the outset, that the identified groups are not necessarily groups of job dimensions for which managers <u>most</u> need education/training, but groups that are statistically and meaningfully related. Factor analysis is well researched and accepted as a data reduction technique (Overall and Klett, 1972<sup>390</sup>; Eysenc and Eysenc, 1975<sup>185</sup>; Cattell, 1980<sup>96</sup>; Caroll, 1983<sup>89</sup>; Norusis, 1985<sup>386</sup>; and Kline, 1987<sup>302</sup>).

Overall and Klett (1972<sup>390</sup>) have defined factor analysis as:

"... factor analysis is concerned with relationship among test variates and relationships of the test variates to derived factors" p 11.

Norusis (1985<sup>386</sup>) states that factor analysis is:

"... a statistical technique used to identify a relatively small number of factors that can be used to represent relationships among sets of many interrelated variables" p125. Factor analysis as a statistical reduction technique involves re-defining a reduced rank factor matrix as a linear transformation of the matrix inter correlation amongst original variables. Expressed mathematically, for the ith standardised variable,

$$X_i = A_{i1}F_1 + A_{i2}F_2 + \dots A_{ik}F_k + U_i \dots Equation$$
 (1)

The Fs are the common factors, the As are the constants which are used to combine the k factors, and U is a unique factor. According to Norusis (1985<sup>386</sup>), the Us are assumed to be uncorrelated with each other and with the common factors. The factors which are inferred from observed variables are estimated linear combinations of them. In general, the mathematical expression for the estimate of the jth factor Fj is:-

$$F_{j} = \sum_{i=1}^{p} W_{ji} X_{i} = W_{ji} X_{i} + W_{j2} X_{2} + \dots W_{jp} X_{p} \quad \dots \ Equation \ (2)$$

The Wi's are known as the factor coefficients, and p represents the number of variables (Norusis, 1985<sup>386</sup>).

Overall and Klett (1972<sup>390</sup>) suggest that three main criteria are needed for a good factor analysis. These are:-

- (i) Parsimony
- (ii) Orthogonality
- (iii) Conceptual meaningfulness

A good factor solution should be parsimonious, since the reduction in the number of variables is of utmost importance. The number of variables one ends up with should be a lot less than the variables that one began with.

According to Overall and Klett (1972<sup>390</sup>), orthogonality requires that factors are independent of one another. Each factor would also need to be distinguishable from the other. Each factor would have to be conceptually meaningful, and capable of identification.

The adequacy of number of subjects is important for factor analysis. This has received a great deal of attention in the literature (Nunnaly, 1978<sup>387</sup>; Barret and Kline, 1981<sup>25</sup>; and Kline, 1987<sup>302</sup>). The number of subjects (people) need to be large so as to reduce the standard error of the correlations. Barret and Kline (1981<sup>25</sup>), and Kline (1987<sup>302</sup>) suggest that a subject number of 100 will suffice.

The ratio of number of subjects to number of variables is equally important. However, Kline (1987<sup>302</sup>) notes that "How great this ratio should be is a matter of dispute even amongst factor analysts of the highest calibre" p24. Kline (1987<sup>302</sup>) maintains that what is more important is that the number of subjects (people) should exceed the number of variables (job dimensions).

In the present study, the number of subjects i.e managers is 142, and the number of variables i.e job dimensions is 75. With an acceptable number of subjects, and ratio of number of subjects to variables, one can then proceed with factor analysis.

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In factor analysis, it is important that each variable has a high factor score coefficient, as this improves the value of each individual variable. Norusis (1985<sup>386</sup>) takes note of Kaiser (1974) who suggests a value of under 0.5 as being unacceptable. The factor score of each of the job dimensions in the present study is well in excess of 0.5. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is used as an index for comparing the magnitude of all observed correlation coefficients. The value of the overall KMO statistics in this sample is:

#### KMO = 0.79385

This value is above 0.5 and meets Kaiser's (1974) requirement.

Table 68 presents data on initial statistics for each factor. It is necessary at this juncture to explain what each column of Table 68 represents. The first and second columns provide information on the individual job dimensions. The last four columns describe the job dimensions. The job dimensions are all in standardised form, with a mean of zero, and a variance of 1. The total variance is therefore the sum of the variance of each individual variable which is 75. The factors as presented in Table 68 are arranged in descending order of variance. The column labelled Eigen value lists the total variance for each factor. Also, the column labelled 'Pct of Var' contains the percentage of total variance for each factor. An inspection of Table 68 shows that Factor 1 which has a variance of 20.75 accounts for 27.7% of the total variance of the 75 factors. Similarly, 71.3% of the total variance is attributable to factors 1 - 18 (inclusive).

The criterion for factor extraction i.e. determining the number of factors proposed for use in the model is Eigen values greater than one as suggested by Goddard and Kirby  $(1976^{219})$ , and Overall and Klett  $(1974^{390})$ . According to Goddard and Kirby  $(1976^{219})$ , a satisfactory amount of explained variance is:

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"Usually provided by all those Eigen - vectors with Eigen - values greater than 1.0" p24.

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## Table 68: Initial Statistics

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
COMMUIMP	1.00000	* 1	20,75477	27.7	27.7
MEETIMP	1.00000	* 2	3.93976	5.3	32.9
EMPWEIMP	1.00000	* 3	3.63202	4.8	37.8
LEADSIMP	1.00000	* 4	2.91301	3.9	41.7
MOTIVIMP	1.00000	* 5	2.51755	3.4	45.0
SUPEVIMP	1.00000	* 6	2.20630	2.9	48.0
TEAMBIMP	1.00000	* 7	1.99456	2.7	50.6
TENTWIMP	1.00000	* 8	1.87927	2.5	53.1
DECABIMP	1.00000	* 9	1.69921	2.3	55.4
DECISIMP	1.00000	* 10	1.66385	2.2	57.6
DELEGIMP	1.00000	* 11	1.61567	2.2	59.8
HELTSIMP	1.00000	* 12	1.49803	2.0	61.8
MANCHIMP	1.00000	* 13	1.38490	1.8	63.6
CONFLIMP	1.00000	* 14	1.29162	1.7	65.3
MATIMIMP	1.00000	* 15	1.19708	1.6	66.9
MANPCIMP	1.00000	* 16	1.15465	1.5	68.5
MATPLIMP	1.00000	* 17	1.08095	1.4	69.9
NEGMAIMP	1.00000	* 18	1.06309	1.4	71.3
NEGSUIMP	1.00000	* 19	.99522	1.3	72.6
NGSUPIMP	1.00000	* 20	.96950	1.3	73.9
PLTPLIMP	1.00000	* 21	.93348	1.2	75.2
PRDMCIMP	1.00000	* 22	.90551	1.2	76.4
PROGDIMP	1.00000	* 23	.84978	1.1	77.5
PRGMTIMP	1.00000	* 24	.81856	1.1	78.6
QULTYIMP	1.00000	* 25	.81251	1.1	79.7
SITOGIMP	1.00000	* 26	.78729	1.0	80.7
SECRUIMP	1.00000 '	* 27	.72813	1.0	81.7
JOBSTIMP	1.00000 *	* 28	.70927	.9	82.7
CREATIMP	1.00000	* 29	.67455	.9	83.6
PESTRIMP	1.00000 '	* 30	.64242	.9	84.4
BUDGTIMP	1.00000 *	* 31	.61841	.8	85.2
COPACIMP	1.00000 '	* 32	.60295	.8	86.0
COESTIMP	1.00000 '	* 33	.55731	.7	86.8
FINANIMP	1.00000 *	* 34	.55013	.7	87.5
ADVETIMP	1.00000 *	* 35	.52965	.7	88.2
MARESIMP	1.00000	* 36	.50526	.7	88.9
INSURIMP	1.00000 *	* 37	.49210	.7	89.6
CODPRIMP	1.00000 *	* 38	.45638	.6	90.2

Variable	Communality	Fa	ctor	Eigenvalue	Pct of Var	Cum Pct
FOCASIMP	1.00000	*	39	.44302	.6	90.8
PROJRIMP	1.00000	*	40	.42993	.6	91.3
COLAWIMP	1.00000	*	41	.41772	.6	91.9
TENDRIMP	1.00000	*	42	.39673	.5	92.4
LAWPYIMP	1.00000	*	43	.38115	.5	92.9
STRAPIMP	1.00000	*	44	.34553	.5	93.4
CODAFIMP	1.00000	*	45	.33374	.4	93.8
PROTRIMP	1.00000	*	46	.31193	.4	94.2
ETMAGIMP	1.00000	*	47	.30006	.4	94.6
ETMALIMP	1.00000	*	48	.28889	.4	95.0
ETSUPIMP	1.00000	*	49	.27948	.4	95.4
EMLEGIMP	1.00000	*	50	.26637	.4	95.8
JOBSPIMP	1.00000	*	51	.25006	.3	96.1
OGSTRIMP	1.00000	*	52	.22967	.3	96.4
OGCULIMP	1.00000	*	53	.22355	.3	96.7
OGCUMIMP	1.00000	*	54	.20766	.3	97.0
PLLAWIMP	1.00000	*	55	.20159	.3	97.2
DEMOTIMP	1:00000	*	56	.19320	.3	97.5
RESMGIMP	1.00000	*	57	.18034	.2	97.7
RESMLIMP	1.00000	*	58	.17823	.2	98.0
RESSUIMP	1.00000	*	59	.15650	.2	98.2
RESUPIMP	1.00000	*	60	.14967	.2	98.4
SETGOIMP	1.00000	*	61	.13694	.2	98.6
TEMAGIMP	1.00000	*	62	.13268	.2	98.7
TELABIMP	1.00000	*	63	.11099	.1	<b>98.9</b>
TESUBIMP	1.00000	*	64	.10949	.1	99.0
TEMSPIMP	1.00000	*	65	.10230	.1	99.2
COMPTIMP	1.00000	*	66	.09424	.1	99.3
CARDVIMP	1.00000	*	67	.09118	.1	99.4
CLITPIMP	1.00000	*	68	.07921	.1	99.5
NACULIMP	1.00000	*	69	.07445	.1	99.6
NEGGVIMP	1.00000	*	70	.06950	.1	<b>99.7</b>
NEGCLIMP	1.00000	*	71	.05850	.1	99.8
NEGTDIMP	1.00000	*	72	.05058	.1	99.9
PUBERIMP	1.00000	*	73	.03819	.1	<b>99.9</b>
COPETIMP	1.00000	*	74	.03630	.0	100.0
FORLGIMP	1.00000	*	75	.02568	.0	100.0

A 'scree test' is conducted and shown in Figure 19. A scree plots the Eigen values against the factors. The name 'scree', according to Cureton and D'Agostino (1983<sup>145</sup>) comes from the resemblance of such a plot to the rock slope of a mountain with a mass of rubble called a scree at the bottom. It will be seen from the scree plot that at factor 18, there is a break in the steady decreasing slope. An 18 factor model is therefore appropriate.





Having extracted and ascertained the appropriate factor model, the next step is to judge how well the 18 factor model describes the original 75 variables. Computation of the proportion of variance in the 18 factor model, referred to as the communality variable, is displayed in Table 69 titled Final Statistics.

## Table 69: Final Statistics:

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
COMMUIMP	.69117 *	1	20.75477	27.7	27.7
MEETIMP	.58466 *	2	3.93976	5.3	32.9
EMPWEIMP	.69235 *	3	3.63202	4.8	37.8
LEADSIMP	.67707 *	4	2.91301	3.9	41.7
MOTIVIMP	.73361 *	5	2.51755	3.4	45.0
SUPEVIMP	.73976 *	6	2.20630	2.9	48.0
TEAMBIMP	.66298 *	7	1.99456	2.7	50.6
TENTWIMP	.65491 *	8	1.87927	2.5	53.1
DECABIMP	.62321 *	9	1.69921	2.3	55.4
DECISIMP	.75180 *	10	1.66385	2.2	57.6
DELEGIMP	.62494 *	11	1.61567	2.2	59.8
HELTSIMP	.71391 *	12	1.49803	2.0	61.8
MANCHIMP	.72826 *	13	1.38490	1.8	63.6
CONFLIMP	.72003 *	14	1.29162	1.7	65.3
MATIMIMP	.74461 *	15	1.19708	1.6	66.9
MANPCIMP	.70494 *	16	1.15465	1.5	68.5
MATPLIMP	.78089 *	17	1.08095	1.4	<b>69.9</b>
NEGMAIMP	.77958 *	18	1.06309	1.4	71.3
NEGSUIMP	.85177 *				
NGSUPIMP	.82487 *				
PLTPLIMP	.67543 *				
PRDMCIMP	.73704 *				
PROGDIMP	.69932 *				
PRGMTIMP	.64781 *				
QULTYIMP	.67442 *				
SITOGIMP	.69850 *				
SECRUIMP	.73553 *				
JOBSTIMP	.55250 *				
CREATIMP	.72916 *				
PESTRIMP	.66994 *				
BUDGTIMP	.63968 *				
COPACIMP	.77465 *				
COESTIMP	.75328 *				
FINANIMP	.78356 *				
ADVETIMP	.78018 *				
MARESIMP	.83472 *				
INSURIMP	.71846 *				
CODPRIMP	.69172 *				
FOCASIMP	.61466 *				

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PROJRIMP	.49014 *	
COLAWIMP	.64620 *	
TENDRIMP	.68032 *	
LAWPYIMP	.73633 *	
STRAPIMP	.67508 *	
CODAFIMP	.71082 *	
PROTRIMP	.67150 *	
ETMAGIMP	.75166 *	
ETMALIMP	.75497 *	
ETSUPIMP	.75332 *	
EMLEGIMP	.70440 *	
JOBSPIMP	<b>.59</b> 828 *	
OGSTRIMP	.69628 *	
OGCULIMP	.67343 *	
OGCUMIMP	.75519 *	
PLLAWIMP	.68863 *	
DEMOTIMP	.71343 *	
RESMGIMP	.79498 *	
RESMLIMP	.81410 *	
RESSUIMP	.78284 *	
RESUPIMP	.74404 *	
SETGOIMP	.73035 *	
TEMAGIMP	.83227 *	
TELABIMP	.84142 *	
TESUBIMP	.76519 *	
TEMSPIMP	.84355 *	
COMPTIMP	.74984 *	
CARDVIMP	.70619 *	
CLITPIMP	.75149 *	
NACULIMP	.60230 *	
NEGGVIMP	.73479 *	
NEGCLIMP	.73593 *	
NEGTDIMP	.72865 *	
PUBERIMP	.66957 *	
COPETIMP	.70763 *	
FORLGIMP	.55529 *	

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Variable

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The range of communality values is from zero to one (0 - 1). A value of zero indicates that common factors explain none of the variance. A value of 1, indicates that all the variance is explained by the presence of the common factor. For example, in Table 69, the communality score for 'Maresimp' (Market Research) is 0.83472, suggesting that much of the variance is explained by a common factor. The job dimension 'Meetimp' (Conducting Meetings) and 'Puberimp' (Public Relations), have minimum communality with these factors.

The next stage is the rotation phase. The rotation phase simplifies the relationship between factor and variables in order to make them conceptually meaningful. Varimax rotation is employed in the transformation of initial matrix. The rotated factor matrix presented in Table 70 shows the eighteen factors and the job dimensions associated with each factor. The coefficient for each variable is substantially high, and significantly different from zero.

For example, Company law (Lawpyimp) is 0.74869, and is positively correlated with five other dimensions in Factor 1. The same principles apply to factors 2 - 18, each consisting of job dimensions that are positively correlated with one another.

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## FACTOR 1 FACTOR 2 FACTOR 3 FACTOR 4 FACTOR 5

LAWPYIMP	.74869					
PLLAWIMP	.72880	•.				
COLAWIMP	.67315					
EMLEGIMP	.65949					
CLITPIMP	.62220					
STRAPIMP	.52505					
OGSTRIMP						
CODPRIMP						
CODAFIMP						
OGCULIMP						
JOBSTIMP						
MATPLIMP			78564			
PRDMCIMP			58572			
MANPCIMP			53562			
PLTPLIMP			52355			
PRGMTIMP			51460			
SITOGIMP			50049			
QULTYIMP		4	52953			
PROGDIMP						
TENTWIMP	<b>'</b> .	:				
TEMSPIMP				.8520	5	
TEMAGIMP				.8307	9	
TELABIMP				.8124	3	
TESUBIMP				.7839	6	
DEMOTIMP						
NEGSUIMP						
NEGMAIMP						
NGSUPIMP						
COESTIMP						.54701
BUDGTIMP						.52061
COPACIMP						
RESMGIMP						.71366
RESSUIMP						.70487
RESUPIMP						.67546
RESMLIMP						.67149
COPETIMP		÷.				

## FACTOR 6 FACTOR 7 FACTOR 8 FACTOR 9 FACTOR 10

ETSUPIMP ETMAGIMP ETMALIMP PROTRIMP	.73639 .72505 .64304			
MOTIVIMP LEADSIMP SUPEVIMP FOCASIMP PESTRIMP		.74994 .63082 .57064		
MARESIMP ADVETIMP INSURIMP			.71809 .70162	
OGCUMIMP PROJRIMP JOBSPIMP				.64854
COMMUIMP CARDVIMP				
CONFLIMP MANCHIMP NEGTDIMP				.76132 .57584
COMPTIMP FORLGIMP NEGGVIMP NACULIMP	<i>.</i>	:		
CREATIMP FINANIMP				
DECABIMP SECRUIMP TEAMBIMP				

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## FACTOR 11 FACTOR 12 FACTOR 13 FACTOR 14 FACTOR 15

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PROJRIMP JOBSPIMP COMMUIMP					
CARDVIMP					
CONFLIMP MANCHIMP NEGTDIMP					
COMPTIMP FORLGIMP NEGGVIMP NACULIMP	.80526				
CREATIMP FINANIMP		:73451			
DECABIMP SECRUIMP			.67960		
TEAMBIMP					
TENDRIMP NEGCLIMP SETGOIMP				.60338 .57167 .51338	
MEETIMP PUBERIMP					.57915 .51153
DECISIMP DELEGIMP					
EMPWEIMP MATIMIMP	۰.	•			
HELTSIMP					

### FACTOR 16 FACTOR 17 FACTOR 18

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TEAMBIMP

TENDRIMP NEGCLIMP SETGOIMP

MEETIMP PUBERIMP

DECISIMP .73051 DELEGIMP

EMPWEIMP MATIMIMP .73312

HELTSIMP

.66058

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All the eighteen factors are listed below, together with the full title of each job dimension.

### Variable Labels

### Variable Full Title (Job Dimension)

Factor 1

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Lawpyimp	Company law
Pllawimp	Planning law
Colawimp	Construction law
Emlegimp	Employment legislation
Clitnimp	Client/consumer protection law
Strapimp	Company strategic planning
Factor 2	
Matplimp	Materials planning & control
Prdmcimp	Productivity control & maintenance
Manpcimp	Manpower planning & control
Pltplimp	Plant planning & control
Prgmtimp	Programme maintenance(update)
Sitogimp	Site organisation
Qultyimp	Quality control
Factor 3	6. E
140101 0	
Temspimp	Terminate/Dismissal: Supervisor
Temagimp	Terminate/Dismissal: Management
Telabimp	Terminate/Dismissal: Manual labour
Tesubimp	Terminate/Dismissal: Subcontractor
Factor 4	
Coastima	Costing and estimating
Dudation	Rudgetary control
Биадитр	Dudgetary control

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## Factor 5

Resmgimp	Recruit/Select: Management
Ressump	Recruit/Select: Subcontractor
Resupimp	Recruit/Select: Supervisor/Foreman
Resmimp	Recruit/Select: Manual labour
Factor 6	
Etsupimp	Employee training: Supervisor/Foreman
Etmagimp	Employee training: Management
Etmalimp	Employee training: Manual labour
Factor 7	
Motivimp	Motivation of others
Leadsimp	Leadership Supervision of others
Subevilith	Supervision of others
Factor 8	
Maresimp	Market research
Advetimp	Advertising and promotion
Factor 9	
Jobspimp	Job analysis and specification
Factor 10	
<b>a a</b>	
Conflimp	Managing conflict/crisis
Manchimp	
Factor 11	
Comptimp	Use of computer technology
Factor 12	
Creatimp	Creativity
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Factor 13

Decabimp

# Decanting building

Factor 14

TendrimpCompetitive tenderingNegclimpNegotiate clientSetgoimpSetting objectives and goals

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Factor 15

Meetimp Puberimp Conducting meetings Public relations

Factor 16

Decisimp

Decision making

Factor 17

Empweimp

Employee welfare

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Factor 18

Heltsimp Health and safety

Factors 1 to 18 are orthogonally distinct, and capable of identity. Factor 1 comprises skills/knowledge (job dimensions) that are essentially related to the legal aspects of refurbishment management, whereas factor 2 consists of operational management skill/knowledge. All the 18 factors are listed below and classified under 18 different management skills/knowledge groups.

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- Factor 1 Legal skills/knowledge for refurbishment management
- Factor 2 Operational management skills/knowledge
- Factor 3 Skills/knowledge associated with dismissal of labour force
- Factor 4 Financial management skills/knowledge
- Factor 5 Skills/knowledge associated with recruitment of labour force
- Factor 6 Skills/knowledge associated with employee training
- Factor 7 Interpersonal or management of people skills
- Factor 8 Skills/knowledge related to the market place
- Factor 9 Skill/knowledge associated with job analysis and specification
- Factor 10 Skills/knowledge associated with managing in a changing environment
- Factor 11 Skills/knowledge associated with the use of computer technology
- Factor 12 Skills/knowledge of creativity
- Factor 13 Skill/knowledge associated with decanting of building
- Factor 14 Skills/knowledge related with competition to win work
- Factor 15 Skill/knowledge of public relations and conducting meetings
- Factor 16 Skills/knowledge associated with decision making
- Factor 17 Skill/knowledge associated with employee welfare

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Factor 18 Health and safety

From a course designer's perspective, each of the eighteen groupings represents core topics that need to be taught collectively at each appropriate level of refurbishment management. The job dimensions that are absent from the factor groups also constitute refurbishment management practice, and the course designer would need to accommodate them in the overall education and training of refurbishment managers, as appropriate.

Through data reduction, this author has been able to establish statistically, correlations between job dimensions (skills/knowledge). In all, education and training needs for refurbishment have been grouped into eighteen factors. As will be seen in the next chapter, these factor groups are used in the development of a model for postgraduate and continuing education/training for refurbishment.

#### 7.10. Conclusions And Recommendations

This chapter examined the nature and extent of management education and training that exist within refurbishment organisations. Both the preferences of organisations and managers on education/training delivery methods, together with factors, that influence course selection and attendance were also considered.

Education and training needs of both managers and organisations were established. Also in this chapter, an attempt was made to identify which set(s) of job dimensions are statistically related, i.e. job dimensions that are distinct and required together for course design purposes. The conclusions that follow from this study are:

(i). There is little, if any, management courses, in-house or external, directly geared towards refurbishment, testifying to under course provision. Yet evidence suggests that for both organisations and refurbishment managers, there is an urgent need for appropriate management education/training geared towards refurbishment. Educational establishments must therefore urgently respond to this need.

(ii). There is a general consensus amongst refurbishment organisations, that evaluation of management education/training courses is an area which they find the greatest difficulty. There is an urgent need for formal and generally accepted methods for evaluating education/ training programmes within the construction industry. Any evaluation approach would need to relate courses attended to on-thejob performance.

(iii). Over 90% of all participating organisations in the present study prefer in-house courses to external courses for reasons of cheapness and direct relevance in meeting the needs of the organisation. Similarly, refurbishment managers prefer inhouse courses to external courses.

(iv). As regards in-house training methods, on-the-job (with guidance) is most preferred by managers. This reflects the importance of hands-on experience backed up with coaching, job rotation, and mentoring. (v). There is general agreement among training officers that management courses for refurbishment should be qualification oriented, and need to be designed on a modular format. Modular courses would provide flexibility and encourage managers to be better qualified.

(vi). Both managers and organisations prefer short courses of not more than 2 - 3 days duration.

(vii). Commitment to education and training from top management was cited as the highest promoting factor in the provision of management education and training. In-house courses geared towards the needs of organisations, and willingness of managers to learn are also promoting factors. Since senior management normally control budgets, a demonstration of intent would involve making adequate financial provision for education/training.

(viii). Cost and time for sending managers on courses were cited by organisations as the most inhibiting factors in the provisions of management education and training. The implication of this is that even if educators respond to contractors' wishes by designing courses relevant to refurbishment managers, costs and timing of such courses would be the contractor's major concerns. However, unless top management are prepared to invest in the education and training of their employees, there will be a shortage of high calibre refurbishment managers.

(ix). Managers contend that skills/knowledge for refurbishment are best developed through a mixture of on-the-job training (with guidance), in-house courses and external courses. Educators should aim to provide the 'right' mix of education/training methods if refurbishment managers are to acquire and develop the skills/knowledge which they need for their job. It is recommended that further research be conducted to establish which of the training methods is most appropriate for the acquisition of a given skill/knowledge or sets of skills/knowledge.

(x). There is general consensus among managers and training officers that courses must be convenient in timing and location. The preference is for courses to be available locally, and nearer company premises in order to avoid taking managers away from work more than absolutely necessary.

(xi). As regards the time of year to attend courses, managers prefer the winter months, followed by the autumn months. For educators, they can plan and concentrate their efforts seasonally, rather than spreading management courses throughout the year.

(xii). For refurbishment managers, course content and methods of training delivery are the two most influential factors for selecting courses. Courses would have to be designed to meet the needs of managers. This will help in encouraging more managers to attend courses.

(xiii). For refurbishment managers, willingness to learn more about their jobs, promotion & career development, and obtaining qualifications are, the three most influential factors for course attendance. Courses would have to be qualification oriented. (xiv). Management education/training need for managers and organisations have been established. The ten job dimensions for which managers most need education/training are:

- \* Forecasting & planning
- \* Analysis of project risk/uncertainty
- \* Use of computer technology
- \* Employee training: Supervisor/foreman
- \* Health & safety
- \* Quality control & assurance
- \* Employee training: Management
- \* Budgetary control
- \* Competitive tendering
- \* Negotiate client

The ten most cited job dimension currently needed by refurbishment organisations

are:

- \* Health & safety
- \* Programming of the works
- \* Public relations/Tenant liaison

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- \* Managing time
- \* Communication
- \* Security
- \* Contract law
- \* Pricing of the works
- \* Quality management
- \* Leadership

(xv). For refurbishment managers, the need for education/training in job dimensions

associated with financial management tends to increase with seniority. Operational

management skills/knowledge tend to increase at lower management levels.

Courses designed to accommodate financial management skills/knowledge should attract and benefit senior managers. Similarly, courses geared towards operational management skills/knowledge should benefit junior managers, and to a lesser extent, middle managers.

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(xvi). Education/training needs for forecasting & planning, analysis of project risks/uncertainty, health & safety, and interpersonal skills (management of people), are equally relevant at all levels of management. If courses are designed in such a way that managers at each level of management opt for modular training, responsibility of job holders at different management levels would need to be accommodated.

(xvii). Through data reduction, correlations between job dimensions have been statistically established. Education/training needs for managers can be grouped under 18 factors or groups of job dimensions. The job dimensions which are absent from these groupings would also need to be accommodated in course structures, depending on depth and coverage, since they constitute refurbishment management practice.

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# CHAPTER\_EIGHT

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# DESIGNING MANAGEMENT EDUCATION AND TRAINING PROGRAMMES FOR REFURBISHMENT MANAGERS

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#### 8.0. DESIGNING MANAGEMENT EDUCATION AND TRAINING PROGRAMMES FOR REFURBISHMENT MANAGERS

#### 8.1. Introduction

The criticisms levelled against management education/training programmes are well known. These have most often been aimed at Business Schools and the content and types of their management programmes (Livingston, 1971<sup>332</sup>; Pfeffer, 1981<sup>399</sup>; Mintzberg, 1975<sup>355</sup>, 1987<sup>357</sup>; and Samuelson, 1990<sup>435</sup>).

Livingston's (1971<sup>332</sup>) indictment of the Business Schools is well publicised. Livingston noted that "Many highly intelligent and ambitious men are not learning from either formal education or their own experience what they most want to know to build successful careers in management. This failure is due, in part, to the fact that many crucial management tasks are not taught in management education programs" p 88.

Pfeffer (1981<sup>399</sup>) argued that management education in management schools does not predict subsequent career success of managers because of the type of training imparted. Mintzberg's (1987<sup>357</sup>) view is that management education should re-orient its priorities, and should emphasize more skills training, with more effort devoted to experiential education. There are other writers who are of the view that education and training programmes developed for managers do not take into account the way adults learn. Knowles, 1972a<sup>303</sup>, 1972b<sup>304</sup>, 1984<sup>305</sup>; and Daloisio and Firestone, 1983<sup>148</sup>, are of the view that the ways adults learn differ from those of children/youth, and need to be accommodated in management education/training programmes.

There are, also, other writers who contend that management education/training does not take account of managers' experience and their environment (Davies and Easterby-Smith, 1984<sup>149</sup>; Braddick, 1984<sup>58</sup>, 1987<sup>59</sup>; and Coulson-Thomas, 1990<sup>134</sup>, 1992<sup>135</sup>). Davies and Easterby-Smith suggest that the best training ground for managers has always been the workplace, and that when managers are asked to recall events which particularly contributed to their development, usually they recount situations which have occurred at work.

Braddick (1987<sup>59</sup>) noted that "Most learning of managers occur in the process of doing a job" p. 11.

It is the purpose of this chapter to set out a framework for educating and training refurbishment managers. Information obtained from the current study on managers' education/training needs, together with their preferences on education/training methods, form the basis of the framework. Learning theories on how managers learn, which are gleaned from a thorough review of literature, will also be incorporated.

A model for post-graduate and continuing education for refurbishment will also be devised. The model will be structured on a modular format, incorporating eighteen factors, as derived in the last chapter through the factor analysis technique. Each of the eighteen factors represent a module on which the model is based. The model will also give due consideration to the current trends in management education and training, especially in the wake of the studies conducted by Constable and McCormick (1987<sup>123</sup>), Handy et al. (1987<sup>244</sup>), CNAA (1988<sup>137</sup>) and NCVQ (1991<sup>374</sup>) on issues concerning the National Vocational Qualification (NVQ), Credit Accumulation and Transfer (CAT), and Accreditation for Prior Learning (APL).

The next section of this chapter will consider the concept of learning and the implications of learning theories on the development of management education and training programmes.

#### 8.2. The Concept Of Learning And Learning Theories

Learning, according to Kolb (1984<sup>310</sup>), is the process whereby knowledge is created through the transformation of experience. Similarly, Bass and Vaughan (1966<sup>26</sup>) see learning as a relatively permanent change in behaviour that occurs as a result of practice and experience. According to Wilson (1980<sup>505</sup>), learning is a cognitive activity which involves the use of the intellect for the development and structuring of understanding about oneself and the world in which one lives. Honey and Mumford (1982<sup>266</sup>) inform us that a manager has learned something when:-

(i) He knows something he did not know earlier, and can show it.

(ii) He is able to do something he was not able to do before.

It would appear from the above definitions that practice and experience are called for if learning is to be successful, also, something new comes out of learning which is beneficial to managers and improves their knowledge and skills repertoire. Learning is also a continuous process involving organising and reorganising known facts on the basis of new revelations.

The literature on learning theories has received a great deal of contributions from various writers interested in the way people learn and develop. A thorough review of literature, however, points to seven main "schools of thought" which account for much of the variety of approach given to management education and training. It should be stressed that these schools of thought are not independent of each other. Burgoyne (1975<sup>78</sup>) informs us that there are substantial areas of overlap. He pointed out that, "Programmes cannot necessarily be neatly attributed exclusively to one or other type though they often belong predominantly to one", p. 1.

Burgoyne (1975<sup>78</sup>) went further to stress that the "learning processes involved in management development appear to be complex and varied, and it is likely that most of the schools of thought illuminate a significant facet of this complex reality", p. 1.

The seven main schools of thought on learning theory are as follows:-

- (i). The Conditioning school.
- (ii). The Trait Modification school.
- (iii). The Information Transfer school.
- (iv). The Cognitive school.
- (v). The Experiential school.
- (vi). The Social Influence school.
- (vii). The Programmatic school.

These schools of thought will be considered individually, highlighting their implications to education and training programmes for managers.

## (i). The Conditioning School

The conditioning school of learning has been strongly associated, for complex reasons, with the highly empirical approach of experimental psychology. Within this school of thought there are sub-schools and varieties of opinion and approach. However, the two main divisions are the 'operant' and the 'instrumental' conditioning schools.

The operant conditioning school is associated with Pavlov (1927<sup>391</sup>) and his dogs. In this process, a response (e.g. salivating) already associated with a stimulus (e.g. sight of food) becomes attached to a new stimulus (e.g. a bell) by virtue of the two stimuli being presented together over a period of time. The theories associated with operant conditioning are often referred to as "contiguity theories" because of the pairing of stimuli. The instrumentation conditioning school of thought is credited to Thorndike  $(1913^{480})$  and develops from the premise that responses that are in some ways "rewarded" by a "satisfying" event are more likely to be repeated in the future under similar stimulus conditions, and vice versa for "punishing events". Other interpretations of learning have been developed from this ideology, such as the complex formal theory of Hull (1943<sup>271</sup>) to the empirical and pragmatic "behaviourial engineering" of Skinner (1957<sup>452</sup>).

The underlying premise on which the conditioning theory is based is embodied on the general common sense "carrot and stick" beliefs about teaching and learning. This is exemplified by Skinner's (1958<sup>453</sup>) "programmed learning" where he attempted to evoke the correct responses from learners and to 'reward' or 'punish' them based on whether they are right or wrong.

Although Burgoyne (1975<sup>78</sup>) acknowledged that certain social skills training embody this way of thinking, he maintained that the application of this form of learning is more relevant to operation training than to management training. Burgoyne (1975<sup>78</sup>) also argued that to incorporate this learning approach into management training means that the management trainer "... has to know in considerable detail exactly what the learner has to learn in behaviourial terms", p. 2.

#### (ii). The Trait Modification School

The trait modification school assumes that a complete psychology of learning would be a description of all the variables or dimensions on which individuals vary,

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together with an understanding of how they vary and also how their qualities and characteristics change. The trait modification theory appears to dwell more on the psychology of an individual than on his learning process. This is a point which Burgoyne (1975<sup>78</sup>) observed and notes, "Strictly speaking the trait school of thought is a general approach to the psychology of the individual rather than a theory of the learning process itself", p. 2.

Like the conditioning school, there are variations within the Trait Modification school of thought. The works of Cattell  $(1950^{95})$  and Allport  $(1937^4)$  have received the most attention in connection with the Trait Modification School. Cattell  $(1950^{95})$  is of the view that there are main traits which characterise all people, and has attempted through psychometrics to construct tests and measures to place people in these dimensions. Allport  $(1937^4)$ , on the other hand, believes that people may be characterised by traits which are individual to them.

In terms of management education and training programmes, the concept of the Trait Modification school takes the form of conceiving that an individual has a set of knowledge, skills and attitudes, and needing another. The skills, knowledge and attitudes which an individual already possesses can be studied by the use of psychometric measures. What the individual needs can be discovered by appraising the job he/she performs. In effect the difference between what the individual has, and what he needs can be taken to be "the definition of the relevant learning goals for that individual", (Burgoyne,  $1975^{78}$ ) p.2.

In terms of management education and training, Burgoyne (1975<sup>78</sup>) notes that the basic assumption of the Trait Modification school is that "... the learner is a passive entity shaped entirely by the management development system... The trainer or educator is seen as the manager of this process who influences the student 100% while himself being influenced 0% in return", p. 3.

#### (iii). Information Theory School

The concept of the Information Theory school is that an individual is a system which takes in, stores, processes and outputs information. There are also different variants to the Information Theory schools with their origins being founded on the interpretation of information (Broadbent, 1966<sup>68</sup>; Burgoyne, 1975<sup>78</sup>; Burgoyne and Stuart, 1978<sup>82</sup>). At one extreme, 'information' is given the common sense meaning, such as those contained in telephone messages, books and descriptions of procedures in performing tasks. Burgoyne (1975<sup>78</sup>) and Burgoyne and Stuart (1978<sup>82</sup>) admit that much of the work related to education in schools and higher education falls into this category. At the other extreme are theoretical propositions, which stem from systems theory and cybernetics. "Information", in this regard, is seen as a flow of energy that has an effect larger than the direct impact of that energy itself.

The main concern here is on how information flows and is processed, so that the system maintains some kind of equilibrium with its environment. In the context of learning, the systems and cybernetics approach is restricted to the total process by which a system develops its capacity to survive as a result of its interactions with its environment. This, according to Burgoyne  $(1975^{78})$ , is a broader approach than the traditional psychological one of enduring change in actual or potential behaviours as a result of experience. Ackoff and Emery  $(1972^1)$  are also of the view that the system theory approach to learning is a radical departure from the traditional psychological approach.

In terms of the impact of the Information Theory school on management education and training programmes, Burgoyne (1975<sup>78</sup>) notes that, "Significant educational issues in this approach are such questions as how to give the information through the right media so that they can be absorbed through the right senses (hearing, vision), what is the right rate to give information, what sequence is appropriate in putting over a particular body of knowledge", p.4. Burgoyne (1975<sup>78</sup>) concludes that "... many management development programmes, especially those based on institutions of higher education, and leading to professional or academic qualifications, are still strongly influenced by this subject content transfer approach", p.4.

#### (iv). The Cognitive School

The Cognitive school of thought is based on the concept that an individual develops, evolves his/her own understanding or "personal map" of the world in the light of his/her experience in it. This map represents his/her conscious or unconscious knowledge and understanding, and steers his/her actions. The cognitive school recognises an individual as a 'knowing' being rather than as a simple or complex mechanism. The cognitive school, like the previously mentioned schools of thought, has within it several sub-schools or theories such as Gestalt theories (Koffa, 1935<sup>307</sup>), Lewin's (1935<sup>328</sup>) field theory and Kelly's (1955<sup>294</sup>) theory of personal construct.

All the theories on which the Cognitive school is based emphasise discovery and insight as the learning process. Kelly (1955<sup>294</sup>) considers an individual as "the scientist of his own experience", developing interpretations of the world that help him or her deal with it. The Cognitive school also recognises the thinking and reflective processes which lead to insight and the learning of new solutions by interpreting experience in new ways.

Gestalt theory differs from behaviourist theory in preferring a holistic to an atomic approach. In the behaviourist tradition, the tendency is to break down behaviours and traits into their sub-units, so as to understand them better. The Gestalt view is that the wholes are greater than their parts, and that learning and insight involve grasping bigger wholes.

As regards management education and training programmes, the cognitive theory approach is to assist managers to improve their skills/knowledge repertoire, by thinking about them and testing them out. Burgoyne (1975<sup>78</sup>) observed that the cognitive theory approach to learning is," one that tends to be taken in many of the management development activities which organisations run for their own managers, especially when the staff involved come from careers in management rather than as subject experts", p. 5.

#### (v). The Experiential School

The experiential school rejects that it is useful to attempt to explain the unfamiliar complex phenomenon of people and how they learn through a simplified model. This is seen as leading to a failure to perceive and respond to the 'whole' person, since simplified models by definition must leave something out. The experiential view recognises that the person has freedom of choice and action, and the capacity to initiate rather than simply respond to circumstances. In experiential learning, people have intrinsic capabilities of developing and learning. One way of interpreting the experiential view is by saying that the teacher or theorists should not distance themselves from their students. Applications of experiential learning tends to emphasise the "affective" side of people, by insisting on working on problems that are subjectively real and important to the people concerned; by focusing on the emotional and intellectual contents of people's experiences.

As Roskin (1976<sup>429</sup>) notes, "The philosophy behind experiential learning is to place the student in an environment where he can assimilate information from being personally involved", p. 184.

Chickering's (1976<sup>113</sup>) view of experiential learning is that it occurs when changes in judgements, feelings, knowledge or skills result for a particular person from living through an event or events. Lowe (1993<sup>333</sup>) reviewed the literature on experiential learning and noted that, "... educationalists consider experiential learning to be the most significant aspect in personal development", p. 178.

It is the work of Dewey (1938<sup>160</sup>) that best articulates the guiding principles for programmes of experiential learning in higher education (Kolb, 1984<sup>310</sup>). In one of his publications titled "Experience and Education", Dewey (1938<sup>160</sup>) attempted to bring some understanding to the growing conflict between "traditional" education and his "progressive" approach. He also outlined the directions of change implied in his approach. Dewey's (1938<sup>160</sup>) view is that, "... there is an intimate and necessary relation between the processes of actual experience and education", p.20.

The importance of experience in education and training is well known and generally accepted. According to Kemmis et al.  $(1977^{296})$ , learning cannot be considered independently of experience, while Boydell  $(1976^{57})$  equates professional competence to the ability to learn from experience.

Several models of experiential learning have been produced, Table 71 presents the stages attached to the models. In the main, most experiential theories adopt a cyclical model with four distinct and mutually important stages.

# Table 71: Stages Of The Experiential Learning Cycle

Source	Doing	Reflection	Thinking	<u>Planning</u>
Dewey (1938)	Impulse	Observation	Knowledge	Judgement
Lewin (1951)	Concrete Experience	Observation Reflection	Abstract Conceptualisation	Testing Implications in New situations
Kolb (1971)	Concrete Experience	Reflective Observation	Abstract Conceptualisation	Active Experimentation
Boydell (1976)	Problem Situations	Perceptions From Situations	Sort out And Make Sense	Action Plans
Juch (1981)	Doing	Sensing	Thinking	Addressing
Gibbs (1988)	Experience	Reflection	Conceptualisation	Experimentation
Honney and Mumford (1989)	Having an Experience	Review Experience	Conclude From Experience	Plan Next Experience
Dennison and Kirk (1990)	Do	Review	Learn	Apply
Handy (1990)	Test	Reflection	Question	Theory

According to Boud et al. (1985<sup>52</sup>), one of the key processes to learning from experience is "reflection", a term associated with the intellectual and effective activities in which individuals engage to explore their experiences in order to lead to new understanding and appreciation. The importance of the reflective stage of the Experiential Learning Cycle is also supported by Maclean (1987<sup>338</sup>), Gibbs (1988<sup>216</sup>), Pedler et al. (1986<sup>397</sup>), Boxer (1985<sup>55</sup>) and Handy (1990<sup>243</sup>).

Maclean (1987<sup>338</sup>) is of the view that the reflective stage acts as a 'naming' or 'labelling' activity. Gibbs (1988<sup>216</sup>) notes that it is not sufficient simply to have an experience in order to learn. Without reflecting upon this experience, it may quickly be forgotten or its learning potential lost. Reflection should lead to a change (Pedler et al., 1986<sup>397</sup>) or reframing (Boxer, 1985<sup>55</sup>; Handy, 1990<sup>243</sup>).

While the four stages of the experiential cycle are necessary for progression, the review of literature would suggest that it is the area of reflection which, for busy practitioners, becomes neglected. This is, in the main, due to the pressure of work tasks, resulting in little or no reflective thought, and therefore no experimentation. This view is supported by Garrat (1987<sup>213</sup>) whose experience with directors has shown that they shy away from the reflection phase, and that their most common model of learning is through action and observation. Casey (1983<sup>92</sup>) is also of the view that one condition of learning which is not necessarily present in a manager's working life is the regular opportunity to pause and reflect before going further with his/her tasks.

However, Boud and Walker (1990<sup>53</sup>) believe that a manager's greater awareness as to what is happening in, and a more deliberate interaction with, the learning milieu will provide greater opportunities for a more fruitful learning experience.

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According to Pedler et al. (1986<sup>397</sup>), if the learner is open and willing to learn, examination of his/her experiences will provide clues as to how existing behaviour can be modified.

There are other theories based on the experiential school of thought. The one that has received most recognition is 'Action learning' (Revans, 1980<sup>420</sup>, 1982<sup>421</sup>: Korey and Bogorya, 1985<sup>311</sup>). Korey and Bogorya (1985<sup>311</sup>) noted that, "The action learning concept is a direct extension of the experiential concept in that it too relies on the learner's interjection of past experience", p. 4.

Action learning had its origins in the 1960's. The early work was mainly pioneered by Professor R.W. Revans and was concerned with learning from tackling real problems rather than learning from classroom situations. Revans (1983<sup>422</sup>) is of the view that the learning process cannot be solely the acquisition of new programmed knowledge, but that it must be combined with insightful questioning and exploration of the unfamiliar, based on the managerial experience in dealing with change.

According to Revans (1983<sup>422</sup>), learning (L) is the sum of acquired programmed knowledge (P) and questioning insight (Q). Hence,

$$\mathbf{L} = \mathbf{P} + \mathbf{Q}.$$

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Programmed knowledge represents the traditional instruction material learned in traditional academic institutions, and questioning insight is the central thrust of the action learning concept. Consequently, the action learning concept differs from all other learning concepts, in that it goes beyond the quest for knowledge and understanding. It strives to develop and refine an individual's capabilities for enquiry and investigation.

The fundamental belief which underlies the action learning concept is that people find it relatively easy to learn from their peers in a context of active problem solving and solution implementation (Willmer, 1983<sup>503</sup>).

Revans (1982<sup>421</sup>) suggested that action learning programmes for managers should be constructed so that they conformed to the following conditions:

- (i) Participants should be volunteers who are strongly motivated to learn.
- (ii) Participants should be asked to study 'real' challenging problems.
- (iii) Participants should form groups so that the members not only work with each other, support, teach and learn from one another, but gain insights into themselves as well as their problems.
- (iv) The work should lead to action so that the suggested solutions should be given a trial.
- (v) Participants should be encouraged to discuss with other members of their group the impact that their learning has had on their personal value system.

The experiential school of thought is, however, not without its critics. Heron  $(1985^{254})$  suggests that people acquire a vested interest in failing to notice the inadequacies in the face of experience, which he terms "falsification". Sutton's  $(1983^{471})$  belief is that too often experience is the barrier to learning. Boydell  $(1976^{57})$  admits that a great deal of weight is often given to experience, but in practice experience becomes synonymous with 'age' or 'length of service'.

Juch (1981<sup>288</sup>) is of the opinion that few people, without help, are able to realise how and when they learn, and which clues trigger off their spontaneous and intuitive thoughts and behaviour. Green and Taber (1978<sup>229</sup>) reviewed the experiential movement and argued that despite its promise, it has "serious limitations". Their argument is that the course content based on the experiential approach appears game-like, and the casual atmosphere discourages the critical reflections required for effective learning. Also, students who have insufficient observation skills will not benefit from such courses. Green and Taber (1978<sup>229</sup>) suggest that courses designed using the experiential theory approach, need a more integrated and programmed approach to each topic area, in which exercises are integrated with text materials.

#### (vi). The Social Influence School

The social influence school explains human behaviour in terms of continuous reciprocal interaction among cognitive, behaviourial and environmental determinants (Bandura, 1977<sup>19</sup>; Davis and Luthans, 1980<sup>150</sup>). The concept of social learning theory revolves around the idea that what a person is, is socially defined. Also, since a person has the capacity to know or think, then the person has the image of himself/herself which he/she seeks to implement. The self image is defined fundamentally in terms of the person's relationships to other people. Latham and Saari (1979<sup>322</sup>) note, "... social learning theory specifically acknowledges that human thought, affect, and behaviour are influenced by observation as well as by direct experience", p. 240.

Some of the principles of learning associated with the social influence theory include identification and modelling, in which one person chooses another whom he/she wants to be like, copies his/her behaviour and identifies with his/her feelings and values. Also, getting people to 'act out' a different role, after which people tend to shift their attitudes and ideas more to those of that role. Behaviour modelling training is based on the principle derived from social learning theory (Bandura, 1977<sup>19</sup>, 1986<sup>20</sup>). It states that trainees can learn vicariously from observing the behaviour of another person (model). There are four main processes in behaviour modelling training (Bandura, 1977<sup>19</sup>; Decker and Nathan, 1985<sup>151</sup>; Robertson et al., 1991<sup>424</sup>). These four stages are attention, retention, motoric reproduction and motivation. These four processes are well summarised by Decker and Nathan (1985<sup>151</sup>), when they note that, "In order for people to learn from behaviour modelling training, they must observe what the model is doing, remember what the model did, do what the model has done, and later when the appropriate time comes, want to use what they have learned", p. 4.

Several studies have been conducted on the effectiveness of behaviour modelling in training supervisors and managers. Studies by Moses and Ritchie (1976<sup>363</sup>), Burnaska (1976<sup>83</sup>), Smith (1976<sup>455</sup>), Latham and Saari (1979<sup>322</sup>), and Porras and Anderson (1981<sup>403</sup>) have shown that behaviour modelling training improves work behaviour and performance.

#### (vii). The Pragmatic School

The concept underlying the pragmatic school of thought is that there is nothing further to know about learning than is already known in common sense, and that teaching methods should be chosen on a purely trial and error basis, according to what appears to 'work'. Burgoyne (1975<sup>78</sup>) is of the view that the pragmatic school is 'atheoretical' and an 'odd one out' amongst the schools of thought on learning, since it does not have some kind of coherent theoretical base, which others have.

According to Burgoyne and Stuart (1978<sup>82</sup>), some applications of the case study method and the project method, embody the pragmatic school of thought, especially when the underlying rationale is simply that "most people seem to learn by experience of the problems concerned", p.104.

In terms of formal course approaches to management development, Burgoyne  $(1975^{78})$  is of the view that the case method rates as one of the most used. It would seem likely that there is a natural affinity between the pragmatic philosophy of the case method and the natural orientation of managers to be concerned with specifics, rather than generalities, and with having solutions that work, rather than understanding how they work.

This section of the chapter has considered the main schools of thought on learning, and their implications on management education and training programmes. The framework for management education/training for refurbishment devised in this study, will be based on some combinations of the learning theories, since no single theory of learning appears to be all embracing on its own. As Pedler (1974) informs us on learning in management education/training, "The problem is that learning theory is inadequate for the purpose and no single model of learning process seems adequate on its own. We must borrow from a number of theories", p. 182.

Also the work of Whetten and Cameron (1991<sup>495</sup>) on "Developing of Management Skills" used the combination of learning theories and proved successful.

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Before going on to describe the framework devised in the current study for educating/training refurbishment managers, it is important to consider how adults learn, since managers involved in refurbishment are adults themselves. Consideration will also be given to the attempts made by writers on education and training, to assist managers in learning, by adopting appropriate learning styles.

#### 8.3. Adult Learning.

A literature review on adult learning suggests that the ways adults learn are different from children/youths, and this has implications in devising education/training programmes for managers, who are adults. As Knowles (1972a<sup>303</sup>), in one of his articles titled 'The manager as educator', pointed out, "... but the fact is that adults differ in certain crucial ways from youth as learners. This is an insight that has emerged from the growing body of research in adult education. It is an insight that is rapidly producing a whole new technology that is being given the name andragogy, which is the art of teaching grown ups", p.98.

In another of his publications titled 'Ways of learning: reactive versus proactive', Knowles (1972b<sup>304</sup>) suggest that in adult life, learning will take place for the most part only if the learner takes the initiative; teachers are not as 'omnipresent'.

Daloisio and Firestone (1983<sup>148</sup>) and Knowles (1984<sup>305</sup>) are of the view that many adult educational programmes are based on the traditional pedagogy approach, where the initiative in the transaction is almost wholly in the teacher; the role of the student is to react. Although agreeing that some learning results from being taught this way, Knowles (1972b<sup>304</sup>) contends that the traditional pedagogy approach to education keeps the learner in a dependant role, and limits the learning to the boundaries set by the teacher.

According to Knowles (1972b<sup>304</sup>), "We have an obligation to help our students (adults) learn other proactive ways of learning", p. 285.

A comparison of the Characteristics of child and adult development has been summarised by Fryer (1977<sup>206</sup>), drawing from the works of Kelman (1961<sup>295</sup>) and Argyris (1971<sup>11</sup>). This comparison is shown below in Table 72.

# Table 72: Dimensions Of Human Development.

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Source: Fryer, B.G. (1977), The Development of Managers in the Construction Industry, MSc. Thesis, University of Salford, U.K., pp. 89.

The differences in the ways adults learn when compared to children/youths will now be discussed under four main headings. These are:-

#### (i). An adult Is Self Directing

There is a need for adults to be treated as self-respectable, self-respecting and selfdirecting organisms. The implication of this is that when an adult finds himself in a situation in which he/she feels is being treated like a child (i.e. being talked down to, being told what to do, being disrespected), he/she feels the situation to be in conflict with his/her self-concept and seeks to flee from it or resist it. The child regards him/herself as dependant, whilst the adult is independent.

According to the principle of andragogy, the learning which highly motivates an adult, are the ones he/she diagnoses as needing him/herself. The implication of this is that it is important for the adult to have an active part in planning and carrying out his/her own learning experience.

#### (ii). An Adult Has A Wealth Of Experience

By virtue of having lived longer, any adult has accumulated more experience than he/she had as a youth. While a youth tends to regard experience as something that has happened to him/her, for the adult experience is him/her. The implication of this is that any group of adults will constitute a richer source for one another's learning than is true with youth. As Knowles (1972a<sup>303</sup>) observed, "... so that in the technology of adult education, we tend to make less use of the transmittal techniques (lecture, assigned readings, audio-visual presentations) and greater use of experiential techniques (group discussions), case methods, critical incident processes, simulation exercises and skill practice", p. 101.

As earlier mentioned in this chapter, a negative consequence of the greater experience of the adult, is that he/she may become more set in his/her ways and may be less open to new ways of doing things. This would mean that some 'unfreezing' experience may be in order. Schein (1978<sup>440</sup>) is in support of this approach. This could be in the form of demonstration by experts, inter-departmental meetings, and by rotating assignments in order to observe new developments in other locations.

# (iii). Differences In Readiness To Learn

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Adults differ from youths in their readiness to learn. The youth becomes ready to learn particular things in a natural sequence as dictated by his/her 'development tasks'. For example, an infant learns to crawl, then walk, and then to run. For an adult, he/she becomes ready to learn those things he/she needs to know and be able to do in order to cope effectively with his/her real life situations. The implications of this is on the importance of timing learning experiences to fit in with a manager's 'development tasks'. The teacher/trainer would need to be sensitive to the sequence of developmental tasks of the managers and schedule educational inputs accordingly. Unlike children/youths, who consider education as the accumulation of a reservoir of skills/knowledge that is hoped will be useful later, adults consider learning as a way to become more effective in dealing with 'real-life' problems as they affect them at present. In effect, for children/youths their time perspective is one of 'postponed application', while for adults it is one of 'immediate application'. Drucker (1981<sup>168</sup>), in his publication on 'The practice of management', advocates learning for 'today' as a means of effective learning for managers.

Having discussed how adults (e.g. managers) learn, it is now appropriate at this juncture, to consider the attempts made by writers and practitioners interested in management education and training, in assisting managers to learn. An understanding of learning styles would also be useful in developing a framework for educating/training refurbishment managers.

### 8.4. Learning Styles Of Managers

Several attempts have been made to help managers learn about the job they do (Kolb, 1976<sup>308</sup>, 1981<sup>309</sup>, 1984<sup>310</sup>; Honey and Mumford, 1982<sup>266</sup>; Mumford, 1986<sup>364</sup>, 1987<sup>365</sup>; Burgoyne and Hodgson, 1983<sup>81</sup>; MacArthur, 1991<sup>321</sup>). However, it is the works of Kolb (1976<sup>293</sup>, 1984<sup>295</sup>) and Honey and Mumford (1982<sup>266</sup>) that have received the most recognition in the field of management education.

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Kolb (1976<sup>308</sup>) uses two bipolar dimensions of cognitive growth: the active - reflective dimension and the abstract - concrete dimension, to define a four stage cycle of learning (see Figure 20).



Figure 20: Kolb's (1976) Learning Cycle

The cycle commences with the acquisition of concrete experience (CE), which then gives way to reflective observation (RO) based on that experience. On this basis, theory building, or abstract conceptualisation (AC) occurs. The theory is then put to test through active experimentation (AE). Since the experimentation fields new concrete experiences, the cycle thus continues. From his cycle of learning, Kolb (1976<sup>308</sup>) devised a Learning Style Inventory (LSI) (see Figure 21) to help managers choose the style of learning which they prefer.



Kolb measures learning styles by means of a self-description questionnaire which comprises nine sets of four words, and requires respondents to rank the words within each set according to how well they characterise their learning orientation. This produces scores relating to each of the four learning abilities CE, RO, AC and AE respectively. Using these, two other scores are computed. AE minus RO indicates the manager's position on the active-reflective dimension; and AC minus CE indicating his/her position on the abstract-concrete dimension. Through this approach, it becomes possible to identify a manager's preferred learning style. For example, a high score on active-experimentation (AE) indicates active "doing" orientation to learning. High AE managers learn best when they can engage on such activities as group discussions. They dislike passive learning situations such as lectures. However, the utility of LSI has been called into question (Honey and Mumford, 1982<sup>266</sup>; Carter, 1983<sup>91</sup>; Wilson, 1986<sup>504</sup>), even allowing for the fact that,

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as Kolb (1981<sup>309</sup>) points out some temporal instability is inevitable, owing to situational variations in learning style models.

Honey and Mumford (1982<sup>266</sup>) were less satisfied with the LSI, questioning the use of one-word descriptions as a basis for attributing style, and expressing concern as to the validity of the styles themselves. Honey and Mumford (1982<sup>266</sup>) produced a Learning Style Questionnaire (LSQ) to help managers learn. The LSQ is based on observable behaviour, rather than the psychological basis for that behaviour. In the main, the LSQ comprises 80 statements which managers are asked to tick or cross, indicating broad agreement or disagreement respectively. The 80 statements comprise four subsets, namely, Activist, Reflector, Theorist and Pragmatist (see Figure 22) of randomly - ordered items, each subset measuring a particular learning style.


The LSQ is scored by awarding one point for each ticked item, and no points for crossed items. In effect, the maximum possible score for each learning style is twenty. Raw scores are meaningful only when viewed in the context of normative data. Honey and Mumford (1982<sup>266</sup>) provide norms for the LSQ based on studies of 1302 British managers and professional.

Honey and Mumford's (1982<sup>266</sup>) four styles of learning are broadly equivalent to the four stages of Kolb's cycle. Activists learn through involvement in new experiences, becoming bored with implementation and longer-term consolidation. Reflectors learn by observing events from different perspectives, collecting and analyzing data about them. Theorists learn through integrating observations into a conceptual framework, relying on rationality and logic to achieve synthesis. Pragmatists learn by testing ideas, theories and techniques to see if they work in practice, using them as a basis for making decisions and solving problems.

Both the works of Kolb  $(1976^{308})$  and Honey and Mumford  $(1982^{266})$  have contributed significantly in the way managers learn. Honey and Mumford  $(1989^{267})$ suggest that knowing about different learning style preferences, is the key to understanding and to becoming more effective at learning from experience. Gibbs  $(1988^{216})$  is also in agreement with this view, and goes further to inform us that learners must selectively reflect on their experiences in a critical way, rather than take experience for granted and assume that the experience on its own is sufficient.

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#### 8.5. A Framework For Educating And Training Refurbishment Managers

The purpose of this section of the chapter is to describe a framework which could be used for educating and training refurbishment managers. The framework incorporates on-the-job and off-the-job methods of educating and training managers. It will be recalled from Section 7.5 of chapter seven of this thesis, when refurbishment managers' perceptions were sought on how management skills/knowledge for refurbishment are best developed, 94.4%, 88.0% and 79.6% responded positively to on-the-job (with guidance), in-house courses and external courses respectively. It is therefore necessary that these three methods are considered in educating and training managers.

The framework (see Figure 23) also incorporates learning concepts from learning theories, namely experiential, social learning, traditional methods and the pragmatic approach. A combination of learning theories is necessary, since no single learning theory is adequate on its own (Pedler, 1974<sup>396</sup>; Whetten and Cameron, 1991<sup>495</sup>).

Through on-the-job coaching, job rotation and group discussions, the framework benefits from the experiential school of thought, and by lectures and written texts, the traditional approach is accommodated in the framework. Through behaviourial modelling and role plays, the social learning concept is introduced into the framework, while the pragmatic approach to learning is accommodated by the use of case studies.





The framework is divided into two main parts, on-the-job and off-the-job education/training.

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#### (i). On-The-Job

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The education and training framework for refurbishment managers considers coaching/mentoring and job rotation as methods for educating/training managers. Before coaching and/or job rotation take place, it is necessary that the aims and objectives of coaching and job rotation are set out, since it is only by doing so that the progress or improvements derived from education/training can be monitored or evaluated.

Moorby (1975<sup>358</sup>) sees coaching as a means of taking the problems, opportunities and frustrations of the job and using them constructively to improve the skills/knowledge of managers. According to Hague (1975<sup>235</sup>) coaching is about "onthe job training with somebody passing comments which are based on accurate and impartial observation, and continuous feedback on to the performer about whether he/she is improving", p. 363. Hague (1975<sup>235</sup>) goes further to inform us that coaching is also much more a question of making the subordinate aware of how he/she is managing, and using situations as they arise as teaching opportunities.

Job rotation involves moving managers around the organisation to experience different organisational functions or different kinds of project. Like coaching, job rotation is experiential and involves 'real operations' and problems of the projects and organisations. There is a need to monitor the progress/performance or improvements of the learner and relate them to the aims and objectives. This evaluation process would allow actions to be taken in areas where the learner needs to improve.

#### (ii). Off-The-Job.

The framework also incorporates off-the-job methods of educating and training managers. This can either be in-house or external course programmes, and can be used as workshops, or for continuing professional development.

The framework caters for the three 'pillars' of the systems approach (Stone, 1982<sup>467</sup>; Goldstein, 1974<sup>220</sup>, 1986<sup>222</sup>) which are :- needs assessment, training/development and evaluation. However, unlike in the systems approach, where evaluation/feedback is the last stage to education/training programmes, in the present framework it is a concern at all stages. This should allow necessary changes or improvements to be made at any stage in the educating and training of managers.

The framework also incorporates four main stages which Bigelow (1983<sup>41</sup>); Cameron and Whetten (1983<sup>86</sup>); and, Whetten and Cameron (1991<sup>495</sup>) have shown to be effective for developing management skills/knowledge. These are:-

\* Pre-assessment Phase.

\* Learning Phase.

\* Practice Phase.

\* Application/Integration Phase.

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In the current study, an additional phase (analysis phase) is incorporated into the framework, and is discussed below.

In the assessment phase, it is necessary to set out the aims and objectives of education and training, and also to identify skill/knowledge needs for the manager. A variety of strategies (Steadham, 1980<sup>461</sup>) can be used in identifying the needs of a manager, such as questionnaires, observations and role plays.

In the learning 'proper' stage, managers are taught 'correct' principles by using a traditional method approach, e.g. written texts and lectures. Skills/knowledge can also be learned by setting rationale for behaviourial guidelines. Group discussions are also necessary, since ideas can be exchanged when managers discuss with one another.

The analysis phase provides relevant examples of both appropriate and inappropriate skills/knowledge performance. In this phase, it is also important that reasons are given as to why certain skills/knowledge performance 'work' or 'do not work'.

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The 'practice' stage allows managers to practice behaviourial guidelines that lead to improved performance through simulations, exercises and role plays.

The last stage in the framework is the 'application' stage. In this stage, managers apply what they have learnt into real-life situations (on-the-job). This stage allows learning experiences to be transferred from an 'off-the-job' to an 'on-the job' environment. It is important that the manager's organisation select an individual(s) who is(are) responsible for monitoring the progress of the manager, in order to foster on-going personal development.

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Since education and training programmes are effective to the extent that they contribute to improved on-the-job performance, it is therefore important that learning is transferred to the job and retained. Several studies have been conducted on how learning can be transferred to the workplace (Marx, 1982<sup>348</sup>, 1986<sup>349</sup>; Graham and Mihal, 1986<sup>226</sup>; Jago, 1982<sup>280</sup>; and Weiss et al., 1980<sup>491</sup>).

Relapse prevention planning is one technique which can be used to encourage the transfer of learning (Marx, 1982<sup>348</sup>, 1986<sup>349</sup>). The relapse prevention planning approach calls on managers to use their past post-learning experiences to identify likely barriers to the transfer of their training/education. Once the learning barriers are identified, the managers and his/her organisations will then adopt necessary strategies for avoiding or overcoming these barriers.

Periodic follow-up sessions is another approach which encourage the transfer of learning to the workplace. The purpose of the follow-up sessions is to give the manager an opportunity to report on the progress in using newly acquired skills/knowledge in his/her job. This approach gives the manager the opportunity to ask questions about aspects of the training/education that have not worked out as expected, thus allowing necessary actions to be taken on specific situations of his/her skills/knowledge repertoire.

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Conducting periodical needs assessment can also be used as a strategy for encouraging the transfer of learning to the workplace. In this approach, the manager completes a self-assessment inventory with supervisory review. This approach will also encourage managers to recognise other developmental needs.

In summary, the framework devised for educating and training refurbishment managers combines both on-the-job and off-the-job education/training, and by so doing, is in line with the substantial evidence which suggests that a great deal of learning by managers occurs at the workplace.

The framework also accommodates the ways adults learn, which has been shown to be different from those of children/youths. Group discussions and role play are accommodated in the model.

The framework uses feedback to continually modify instructional processes. From this perspective, the framework is continually adaptive to information that indicates whether each stage of education and training of a manager is meeting a stated aim or objective.

The framework can be used to produce short courses, workshops and seminars which can serve the purpose of Continuing Professional Development (CPD) and other special training an educational needs of a manager.

By accommodating the assessment, learning and analysis phases, a manager can acquire and develop just the skills/knowledge which he/she needs without going through the rigours of learning other skills/knowledge which he/she may find irrelevant or already have acquired.

The transfer of skill/knowledge from the 'classroom' scenario to workplace is also accommodated.

## 8.6. A Model For Postgraduate And Continuing Professional Education

The purpose of this section of the chapter is to describe a model which can be used in postgraduate programmes for educating refurbishment managers, and for continuing professional development. The model is based on a modular format. Each of the eighteen factors, derived in the last chapter through factor analysis, represent a module on which the model is based. Each of these modules is also made up of sub-modules.

A module in the context of the current study, means a self-contained unit of study which has a standard size or a method of agreeing a standard value, also, each module has its own distinct aims and objectives, and can be assessed separately. Each sub-module is made up of a unit 'credit'. The satisfactory completion and attainment of the necessary credits result in a particular award/qualification.

Modularity, in essence, is the division of courses into separate elements/units, with each element/unit presented to a student with separate aims/objectives, and also a procedure for self-contained assessment.

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To the best knowledge of the author, no official statistics exist in the U.K. which indicate the growing trend in modular schemes, both in the public and university sectors of higher education. However, Mansell et al. (1976<sup>340</sup>), Watson (1989<sup>488</sup>), CNAA (1989<sup>138</sup>, 1990<sup>139</sup>) and Theodossin (1990<sup>476</sup>) are of the view that modular programmes have been increasing in popularity since the 1970's. In the public sector of higher education, Oxford Polytechnic (now Oxford Brookes University) was one of the first institutions in the U.K. to adopt the modular course approach (Watson, 1989). Its undergraduate credit accumulation scheme - The Modular Course, began in September 1973 as a course in science, replacing the London University External Degree, enroling 75 students.

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In a survey of 200 large employers from different industrial sectors in the U.K., Thomson et al. (1987<sup>479</sup>) observed that modular programmes got by far the highest vote of all forms of general management education. Several reasons can be offered for the growing interest in 'modularity' since the 1970's. The enhanced interest in modular structures of the 1980's was in circumstances and for reasons different from those at the height of the 'container revolution' (Mansell et al., 1976<sup>340</sup>) in the mid-1970's.

In the 1970's, modular courses at the undergraduate level, were the outcomes in the U.K.of some of the interests in new pedagogical and curricular emphasis of the 1960's, rooted in what Watson (1989<sup>488</sup>) terms 'idealistic' and Squires (1990<sup>459</sup>) 'libertarian' approaches to knowledge and learning. The background, and also the need for colleges of education rapidly to diversify in the mid-1970's, resulted in a surge of modular proposals. Some of the polytechnics such as City of London and

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Oxford (earlier mentioned), had begun to seek flexibility in modular structures from the early 1970's.

Renewed interests in modular courses in the 1980's had its origins in a search, not so much for academic flexibility as for institutional economies (CNAA, 1990<sup>139</sup>). While student choice remained an important consideration, the paramount emphasis had become one of changes in the system, which required attention to be levelled at questions of administration, efficient deployment of resources and, according to CNAA (1990<sup>139</sup>), maximising opportunity within tighter management control. In the late 1980's and early 1990's, the government White Paper of 1987 (Secretary of state for education and science et al, 1987<sup>443</sup>) titled, 'Higher education: Meeting the challenge', and reports such as those of Handy et al. (1987<sup>244</sup>), Constable and McCormick (1987<sup>123</sup>) and CNAA (1988<sup>137</sup>) advocating modularity and credit accumulation and transfer, have helped to increase the trend in modular courses.

The above mentioned White Paper of 1987, welcomed the CNAA's and other credit accumulation and transfer developments, and the opportunities they provide for a wider range of entrants "... to pursue programmes of study tailored to their particular needs but within established academic standards", p. 11.

The model for postgraduate and continuing education for refurbishment is presented in Figure 24, and the eighteen modules/sub-modules on which the model is based are presented in Table 73.

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## Table 73: A List Of Modules And Sub-modules For Postgraduate And Continuing Education Programmes For Refurbishment Management.

#### Modules

#### Sub-modules

## Module 1

Legal skills/knowledge for refurbishment management

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Company law Planning law Construction law Employment legislation Client/consumer protection law Company strategic planning

Module 2

Operational management skills/knowledge

Materials planning & control Productivity control & maintenance Manpower planning & control Plant planning & control Programme maintenance(update) Site organisation Quality control

## Module 3

Skills/knowledge associated with dismissal of labour force

Terminate/Dismissal: Supervisor Terminate/Dismissal: Management Terminate/Dismissal: Manual labour Terminate/Dismissal: Subcontractor

## Module 4

Financial management skills/knowledge Costing and estimating Budgetary control

#### Module 5

Skills/knowledge associated with recruitment of labour force Recruit/Select: Management Recruit/Select: Subcontractor Recruit/Select: Supervisor/Foreman Recruit/Select: Manual labour

## Module 6

Skills/knowledge associated with employee training

Employee training: Supervisor/Foreman Employee training: Management Employee training: Manual labour

#### Module 7

Interpersonal or management of people skills

Motivation of others Leadership Supervision of others

#### Module 8

Skills/knowledge related to the market place

Market research Advertising and promotion

Job analysis and specification

#### Module 9

Skill/knowledge associated with job analysis and specification

## Module 10

Skills/knowledge associated with managing in a changing environment

## Managing conflict/crisis Managing change

#### Module 11

Skills/knowledge associated with the use of computer technology

#### Module 12

Skills/knowledge of creativity

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Use of computer technology

Creativity

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#### Module 13

Skill/knowledge associated with decanting of buildings

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Decanting building

#### Module 14

Skills/knowledge related with competition to win work Competitive tendering Negotiate client Setting objectives and goals

#### Module 15

Skill/knowledge of public relations and Conducting meetings

Conducting meetings Public relations

## Module 16

Skills/knowledge associated with decision making

Decision making

#### Module 17

Skill/knowledge associated with employee welfare

Employee welfare

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Health and safety	Health and safety

The eighteen modules and sub-modules on which the Model is based, are presented in Table 73. The modules (see Figure 24) can be used to form the basis of postgraduate programmes as well as programmes for Continuing Professional Development and workshops.

The requirements for an award will need to specify both the depth, in terms of content of sub-modules, and the number to be taken and passed. Some of the sub-modules may need to be made compulsory (e.g. Health and safety, Quality control/assurance), while others remain optional.

There are important issues which need to be considered in a modular programme of this nature, and these are discussed below:

#### (i). Academic Quality Of Modular Courses

The issue of quality assessment in higher education is vastly documented (Watson, 1994<sup>489</sup>; Griffith, 1994<sup>233</sup>; and Sanders, 1994<sup>436</sup>). Watson (1994<sup>489</sup>) notes that "All institutions [and theoretically all departments] are now subject to review by academic and professional peers" p 24.

In the UK, the Higher Education Funding Council (HEFC) assesses quality, whilst the Higher Education Quality Council (HEQC) has the responsibility of auditing an institution's quality assurance mechanism. For example, all the Architectural schools in the UK are being asked to submit a claim of either satisfactory, or excellent for teaching. The schools which are claiming excellence are visited by the HEFC. The Faculty of the Built Environment at the University College London (UCL) is the first school in the UK to submit a combined claim, and be awarded excellence in the teaching of building, architecture and planning.

Academic quality is central to the debate in modular schemes (CNAA, 1989<sup>138</sup>, 1990<sup>139</sup>; Watson, 1989<sup>488</sup>), especially as it relates to the questions of coherence, integration and progression. The CNAA (1990<sup>139</sup>) is of the view that a carefully designed modular programme can satisfy these questions, and the breadth of the study which they can provide across different areas of study, can offer intellectual challenges and insights in different areas of skills and knowledge.

Modular schemes are sometimes criticised on the basis that there is a danger that the student's knowledge may become fragmented and compartmentalised (CNAA, 1990<sup>139</sup>). The critics of the modular courses are also of the view that no one subject area is studied in sufficient depth and that frequent immediate assessment does not allow sufficient time for students to assimilate and reflect upon their studies (Watson, 1989<sup>488</sup>). With these criticisms, it is therefore important that for any modular scheme, the rationale for defining aims and objectives should not only show how these are to be achieved, they should also be able to demonstrate how the academic coherence and standard of student's programme can be safeguarded.

As earlier indicated, it is necessary that each sub-module has its own statements of objectives, in terms of skills/knowledge and how they can be taught and assessed.

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#### (ii). Flexibility/Wider Access Of Modular Courses

Modular courses should offer students considerable flexibility in their choice of modules. They should provide opportunities for combining different sub-modules, subject to designated 'compulsory' or 'core' modules, and pre-requisites.

Modular schemes can be made to offer a wide range of introductory modules/submodules, which can be taken by students with limited experience of a particular study area. In this respect, it provides flexible entry requirements, although this can make the task of ensuring appropriate standard for admissions more difficult (Watson, 1989<sup>488</sup>; CNAA, 1990<sup>139</sup>). It is therefore necessary that there are means of assessing the ability of applicants to meet the demands of the programmes, and to reach the standard required for a given award.

#### (iii). Skills/Knowledge Transfer

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The current policy of higher education places emphasis on transferable skills (Government's White Paper- "Higher education: Meeting the challenge", 1987). In modular programmes, provisions for complementary studies can allow students from different backgrounds to have the opportunity of participating in appropriate programmes. The advantage of modular courses in this respect lies in the wide range of modules and sub-modules available in the curriculum, and also the potential for at least some of them to contribute to complementary studies providing 'transferable skills'. A heterogenous group of students can bring a range of perceptions and methodologies to bear on the programme of study. A module or

sub-module may be part of a compulsory/core programme of study for some students, while for others it forms part of their complementary studies.

## (iv). Adaptability Of Curriculum In Modular Schemes

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Since each sub-module is 'self-contained', this can allow course planners to replace and modify individual sub-modules, thus updating the courses to keep pace with new academic developments. It can also allow for the experimentation of new teaching and assessment methods (Oxford Brooks University is the leader on innovative teaching methods).

The ability to introduce new sub-modules and new combinations of sub-modules, may allow for major studies in developing areas, providing pathways to new qualifications/degrees. The flexibility of the modular scheme will allow the job dimensions which are not in the factor 1 - 18 arrived at by factor analysis, but which constitute refurbishment management practice to be included in the model. The choice of these job dimensions will largely reflect the depth of coverage required, and tend to reside with course composition. The modular approach also makes it possible for changes to be made in available staff expertise and student numbers in a given area of study.

#### (v). Credit Accumulation And Transfer In Modular Courses

Modular courses are designed on the principle of credit accumulation, based on units of a standard size or equivalent study within each scheme. In this way, they facilitate participation in credit accumulation and transfer schemes (CAT) which, according to the CNAA (1988<sup>137</sup>), can operate within a single institution, locally, regionally or nationally. As an example, the CNAA (1988<sup>137</sup>), in their CAT schemes, has developed a credit tariff approach, to which other modular schemes can be related. A full time student's workload is defined as 120 credits per year, and modules can be related to this according to their content, size and duration.

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As can be seen in Figure 24, the model designed in the present study allows for credit accumulation transfer. This approach makes the transfer of credits or advanced standing from one course to another possible. Similarly, managers who have to withdraw or suspend their studies are likely to have measured achievements to take away with them, and may easily rejoin the scheme at a later date.

The model for post-graduate programmes can accommodate full-time/sandwich and part-time studies. Managers who opt for the part-time mode can study at their own pace, and alter the amount of study they undertake by choice of suitable submodules. Credit can be built up over time to achieve an award or qualification.

The model for postgraduate education also allows direct entry into postgraduate programmes, providing applicants satisfy entry requirements.

For workshops and Continuing Professional Development (CPD), the modular approach allows managers to take individual sub-modules in areas of skills/knowledge which they need.

The model for education and training of refurbishment managers can also accommodate current trends in management education and training in areas of Accreditation of Prior Learning (APL) and National Vocational Qualifications (Level V for managers). The Business and Technical Education Council (BTEC, 1990<sup>84</sup>), London, sees APL as a process which enables the identification, assessment and certification of a person's vocationally relevant past achievements.

According to Jones (1991<sup>285</sup>), APL is a process of, "... achieving formal recognition and qualifications for competence you already possess and is achieved by assessment of experience and past training against national standards", p.23.

APL will be of benefit to candidates who have extensive experience without qualifications. Jones (1991<sup>285</sup>) and the BTEC (1990<sup>84</sup>) guidelines consider in detail how APL works. In the main, it works on the premise that managers with relevant experience, and who feel they have strengths in some skill/knowledge areas, present their achievements in the form of a portfolio (Hall, 1990<sup>239</sup>). An independent assessor then inspects the evidence, and if successful, the individual will be awarded a nationally recognised certificate of achievement for each area successfully completed.

At the time of writing, the Construction Standing Conference (CISC) and the Construction Industry Training Board (CITB) are working together to provide an integrated framework of new standards for National Vocational Qualifications for managers in the Construction Industry. The modules (skills/knowledge) derived in the present study may be useful in the national framework.

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The model derived in this study only caters for management education and training programmes for postgraduate and continuing education. Research is needed into "how best" refurbishment management education can be successfully and widely introduced into undergraduate curricular. For undergraduate courses in construction management, especially those based on modular schemes, attempts should be made to enlighten students as to the nature of refurbishment works and the problems associated with management of such works.

#### 8.7. Conclusions And Recommendations

This chapter set out to establish a framework for educating and training refurbishment managers, through a thorough review of literature on learning theories and how adults learn. The framework also incorporated refurbishment managers' preferences on methods of delivery of education/training.

Refurbishment managers in the present study are of the view that management skills and knowledge for refurbishment are best developed through three main methods. These are:

- i. On-the-job (with guidance)
- ii. In-house courses
- iii. External courses.

These methods are accommodated in the framework.

A model for postgraduate and continuing education programmes for managers was also devised, based on a modular format. An eighteen factor model (skill/knowledge) derived in this study through a data reduction technique (factor analysis) formed the modules/sub-modules on which the model was based.

The flexible nature of the modular approach to management education, together with wider access and credit accumulation transfer allow managers to study at their own pace, and to alter the amount of study they undertake by choice of suitable modules/sub-modules.

With the continuing efforts being made in the U.K. Construction Industry to produce a framework of qualifications for construction managers, the sub-modules in the present study are useful, and may be incorporated in the national framework.

Finally, following the development of a model for postgraduate and continuing education for refurbishment management, together with the increasing trend in refurbishment work, research is needed into 'how best' refurbishment management education can be successfully and widely introduced into undergraduate curricular. By introducing refurbishment management at the undergraduate level, it may lead to a better calibre of person becoming a refurbishment manager.

# CHAPTER NINE

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## REFURBISHMENT MANAGEMENT AND THE FUTURE

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#### 9.1. Introduction

This chapter addresses the major factors that are likely to shape the future of refurbishment management.

For a relatively unresearched area like refurbishment management, deciding on what assumptions should be made about the future is indeed difficult. However, looking ahead to the year 2001, the Centre for Strategic Studies in Construction (CSSC, 1989<sup>99</sup>) is of the view that Building in the year 2001 will be different from the one that exists today. They identified essential changes which are likely to take place. Changes which "can be recognised as simply the application of modern management principles to the works of the building industry" (CSSC, 1989<sup>99</sup> : 24). Some of these changes include a greater need for construction organisations to meet the needs and expectations of clients/customers, as well as increasing challenges and competition between groups of companies within the UK and abroad. The CSSC (1989<sup>99</sup>) calls for significant changes in skills need to meet the needs of the future. Structured education and training is seen as paramount in tackling the skills/knowledge gap.

Lansley (1990<sup>320</sup>) also informs us that the construction industry requires a greater 'knowledge workers' than in the past. Lansley (1990) notes that "If the industry (construction) is to achieve a viable future then it must recognise that it has moved

from what was essentially a 'production industry' in the 1960's, through a 'management industry' in the 1970's, to a 'knowledge industry' in the 1980/1990's" p. 9.

In a major research project sponsored by the Foundation for Management Education and Ashridge management College titled 'Management for the future', Barham et al (1988<sup>23</sup>) noted that 'organisations face a future of unprecedently rapid and complex change" p5. Such changes according to Barham et al (1988<sup>23</sup>) include, technological advancement, increasing competition both amongst organisations within the UK and abroad.

The importance of responding to changes within the construction industry is well pointed out in an extract from the CIOB ( $1982^{106}$ ) report. In offering advice to members of the institution, in recognition of the changes in construction, the CIOB ( $1982^{106}$ ) noted that:-

"All professional people recognise that in order to function effectively, they have to respond to change" p13.

The next section of this chapter attempts to draw the attention of readers to what are considered to be the sources of change and the major factors that are likely to affect the future of refurbishment management. Quantitative and qualitative data obtained from training officers and refurbishment managers on future skills/knowledge, together with education and training needs for refurbishment will also be discussed in this chapter

## <u>9.2. The Major Factors That Are Likely To Shape The Future Of Refurbishment</u> <u>Management</u>

For the purpose of the discussion, the major factor which are likely to affect the future of refurbishment management will be considered under four main headings, namely:-

- (i). Increasing competition
- (ii). Increasing contract procurement systems
- (iii). Improving technology
- (iv). Demographic factors

## (i). Increasing Competition

The Building EDC, in 1984 is quoted as saying that "Given the condition of the national housing stock, there seems to be no reason to suppose that the volume of this kind of work (Refurbishment) will reduce significantly this century" (Building,  $1984a^{72}$ : 9). Similarly, In 1988, the English Housing Condition Survey (DOE,  $1988^{156}$ ) indicated that in England and Wales, there were 1.11 million dwellings having 'serious' disrepair. These dwellings need upgrading and modernisation.

A recent Planning Policy Guidance (PPG Note 13) issued in March 1994, by the Department of the Environment (DOE), places restrictions on out of town proposals in local authority development plans. Although the main aim of the government is to reduce the need to travel by car, and ensure the vitality of town centres (New builder, 1994b<sup>381</sup>), it also has the effect of increasing the volume of refurbishment work in town centres. This government's view on sustainable cities, targets schemes such as out of town superstores. Ian Martin, the campaigning Coordinator for the National Sensitive Sites Alliance (NSSA), a nationwide advisory group coordinating over 60 campaigns against out of town superstores is quoted as saying "Building new superstores cannot go on, ... the country has reached saturation point and that new stores breed new roads, as many are coupled with part-funding of a new bypass" (New builder, 1994b<sup>381</sup>: p4).

The restriction on the development of new out of town superstores means that emphasis will have to be levelled at updating and modernising existing town centre superstores, thus, increasing the volume of refurbishment work.

The forecast by the Joint Forecasting Committee (JFC, 1993<sup>284</sup>) is that the Repair, Maintenance and Improvement (RMI) sector will experience a growth of 6% between 1993 and 1995. All these indicate that the refurbishment sector will keep growing for many more years to come. According to Lawson (1985<sup>323</sup>, 1986<sup>324</sup>); and Whitely et al (1980<sup>498</sup>), the growth in the refurbishment sector helps to offset business losses elsewhere. Accompanying this growth, is competition in the market place.

The growth in the refurbishment market has led large contracting organisations, including new building contractors to seek work in refurbishment (Young and Egbu, 1993b<sup>519</sup>), a sector which has traditionally been the stronghold of smaller contractors (Griffith, 1992<sup>232</sup>; Hillebrandt, 1990<sup>259</sup>; and Quah, 1992b<sup>415</sup>).

Large contractors have entered into the refurbishment market through three main ways, namely:-

- i. Direct entry by creating subsidiary refurbishment divisions
- ii. Acquisition of smaller repair, maintenance and refurbishment organisations
- iii. Through different combinations of (i) and (ii) above.

The entry of large national contractors into the refurbishment market will in no doubt increase competition in the refurbishment market. Apart from competing to win work, refurbishment organisations would have to compete to obtain skilled labour force. Bresnen et al, (1985<sup>63</sup>) maintain that even with high unemployment many managers still find it difficult to obtain the skilled workforce they require.

In refurbishment operations carried out on buildings of high architectural and historical value, such as listed buildings, obtaining the skilled labour force can be fraught with difficulty. This point is well emphasised by David Pickford (1983<sup>401</sup>), Chairman of Haslemere Estates, a specialist refurbishment organisation based in London, as he noted about one of his projects,

"We brought out of retirement a number of octogenarians because they were the only men capable of executing fine plasterwork and wood carving" p.96.

Similarly, with refurbishment works, matching new construction with old demands high levels of crafts skill and attention. The problem of matching new material components with that of the existing building is well cited by a refurbishment specialist (Evamy, 1988<sup>183</sup>) as follows:- "It's no secret that the business of blending new construction with old holds a unique stock of technical booby-traps" p.24.

As the large contractors enter into refurbishment, however, this should lead to better management expertise into "this traditionally less organised sector of building work" (Quah, 1992b<sup>415</sup>: p.91), since larger organisations tend to have a more structured and better management set-up than their smaller counterparts. For this to happen in any meaningful way, Young and Egbu (1993b<sup>519</sup>) argued that managers in refurbishment urgently need to acquire and develop the relevant management skills and knowledge which refurbishment demands, through appropriate management education and training.

From the discussions held with training officers and refurbishment managers who participated in the present study, it would appear that in the immediate future, the competition which refurbishment organisations are likely to face, will come from within, i.e from other refurbishment organisations in the UK and not from abroad. Being mainly national contactors, it is unlikely that the competition which will accrue, with the opening up of Europe, will form a major threat to refurbishment organisations. This supports the view of the Centre for Strategic Studies in Construction (CSSC, 1989<sup>99</sup>). Looking ahead into the kind of building industry needed in Europe in the future, together with the level of competition they are likely to face, the CSSC (1989<sup>99</sup>) is of the view that, "Most repairs and maintenance, alterations and small scale infill buildings will remain in the hands of local builders", p.20.

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Foreign language and skills/knowledge associated with managing other national culture are not perceived by refurbishment managers in the present study as high order needs both in terms of importance in managers' jobs and in terms of education and training needs. With the situation in eastern Europe, especially in the former Yugoslavia, where repair and refurbishment works are likely to be plentiful, some contracting organisations may be short sighted.

The recent government's major shake-up in the Urban Regeneration Policy is likely to increase competition amongst contractors involved in refurbishment and renewal works. The mechanism for change has been to roll 20 existing aid programmes from five governments departments into one fund:- The Single Regeneration Budget. This came into being in April 1994, with a budget of £1.4bn for 1994/1995 (Chevin, 1994<sup>112</sup>). The government's view in introducing the single regeneration budget is to tailor grants more closely to local needs, make them more easier to obtain and increase value for money.

Also in April 1994, a new bidding guidance for local authorities, house builders and contractors (Bidding guidance: A guide to funding the single regeneration budget) was issued by the Department of the Environment (DOE). The bidding guidance sets out the types of schemes which qualify for the single budget. Two of the major criteria for qualification are:

- i. The scheme must improve housing through physical improvements, greater choice and better management.
- ii. Protect and improve the environment and infrastructure and promote good design.

In all, the schemes must build on good practice and present good value for money.

Contractors will have to compete for a slice of the single regeneration budget by forming partnership schemes with local authorities. Stephen Bennett, Deputy Managing Director of Bovis Urban Renewal is quoted in the Building Magazine (April, 1994<sup>74</sup>) as saying "... competition is intensifying among local authorities for funding and for contractors and developers to join in with them" p 20.

Chevin's  $(1994^{112})$  view is that "In future, every £1 of government money for rejuvenating towns and cities will be fiercely fought for in open competition, ... resources will be scarce and partnerships will be the name of the game" p 18.

In his advice to construction firms, regarding the single regeneration budget, David Ritchie, a Regional Director of the West Midlands office, one of the ten offices through which the single regeneration budget will be administered points out that "It would be in contractors' interest to find out what is happening in their area - look at the partnerships that are emerging and ask if they can make a contribution" (Building, 1994<sup>74</sup>: p 18).

However, the government's intention to replace the mandatory grant scheme, which is used by house owners to renovate their properties, by a discretionary scheme (Doyle, 1994<sup>166</sup>) may have the effect of reducing the amount of refurbishment work available for contractors, also, it may hinder the efforts being made by the Building Employers Confederation (BEC) and the Federation of Master Builders (FMB) to reduce the amount of houses classified by legislation as 'unfit' to live in (New builder, 1994a<sup>380</sup>). The provision of quality services and meeting the needs and requirements of increasingly knowledgable clients are likely to intensify competition amongst refurbishment organisations. Provision of reliable services, keeping pace with customers' preferences and tailoring products in response to changing patterns of demands are traits found in Peters and Waterman's (1982<sup>398</sup>) "excellent companies".

According to Atkinson (1986<sup>15</sup>), the competence of a firm to do a job well is just as important as the product which it is commissioned to build. The attention began to be levelled at the quality of buildings in the U.K. during the late 1970's, when many reports identified major failures to achieve acceptable levels of performance from the view-points of owners and users. Reports such as those of Freeman (1975<sup>205</sup>) and Bonshor and Harrison (1982<sup>50</sup>) have shown that faults in site workmanship cause about as many faults in design and materials specification. Faults generally result from a failure to comply with recognised and published good practices.

In the U.K. construction industry, initiatives for quality assurance in construction came both from government acting through the Property Services Agency (PSA, 1988<sup>407</sup>) and from large industrial clients (Cheetham and Lewis, 1993<sup>111</sup>).

The Quality Management approach now adopted, and most commonly in use by the construction industry, is the management system certification based on the experience of the manufacturing industry (Cheetham and Lewis, 1993<sup>111</sup>). In the manufacturing industry, there have been philosophical developments attributed to Deeming (1982<sup>152</sup>), Juran (1964<sup>289</sup>), but developed by the Japanese (Saski and Hutchins, 1984<sup>438</sup>, and Robson, 1986<sup>427</sup>).

The responsibility of the management of an enterprise is to establish a system of verification of work and to educate the workforce in its use (Cheetham and Lewis, 1993<sup>111</sup>). The management system of certification resulted in BS 5750 quality systems and its equivalent ISO 9000 series (British Standard Institution, 1979<sup>67</sup>). It can cover a wide range of products and include services such as design and contracting.

The purpose of a management system being assured based on BS 5750 is to ensure that the resulting product will comply with the specification. The BS 5750 offers three levels of quality management system:-

Part 1: Manufacturer accepts responsibility for the deign production, installation and servicing of the product.

Part 2: Production or installation is to a set specification.

Part 3: Specifies a process of final inspection and test.

It is the third party assessment of management systems to BS 5750 part 2 which is currently attracting much attention, remarks Cheetham and Lewis(1993<sup>111</sup>). Cheetham and Lewis (1993<sup>111</sup>) also observed that "most contractors can only seek accreditation to Part 2 of BS 5750 but its limited scope and that it does not include accepting responsibility for design and specifying materials is not widely appreciated" p 126. Since BS 5750 was developed for the manufacturing industry, a degree of interpretive licence is required to relate it to the construction industry (Cheetham and Lewis, 1993<sup>111</sup>). Ashford (1989<sup>13</sup>) in his publication on "The management of quality in construction", gives examples of its application to construction organisations. Similarly, Hughes and Williams (1991<sup>269</sup>) give detailed guidance for implementation by construction organisations.

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Cheetham and Lewis  $(1993^{111})$  inform us that ".. many clients are insisting that in order to be included in tender lists, to be given the opportunity to bid for work, the contractors must be operating their business in a manner which has been certified by a third party as complying with BS 5750", p. 126.

For Rutland (1985<sup>434</sup>) and Finniston (1986<sup>196</sup>) quality management extends beyond the design office and construction sites. It is about winning contracts.

For managers and organisations involved in refurbishment, requisite skills and knowledge associated with quality control and assurance is vital for the future. When questioned about the future skills/knowledge in refurbishment management during the interview stage of this study, refurbishment organisations ranked Quality control/assurance highest, in terms of education/training.

Following on from the BS 5750 is the new BS 7750: Environmental Management Systems. Driven by legislation and pressures from the public and investors, contractors are expected to improve their environmental performance and disclose more information about it (CIRIA, 1993<sup>127</sup>).

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The BS 7750 sets out a formal management framework to achieve good environmental practice. Achieving good environmental practice according to BS 7750 will depend on:-

i. Awareness of relevant legislative and regulatory requirements.

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- ii. Knowledge of the environmental effects of an organisation's activities, products and services.
- iii. Awareness of best practice and its relation to the company's present performance.
- iv. Formulation of objectives and targets to comply with legislation and achieve improved performance.
- v. Means of implementation and of monitoring achievement.

The Construction Industry Research and Information Association (CIRIA, 1993<sup>127</sup>) has developed a proposal in consultation with the government and industry which would provide guidance to construction organisations on the development of appropriate environmental management systems, with particular reference to BS 7750.

The Science Engineering Research Council (SERC) in a major research initiative designed to encourage greater innovation in the construction industry, published a paper titled "Construction as a manufacturing process" (New builder, 1994c<sup>382</sup>). The SERC's view is that the provision of buildings and civil engineering processes can be regarded as an assembly industry. The key objective of the SERC is to transfer the ideas and culture prevalent in main-stream manufacturing into construction. According to the SERC, this will help to improve quality, productivity, and place the UK construction organisations in a better position to compete effectively with their
#### counterparts in Europe.

With construction being regarded as a manufacturing process, the nature of the competition facing UK manufacturing is well detailed in a wide ranging report (Competitiveness of UK manufacturing industry, HMSO) by the all-party commons trade and industry select committee. Clear about the challenges facing the British industry, the committee is quoted as saying that "There is an unprecedented opportunity to leave behind decades of relative decline and restore UK manufacturing as a whole to a position as a world leader ... action therefore needs to begin urgently" (Bassett, 1994<sup>27</sup>).

#### (ii). Increasing Contract Procurement Systems

Over the last decade, the U.K. Construction Industry has witnessed a growing trend away from the traditional forms of procuring contracts to other relatively new forms (Franks, 1990<sup>203</sup>, 1992<sup>204</sup>; Griffith, 1989<sup>231</sup>; Swanton, 1990<sup>472</sup>; and Torrance, 1992<sup>481</sup>). There are a number of contributing factors to this decline in the traditional forms of contract , these include, problems associated with the separation of design from construction - e.g. poor communication, lack of integration (Emmerson, 1974<sup>175</sup>; Banwell, 1964<sup>22</sup>; Sidewell, 1979<sup>445</sup>); increasing project complexity (Bennett and Fine, 1980<sup>34</sup>); economic changes - i.e. inflation and recession (Nahapiet and Nahapiet, 1985a<sup>369</sup>, 1985b<sup>370</sup>, Rowlinson, 1986<sup>431</sup>); and better informed, more professional clients demanding that projects are completed within cost, time and quality criteria (Naoum and Langford, 1990<sup>372</sup>; Bennet and Flanagan, 1983<sup>35</sup>; Naoum and Coles, 1990<sup>373</sup>). There is considerable evidence of clients dissatisfaction and widespread disputes and conflicts over apportionment of risks and time overrun of projects, arising from the type of contracts chosen (Fenn, 1991<sup>190</sup>, 1992<sup>191</sup>; Clegg, 1992<sup>117</sup>; NEDO, 1991<sup>379</sup>). Fenn (1991<sup>190</sup>) in his article on "Managing corporate conflict and settling disputes on construction projects", has shown that construction litigation had increased in recent years by way of actions commenced, and that the number of actions proceeding to trial is around 150 per year.

Clegg (1992<sup>117</sup>) notes that "contract causes conflict because they are the rational occasions whereby indexicality can be exploited by self interested professionals in the design and construction processes" (p. 7), "indexicality" being a technical term which refers to a situation where the meaning of something is always contingent upon someone else interpreting it.

Apart from the traditional forms of contract where independent professionals (i.e. architects, engineers and quantity surveyors) are employed by the client to complete design, and the client entry into a separate contract with a building contractor to construct the designed building, other newer forms of contracts now exist. These include design and build, management contracting and project management.

Design and Build is the fastest growing procurement system in the U.K. (Franks, 1992<sup>204</sup>; Cheetham and Jaggar, 1990<sup>110</sup>; Contract Survey, 1989<sup>131</sup>). Franks (1992<sup>204</sup>) estimates that Design and Build contracts account for about 35% of non-industrial and non-housing turnover in the U.K. construction industry. This figure approaches

45% when industrial and housing turnover are included. Design and Build is therefore firmly established as a procurement option in the U.K. construction industry, and is expected to increase further. Recent reports (Frank, 1990<sup>203</sup>, 1992<sup>204</sup>; Griffiths, 1989<sup>231</sup>) have shown that Design and Build has been growing at an average rate of 15% per annum. Following this trend, these reports indicate that by the year 2000, over 50% of the construction workload in the U.K. will be procured through design and build.

With the Design and Build procurement system the contractor is, in effect, made responsible for the whole process of the works including the design and construction elements. Although there are a number of variants to Design and Build (CIOB, 1988<sup>108</sup>), the design and build form of contract is primarily structured in the interest of the client. It provides a single point responsibility and a clear line of redress if technological and contractual difficulties arise. It also increases efficiency through improved communication.

Griffith (1989<sup>231</sup>) informs us that Design and Build is not without its limitations. With the contractor being responsible for the Design and Construction elements of the building, Griffith (1989<sup>231</sup>) argues that the client is at risk where the contractor does not fully appreciate the full risk associated with design. Similarly, the client is at risk if the contractor does not have full indemnity insurance cover.

With the increasing trend toward Design and Build contracts, refurbishment managers and their organisations would need to be more knowledgable about this procurement system if they are to remain competitive, and also, if they are to provide the kind of services which clients demand.

In Management Contracting, while the contractor is involved in co-ordinating the design with the construction of the project, the contractor does not carry out the function of a designer. The role is strictly that of management (CSSC, 1991<sup>100</sup>). Unlike in design and build where the contractor is paid on a variable profit margin, the management contractor is appointed as the consultant to give a construction management service in return for reimbursement on a fee and prime cost basis (Naoum and Coles, 1990<sup>373</sup>). The management contractor is therefore part of the clients' team, carrying out total management function in partnership with other members of the client team, to the overall benefit of the client. One of the weaknesses of Management Contracting, according to Torrance (1992<sup>481</sup>), is that " there is no standard approach and there is no standard appreciation of the roles and responsibilities" p. 251. Where various parties do not fully understand their roles and responsibilities, it is not only likely to affect operation efficiency, but will also complicate dispute resolutions. Wilson (1983<sup>506</sup>) considers that it is the client who has to decide what the roles and responsibilities of the various parties to the contract are, in order to have a balanced team.

Naoum and Langford (1987<sup>371</sup>) in their study on Management Contracting suggested that few firms are operating management contracting successfully. The key to success in the management contracting market will be found by enhancing appropriate management skills/ knowledge. Bale (1985<sup>18</sup>) suggested that further improvements in the general level of competence are needed if management contracting is not discredited by poor application. Moore (1985<sup>359</sup>), in his study on management contracting, involving 36 construction firms, concluded that serious repercussions of inadequate practice could be avoided if alteration is given to the acquisition of relevant construction management skills.

Project Management is another distinct procurement system, where the client employs an organisation to carry out all the necessary functions to procure the building. The project manager is invested by the client with all the necessary powers to achieve that aim (Hamilton, 1990<sup>242</sup>).

Bennett and Flanagan (1983<sup>35</sup>) have observed that project management is usually confined to complex or large projects with a high technological content, and also where the client lacks the experience or time to deal with the building industry. Hamilton (1990<sup>242</sup>) suggests that project management may be attractive to clients who choose not to be closely involved in the procurement process because of the single point of contact through the project manager.

Looking into the future direction of the U.K. project procurement, Hamilton  $(1990^{242})$  suggests that the client body is not yet fully satisfied with the services offered by the industry, and there are likely to be more variations in the basic range of procurement systems in the future.

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Hughes (1992<sup>270</sup>) also notes that "The construction industry and its clients are still trying to sort out reliable methods of procuring construction", p. 105.

The selection of the "right" procurement option for the "right" project is vital. Several studies have been conducted, attempting to set out criteria and guidelines in choosing a procurement option for a given project (Ireland, 1985<sup>279</sup>; Hamilton, 1987<sup>241</sup>; Skitmore and Marsden, 1988<sup>454</sup>; BEC, 1987<sup>75</sup>). Expert systems have also been developed to provide guidance on the most suitable procurement system for a given circumstance (Brandon, 1990<sup>61</sup>; Brandon et al., 1988<sup>62</sup>). However, Ireland (1985<sup>279</sup>) in an extensive study of the factors affecting procurement selection, was forced to conclude that no mutually exclusive sets of criteria uniquely and completely determine the appropriate procurement arrangement for a specific project.

To have a competitive advantage in the marketplace, refurbishment organisations and their managers would need requisite skills/knowledge of the types of contract procurement options relevant in meeting the increasing needs and expectations of construction clients for the future.

#### (iii). Improving Technology

Advancement in technology is now regarded by many construction writers as one of the factors likely to shape the future of construction management (CSSC, 1989<sup>99</sup>; Chow, 1989<sup>114</sup>; Brochner, 1990<sup>69</sup>).

Technology in the context of this study is to embrace information technology. It also incorporates management techniques.

Whistler (1970<sup>496</sup>), sees information technology as a generic name used in describing three aspects of technology, namely:-

- (i). Transmission of information (communication).
- (ii). Transformation of information (computation).
- (iii). Modelling (symbolic).

Several studies have been conducted looking at trends in the use of information technology, the impact of information technology on construction, and how the construction industry can make the best use of information technology.

It is generally accepted that the initial period of penetration of information technology (I.T.) into organisations is slow, each application having different diffusion rates depending on prevailing factors in each industry (Curnow, 1981<sup>147</sup>; Twiss, 1981<sup>484</sup>). When compared to other industrial sectors, such as manufacturing, travel, banking and insurance, the construction industry is trailing behind in accepting and employing information technology (Hollingworth, 1985<sup>264</sup>; Vickery, 1989<sup>485</sup>).

Young  $(1990^{511})$  suggests that the impact of I.T. on the construction industry depends on both the extent of use and the speed at which the industry accept new technology.

Four main factors are cited as limiting the speed of I.T. amongst potential users. These are : relative cost of software to hardware (Young, 1990<sup>511</sup>; Northcott, 1986<sup>385</sup>; Stoneman et al., 1982<sup>468</sup>; Barras and Swann, 1983<sup>24</sup>); attitudinal constraints such as management reactive attitudes towards computer technology (Bevington, 1984<sup>40</sup>; Kearney, 1984<sup>293</sup>); organisational size (Cousins, 1977<sup>140</sup>; Gershuny and Miles, 1983<sup>214</sup>; CICA, 1986<sup>124</sup>); and, fragmented nature of the industry (Building IT 2000, 1991<sup>76</sup>).

Barras and Swann (1983<sup>24</sup>) observed that small companies lack financial backing and are less able to compete. In contrast, larger organisations have financial backing and take advantage of technical innovation (Hollingworth, 1986<sup>265</sup>).

However, recent studies (Peat Marwick McLintock/ Construction Industry Computing Association (CICA), 1990<sup>395</sup>; France, 1993<sup>202</sup>; Building IT 2000, 1991<sup>76</sup>) have shown that firms are using more computer networks, and that contractors investment in I.T. is on the increase.

Although investment in I.T. in construction firms is on the increase, the Peat Marwick/ CICA (1990<sup>395</sup>) study shows that major contractors only spend 0.5% of turnover on I.T. while large consultants spend 1.5% of fees. Regarding this comparatively low investment in IT by the construction industry, Betts et al. (1991a<sup>38</sup>) note that, "Construction needs to invest more heavily in LT. resources" p. 511.

It is now becoming generally accepted that industries have a lot to gain from information technology, now, and in the future. Earl  $(1989^{171})$  suggests that we live in an information society at present, where the key resource is knowledge, and where information technology (I.T.) is the enabling mechanism.

The Centre for Strategic Studies in Construction (CSSC) (1988<sup>98</sup>) in their report on "Building Britain 2001" pointed out that information technology (I.T.) is "changing design and construction methods, even if only gradually" p. 14.

The National Economic Development Council's (NEDC) Construction Chairman, Sir Christopher Foster, was quoted in New Builder (4 April, 1993) as saying, "We have an instrument (I.T.) to revolutionise the Industry. But if we do not get a grip on it, we will fall behind those who do".

Porter (1985<sup>404</sup>) maintains that IT can help identify and win niche markets, and also add value to an otherwise standard product. Brochner (1990<sup>69</sup>) suggests that the use of information technology by construction firms leads to an improvement in coordination, inspection and translation; enabling organisations to offer greater employee incentives, and also reduce transaction costs.

However, Chow (1989<sup>114</sup>) and Peat Marwick/CICA (1990<sup>395</sup>) have shown the impact on construction organisations to be small.

Although there seems to be a general agreement that interpersonal communication will increase as a result of IT (Greenburger et al. 1976<sup>230</sup>; Hirschheim, 1984<sup>260</sup>), opinions differ among writers as to the impact of IT on decision making within management levels.

Those who have control over information flow, maintains Whistler (1970<sup>496</sup>), will assert considerable influence. Decision making is likely to reside at the centre if

information systems are to be centrally located. This would have the effect of removing decision making from lower management positions, and increasing decision making in the middle and senior management positions.

Carroll (1967<sup>90</sup>) and Withington (1969<sup>507</sup>) are of the view that if information systems are centrally located, decentralised decision making, although reduced, will not necessarily be removed. Factors such as the nature of work, and one-off projects, require a flexible approach and can impose constraints on the option to centralise decision making.

According to Leavitt and Klahr (1967<sup>325</sup>) "effective" decision making will remain at the point of use, computer technology will only enhance decision making at existing level of management within the hierarchy.

For Warner (1984<sup>487</sup>), where participative decision making is the norm, computer technology will only extend the decision making process. Warner (1984<sup>487</sup>) maintains that computer literacy is essential for managers.

Harris and Mercer (1979<sup>249</sup>) inform us that if information technology is at all levels of management, head offices and sites, managers are able to take active role in decision making. Computer technology has the effect of raising level of awareness and improves decision making.

In 1983, a joint study by the Information Technology Group (1983<sup>276</sup>), Electronics EDC and the Employment and Technology Task force was conducted on the effects

of IT on all levels of management job content. Their study involved 15 companies from different industrial sectors. The study could not find any radical changes in the functions of managers as a result of computer technology. This tends to support Drucker's (1979<sup>167</sup>) view that the basic tasks of management will be unaltered. However, certain tasks such as decision making, handling of information and problem solving were enhanced. When routine tasks were removed, managers were able to maximise their time elsewhere.

The management of refurbishment work is a complex activity involving not only different individuals operating in a project environment, but also involves the mobilising and controlling of expenditure progress and standards of production. Such an activity demands not only a basic need to be usefully informed through the knowledge of people, but also through reference to current factual information. Refurbishment works therefore demand a flexible and effective management of information. However, Betts (1991<sup>37</sup>) informs us that there is a substantial information management problem in construction, and a need for greater flexibility in the way that project information can be retrieved and presented.

Several studies have attempted to address this issue by exploiting the technology available (Baxendale, 1987<sup>30</sup>; CCPI, 1987<sup>133</sup>; Betts, 1991<sup>37</sup>; Crow, 1990<sup>144</sup>; Edgil and Kirkham, 1987<sup>174</sup>; Bjork, 1992<sup>45</sup>; Aouad et al., 1993<sup>10</sup>).

A five year joint study in the U.K. between bodies representing building contractors, architects, surveyors and engineers (Co-ordinating Committee for Project Information, CCPI, 1987<sup>133</sup>) resulted in the development of a common arrangement

for project information that applies to drawings, specifications and quantities of project data within the construction industry. Although this work addressed the information management problem through co-ordination, Betts (1991<sup>37</sup>) noted that "it has not led to a more flexible project information retrieval", p.233.

Baxendale (1987<sup>30</sup>) recommends a classification system that incorporates information on elements, work sections and locations in a combined system.

Betts (1991a<sup>38</sup>) has argued that the way in which information technology is currently used in construction includes its use for producing standardised document formats, and for data retrieval from classification systems. According to Betts, all these imitate manual methods and do not strategically exploit IT to find a new solution to the problem. However, progress is being made to exploit Information Technology (IT) for new solutions (Hardcastle and Middleton, 1987<sup>247</sup>; Crow, 1990<sup>144</sup>). Crow (1990<sup>144</sup>) advocates Management Information Systems (MIS), to attempt to establish the different information of users and presenting project information reports to users.

Information modelling is also being employed in addressing the information management problems of flexibility, retrieval and presentation (Bjork, 1992<sup>45</sup>; Aouad et al., 1993<sup>10</sup>; Edgil and Kirkham, 1987<sup>174</sup>).

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For refurbishment organisations to survive and remain competitive in what is an information era (Earl, 1989<sup>171</sup>), the skills and knowledge associated with information technology is vital.

Betts et al. (1991b<sup>39</sup>) have suggested that all levels of management in construction need to embrace IT. They also note that, "Professional institutions may influence this issue by identifying IT awareness and management skills as an important component of continuing professional development programmes", p. 37.

Regarding education and training for Information Technology in construction management, Young  $(1991a^{513})$  maintains that, "It is time the construction industry came to terms with the whole issue of education and training by implementing a fundamental strategy - that is investing in the education and training of its workforce", p. 129.

Young (1991a<sup>513</sup>) also maintains that for construction personnel, education and training for IT should be provided on two levels, i.e. strategic and operational level. Courses at the strategic level should provide managers with an understanding of how IT can be used to gain both competitive advantage and efficiency. Courses at the operational level would need to embrace areas such as keyboard skills, knowledge of computer language, and assessing and manipulating data.

#### (iv). Demographic Factors

The future of refurbishment organisations is likely to be affected by demographic factors. Discussions on the likely impact of demographic factors on refurbishment will be conducted at two levels, namely:-

(i) Demographic changes and availability of potential workforce for refurbishment organisations.

(ii) Demographic changes and how they affect housing refurbishment.

Demographic factors include the rate of population change, and also, changes in age structure.

In recent years, reports have been published by government establishments (NEDO, 1988<sup>378</sup>; the Employment Department, 1988<sup>176</sup>); and by the Construction Industry (CSSC, 1988<sup>98</sup>; 1989<sup>99</sup>), describing the likely impact of demographic factors on organisations.

Both the NEDO (1988<sup>378</sup>) report, "Young people and the labour market - a challenge for the 1990's", and the Employment Department (1988<sup>176</sup>) report titled "Employment for the 1990's", inform us that the number of school leavers entering the labour market is declining. School leavers represent one of the largest sources of manpower in the U.K. labour market (NEDO, 1988<sup>378</sup>).

Between 1987 and 1995 the number of 16 - 24 year olds in the labour market is projected to fall by 1.2 million. This value is even greater if students with a parttime job are excluded.

Similarly, the labour force is ageing, containing many more 25 - 54 year olds, and almost as many over 55's as now. It is also projected that women will form a substantial proportion of the workforce. All these changes will mean that employers will face a variety of unfamiliar demands from the workforce, and will further fuel the demand for skilled and knowledgeable employees. According to the Employment Department (1988<sup>176</sup>), employers cannot expect to recruit as many young and well-qualified people as they have in the past. Competition will be more intense for better qualified people (Employment Gazette, 1988a<sup>178</sup>).

Lansley (1990<sup>320</sup>) maintains that if the Construction Industry is to attract, recruit and retain its workforce, a concerted effort is urgently needed. Similarly, as the Centre for Strategic Studies in Construction (CSSC, 1988<sup>98</sup>) pointed out, there will be a need for companies to reassess attitudes towards older employees and retraining.

According to Bowcott (1990<sup>54</sup>) and the CBI (1990<sup>121</sup>), continuous education will be an accepted practice, and the issues regarding quality of working life will have to be taken seriously.

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Refurbishment organisations need to start planning ahead if they are to adjust to the changing circumstances. Their managers will also need to be educated and trained for relevant skills/ knowledge associated with the kind of work they do.

Demographic changes in house hold composition in the U.K. is likely to have an impact on housing refurbishment. The Department of the Environment (DOE, 1991<sup>157</sup>) projected an increase in one person households and a decrease in married couples households (see Table 74). One person households are expected to increase from just over 5 million in 1991 to 6.4 million in 2001 and 7.6 million in 2001. Similarly, lone-parent households will increase from 1.9 million in 1991 to 2.3 million in 2001 and 2.5 million in 2011.

In contrast, married couple households will decline from 10.6 million in 1991, to 10.1 million in 2001 and then 9.8 million in 2011. Average household size is also decreasing, see Table 74.

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According to Fleming and Nellis (1992<sup>199</sup>), the increase in the number of both single-person households and one-parent families is a combined result of a rise in divorce, later marriage, an ageing population (and thus more widows and widowers) and a higher propensity for unmarried people to live alone.

The growing number of single parent households and one-parent families have implications to the refurbishment sector. According to Fleming and Nellis (1992<sup>199</sup>), "These trends have important implications for the structure of the housing stock and the house building industry with the increased needs they generate for small dwellings and the conversion of existing stock to accommodate many more one-person and smaller families", p. 20.

## Table 74: Household Composition In England And Wales: 1989 - 2011

Household Types*	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1996</u>	<u>2001</u>	<u>2006</u>	<u>2011</u>
			(Thou	isands: 0	00)		
One person household	4,832	4,947	5,093	5,756	6,354	6,941	7,559
Lone parent household	1,785	1,836	1,891	2,148	2,336	2,463	2,542
Married couple household	10,646	10,613	10,5 <b>72</b>	10,342	10,142	9,964	9,811
Average household size	2.52	2.50	2.48	2.41	2.37	2.32	2.27

#### \* Definitions

One person household: A person living alone who shares neither housekeeping nor a living room with anyone else.

Lone-parent household: A household headed by a parent living with one (or more) never married child(ren).

Married couple household: A household headed by a married couple with or without children.

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\* Source: Department of the Environment (DOE) Household Projections, England 1989 - 2011, HMSO, 1991

For organisations specialising in housing refurbishment, the future would appear to look promising. For organisations seeking to diversify into the refurbishment market, there would appear to be opportunities in the conversion of large dwellings into smaller flats.

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# <u>9.3. Perceived Importance Of Future Skills/Knowledge : Refurbishment Managers'</u> <u>Views.</u>

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Refurbishment managers' perceptions were sought regarding the important skills/knowledge for the future. Managers who participated in the postal questionnaire were asked to indicate from a list of 75 skills/knowledge those which they perceive to be "very important", "important", "fairly important" and "not important" for the future ( see Questionnaire in Appendix A). Managers were also reminded to consider how their jobs will change, if at all, within the next five years. Average scores were computed from the data received. Table 75 presents the full list of 75 management skills/knowledge for the future. As mean score increases, this signifies decreasing importance attached to the skill/knowledge.

From an inspection of Table 75, refurbishment managers ranked communication and leadership, first and second respectively in order of importance. Quality control and assurance, ranked 11th in importance in managers' present jobs, rises to 5th place as future skills/knowledge, indicating a greater requirement for the knowledge of quality management in the future. Budgetary control assumes equal standing now, and in the future (ranked 8th).

Analysis of project risks/uncertainty ranked 26th in importance at present, rises to 18th place in the future, whereas, forecasting and planning which was not considered as one of the most important skills/knowledge at the present time is ranked 13th for the future. These comparisons are shown in Table 76. The categories "very important" and " important" are combined to form the "most important" skills/knowledge.

# Table 75: Management Skills And knowledge Perceived As Most Important In Managing Refurbishment Work In The Future: Refurbishment Managers

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Skills/Knowledge (Job dimensions)	<u>Mean Scores (N=142)</u>	<u>Rank</u>
Communication (oral/written)	1.028	1
Leadership	1.042	2
Health and safety	1.070	3
Supervision of others	1.077	4
Quality control and assurance	1.016	5
Team building	1.127	6
Decision making	1.162	
Budgetary control	1.169	8
Motivation of others	1.190	9
Setting objectives and goals	1.211	10
Site organisation	1.289	11
Managing time	1.296	12
Forecasting and planning	1.303	13
Conducting meetings	1.314	13
Employee training: supervisor/foreman	1.324	15
Delegating responsibilities	1.359	16
Employee training: management	1.366	10
Analysis of project risks/uncertainty	1.373	18
Materials planning and control	1.394	19
Managing change	1.408	20
recruit/select: supervisor/foreman	1.423	20
Manpower planning and control	1.430	22
Programme design	1.430	23
Recruit/select: subcontractor	1.430	24
Negotiate: client	1.444	25
Negotiate subcontractor	1.472	26
Recruit/select: management	1.472	27
Programme maintenance (update)	1.472	28
Tenant welfare	1.479	29
Productivity maintenance and control	1.493	30
Costing and estimating	1.514	31
Competitive tendering	1.521	32
Identifying personal strength and weaknes	ses 1.542	33
Public relations	1.570	34
Managing conflict/crisis	1.592	35
Competitor awareness	1.634	36
Employee training: manual labour	1.655	37
Site security	1.676	38
Negotiate: main contractor	1.690	39
Career development/appraisal	1.697	40
Recruit/select: manual labour	1.704	41
Organisation of communication systems	1.739	42
Employee welfare/counselling	1.754	43
Managing job stress	1.768	44

Negotiate: supplier	1.866	45
Company (strategic) planning	1.880	46
Use of computer technology	1.887	47
Organisation structure	1.915	48
Creativity	1.923	49
Construction law	1.937	50
Plant planning and control	1.951	51
Job analysis/specification	1.958	52
Client/consumer protection law	1.993	53
Employment legislation	2.007	54
Contract drafting	2.014	55
Code of practice/working rule agreement	2.014	56
Termination/dismissal: subcontractor	2.042	57
Promotion and transfer	2.056	58
Company accounting	2.113	59
Termination/dismissal: management	2.162	60
Decanting buildings	2.169	61
Termination/dismissal: supervisor/foreman	2.169	62
Sources of finance	2.176	63
Planning law	2.239	64
Advertising and promotion	2.246	65
Negotiate: government bodies	2.268	66
Property insurance	2.289	67
Termination/dismissal: manual labour	2.296	68
Market research	2.338	69
Company law	2.380	70
Organisation culture	2.472	71
Negotiate: trade unions	2.493	72
Managing other national culture	2.732	73
Demotion and retirement	2.732	74
Foreign language	2.859	75
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### Table 76: A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Refurbishment Managers

#### <u>Rank</u> <u>Present</u> (N=142)

#### <u>Future</u>

	• • • •	
1.	Leadership	Communication (oral/written)
2.	Communication (oral/written	Leadership
3.	Motivation of others	Health and safety
4.	Health and safety	Supervision of others
5.	Decision making	Quality control and assurance
6.	Forecasting and planning	Team building
7.	Site organisation	Decision making
8.	Budgetary control	Budgetary control
9.	Supervision of others	Motivation of others
10.	Team building	Setting objectives and goals
11.	Quality control and assurance	Site organisation
12.	Managing time	Managing time
13.	Materials planning and control	Forecasting and planning
14.	Manpower planning and control	Conducting meetings
15.	Setting objectives and goals	Employee training: supervisor/foreman
16.	Conducting meetings	Delegating responsibilities
17.	Managing conflict/crisis	Employee training: management
18.	Recruit/select: supervisor/foreman	Analysis of project risks/uncertainty
19.	Delegating responsibilities	Materials planning and control
20.	Programme maintenance (update)	Managing change
21.	Tenant welfare	Recruit/select: supervisor/foreman
22.	Public relations	Manpower planning and control
23.	Recruit/select: subcontractor	Programme design
24.	Employee training: supervisor/foreman	Recruit/select: subcontractor
25.	Competitive tendering	Negotiate: client
26.	Analysis of project risks/uncertainty	Negotiate: subcontractor
27.	Programme design	Recruit/select: management
28.	Identifying personal strength & weaknesses	Programme maintenance (update)
29.	Employee training: management	Tenant welfare
30.	Site security	Productivity maintenance and control
31.	Productivity maintenance and control	Costing and estimating
32.	Negotiate: client	Competitive tendering
33.	Costing and estimating	Identifying personal strength & weaknesses
34.	Competitor awareness	Public relations
35.	Managing change	Managing conflict/crisis

Table 77 compares the rank order of skills/knowledge which respondents in the study perceived as not important for refurbishment at present, and for the future.

An inspection of Table 77 suggests that, in the main, managers are in agreement as to the skills which are not important for refurbishment now, and in the future.

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### Table 77: A Comparison Of The Rank Order Of 'Not Important' Skills And Knowledge For Refurbishment (Present And Future): Refurbishment Managers.

<u>Rank</u>	Present	Future
<u>(N=14</u>	2)	
1	Foreign language	Foreign language
1. 2	Demotion and retirement	Porcigi language
2.	Demotion and retrement	Demotion and retirement
3.	Managing other national culture	Managing other national culture
4.	Planning law	Negotiate: trade unions
5.	Organisation culture	Organisation culture
6.	Use of computer technology	Company law
7.	Company law	Market research
8.	Termination/dismissal: manual labour	Termination/dismissal manual labour
9.	Negotiate: trade unions	Property insurance
10.	Termination/dismissal: management	Negotiate: government bodies
11.	Market research	Advertising and promotion
12.	Advertising and promotion	Planning law
13.	Negotiation: government bodies	Sources of finance
14.	Employee welfare/counselling	Termination/dismissal: supervisor/foreman
15.	Promotion and transfer	Decanting buildings
		***************************************

Foreign language is ranked highest as the skill/knowledge which is perceived as not important for refurbishment (present and future). Demotion and retirement, and managing other national culture are ranked second and third respectively. These results further lend support to the view that refurbishment organisations do not anticipate operating in foreign markets, in which case the need for foreign language, and an understanding of other countries' national cultures is minimal.

Interestingly, whilst the use of computer technology was ranked as not important in managers' present jobs, this is not the case for the future. In terms of relative ranking of the 75 management skills and knowledge for refurbishment, the use of computer technology is ranked 70th in order of importance for present job (see Table 1 Appendix B), whereas for the future it is ranked 47th (see Table 75 in the text).

Young (1988<sup>510</sup>) in her study on 'Career development in construction management' observed that the use of computer technology is becoming increasingly relevant for construction management.

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The result of the present study would also indicate that refurbishment managers are becoming aware of the importance of the use of computer technology, and the likely impact of information technology (IT) on their organisations.

At the dis-aggregate level, senior, mid-level and junior managers' ratings on the most important skills/knowledge for the future will be considered. Comparisons will also be made with the skills/knowledge which managers at each level perceive to be important in their present jobs.

Senior managers' ratings on the most important skills/knowledge for the future are presented in Table 78. Prominently placed at the top three positions, are leadership, communication (oral/written), and health and safety. These are ranked 1st, 2nd and 3rd respectively as the most important skills/knowledge for the future (see Table 78). These three skills/knowledge are also perceived as the most important at present, although there is variation in their rank order

(see Table 79).

# <u>Table 78: Senior Managers' Ratings On The Most Important Skills And Knowledge</u> (Job Dimensions) For The Future

Skills/Knowledge(Job dimensions)	Mean Scores(N=23)	<u>Rank</u>
Leadership	1 000	1
Communication (oral/written)	1.000	2
Health and safety	1.000	3
Quality control and assurance	1.000	4
Managing change	1.087	5
Budgetary control	1.087	6
Supervision of others	1.087	7
Employee training: management	1.087	8
Decision making	1.174	9
Team building	1.174	10
Setting objectives and goals	1.174	11
Analysis of project risks/uncertainty	1.261	12
Tenant welfare	1.304	13
Employee training: supervisor/foreman	1.304	14
Programme maintenance (update)	1.348	15
Recruit/select: management	1.348	16
Forecasting and planning	1.391	17
Competitive tendering	1.435	18
Costing and estimating	1.435	19
Competitor awareness	1.435	20
Programme design	1.435	21
Site organisation	1.435	22
Productivity maintenance and control	1.478	23
Recruit/select: supervisor/foreman	1.478	24
Motivation of others	1.522	25
Managing time	1.522	26
Delegating responsibilities	1.522	27
Identifying personal strength & weakness	ses 1.522	28
Use of computer technology	1.522	29
Organisation of communication systems	1.565	30
Negotiate: client	1.565	31
Recruit/select: subcontractor	1.565	32
Negotiate: subcontractor	1.609	33
Manpower planning and control	1.609	34
Career development and appraisal	1.609	35

#### Table 79: A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Senior Managers

<u>Rank</u>	Present
<u>(N=23)</u>	

#### <u>Future</u>

1.	Communication (oral/written)	Leadership
2.	Health and safety	Communication (oral/written)
3.	Leadership	Health and safety
4.	Decision making	Quality control and assurance
5.	Budgetary control	Managing change
6.	Motivation of others	Budgetary control
7.	Forecasting and planning	Supervision of others
8.	Costing and estimating	Employee training: management
9.	Supervision of others	Decision making
10.	Team building	Team building
11.	Managing conflict/crisis	Setting objectives and goals
12.	Identifying personal strength/weaknesses	Analysis of project risks/uncertainty
13.	Managing time	Tenant welfare
14.	Site organisation	Employee training: supervisor/foreman
15.	Analysis of project risks/uncertainty	Programme maintenance (update)
16.	Recruit/select: supervisor/foreman	Recruit/select: management
17.	Quality control and assurance	Forecasting and planning
18.	Conducting meetings	Competitive tendering
19.	Manpower planning and control	Costing and estimating
20.	Recruit/select: subcontractor	Competitor awareness
21.	Materials planning and control	Programme design
22.	Employee training: management	Site organisation
23.	Setting objectives and goals	Productivity maintenance and control
24.	Delegating responsibilities	Recruit/select: supervisor/foreman
25.	Employee training: supervisor/foreman	Motivation of others
26.	Tenant welfare	Managing time
27.	Competitor awareness	Delegating responsibilities
28.	Managing change	Identifying personal strength/weaknesses
29.	Recruit/select: management	Use of computer technology
30.	Organisation of communication systems	Organisation of communication systems
31.	Competitive tendering	Negotiate: client
32.	Programme maintenance (update)	Recruit/select: subcontractor
33.	Programme design	Negotiate: subcontractor
34.	Public relations	Manpower planning and control
35.	Productivity control and maintenance	Career development and appraisal
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Quality control which was ranked 17th by senior managers in their present job, rises to 4th in terms of importance for the future. Senior managers will increasingly have to take the lead on safety issues, and make their sub-ordinates aware of the implications to the organisation of a lapse in health and safety matters.

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Budgetary control is ranked 6th in terms of importance for the future, marginally lower than in present job (ranked 5th).

The use of computer technology is ranked 29th by senior managers in terms of importance for the future. In the current study, in terms of relative position of all 75 management skills/knowledge in managers' present jobs, refurbishment managers place the use of computer technology in 54th position (see section 6.4). Again, this indicates that managers are becoming aware of the importance of computers and information technology for the future.

A closer observation of Table 79 suggests that, in the main, the skills/knowledge which senior managers perceive as most important for the future, are similar to those considered as most important at the present time, although their relative positions vary.

Table 80 records data on middle managers ratings regarding the most important skills/knowledge for the future. The interpersonal skills of leadership and communication are ranked 1st and 2nd respectively, as the most important skills for the future. Health and Safety also received high weighting. This is ranked 3rd in importance for the future, marginally lower than at present (ranked 1st, see Table 81).

Quality control and assurance which was ranked 15th in terms of importance for their present job, rises to 6th position for the future, again indicating the increasing significance of quality control in managing refurbishment work in the future.

## <u>Table 80: Middle Managers' Ratings On The Most Important Skills And Knowledge</u> (Job Dimensions) For The Future

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Skills/Knowledge (Job Dimensions)	<u>Mean Scores (N=59)</u>	<u>Rank</u>
Leadership	1.068	1
Communication (oral/written)	1.068	2
Health and safety	1.068	3
Supervision of others	1.068	4
Team building	1.102	5
Quality control and assurance	1.119	6
Budgetary control	1.136	7
Setting objectives and goals	1.203	8
Employee training: supervisor/foreman	1.203	9
Motivation of others	1.220	10
Decision making	1.237	11
Managing time	1.254	12
Negotiate: client	1.288	13
Analysis of project risks/uncertainty	1.288	14
Site organisation	1.288	15
Employee training: management	1.305	16
Forecasting and planning	1.322	17
Conducting meetings	1.322	18
Delegating responsibilities	1.322	19
Recruit/select: supervisor/foreman	1.339	20
Costing and estimating	1.373	21
Recruit/select: management	1.407	22
Negotiate: subcontractor	1.407	23
Materials planning and control	1.424	24
Manpower planning and control	1.441	25
Competitive tendering	1.441	26
Identifying personal strength/weaknesses	1.441	27
Managing change	1.441	28
Recruit/select: subcontractor	1.458	29
Managing conflict/crisis	1.542	30
Competitor awareness	1.559	31
Programme design	1.559	32
Employee training: manual labour	1.559	33
Tenant welfare	1.576	34
Pubic relations	1.593	35
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At the bottom of the Table 80 are job dimensions of tenant welfare and public relations. These job dimensions will still be of relevance for the future, as they are

at present.

#### Table 81: A Comparison Of The Rank Order Of Most Important Skill And Knowledge For Refurbishment (Present And Future): Middle Managers

<u>Rank</u> (N=59)	Present .	Future
1.	Health and safety	Leadership
2.	Leadership	Communication (oral/written)
3.	Motivation of others	Health and safety
4.	Communication (oral/written)	Supervision of others
5.	Budgetary control	Team building
6.	Decision making	Quality control and assurance
7.	Forecasting and planning	Budgetary control
8.	Site organisation	Setting objectives and goals
9.	Team building	Employee training: supervisor/foreman
10.	Supervision of others	Motivation of others
11.	Recruit/select: supervisor/foreman	Decision making
12.	Conducting meetings	Managing time
13.	Delegating responsibilities	Negotiate: client
14.	Recruit/select: subcontractor	Analysis of project risks/uncertainty
15.	Quality control and assurance	Site organisation
16.	Managing time	Employee training: management
17.	Programme maintenance (update)	Forecasting and planning
18.	Setting objectives and goals	Conducting meetings
19.	Managing conflict/crisis	Delegating responsibilities
20.	Manpower planning and control	Recruit/select: supervisor/foreman
21.	Employee training: supervisor/foreman	Costing and estimating
22.	Recruit/select: management	Recruit/select: management
23.	Analysis of project risks/uncertainty	Negotiate: subcontractor
24.	Site security	Materials planning and control
25.	Negotiate: client	Manpower planning and control
26.	Negotiate: subcontractor	Competitive tendering
27.	Materials planning and control	Identifying personal strength/weaknesses
28.	Programme design	Managing change
29.	Public relations	Recruit/select: subcontractor
30.	Competitive tendering	Managing conflict/crisis
31.	Competitor awareness	Competitor awareness
32.	Negotiate: main contractor	Programme design
33.	Employee training: management	Employee training: manual labour
34.	Identifying personal strength/weaknesses	Tenant welfare
35.	Tenant welfare	Public relations

For junior managers, again, the interpersonal skills are prominently placed in the top positions. Communication, leadership, motivation of others, and supervision of others are ranked 1st, 2nd, 3rd, and 4th respectively in terms of the most important job dimensions for the future ( see Table 82). Quality control which was ranked 12th in terms of importance at present, rises to 7th position for the future (see Table 83).

# Table 82: Junior Managers' Ratings On The Most Important Skills And Knowledge (Job Dimension) For The Future

Skills/Knowledge (Job dimension)	<u>Mean Scores (N=60)</u>	<u>Rank</u>
Communication (oral/written)	1.000	1
Leadership	1.033	2
Motivation of others	1.033	3
Supervision of others	1.083	4
Decision making	1.083	5
Health and safety	1.100	6
Quality control and assurance	1.133	7
Team building	1.133	8
Site organisation	1.233	9
Budgetary control	1.233	10
Setting objectives and goals	1.233	11
Forecasting and planning	1.250	12
Managing time	1.250	13
Materials planning and control	1.250	14
Programme design	1.300	15
Conducting meetings	1.300	16
Delegating responsibilities	1.333	17
Manpower planning and control	1.350	18
Recruit/select: subcontractor	1.350	19
Productivity maintenance and control	1.367	20
Programme maintenance (update)	1.400	21
Employee training: supervisor/foreman	1.450	22
Tenant welfare	1.450	23
Public relations	1.467	24
Negotiate: subcontractor	1.483	25
Recruit/select: supervisor/foreman	1.483	26
Managing change	1.500	27
Analysis of project risks/uncertainty	1.500	28
Employee training: management	1.533	29
Negotiate: client	1.550	30
Employee welfare/counselling	1.567	31
Recruit/select: management	1.583	32
Managing conflict/crisis	1.600	33
Organisation of communication systems	1.617	34
Competitive tendering	1.633	35

### Table 83: A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Junior Managers

Future

#### <u>Rank</u> <u>Present</u> (N=60)

#### 1. Leadership Communication (oral/written) 2. Communication (oral/written) Leadership 3. Motivation of others Motivation of others 4. Health and safety Supervision of others 5. Forecasting and planning Decision making Materials planning and control Health and safety 6. 7. Supervision of others Quality control and assurance 8. Site organisation Team building 9. Decision making Site organisation 10. Team building Budgetary control 11. Manpower planning and control Setting objective and goals 12. Quality control and assurance Forecasting and planning Managing time 13. Managing time 14. Productivity control and maintenance Materials planning and control 15. Budgetary control Programme design 16. Tenant welfare Conducting meetings 17. Setting objectives and goals Delegating responsibilities Public relations Manpower planning and control 18. 19. Managing conflict/crisis Recruit/select: subcontractor 20. Programme maintenance (update) Productivity maintenance and control 21. Competitive tendering Programme maintenance (update) 22. Programme design Employee training: supervisor/foreman Conducting meetings Tenant welfare 23. 24. Employee training: supervisor/foreman Public relations 25. Delegating responsibilities Negotiate: subcontractor Site security 26. Recruit/select: supervisor/foreman Analysis of project risks/uncertainty 27. Managing change Identifying personal strength and weaknesses 28. Analysis of project risks/uncertainty 29. Employee training: management Employee training: management Recruit/select: supervisor/foreman 30. Negotiate: client Negotiate: client 31. Employee welfare/counselling Managing job stress 32. Recruit/select: management 33. Managing change Managing conflict/crisis Costing and estimating 34. Organisation of communication systems Recruit/select: subcontractor Competitive tendering 35.

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The skills/knowledge associated with operational management also received high weighting for the future. Site organisation, materials planning and control, and programme design are ranked 9th, 14th and 15th respectively (see Table 82).

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Tenant welfare, and public relations are ranked 23rd and 24th respectively, although lower than in managers' present jobs, site management will in future still have to liaise and respond to the needs of tenants and the public.

In summary, the interpersonal skills of leadership, communication, motivation of others and supervision of others will be most important in the future for all levels of management as they are at present. Quality control and assurance is increasingly recognised as important for the future at all levels of management.

The financial management skill of budgetary control still remains more important in senior rather than in middle and junior management positions.

There is also an increasing awareness of the importance of computer and information technology. This is more so for senior rather than for junior management.

The last section of this chapter will consider refurbishment management education and training needs for the future from both the organisational and managerial perspectives. Comparisons will also be made between present and future education and training needs.

# <u>9.4. Refurbishment Management Education And Training Needs For The Future:</u> <u>Managers' Perspective.</u>

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Refurbishment managers who participated in the postal questionnaire were asked to indicate from a list of 75 job dimensions, those job dimensions for which they will need education/training in the future: "very much need", "much need", "need", and "not need" training (see Questionnaire in Appendix A).

Refurbishment managers were reminded to give due consideration on how their jobs will change, if at all, within the next five years. Average scores were computed from the data received. Table 84 presents the full list of 75 job dimensions. As means score increases, this signifies decreasing need for education and training.

An observation of Table 84 shows that health and safety, and quality control and assurance are ranked 1st and 2nd in terms of need for education and training for the future. Quality control which was ranked 6th in terms of present need for education and training, rises to 2nd place for the future (see Table 85).

# Table 84: Refurbishment Managers' Education And Training Needs For The Future

Job Dimensions	Mean Scores (N=142)	<u>Rank</u>
Health and safety	1.317	1
Quality control and assurance	1.415	2
Use of computer technology	1.458	3
Communication (oral/written)	1.521	4
Leadership	1.528	5
Forecasting and planning	1.739	6
Analysis of project risks/uncertaint	tv 1.739	7
Budgetary control	1.754	8
Motivation of others	1.775	9
Supervision of others	1.782	10
Employee training: supervisor/fore	eman 1.789	11
Managing time	1.803	12
Setting objectives and goals	1.803	13
Employee training: management	1.803	14
Team building	1.852	15
Negotiate: client	1.852	16
Conducting meetings	1.859	17
Managing conflict/crisis	1.866	18
Costing and estimating	1.866	19
Decision making	1.915	20
Negotiate: subcontractor	1.915	21
Managing change	1.923	22
Public relations	1.923	23
Programme design	1.951	24
Negotiate: main contractor	1.972	25
Construction law	1,972	26
Competitive tendering	1,986	27
Materials planning and control	1,986	28
Manpower planning and control	2.000	29
Career development and appraisa	1 2.042	30
Identifying personal strength/weak	nesses 2.049	31
Recruit/select: management	2.056	32
Employee training: manual labour	2.058	33
Recruit/select: subcontractor	2.070	34
Recruit/select: supervisor/foreman	2.077	35
Managing job stress	2.092	36
Programme maintenance (undate)	2.099	37
Delegating responsibilities	2.120	38
Site organisations	2.127	39
Organisation of communication sy	stems 2.134	40
Productivity maintenance and con	trol 2.176	41
Tenant welfare	2.190	42
Company (strategic) planning	2.204	43
Employment legislation	2.246	44
Client/consumer protection law	2.246	45

Contract drafting	2.268	46
Job analysis/specification	2.268	47
Competitor awareness	2.275	48
Company accounting	2.275	49
Negotiate: supplier	2.310	50
Recruit/select: manual labour	2.310	51
Creativity	2.324	52
Employee welfare/counselling	2.324	53
Company law	2.359	54
Termination/dismissal: subcontractor	2.366	55
Site security	2.380	56
Code of practice/working rule agreement	2.387	57
Negotiate: government bodies	2.401	58
Planning law	2.401	59
Termination/dismissal: supervisor/foreman	2.423	60
Sources of finance	2.458	61
Organisation structure	2.458	62
Plant planning and control	2.472	63
Termination/dismissal: management	2.493	64
Promotion and transfer	2.542	65
Property insurance	2.556	66
Advertising and promotion	2.592	67
Termination/dismissal: manual labour	2.676	68
Decanting buildings	2.690	69
Foreign language	2.711	70
Market research	2.725	71
Negotiate: trade unions	2.732	72
Organisation culture	2.746	73
Managing other national culture	2.880	74
Demotion and retirement	2.979	75

Table 85 compares data on job dimensions for which managers need education/training at present, and for the future. The categories "very much need", and "much need" are combined to form "most need" education and training.

The use of computer technology remains unchanged at 3rd position. For refurbishment managers, education and training is needed in the skills and knowledge associated with computers and information technology if they are to remain competitive in an information society (Earl, 1989<sup>171</sup>).

## Table 85: A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Refurbishment Managers

<u>Rank</u>	Present	<u>Future</u>	
<u>(N=142)</u>			
1.	Forecasting and planning	Health and safety	
2.	Analysis of project risks/uncertainty	Quality control and assurance	
3.	Use of computer technology	Use of computer technology	
4.	Employee training: supervisor/foreman	Communication (oral/written)	
5.	Health and safety	Leadership	
6.	Quality control and assurance	Forecasting and planning	
7.	Employee training: management	Analysis of project risks/analysis	
8.	Budgetary control	Budgetary control	
9.	Competitive tendering	Motivation of others	
10.	Negotiate: client	Supervision of others	
11.	Managing time	Employee training: supervisor/foreman	
12.	Setting objectives and goals	Managing time	
13.	Costing and estimating	Setting objectives and goals	
14.	Managing conflict/crisis	Employee training: management	
15.	Leadership	Team building	
16.	Construction law	Negotiate: client	
17.	Career development and appraisal	Conducting meetings	
18.	Communication (oral/written)	Managing conflict/crisis	
19.	Motivation of others	Costing and estimating	
20.	Recruit/select: subcontractor	Decision making	
21.	Recruit/select: supervisor/foreman	Negotiate: subcontractor	
22.	Organisation of communication systems	Managing change	
23.	Programme design	Public relations	
24.	Employee training: manual labour	Programme design	
25.	Team building	Negotiate: main contractor	
26.	Manpower planning and control	Construction law	
27.	Managing job stress	Competitive tendering	
28.	Managing change	Materials planning and control	
29.	Public relations	Manpower planning and control	
30.	Supervision of others	Career development and appraisal	
31.	Recruit/select: management	Identifying personal strength/weaknesses	
32.	Productivity maintenance and control	Recruit/select: management	
33.	Conducting meetings	Employment training: manual labour	
34.	Tenant welfare	Recruit/select: subcontractor	
35.	Job analysis/specification	Recruit/select: supervisor/foreman	

Forecasting and planning, and analysis of project risks/uncertainties are rated highly in terms of need for education and training. Although displaced from 1st and 2nd positions (present job) to 6th and 7th (future) respectively, the high rating of these two job dimensions indicate the nature of the works. Refurbishment work is difficult to forecast and plan, and full of inherent risks/ uncertainties. It is therefore not surprising that these are two areas for which managers most need education and training.

Interpersonal skills also received high weighting for the future. Communication, leadership, motivation of others, and supervision of others are ranked 4th, 5th, 9th and 10th respectively. Refurbishment managers in the current study perceive their need for education/training in interpersonal skills to be higher in the future than in their present job (see Table 85).

This could be explained in part by the increasing subcontract labour (CSSC, 1988<sup>98</sup>; Clarke, 1992<sup>115</sup>) and the increasing complexity of projects (CSSC, 1989<sup>99</sup>; Bufaied, 1987<sup>71</sup>; Mustapha and Langford, 1990<sup>368</sup>). Communication and leadership skills are necessary where there is an increase in fragmented specialised works, and also where there are difficulties in locating labour on site.

From inspection of Table 85, refurbishment managers ranked budgetary control 8th in order of need for education and training for the future. In effect there is no distinction between present and future need for budgetary control.

Midway down Table 84, the job dimensions associated with operational management are evident. Programme maintenance (update), and productivity maintenance and control are ranked 37th and 41st respectively.
Further down Table 84, foreign language, managing other national culture, and demotion/retirement received low rating, being ranked 70th, 74th and 75th respectively. This result further supports the view that refurbishment organisations do not anticipate participating in foreign markets, where an understanding of foreign languages and other countries' national cultures are needed.

At the dis-aggregate level, senior, middle, and junior managers' ratings on job dimensions for which they most need education/training for the future will be considered. At each level of management, comparisons will be made between present and future needs.

Table 86 presents data on senior managers' ratings on the job dimensions for which there is most need for education/training in the future. An observation of Table 86 shows that for senior managers, quality control/assurance, health and safety, and the use of computer technology are the highest ranked job dimensions for which there is most need for education and training for the future.

Analysis of project risk/uncertainty, and forecasting and planning which were ranked 1st and 2nd as present needs, are displaced into 6th and 7th positions respectively, for the future, by quality control/assurance and health and safety. (see Table 87)

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# <u>Table 86: Senior Managers' Ratings On The Job Dimensions For Which There Is</u> <u>Most Need For Education And Training In The Future</u>

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Job Dimensions	Mean Scores (N=23)	<u>Rank</u>
Quality control and assurance	1.304	1
Health and safety	1.348	2
Use of computer technology	1.391	3
Leadership	1.478	4
Budgetary control	1.522	5
Analysis of project risks/uncertaint	y 1.609	6
Forecasting and planning	1.826	7
Communication (oral/written)	1.826	8
Employee training: management	1.870	9
Supervision of others	1.870	10
Team building	1.957	11
Managing conflict/crisis	2.000	12
Managing time	2.000	13
Employee training: supervisor/fore	man 2.043	14
Motivation of others	2.087	15
Competitive tendering	2.087	16
Managing change	2.087	17
Costing and estimating	2.087	18
Setting objectives and goals	2.130	19
Identifying personal strength/weak	nesses 2.130	20
Managing job stress	2.174	21
Public relations	2.174	22
Negotiate: subcontractor	2.217	23
Organisation of communication sys	stems 2.217	24
Negotiate: client	2.217	25
Manpower planning and control	2.261	26
Negotiate: main contractor	2.304	27
Programme design	2.304	28
Materials planning and control	2.304	29
Conducting meetings	2.348	30
Recruit/select: management	2.348	31
Productivity maintenance and cont	rol 2.348	32
Decision making	2.348	33
Tenant welfare	2.391	34
Programme maintenance (update)	2.391	35

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#### Table 87: A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Senior Managers

**Future** 

Rank

Present

(N=2)	<u>(3)</u>	
1.	Analysis of project risks/uncertainty	Quality control and assurance
2.	Forecasting and planning	Health and safety
3.	Use of computer technology	Use of computer technology
4.	Health and safety	Leadership
5.	Budgetary control	Budgetary control
6.	Employee training: management	Analysis of project risks/uncertainty
7.	Competitive tendering	Forecasting and planning
8.	Employee training: supervisor/foreman	Communication (oral/written)
9.	Quality control and assurance	Employee training: management
10.	Negotiate client	Supervision of others
11.	Managing time	Team building
12.	Costing and estimating	Managing conflict/crisis
13.	Setting objectives and goals	Managing time
14.	Managing conflict/crisis	Employee training: supervisor/foreman
15.	Motivation of others	Motivation of others
16.	Leadership	Competitive tendering
17.	Communication (oral/written)	Managing change
18.	Career development and appraisal	Costing and estimating
19.	Managing change	Setting objectives and goals
20.	Recruit/select: subcontractor	Identifying personal strength/weaknesses
21.	Recruit/select supervisor/foreman	Managing job stress
22.	Construction law	Public relations
23.	Recruit/select: management	Negotiate: subcontractor
24.	Manpower planning and control	Organisation of communication systems
25.	Supervision of others	Negotiate: client
26.	Conducting meetings	Manpower planning and control
27.	Team building	Negotiate: main contractor
28.	Managing job stress	Programme design
29.	Identifying personal strength/weaknesses	Materials planning and control
30.	Programme design	Conducting meetings
31.	Productivity maintenance and control	Recruit/select management
32.	Public relations	Productivity maintenance and control
33.	Organisation of communication systems	Decision making
34.	Decision making	Tenant welfare
35.	Contract drafting	Programme maintenance (update)

In terms of ranking positions, there is no distinction between present and future needs for education and training in the use of computer technology, being ranked 3rd. For future needs, the interpersonal skills of leadership, communication, and supervision of others, also received high weighting, being ranked 4th, 8th and 10th respectively (see Table 86).

The knowledge of tendering competitively in order to win work is seen by senior managers to be necessary for the future. With increasing competition amongst organisations, and larger organisations moving into the refurbishment sector, it is not surprising that competitive tendering is ranked 16th (Table 86). The job dimensions of public relations, and negotiating with clients are also needed for the future. These are ranked 22nd and 25th respectively.

Table 88 presents data on middle managers' ratings on the job dimensions for which there is most need for education and training in the future. In middle managers' perceptions, the future need for education and training regarding health and safety, and Quality control/assurance issues increases in importance in comparison with current needs.

Health and safety, and quality control/assurance which were ranked 3rd and 5th respectively for present needs, rise to 1st and 2nd respectively, for refurbishment management, in the future (see Table 89)

There is no distinction between present and future needs for the use of computer technology, and budgetary control, being placed at 4th and 7th positions respectively.

Lower down Table 88, the future needs for operational management skills and knowledge are evident. Productivity maintenance & control, manpower planning/control, programme design, and programme maintenance (update) are ranked 21st, 24th, 25th and 28th respectively.

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# <u>Table 88: Middle Managers' Ratings On The Job Dimensions For Which There Is</u> <u>Most Need For Education And Training In The Future</u>

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Job Dimensions	Mean Scores (N=59)	<u>Rank</u>
Health and safety	1.322	1
Quality control and assurance	1.424	2
Forecasting and planning	1.559	3
Use of computer technology	1.593	4
Analysis of project risks/uncertainty	1.661	5
Leadership	1.678	6
Budgetary control	1.696	7
Employee training: supervisor/foren	nan 1.695	8
Managing time	1.695	9
Communication (oral/written)	1.712	10
Supervision of others	1.746	11
Managing conflict/crisis	1.780	12
Recruit/select: supervisor/foreman	1.780	13
Team building	1.797	14
Negotiate: client	1.797	15
Setting objectives and goals	1.797	16
Conducting meetings	1.831	17
Employee training: management	1.847	18
Costing and estimating	1.864	19
Decision making	1.881	20
Productivity maintenance and contra	rol 1.915	21
Career development and appraisal	1.915	22
Identifying personal strength/weaks	nesses 1.915	23
Manpower planning and control	1.932	24
Programme design	1.966	25
Negotiate: subcontractor	1.966	26
Motivation of others	1.966	27
Programme maintenance update	1.983	28
Negotiate: main contractor	2.017	29
Recruit/select: subcontractor	2.034	30
Site organisation	2.034	31
Delegating responsibilities	2.051	32
Employee training: manual labour	2.051	33
Construction law	2.051	34
Termination/dismissal: supervisor/f	oreman 2.051	35

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### Table 89: A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Middle Managers

**Future** 

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Present

<u>Rank</u>

<u>(N=</u>	59)	
1.	Forecasting and planning	Health and safety
2.	Analysis of project risks/uncertainty	Quality control and assurance
3.	Health and safety	Forecasting and planning
4.	Use of computer technology	Use of computer technology
5.	Ouality control and assurance	Analysis of project risks/uncertainty
6.	Employee training: supervisor/foreman	Leadership
7.	Budgetary control	Budgetary control
8.	Employee training: management	Employee training: supervisor/foreman
9.	Setting objectives and goals	Managing time
10.	Managing time	Communication (oral/written)
11.	Competitive tendering	Supervision of others
12.	Negotiate: client	Managing conflict/crisis
13.	Recruit/select: subcontractor	Recruit/select: supervisor/foreman
14.	Costing and estimating	Team building
15.	Managing conflict/crisis	Negotiate: client
16.	Recruit/select: supervisor/foreman	Setting objectives and goals
17.	Recruit/select: management	Conducting meetings
18.	Construction law	Employee training: management
19.	Employee training: manual labour	Costing and estimating
20.	Team building	Decision making
21.	Leadership	Productivity maintenance and control
22.	Motivation of others	Career development and appraisal
23.	Manpower planning and control	Identifying personal strength/weaknesses
24.	Public relations	Manpower planning and control
25.	Communication (oral/written)	Programme design
26.	Programme design	Negotiate: subcontractor
27.	Managing change	Motivation of others
28.	Materials planning and control	Programme maintenance (update)
29.	Career development and appraisal	Negotiate: main contractor
30.	Supervision of others	Recruit/select: subcontractor
31.	Programme maintenance (update)	Site organisation
32.	Tenant welfare	Delegating responsibilities
33.	Productivity maintenance and control	Employee training: manual labour
34.	Organisation of communication systems	Construction law
35.	Managing job stress	Termination/dismissal: supervisor/foreman

Health & safety, and quality control also occupy top positions in terms of need for education/training for junior management (see Table 90). The interpersonal skills such as communication, supervision of others and Leadership, also received high weighting by junior management, being ranked 3rd, 4th and 5th respectively.

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# Table 90: Junior Managers' Ratings On The Job Dimensions For Which There Is Most Need For Education And Training In The Future

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Job Dimensions	Mean Score (N=60)	<u>Rank</u>		
Health and safety	1.300	1		
Quality control	1.300	2		
Communication (oral/written)	1.317	3		
Supervision of others	1.450	4		
Leadership	1.467	5		
Use of computer technology	1.483	6		
Forecasting and planning	1.533	7		
Motivation of others	1.667	8		
Employee training: supervisor/fore	man 1.667	9		
Managing time	1.667	10		
Analysis of project risks/uncertaint	y 1.683	11		
Team building	1.717	12		
Programme maintenance (update)	1.733	13		
Programme design	1.733	14		
Productivity maintenance and cont	trol 1.750	15		
Manpower planning and control	1.750	16		
Tenant welfare	1.767	17		
Public relations	1.767	18		
Site organisations	1.783	19		
Managing conflict/crisis	1.783	20		
Materials planning and control	1.783	21		
Setting objectives and goals	1.783	22		
Managing change	1.800	23		
Budgetary control	1.867	24		
Negotiate: subcontractor	1.883	25		
Decision making	1.883	26		
Organisation of communication sy	stems 1.900	27		
Conducting meetings	1.900	28		
Employee training: manual labour	1.917	29		
Negotiate: client	1.933	30		
Site security	1.933	31		
Costing and estimating	1.933	32		
Career development and appraisa	1.950	33		
Recruit/select: subcontractor	1.967	34		
Managing job stress	1.967	35		

In junior management's estimation, there is a marginal increase in the need for education and training regarding computer technology in comparison with current needs (see Table 91). The use of computer technology which was ranked 8th for present need for training, rises to 6th position for refurbishment management in the future (see Table 91).

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The skills/knowledge associated with operational management also received high weighting for the future. Programme maintenance (update), programme design, productivity maintenance/control, and manpower planning and control are ranked 13th, 14th, 15th and 16th respectively (see Table 90). The need for operational management skills/knowledge are higher for junior managers rather than for middle or senior managers.

Lower down Table 90, the skills/knowledge of tenant welfare, public relations and site organisation are evident. Being able to relate and respond to the needs of tenants, and the general public will also be important for the future in refurbishment management.

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Further down Table 90 are the job dimensions associated with site security, costing and estimating, and managing job stress. It is the responsibility of site management to secure construction sites in order to prevent theft, pilfering, and vandalism.

# <u>Table 91: A Comparison Of The Rank Order Of Job Dimensions For Which There</u> <u>Is Most Need Education And Training (Present And Future): Junior Managers</u>

<u>Future</u>

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<u>Rank</u>

Present

<u>(N=6</u>	<u>50)</u>	
1.	Forecasting and planning	Health and safety
2.	Health and safety	Quality control
3.	Analysis of project risks/uncertainty	Communication (oral/written)
4.	Employee training: supervisor/foreman	Supervision of others
5.	Quality control and assurance	Leadership
6.	Managing time	Use of computer technology
7.	Employee training: manual labour	Forecasting and planning
8.	Use of computer technology	Motivation of others
9.	Public relations	Employee training: supervisor/foreman
10.	Construction law	Managing time
11.	Recruit/select: supervisor/foreman	Analysis of project risks/uncertainty
12.	Communication (oral/written)	Team building
13.	Team building	Programme maintenance (update)
14.	Supervision of others	Programme design
15.	Manpower planning and control	Productivity maintenance and control
16.	Motivation of others	Manpower planning and control
17.	Managing conflict/crisis	Tenant welfare
18.	Recruit/select: manual labour	Public relations
19.	Setting objectives and goals	Site organisation
20.	Programme design	Managing conflict/crisis
21.	Costing and estimating	Materials planning and control
22.	Budgetary control	Setting objectives and goals
23.	Materials planning and control	Managing change
24.	Tenant welfare	Budgetary control
25.	Competitive tendering	Negotiate: subcontractor
26.	Productivity maintenance and control	Decision making
27.	Managing change	Organisation of communication systems
28.	Leadership	Conducting meetings
29.	Site organisation	Employee training: manual labour
30.	Programme maintenance (update)	Negotiate: client
31.	Managing job stress	Site security
32.	Conducting meetings	Costing and estimating
33.	Organisation of communication systems	Career development and appraisal
34.	Recruit/select: subcontractor	Recruit/select: subcontractor
35.	Identifying personal strength/weaknesses	Managing job stress
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In summary, refurbishment managers at all levels are in agreement that the need for education and training in health and safety issues is vital for the future. Quality control/assurance, an important factor predicted by practitioners (Beard, 1987<sup>31</sup>; Atkinson, 1986<sup>15</sup>), government agencies (PSA, 1988<sup>407</sup>) and construction writers (Cruikshank, 1985<sup>146</sup>; Stewart, 1987<sup>462</sup>), for expanding managers' job content in the future, received the same recognition.

Refurbishment managers at all levels anticipate a greater need for computer technology, the need for education and training being greater for senior management rather than for middle, and junior management.

Future education and training needs in operational management skills/knowledge is greater for junior management rather than for middle and senior management.

The next section of this chapter will consider the future education and training needs of refurbishment organisations. Comparisons will also be made between present and future training needs of organisations.

# 9.5. Refurbishment Management Education And Training Needs For The Future: Organisations' Perspective.

Information regarding future education and training needs of refurbishment organisations was sought through interviews with 32 training officers. Below in Table 92, in decreasing order of importance, are 10 most cited areas for which there is most need for education and training.

#### Table 92: Future Education And Training Needs Of Refurbishment Organisations

<u>Rank (N=32)</u>	Job Dimensions
1.	Quality management
2.	Health and safety
3.	Contract law
4.	Communication (oral/written)
5.	Leadership
6.	Programming of the works
7.	Public relations/tenant liaison
8.	Pricing of the works
9.	Presentation/tender interview skills
10.	Language skills

An inspection of Table 92 reveals that quality management, and health and safety are prominently placed in 1st and 2nd positions respectively. Refurbishment organisations, and refurbishment managers are in agreement as to the two areas of most need for education and training in the future. Education and training programmes designed with the future of refurbishment management in mind, would have to consider these two important job dimensions.

Contract law which was ranked 7th in terms of present need for education and training, rises to 3rd place for for the future (see Table 93). With the proliferation of contract procurement systems, an understanding of their benefits and limitations are necessary for the future, if refurbishment organisations are to compete successfully in the market place, and also, if they are to meet the demands of increasingly knowledgable clients.

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# Table 93: A Comparison Of Rank Order Of Job Dimensions For Which Refurbishment Organisations Most Need Education And Training (Present And Future)

<u>Rank</u> (N=32)	<u>Present</u>	Future
1.	Health and safety	Quality management
2.	Programming of the works	Health and safety
3.	Public relations/tenant liaison	Contract law
4.	Managing time	Communication (oral/written)
5.	Communication (oral/written)	Leadership
6.	Security	Programming of the works
7.	Contract law	Managing time
8.	Pricing of the works	Pubic relations/tenant liaison
9.	Quality management	Presentation/tender interview skills
10.	Leadership	Foreign language

The interpersonal skills also received high weighting by refurbishment organisations. Leadership skills, which was ranked 10th in terms of present needs, rises to 5th as future need for education and training. Communication is ranked 4th, marginally higher than Leadership in terms of need for the future (Table 92).

Ranked least on Table 92 is Foreign language. The low degree of importance attached to an understanding of foreign languages further reinforces the fact that refurbishment organisations do not anticipate entering foreign markets.

#### 9.6. Conclusions And Recommendations.

The purpose of this chapter was to provide a scenario of managing in a refurbishment environment in the future. It attempted to identify the major factors which are likely to affect refurbishment management, and how these factors impinge on relevant skills/knowledge, as well as education/training needs for refurbishment management in the future.

There are four factors that are apparent from examining emerging trends, which are likely to affect the management of refurbishment work in the future. These are:-

(i) Increasing competition.

(ii) Increasing contract procurement systems.

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(iii) Improving technology.

(iv) Demographic factors.

Refurbishment managers and their organisations must be prepared to acquire the relevant skills and knowledge to contend with the changes that are likely to emerge in the future.

For refurbishment managers, the skills and knowledge of:-

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- \* Managing people (interpersonal skills)
- \* Health and safety
- \* Quality control
- \* Forecasting & planning
- \* Analysis of project risks/uncertainty

are vital for the future. Educationalists designing courses with the future of refurbishment management in mind will need to consider these important areas.

In terms of education/ training needs, the job dimensions of:-

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- \* Health and safety
- \* Quality control
- \* Use of computer technology
- \* Interpersonal skills

are necessary for refurbishment managers. Refurbishment organisations are also of the view that contract law is equally necessary for the future.

From a manager's perspective, the acquisition and development of these relevant skills and knowledge may facilitate career progress. For refurbishment organisations, to survive in an increasingly competitive market demands an effective management with the appropriate skills and knowledge which refurbishment work demands.

Ultimately, as effective management begins to permeate the labour market, this will help raise the image of the refurbishment sector.

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# CHAPTER TEN

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# SUMMARY CONCLUSIONS AND RECOMMENDATIONS

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#### **10.0. SUMMARY CONCLUSIONS AND RECOMMENDATIONS**

#### 10.1. Introduction

A study of management education and training for refurbishment within the construction industry has been undertaken. This chapter summarises the main conclusions of the study. It also re-states the main objectives of the study. In addition, recommendations are made to direct research efforts into other potential areas of refurbishment management.

#### 10.2. Summary Of Conclusions

The study commenced with a review of literature which suggested that management education and training in the United Kingdom is deficient, both in content and processes, and that UK organisations make less provisions for the education and training of their managers than those of our major competitors. Educators are also guilty of under-provision of courses.

There is no widely used, understood, and accepted framework for educating managers in the construction industry, and courses do not bear resemblance to the needs of industry.

From a review of literature, a discovery was made of the meagre amount of studies conducted in the refurbishment management domain. Evidence has also shown that the management education that exist in construction, are directed towards new build with little or nothing in the area of refurbishment. Regarding the direction of management education and training in construction, previous studies and opinion suggested that:-

(i). Construction management education and training should mirror the industry's needs, and that management skills/knowledge should be research based, taking into account the particular problems and special nature of sector differences.

(ii). The structure of construction management education and training programmes should be modular, and the contents transferable, and geared to work based learning at a pace to meet the needs of individual managers.

(iii). Education and training of managers should be throughout their working lives (Continuing Professional Development).

Management education and training for refurbishment work was chosen as the theme of the study. Following a systematic approach, literature on the general areas of refurbishment, management education and training, management skills and knowledge, and in construction management, was extensively studied. Within this framework, interviews were conducted with thirty-two (32) training officers of both large specialist and general refurbishment organisations. In addition, postal questionnaires were distributed to refurbishment managers of the same organisations. In all, one hundred and forty-two (142) managers responded positively to the questionnaires. Subsequent to that, follow-up interviews were conducted with twenty-two (22) refurbishment managers who had earlier participated in the postal questionnaire phase of the study.

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Analysis of literature, discussions with authorities in the fields of construction management, and in management education and training, together with data collected at interviews, and from postal questionnaires, enable the following conclusions to be drawn.

Commencing with the importance and growth of the refurbishment sector, the main conclusions are:-

(i). The refurbishment sector will keep contributing significantly to the overall UK construction output for many years to come.

(ii). The large stock of redundant, and ageing buildings needing repair and modernisation; social, economic, political, planning constraints and technology are the major factors that give impetus to the growth in the refurbishment sector.

The study proceeded by analyzing the characteristics and difficulties associated with managing refurbishment work. The main conclusions are as follows:-

(i). The major characteristics and difficulties which confront managers in carrying out refurbishment work are established. Cost control, dust control, influence of tenants on regular progress of the works, pricing of the works, and variation/change orders to the works are the most difficult refurbishment characteristics. The least difficult characteristics are employee stress & absenteeism, building regulations/statutory controls, and plant supply.

(ii). Refurbishment work is complex, highly specialised, and contains elements of work which are unique to the refurbishment sector.

(iii). Evidence suggests that specialist refurbishment organisations find refurbishment characteristics less difficult than general refurbishment organisations. Clients may prefer to appoint a specialist refurbishment contractor where managers with a wide range of experience in refurbishment processes are less likely to find difficulties in carrying our refurbishment operations. Also, for those individuals wishing to embark upon a career in refurbishment, a specialist contractor may provide a rich vein of opportunity when compared to a general refurbishment contractor.

(iv). There is significant negative correlation between:-

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\* The length of time a manager has spent working in the construction industry and the degree of difficulty of refurbishment characteristics.

\* The length of time a manage: has been involved in managing refurbishment work and degree of difficulty of refurbishment characteristics.

\* The age of managers and the degree of difficulty of refurbishment characteristics.

(v). Refurbishment managers perceive refurbishment work to be more difficult than new build work. Work on occupied buildings are also more difficult to manage than work on un-occupied buildings. (vi). When refurbishment projects are considered, hospitals, hotels and Ministry of Defence buildings (MOD) are the most difficult to mange, whilst recreational, industrial and agricultural buildings are the least difficult.

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Contractors involved in refurbishment work would need to staff the most difficult projects with managers of relevant experience.

Educational background of refurbishment managers was the central theme of the following chapter. The main conclusions are as follows:-

(i). The majority of refurbishment managers have had a trades background. The three main trades being joinery, bricklaying and steel fixing.

(ii). Evidence suggests that refurbishment managers are less qualified than their counterparts in construction management. This means that more efforts would have to be made by both organisations and educators in order to improve the level of qualifications of managers involved in refurbishment work. In addition, courses for refurbishment would need to be structured so as to lead to qualifications.

(iii). Refurbishment managers in senior positions have obtained higher qualifications than their junior counterparts. Obtaining higher qualifications (preferably degrees ) are beneficial in attaining higher management positions. The study progressed to analyze the skills and knowledge needed for refurbishment work, and to devise and appropriate management skills/knowledge for refurbishment. The qualities and attributes associated with successful accomplishment of refurbishment projects were also considered. In addition, the degree of difficulty in handling refurbishment tasks were analyzed.

The main conclusions to be drawn are:-

(i). A skills and knowledge inventory for managing refurbishment work is derived. The most important skills/knowledge which managers need in their present jobs, for refurbishment, are:-

- \* Leadership
- \* Communication (oral/written)
- \* Motivation of others
- \* Health and safety
- \* Decision making
- \* Forecasting and planning

(ii). Refurbishment management skills and knowledge are, on the whole, homogenous. Evidence suggests that there is similarity in refurbishment tasks across levels of management. Where there is differentiation of skills and knowledge, this arises from management application. There is also similarity in refurbishment tasks across types of refurbishment organisations (specialists and general).

(iii). When the most important skills and knowledge for refurbishment are compared to those in construction management, it was observed that for refurbishment, the skills and knowledge of:-

- \* Forecasting and planning
- \* Managing conflict and crisis

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- \* Tenant welfare
- \* Team building
- \* Decision making

are needed, over and above those required for construction management. For individual managers and contractors seeking work in the refurbishment market, these skills and knowledge are vital.

(iv). The personal qualities and attributes associated with successful accomplishment of refurbishment projects are established. The most important qualities and attributes are:

- \* Ability to relate and work with people
- \* Patience
- \* Visionary/forward thinking.
- \* Flexibility/adaptability
- \* Logical thinking
- \* Innovativion/creativity

(v). The degree of difficulty in handling refurbishment tasks is established. The most

difficult management tasks to handle are:-

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- \* Forecasting and planning
- \* Analysis of project risks/uncertainty
- \* Competitive tendering
- \* Budgetary control
- \* Managing time
- \* Quality control and assurance

This suggests that refurbishment work is risky, and difficult to plan and forecast.

The nature, and extent of management education and training which exist within refurbishment organisations, together with management education and training needs of managers and organisations were the objectives of the following chapter. The main conclusions to be drawn are:-

(i). There is little, if any, management courses, in-house or external, directly geared towards refurbishment, yet evidence suggests that for both organisations and managers, there is an urgent need for appropriate management education and training for refurbishment.

(ii). Refurbishment managers and their organisations prefer short courses of not more than 2 - 3 days duration.

(iii). Refurbishment managers and their organisations prefer in-house courses to external course. The reasons are primarily to do with cheapness and relevance in meeting organisational needs.

For refurbishment managers, also, courses must be convenient in location and timing. The preference is for courses to be available locally, and nearer the place of work in order to avoid taking managers away from work more than is absolutely necessary. Winter months are preferred to summer months for attending management courses.

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(iv). Course contents, and the methods of training delivery are the two most influential factors for course selection.

(v). Management education and training needs for refurbishment, both at managerial and organisational levels are established.

The following are job dimensions for which managers most need education and training in their present jobs.

- \* Forecasting and planning
- \* Analysis of project risk/uncertainty
- \* Use of computer technology
- \* Employee training: supervisor/foreman

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- \* Health and safety
- \* Quality control and assurance

The job dimensions currently needed for refurbishment organisations are:-

- \* Health and safety
- \* Programming of works
- \* Public relations/tenant liaison
- \* Managing time
- \* Communication
- \* Security

These important areas of need would have to be accommodated in management

education and training programmes geared towards refurbishment.

The penultimate chapter of the study was primarily concerned with devising a framework for management education and training. The main conclusions to be drawn are as follows:-

(i). A framework for educating and training refurbishment managers is set out, incorporating managers' preferences for the methods of education/training delivery. The framework also incorporates the principles associated with how adults learn, and a combination of learning theories.

(ii). A model for postgraduate and continuing education is devised. The model is based on a modular format. The flexibility of a modular scheme, together with wider access and credit accumulation transfer, would allow a manager to study at his/her own pace.

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The factors which are likely to shape the future of refurbishment management, and their implications on both management skills & knowledge, and education/training needs, are the main objectives of the final part of the study. The main conclusions are summarised as follows:-

(i). From examining emerging trends, the following factors are likely to shape the future of refurbishment management:-

\* Increasing methods of procuring contracts

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- \* Improving technology (information technology, and the use of computers)
- \* Demographic factors

<sup>\*</sup> Increasing competition (especially amongst refurbishment organisations within the UK).

(ii) Regarding the future management skills/knowledge for refurbishment, the following are most important for managers.

\* Managing people (interpersonal skills)

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- \* Health and safety
- \* Quality control
- \* Forecasting and planning
- \* Analysis of project risks/uncertainty

(iii). In terms of future education and training needs, the following job dimensions are vital for managers.

- \* Health and safety
- \* Quality control
- \* Use of computer technology
- \* Interpersonal skills

The acquisition of relevant skills and knowledge for refurbishment would contribute to labour efficiency, and effective management of construction resources. In addition, as effective management permeates the labour market, this may help raise the image of the refurbishment sector.

#### **10.3. Recommendations For Further Research**

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(i). With the establishment of the major characteristics and difficulties associated with refurbishment work, it was revealed that hospitals, hotels, and MOD buildings are the most difficult refurbishment projects to manage. It is suggested that guidelines advocating 'how best' to overcome refurbishment problems and difficulties, for different types of refurbishment work across the health service, hotels, and defence sectors, be produced.

(ii). Following the derivation of an appropriate body of skills/knowledge for managing refurbishment work, it is suggested that further research be conducted to establish 'core' management skills/knowledge associated with successful management of various types of refurbishment projects, and projects across industrial sectors (especially the health service, hotels and defence sectors).

Similarly, further studies need to be conducted on personal qualities and attributes of refurbishment managers who are associated with successful accomplishment of different types of refurbishment projects. Results from such studies would assist contractors in resourcing refurbishment operations with the 'right' calibre of managers for the 'right' types of projects.

(iii). It was revealed that refurbishment managers at all levels are closer to the work face in comparison with new build work. Research is needed to establish the extent, and the degree of involvement of clients, contractors, and the rest of the design team, especially refurbishment managers, in carrying out refurbishment work.

(iv). Having considered large refurbishment organisations in the present study, research is needed to establish management education and training provisions, and also education and training needs of medium and small size refurbishment organisations. This should allow a comparative analysis to be made across all sizes of refurbishment organisations.

(v). Following the development of a model for postgraduate and continuing education for refurbishment management, it is proposed that research be conducted on 'how best' refurbishment education can be successfully and widely introduced into undergraduate curricular.

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# APPENDIX A

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## <u>APPENDIX A</u>

### Semi-structured Interview Sheet : Training Officers

Name of Company: Company Address: Name of Training Officer: Date: Commencement of Interview (Time): End of Interview (Time): Total Interview Time:

## Section A: Characteristics Of Company/General Information

1. History of company:	Year of establishment, founder, how long the company has been involved with refurbishment work.
2. Company size:	Number of employees, average annual turnover of company, average annual turnover of refurbishment and other works.
3. Market structure:	Is your company a specialist or general contractor? (Definition of terminology), % of work on Building, Civil engineering, Work on refurbishment (including housing, offices).
4. Ascertain company:	Request for company structure and discuss as appropriate, career structure bearing in mind that Directors/Managers associated with the production function are relevant to the study.
5. Company strategy	The place of management education and training in the overall corporate strategy of the company. Is there any defined education and training policy for management generally, and refurbishment in particular?. If a policy exist for refurbishment, how long has this been in operation.

## Section B: Management Education And Training: Current Provisions

1. Expenditure on education and training as a percentage of turnover.

2. Expenditure on education and training per manager (last five years)

3. Average number of days spent per manager per year on education/training (last five years)

4. Education and training expenditure in (£) and as a percentage of:

- (i). On-the job training
- (ii). Other In-house education/training provisions
- (iii). External education/training (last five years).

5. How is education and training needs of managers assessed and evaluated in your company? Is there any systematic evaluation of the cost effectiveness of, and/or benefits flowing from your current education/training activities?

6. Your assessment of the amount and quality of education/training in your company (Excellent, Good, Average, Poor, Very poor).

## Section C: Management Education And Training (Current And Future Needs)

1. What management skills and knowledge for refurbishment does your company see as being of most need now, and for the future (next five years)?

2. What changes (if any, within the next five years) does your company intend to make to the provisions of management education and training?

## Section D: Relevance And Preferences On Education And Training Provisions

1. What are the most cited management job dimensions (skills/knowledge) for which managers request to attend education/training courses (Differences if any across management levels)?

2. Preferences on education/training methods and delivery [on-the-job,formal & informal in-company training, External courses (including short courses), types of institutions/training providers, CPD., postgraduate programmes).

## <u>Section E: Factors Affecting The Provisions Of Management Education And</u> <u>Training</u>

1. What factors (i) promote and (ii) inhibit the provisions of management education and training in your company?.

#### Semi-structured Interview Sheet: Refurbishment Managers

Name of Company: Company Address: Name of Manager: Date: Commencement of Interview (Time): End of Interview (Time): Total Interview Time:

### Section A: Structure Of Organisation \*

1. Ascertain organisation structure: Request for organisation structure and discuss as appropriate bearing in mind that senior, mid-level and junior managers associated with the production function are relevant to the study. Request for organisation career chart.

2. How many managers involved in refurbishment work report to you in your present job?

3. How many managers do you report to within your present job in your organisation?

4(i). On average, how many sites do you manage at any one time?(ii) What is the highest number of sites you have managed at any one time in the last 2 years?

5. How frequently do you visit site and why?.

(a) Very frequent (b) Frequent (c) Less frequent (d) Not frequent

6. In your perception, how frequently does the senior manager visit site and why?

(a) Very frequent (b) Frequent (c) Less frequent (d) Not frequent

#### Section B: Refurbishment Characteristics

1(i). Rank order (1 - 15) the types of refurbishment works which you perceive to be most difficult to manage. With 1, being the most difficult and 15, the least difficult.

( ) Offices
( ) Hotels
( ) Hotels
( ) Religious buildings
( ) Listed buildings
( ) MOD buildings
( ) MOD buildings
( ) Agricultural buildings
( ) Banks
( ) Shopping centres
( ) Offices
( ) Housing
( ) Educational buildings
( ) Hospitals
( ) Hospitals
( ) Recreational buildings
( ) Airports
( ) Prisons

(ii). What are the most difficult characteristics associated with these types of works.

2. Are the difficulties of refurbishment characteristics greater with occupied buildings than with un-occupied buildings?

(a) Yes (b) No. If yes, to what extent is this so?

3. To what extent does the nature of refurbishment work affect employee stress and why? How do managers cope with it ?

(a) Very difficult (b) Difficult (c) Fairly difficult (d) Not difficult

4. What impact does the nature of refurbishment work have on employee absenteeism?

5(i). Does Building regulations/ other statutory control pose any difficulty for refurbishment? To what extent is this so?

(a) Very difficult (b) Difficult (c) Fairly difficult (d) Not difficult

(ii). How frequent does this occur?

(a) Very frequent (b) Frequent (c) Fairly frequent (d) Not frequent

6. How do managers cope with the supply of plant and machinery for refurbishment work and why?

(a) Very difficult (b) Difficult (c) Fairly difficult (d) Not difficult

7. In refurbishment work, do you consider plant usage to be restricted? If so, how frequent does this occur ?

(a) Very frequent (b) Frequent (c) Fairly frequent (d) Not frequent

## Section C: Importance Of Management Skills And Knowledge (Present And Future)

1(i). How important is the task of Recruiting/selecting a supervisor/foreman in your present job ?.

(ii). To what extent are you involved in recruiting/selecting supervisors/foremen?

2(i). How important is Employee training for supervisor/foreman in your present job?

(ii). To what extent are you involved with the training of supervisors/foremen?

3. Is the skill and knowledge of site organisation important in your present job and why?

(a) Very important (b) Important (c) Fairly important (d) Not important

4. How important is the skill/knowledge of organisation culture in:

(i) your present job and

(ii) the job you are currently doing, in the future. Why is this so?

5. How important is the skill/knowledge of Foreign language in: (i) your present and

(ii) the job you are currently doing, for the future and why?

6. How important is the skill/knowledge of Other national culture in:

- (i) your present job and
- (ii) the job you are currently doing, for the future and why?

# Section D: Management Education And Training Needs )Present And Future)

1. What is your degree of need for management training/education for the skills/knowledge of Forecasting & planning in:

(i) your present job and

(ii) the job you are currently doing, for the future and why?

2. What is your degree of need for management training/education for the skill/knowledge of Analysis of project risk and uncertainty in:

(i) your present job and

(ii) the job you are currently doing, for the future and why?

(a) Very much need training (b) Much need training (c) Need training (d) Not need training

3. How do you perceive your degree of need for management training/education in the use of computer technology, in:

(i) your present job and

(ii) the job you are currently doing, for the future and why?

4. Have you in the past two years attended any in-house/external management training/education <u>directly geared</u> towards refurbishment? If so,

(i) how many courses have you attended and

(ii) what are the main themes of the courses ?

### Section E: Miscellaneous

1. What qualities/attributes would you say a manager needs to possess in order to effectively accomplish a refurbishment project at a given cost time and quality?

2. In your perception, to what extent does the training/educational background of a manager impact on his/her ability to manage refurbishment work ?

3. Have you had experience of new build? (a) Yes (b) No

4. In your estimation, do you think that refurbishment work is more difficult to manage than new build? (a) Yes (b) No

5. To what extent do you agree with the following statements:

(i) A refurbishment manager finds it relatively easy to manage new build.

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly disagree

(ii) A manager with new build experience finds it relatively difficult to manage refurbishment work.

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly disagree

6. In your perception, How important to managing refurbishment is organisational ethos in terms of interest, sense of belonging and the 'feel' for refurbishment.

(a) Very important (b) Important (c) Fairly important (d) Not important

### Note: Organisation Structure \*

Organisational structure is made up of the reporting relationships and lines of authority and communication between different offices and positions in the organisation. This can vary in formality and degree of centralisation.

1. To what extent is your organisation's structure formally defined?

a. Very formal structure:	All reporting relationships and lines of authority are formally defined.
b. Formal structure:	Most of the reporting relationships and lines of authority are formally defined.
c. Slight formal structure:	Reporting relationships are undefined but are informally understood.
d. No formal structure:	Reporting relationships and lines of authority are not formally defined.

2. To what extent would you say that members of your organisation adhere to formal structure?

(a) A	Always	(b)	Frequently	(c)	Seldom	(d)	Never
-------	--------	-----	------------	-----	--------	-----	-------

3. To what extent would you say that your organisation structure is <u>centralised</u> or <u>decentralised</u>

In <u>centralised</u> structure, decisions, authority and flow of communication are directed and referred up the hierarchy.

In <u>decentralised</u> structure, decisions, authority and flow of communication are mostly balanced between upper and lower levels. Upper level (senior) management set guidelines for decisions to be made at lower levels of the organisation.

(a) Centralised

(b) Slightly more centralised than decentralised

(c) Slightly more decentralised than centralised

(d) Decentralised
#### Letter Accompanying Questionnaire

Department of Civil Engineering & Construction, University of Salford, Salford, M5 4WT

Dear

# Management Education And Training For Refurbishment Work Within The Construction Industry

The Department of Civil Engineering and Construction is currently conducting a research programme funded by the Science and Engineering Research Council, the subject of which concerns management of refurbishment within the construction industry.

The main research objectives focus on identifying management difficulties, core management skills/knowledge and management education and training needs for refurbishment. It is our view that ascertaining the management skills/knowledge and management education and training needs for refurbishment, from managers who are directly involved with refurbishment, will greatly assist in the provision of the most appropriate and relevant courses for refurbishment and will be of value to the construction industry.

How will you personally benefit from this research? The core management skills/knowledge which are relevant to your job will be established and how best they can be acquired and developed. Obtaining the relevant skills and knowledge for refurbishment should be of value to your day to day job activities as well as to your career development.

However, for such a research programme to be successful, we need your support. Your company approval has already been sought prior to circulation of the questionnaires.

À questionnaire is attached for completion within four weeks of receipt and should be forwarded directly to Mr. Charles O. Egbu at the University of Salford.

Please be assured that both your identity and that of the organisation you work for shall remain strictly confidential.

Your assistance and co-operation in this research programme will be welcome and gratefully received and if you would like a summary of the survey results, free of charge, please indicate on the last page of the questionnaire.

Yours faithfully,

Charles O. Egbu <u>Researcher</u>

#### **Reminder Letters For Completion Of Questionnaire**

Department of Civil Engineering & Construction, University of Salford, Salford, M5 4WT

Dear

#### <u>Management Education And Training For Refurbishment Work Within The</u> <u>Construction Industry</u>

About two weeks ago, we sent you a questionnaire seeking your assistance and asking for information concerning management skills/knowledge and management education and training needs for refurbishment. We regret very much that we have not received your reply.

We are very much aware of how difficult it is for busy managers like yourself to take the time out of your work schedule in order to fill a questionnaire of this nature. However, the information which you can provide is essential for our current research programme.

How will this research benefit you? The core management skills/knowledge which are relevant to your job will be established and how best they can be acquired and developed. Obtaining the relevant skills and knowledge for refurbishment should be of value to your day to day job activities as well as to your career development.

Therefore, may we earnestly request your co-operation and your very valuable assistance in completing and returning the questionnaire. The completed questionnaire should be forwarded directly to Mr. Charles O. Egbu at the University of Salford.

Please be assured that both your identity and that of the organisation you work for shall remain strictly confidential.

Your assistance and co-operation in this research programme will be welcome and gratefully received and if you would like a summary of the survey results, free of charge, please indicate on the last page of the questionnaire.

٠.

Yours faithfully,

Charles O. Egbu <u>Researcher</u> Department of Civil Engineering & Construction, University of Salford, Salford, M5 4WT

Dear

#### Management Education And Training For Refurbishment Work Within The Construction Industry

About four weeks ago, we sent you a questionnaire seeking your assistance and asking for information concerning management skills/knowledge and management education and training needs for refurbishment. We regret very much that we have not received your reply.

As you will see, we have enclosed a copy of the original letter sent to you together with a second copy of the questionnaire.

We are very much aware of how difficult it is for busy managers like yourself to take the time out of your work schedule in order to fill a questionnaire of this nature. However, the information which you can provide is essential for our current research programme.

How will this research benefit you? The core management skills/knowledge which are relevant to your job will be established and how best they can be acquired and developed. Obtaining the relevant skills and knowledge for refurbishment should be of value to your day to day job activities as well as to your career development.

Therefore, may we earnestly request your co-operation and your very valuable assistance in completing and returning the questionnaire. The completed questionnaire should be forwarded directly to Mr. Charles O. Egbu at the University of Salford.

Please be assured that both your identity and that of the organisation you work for shall remain strictly confidential.

Your assistance and co-operation in this research programme will be welcome and gratefully received and if you would like a summary of the survey results, free of charge, please indicate on the last page of the questionnaire.

Yours faithfully,

Charles O. Egbu <u>Researcher</u>

Ref.			

## SURVEY QUESTIONNAIRE ON MANAGEMENT TRAINING AND EDUCATION NEEDS AND JOB/SKILL PROFILES FOR REFURBISHMENT WITHIN THE CONSTRUCTION INDUSTRY

Return Address C.O. Egbu Researcher Department of Civil Engineering and Construction University of Salford Salford M5 4WT Telephone: 061 - 745 5000 Ext: 4465

#### Note about the Questionnaire;

As is the case with many questionnaire surveys, there may be some questions which appear irrelevant or impertinent. However, it is necessary in this study that all questions are answered, as the questionnaire is designed to achieve particular research objectives, and it is hoped not to offend respondents in any way. If there are any questions which you are unwilling or unable to answer, then it is our wish that you continue to answer the remainder of the questionnaire.

Remember that both your identity and that of the company you work for will remain strictly confidential.

Refurbishment in this context, refers to all works carried out on existing building, such as modernisation, conversion, renovation, rehabilitation, retrofit and repair. However, this excludes regular maintenance works such as painting, decoration and cleaning.

SECTION A: GENERAL INFORMATION. In each of questions 1 - 5, please tick one box only [/].

1. Is your firm a refurbishment specialist? [] Yes [] No	2. Please state your current job title
	[] Director/Area manager [] Contract/Project manager
3. How long have you been in your present job?	[] Site Agent [] Other (please specify)
[] Less than 1 year [] 1 - 5 yrs [] 6 - 10 yrs	
[] 11 - 15 yrs [] 16 - 20 yrs [] More than 20 yrs	4. How long have you worked with the construction
	industry?
5. How long have you been involved with managing	[] less than 1 year [] 1 - 5 yrs [] 6 - 10 yrs
refurbishment work in the construction industry?	[] 11 - 15 yrs [] 16 - 20 yrs [] More than 20 yrs
[] Less than 1 year [] 1 - 5 yrs [] 6 - 10 yrs	
[] 11 - 15 yrs [] 16 - 20 yrs [] More than 20 yrs	

6. Career structure: In the space provided below, please list in <u>chronological order</u>, the positions you have held in the construction industry since you first joined it, and how long you have held the posts for. Eg. Site Foreman (5 yrs.)

1.	2	3.	4.
<b>S</b> .	6.	7.	8.

7. Please indicate below which of the listed qualifications you have obtained to date- by entering in the appropriate box, the year of achievement. Also, state in full, your main area of study in the adjoining box (e.g. Building, Civil Engineering, Quantity Surveying).

Qualifications	Year	
O Levels or equivalent		
A levels or equivalent		Main Area of Study
Ordinary National Certificate (ONC)	1	
Ordinary National Diploma (OND)	1	
Higher National Diploma (HND)	1	
Higher National Certificate (HNC)	1	
City & Guilds	1	
B. Tech	1	
First Degree		
Higher Degree (MSc, MA, MBA, PhD)		
Diploma in Management Studies (DMS)	1	
Membership of Professional Institute (by examination)		
Other(s) please indicate		

#### SECTION B: CHARACTERISTICS OF REFURBISHMENT MANAGEMENT

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10. The characteristics of refurbishment management are listed below.

In Section 1B: Indicate the degree of difficulty of refurbishment characteristic (please tick / one box only)

In Section 2B: Indicate the frequency of occurrence of the characteristic in carrying out refurbishment (please tick / one box only)

		SECTIO	ON 1B		SECTION 2B					
	DEGR DIFFI REFU CHAR	EE OF CULT RBISH ACTE	( OF MENT RISTIC	5	FREQUENCY OF OCCURRENCE OF REFURBISHMENT CHARACTERISTICS FREQUENT VERY NOT					
CHARACTERISTICS OF REFURBISHMENT MANAGEMENT	D VER		CUL NO	T T						
	1	2	3	4	1	2	3	4		
Contract documentation/ arrangement		1		1			<u> </u>			
Cost control			1							
Coping with employee stress and absenteeism		1	1	1	1	1	1			
Decanting building for commencement of work		t—		1 -	1	<u> </u>	†			
Dust control		<u> </u>		<u> </u>			<u> </u>			
Handling and disposal of hazardous/toxic substances	1	1		<u> </u>	1		1 -			
influence of tenants on regular progress of the works	-1	<u> </u>	+	<u> </u>		<u> </u>	†	<u>†</u> −−−		
Maintaining existing services		<u>† – –</u>	+	†		<u> </u>	<u> </u>			
Maintaining site safety and welfare standards		<u> </u>	<u>↓</u>	1	╢───	<u> </u>	┼───			
Materials supply		<u> </u>		<u> </u>	╢────	t	╂			
Materials handling		<del> </del>	╉╼──	<u> </u>		<u> </u>	<u> </u>			
Building regulations and other statutory control		<del> </del> —	╉╌╼╴	<u> </u>	┨────	<u> </u>	t	<u> </u>		
Noise control			+	┼──	╢───		<u>├</u> ──			
Plant supply				<u>+</u>	∦	<u> </u>	<u> </u>			
Restriction in plant usage	_	f	╆──	+	1	<u>†                                    </u>	┼───			
Pricing of the works .		<u> </u>	+	<u> </u>	╢──	<u>†</u>	<u>†</u>	<u>├</u>		
Productivity control and maintenance	_		+		1	<u> </u>	<u> </u>			
Programming and scheduling of the works		f	+		╢───	<u> </u>				
Liaison with tenant/occupier			† – –	+	1		<u> </u>			
Quality control and assurance		1	<u> </u>							
Restrictions on working hours			+	+	1	t				
Selection and recruitment of workforce		†		<u> </u>	╢───		<u> </u>			
Site access		<u> </u>	<u> </u>	<u>†                                    </u>	1	<u> </u>	<u> </u>			
Site security		f			1	t	<u> </u>	[		
Storage of building materials and plant			+	<u>†</u>			<u>                                      </u>	[]		
Handling and disposal of site rubbish		<u> </u>	+		╢────		<u> </u>			
Supervision of the works			1		-∦	1				
Keep site tidy	-1	†	+	<u>†</u>	-∦					
Time prediction for completion of the works		1	+	1		t	1			
Long and unsociable working hours		<u>†                                    </u>	+	<u> </u>		<u> </u>	<u> </u>	<u> </u>		
Variation/change order to the works		<u> </u>	<u> </u>	1	-∦	1	†	<u>;</u>		
Protecting the general public		†	†							
Protecting the works and adjacent buildings	_	<u>†                                    </u>	+	$\mathbf{t}$	∦	<u> </u>	1			

11. From the list of refurbishment characteristics in question 10 above, please select 3 most difficult characteristics and indicate how you consider them to be best overcome. With rank 1 assigned to the most difficult, rank 2 to the next most difficult, etc.

REFURBISHMENT CHARACTERISTICS

HOW I CONSIDER THE CHARACTERISTICS TO BE BEST OVERCOME

RANK 1. \_\_\_\_\_:

RANK 2.\_\_\_\_\_:

RANK 3. \_\_\_\_\_:

#### SECTION C: MANAGEMENT SKILLS AND KNOWLEDGE FOR REFURBISHMENT

12. The skills/knowledge that may be needed in your present job, in managing refurbishment work are listed below.

In Section 1C: Indicate the degree of importance of the skill/knowledge to refurbishment (please tick/ one box only)

In Section 2C: Indicate the degree of difficulty in handling the skill/knowledge in refurbishment (please tick/ one box only) In Section 3C: Indicate your need for training/education in developing skill/knowledge for refurbishment (please tick/ one box only)

	SECTION 1C				SECTION 2C				SECTION 3C			
	IMPORTANCE TO				DIFFICULTY IN				NEED FOR TRAINING			
JOB DIMENSIONS	REF	URB	SHM	ENT	REF	TURB	ISHM	ENT	AND EDUCATION FOR			
SKILLS AND KNOWLEDGE FOR MANAGING REFURBISHMENT	<u> </u>		DTAN		<u> </u>	DIET		<u></u>	KEPU		CEDED	
	VE	R Y	N N	OT	VE	RY	N C	DT	VERY	MUCH	CEDED N	от
	1	2	3	4	1	2	3	4	1	2	3	4
Communication (oral/written)									}			
Conducting meetings				1		<u> </u>						
Employee welfare/counselling		<b>†</b>										<u> </u>
Leadership	<b> </b>		1									
Motivation of others	<u> </u>											
Supervision of others	<u> </u>	[	1—									
Team building	<u> </u>											
Tenant welfare		<u> </u>	1				<u> </u>					
Decanting buildings			<u> </u>		<u> </u>							
Decision making	<u> </u>	f										
Delegating responsibilities	r						<u> </u>					
Health and safety	<u> </u>		<b> </b>							<u>                                     </u>		
Managing change	1	<u>†</u>	<u>†</u>									
Managing conflict/crisis		t	<u> </u>		<b></b>							
Managing time		<u> </u>	1	1		1 —	t					
Manpower planning and control		1—	<b> </b>			<u> </u>	<b> </b>	f1				
Materials planning and control		<u> </u>		†		<b>†</b>	f			l		
Negotiate: main contractor	<b> </b>									1		
Negotiate: sub-contractor			1				1					
Negotiate: supplier												
Plant planning and control												
Productivity maintenance and control			1									
Programme design		<u> </u>					1					
Programme maintenance (update)			1									
Quality control and assurance												
Site organisation												
Site security												
Managing job stress												
Creativity												
Identifying personal strength and weaknesses												
Budgetary control												
Company accounting												
Costing and estimating												
Sources of finance												
Advertising and promotion												
Market research	<u> </u>											
Property insurance												
Code of practice/working rule agreement	[	I		T							[	

#### Question 12 (Contd.)

	SECTION 1C			SECTION 2C				SECTION 3C						
JOB DIMENSIONS	IMPORTANCE TO			DIFFICULTY IN				NEED FOR TRAINING						
SKILLS AND KNOWLEDGE FOR	REF	URBI	SHME	NT	REFL	JRBISH	IMEN	Т	AND E	DUCA	TION E	OR		
MANAGING REFURBISHMENT		n.mo	DTAN	<u></u>	<u> </u>	DIFEI	<b>T</b> II <b>T</b>	<u> </u>	NEEDED					
	VE	RY	N (	DT	VEF	VIEE V	N	от	VERY	MUCH	H NOT			
	1	2	3	4	1	2	3	4	1	2	3	4		
Forecasting and planning					<b>}</b>						f			
Analysis of project risk/uncertainty														
Construction law														
Competitive tendering														
Сопралу law											1			
Company (strategic) planning				-										
Contract drafting														
Promotion and transfer														
Employee training: management					<b></b>		1		<b></b>	<u> </u>	t			
Employee training: manual labour														
Employee training: supervisor/foreman	r—			i										
Employment legislation	<b> </b>						<u>├</u> ───				<u>├</u> ──			
Job Analysis/specification											<u> </u>			
Organisation structure	t													
Organisation culture														
Organisation of communication systems												{		
Planning law	<u>├</u> ──													
Demotion and retirement					<b></b>									
Recruit/select: management														
Recruit/select: manual labour			<u> </u>						<b> </b>		<b> </b>			
Recruit/select: sub-contractor	<u> </u>													
Recruit/select:supervisor/foreman														
Setting objectives and goals	t	•							}			<u> </u>		
Termination/Dismissal: management	f—													
Termination/Dismissal: manual labour	<b> </b>							┝╍─┤						
Termination/Dismissal: sub-contractor	<b> </b>				┝ <b></b> -						<b> </b>	<b>├───</b> ┨		
Termination/Dismissal: supervisor/foreman												<u>  </u>		
Use of computer technology					<b> </b>							<b></b>		
Carcer development/appraisal	<u> </u>	├──							<u> </u>	<b>├</b> ──		{		
Client/consumer protection law	<b> </b>							{						
Managing other national culture	┟╼──								├───					
Negotiate: government bodies	<u> </u>													
Negotiate: client														
Negotiate; trade unions					<b> </b>		{		├					
Public relations														
Competitor awareness	<u> </u>				<b> </b>			┝╾╼╌┤	<u> </u>			├{		
Foreign language						<u> </u>					——	┢───┨		

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#### SECTION D: MANAGEMENT TRAINING AND EDUCATION NEEDS IN REFURBISHMENT

In questions 13 - 18 below, are lists of factors that you may consider before deciding which course to attend. Please rate your preference to these, by circling (O) the appropriate number. With 1, much preferred factor and 4, not preferred.

	PRE	<u>F</u> <u>E</u>	R	RED	<u>P</u>	RE	<u>F</u> E	<u>R</u>	RED
	мU	СН	N	от		мu	СН	N	от
13. <u>Duration of Course</u> One day	1	2	3	4	14. <u>Time of Year</u> Autumn	1	2	3	4
2 - 3 days	1	2	3	4	Winter	1	2	3	4
4 - 5 days	1	2	3	4	Spring	1	2	3	4
1 week	1	2	3	4	Summer	1	2	3	4
1 - 2 weeks	1	2	3	4					
15. Training Providers					16. Type of Course	Delive	<u>r</u> y		
University/Polytechnic	1	2	3	4	In-house course	1	2	3	4
Further education colleges	1	2	3	4	External course	1	2	3	4
Management consultants	1	2	3	4.	17. <u>In-House Traini</u> Methods	ng/Edi	cation	l	
Professional/Trade associations	1	2	3	4	On-the-ich	1	2	3	4
СГГВ.	1	2	3	4	(with guidance)	•	-	5	•
18. Place of Training					On-the-job (without guidance)	1	2	3	4
Within the company premises	1	2	3	4	Off-the-job	1	2	3	4
Within 20 miles travel distance from compar	ny 1	2	3	4	(III-HOUSE)				
20 - 50 miles from company	1	2	3	4					
More than 50 miles from company	1	2	3	4					

19. Please indicate to what extent you agree or disagree with the following statements, by circling (O) the appropriate number: Management skills and knowledge for refurbishment are best developed through:-

	Strongly Agree	Agree	Disagr <del>ee</del>	Strongly Disagr <del>ee</del>
Learning from experience (no guidance)	1	2	3	4
On-the-job training/education (with guidance)	1	2	3	4
In-house courses	1	2	3	4
External courses	1	2	3	4

20. How many management training/education courses have you attended within the last two years. Please tick - one box only.

[] None [] 1-2 [] 3-4 [] 5-6 [] More than 6

21. How satisfied are you with both the amount and quality of training/education you have received within the last two years. Please circle (O) the appropriate number.

	Very Satisfied	Satisfied	Fairly Satisfied	Not Satisfied
Amount of training/education	1	2	3	4
Quality of training/education	1	2	3	4

22. Below is a list of management skills/knowledge for refurbishment which may be needed within the next five years. In Section 1D: Indicate the degree of importance of management skills/knowledge for the future. Tick one box only  $(\checkmark)$ . In Section 2D: Indicate your need for management training and education for the future. Tick one box only  $(\checkmark)$ .

#### Note: consider how your job will change, if at all within the next 5 years

	SECTION 1D SECTION 2D					_			
JOB DIMENSIONS SKILLS AND KNOWLEDGE FOR	IMP REF	ORTA URBI	NCE ' SHME	01 ТИ	FUTURE TRAINING AND EDUCATION NEEDS FOR REFURBISHMENT				
MANAGING REFURBISHMENT	VE	IMPO R Y	RTAN N	T O T	VERY N	NEEDED VERY MUCH NOT			
	1	2.	3	4	1	2	3	4	
Health and safety	_								
Decision making			-						
Delegating responsibilities									
Decenting buildings									
Managing change									
Managing conflict/crisis									
Managing time									
Manpower planning and control									
Materials planning and control									
Negotiate: main contractor		<b>i</b>							
Negotiate: sub-contractor									
Negotiate: supplier		<b></b>							
Plant planning and control									
Productivity maintenance and control									
Programme design									
Programme maintenance (update)									
Quality control and assurance		[							
Site organisation		1	<u> </u>						
Site security									
Managing job stress									
Creativity									
Identifying personal strength and weaknesses								_	
Budgetary control									
Company accounting	-								
Costing and estimating									
Sources of finance									
Advertising and promotion							[		
Market research									
Managing other national culture									
Negotiate: government bodies			-						
Negotiate: client	(								
Negotiate: trade unions									
Public relations									
Competitor awareness									
Foreign language			h				<u> </u>		
Motivation of others					}				
Conducting meetings		1							
Tenant welfare									

#### Question 22 (Contd.)

		SECTIO	DN 1D		SECTION 2D					
JOB DIMENSIONS	IMPC	RTAN	CE TO		FUTUI	RE TRAI	NING AN	ID.		
SKILLS AND KNOWLEDGE FOR	REFI	JRBISH	IMENT		EDUC	ATION N	EEDS FO	DR .		
MANAGING REFURBISHMENT	<b> </b>	<u> </u>			REFU	RBISHMI	ENT			
	VE	impor RY	TANT N C	т	VERY	MUCH	EEDED	от		
	1	2	3	4	1	2	3	4		
Leadership										
Communication (oral/written)		<b> </b>								
Supervision of others										
Employee welfare/counselling	<u> </u>									
Team building		ŧ					<u> </u>			
Analysis of project risk/uncertainty		<u>├</u>					{			
Career development/appraisal										
Client/consumer protection law										
Code of practice/working rule agreement										
Company law						}	}			
Company (strategic) planning		<u> </u>								
Use of computer technology										
Competitive tendering							<u> </u>			
Construction law					├──					
Contract drafting	<u>}</u>									
Demotion and retirement										
Employee training: management		<u> </u>								
Employee training: manual labour					}					
Employee training: supervisor/foreman										
Employment legislation										
Forecasting and planning							t			
Job Analysis/specification		<u> </u>								
Organisation structure										
Organisation culture										
Organisation of communication systems										
Planning law										
Property insurance										
Promotion and transfer										
Recruit/select: management										
Recruit/select: manual labour										
Recruit/select: sub-contractor										
Recruit/select:supervisor/foreman										
Setting objectives and goals							[			
Termination/Dismissal: management					[					
Termination/Dismissal: manual labour						_				
Termination/Dismissal: sub-contractor										
Termination/Dismissal: supervisor/foreman							[			

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23. Please rate the degree of importance you attach to the factors below, which may influence your course selection. Please circle (O) the appropriate number. With 1, very important and 4, not important.

	<u>I M I</u>	0	<u>R T</u>	<u>A</u> N	<u> </u>
Factors Influencing Course Selection	VE	RY	NO	Т	
Course content	1	2	3	4	
Course timing	1	2	3	4	
Cost of attending course	1	2	3	4	
Training provider	1	2	3	4	
Place of education/training	1	2	3	4	
Duration of course	1	2	3	4	
Qualification/expertise of course presenter	1	2	3	4	
Method of delivery of education/training	1	2	3	4	

24. Please rate the degree of importance you attach to the factors below, which may influence your attendance to management training and education courses. Please circle (O) the appropriate number. With 1, very important and 4, not important.

Factors Influencing Course attendance	<u>I M</u> V E	PO RY	R T	A N O T	<u> </u>
Obtaining qualifications	1	2	3	4	
Obtaining the respect of peers	1	2	3	4	
Promotion/career development	1	2	3	4	
Willingness to learn	1	2	3	4	

25. How likely are you to attend training and education courses for refurbishment management, if suitable and relevant courses are available? Please tick [/] one box only.

[] Most likery [] Likery [] Most united	[]	kely [] Most unlikely
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If you have any comments concerning the contents of this questionnaire or wish to express an opinion regarding a related topic; then you are welcome to do so in the space provided below.

Thank you very much for taking part in this survey. We anticipate that, with your help, the results will assist greatly in the future provision of the most appropriate courses of management training and education for refurbishment. If you would like a summary of the results, free of charge, please enter your name and contact address below.

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#### Respondent's Comments Concerning The Content Of The Questionnaire And Related Topics

#### Characteristics And Difficulties Associated With Refurbishment Work

(i). "Coping with the daily changes and their effects on programme and cost are extremely difficult especially in terms of getting extension of time granted by the architect. It would be useful if some kind of method of quantifying effects of change would be drawn up that would be acceptable by the client" - (Site Agent)

(ii). "To work on refurbishment, you have to have special qualities - tight supervision is very important because you are dealing with tenants. Also, you come across a lot of changes, because until you start work, you don't know what to expect, as every job is different. More training is needed for supervision" - (Site Agent).

(iii). "I would say that the most important things to develop are team work and safety, with negotiation rather than confrontation between contractor and client being a prime objective. Refurbishment needs to be flexible because of the restraints imposed by the nature of the industry" - (Site Agent).

(iv). "Time should be spent on site to see the degrees of difficulty encountered" - (Site Agent).

#### Education And Training For Refurbishment Management

(i). Refurbishment can only be learnt at source i.e. hands on experience. In the present climate, companies cannot afford to apply this to the site works" - (Site Agent).

(ii). "I feel that a lot of the skills/expertise associated with refurbishment work, especially in connection with tenanted properties need to be gained in on-the-job training. But bearing in mind that on the majority of refurbishment sites, there is only a site manager. It is therefore not really a practical solution. In conclusion, I think that a lot of the skills etc. are learnt through experience 'on site" (Contracts Manager).

(iii). "I feel that in this uncertain time, where work is rather slack, training should be the utmost priority in preparation for an upturn in the markets" - (Project Manager).

(iv). "Good practical training and skills are also very important and must go hand in hand with management education and training" - (Contracts Manager).

#### Other related Topics

(i). "I would have like to see an item which related the questions to sizes of refurbishment contracts. I am involved with refurbishment contracts ranging from  $\pm 1,000$  to  $\pm 1/2$  m, and there is a vast difference in the way we approach the contracts based on value and duration" - (Contracts Manager).

(ii)."If this survey is directed at 'Builders', would it not be beneficial to have the views of consultants and other professionals linked to the industry of refurbishment. Often, conflict is caused by other parties' lack of awareness of provisions encountered on such contracts" - (Contracts Manager).

(iii). " In considering future courses, Mechanical, Public Health & Electrical is a must. Clients are demanding more and more of the building environment. Although on major projects, the builder will employ an M & E co-ordinator, there is still a general lack of knowledge/awareness on the subject (this is reflected in your survey as not one question related to M & E and associated problems was raised). It has been my experience that many of the problems faced by the contractor are M & E generated. General training for managers on the subject could be useful. Also training for the M & E co-ordinator" -( Site Agent).

(iv)."It is my belief that management training within the construction industry in general is sadly lacking" - (Project Manager).

(v). "I personally would like the younger generation in the construction industry to be able to attend any courses available, for the betterment of the industry and the country as a whole" - (Site Agent).

(vi)."Surveys of this type are much needed, provided they are passed on to the people following in our foot prints, so they can gain from our achievements/mistakes" - (Site Agent).

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#### Letter Accompanying Summary Conclusions And Recommendations

Department of Civil Engineering & Construction, University of Salford, Salford, M5 4WT.

Dear sir,

#### <u>Re: Management Education And Training Needs And Job/Skill Profiles For</u> <u>Refurbishment Within The Construction Industry</u>

May I seize this opportunity to thank you most sincerely for participating in the research study on refurbishment management. Your assistance and co-operation have been of great value, without which it would have been extremely difficult to undertake this task.

Please find enclosed a copy of the results relating to the summary conclusions that stem from the study. The main text is contained in the Ph.D thesis "Management Education And Training For Refurbishment Work Within The Construction Industry", C.O. Egbu (1994), University of Salford.

I hope you will find these results of interest and value in your career in refurbishment management.

Yours faithfully,

CHARLES O. EGBU, RESEARCHER

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Chi - square (R x C Tables)

$$X = \sum \frac{(O - E)^2}{E}$$

Chi - square (Multi-dimensional Tables)

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$$X2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \sum_{k=1}^{1} \frac{(n - E)^{2}}{\frac{ijk}{E}}$$

Coefficient of Concordance

$$W = \frac{S}{\frac{1}{12} K^2 (N^3 - N)}$$

df. For Chi-square (R x c Tables)

$$df = (r-1)(c-1)$$

df. For Chi-square (Multi-dimensional Tables)

$$df = rcl - r - c - 1 + 2$$

df. For Chi-square (Partial Independent Tables)

$$df = c l r - c l - r + 1$$

Expected Frequency

Kaiser Meyer-Olkin

$$KMO = \frac{\sum_{i \neq j} \sum_{i \neq j} r^2}{\sum_{i = j} \sum_{i \neq j} r^2 + \sum_{i \neq j} \sum_{i \neq j} a^2} a^2_{ij}$$

Mean

$$\mu = \sum \frac{X}{N}$$

Measure Of Sampling Adequacy

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$$MSA = \frac{\sum_{j \neq i} r^2}{\sum_{j \neq i} r^2 + \sum_{j \neq i} a^2}$$

.

Tau<sub>c</sub>

$$\frac{2 m S}{N^2 (m-1)}$$

=

Test For Tau<sub>c</sub> (No Ties)

$$\sigma^2 = VarS = \frac{1}{18} n (n - 1) (2n + 5)$$

Test For Tau<sub>c</sub> (With Ties)

$$\sigma^2 = VarS = \frac{1}{18} [n (n-1) (2n+5) - \sum t (t-1) (2t+5)]$$

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Variance

$$X_i = \sum_{k=1}^m 1_{ik}^2 + \sigma_i^2$$

# APPENDIX B

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#### APPENDIX B

#### Managers' Perceptions On How Best To Overcome Refurbishment Difficulties

#### Noise Control

- Careful choice of plant/machinery
- Use noise control materials such as mufflers on tools; ear defenders and sound acoustic sheets
- Close liaison with tenants; and working out of hours
- Tight control over labour force

#### Site Security

- Employ a security/night watchman
- Maintain perimeter fencing on site
- Train site employees on the importance of site security
- Tight control of labour force; and maintain honest workforce

#### Storage of Building Materials and Plant

- Careful scheduling of requirements. Bring in small quantities as and when required

#### Site Access

- Close liaison with the police and other authorities; and with adjacent tenants
- Careful scheduling of requirements; and use of correct plant/machinery
- Deliveries to be made outside normal work hours

#### **<u>Time Prediction for Completion of the Work</u>**

- Better investigative work; and site visits prior to commencement of work
- Weekly short term planning with realistic time scales
- Regular progress reports; and meetings with staff
- Tight control and monitoring of the work
- Close liaison between design and construction teams

#### Handling and Disposal of Hazardous Substances

- Work strictly under the COSHH regulations
- Selection of a reputable specialist subcontractor

## Keep Site Tidy

- Provide labour to tidy up site regularly
- Continuous monitoring and supervision of the activities of operatives and subcontractors
- Educate workforce on cleanliness and tidiness <u>Maintaining Existing Services</u>
- Careful selection of Mechanical & Electrical (M&E) contractors
- Close liaison with statutory authorities

#### Productivity Control and Maintenance

- Careful selection and recruitment of skilled workforce
- Efficient bonus systems
- Close supervision of the works
- Regular site meetings with the workforce

## Maintaining Site Safety and Welfare Standards

- Regular training to all staff and workforce on site safety issues
- Give No. 1 priority to site safety at all times
- One member of the site management team to be in total control of safety issues
- Educate, visit local schools, talk to children and emphasize danger on refurbishment sites
- Thorough supervision of the works, enforcing safety standards

## **Decanting Building for Commencement of Work**

- Close liaison with tenants and clients' representatives
- More input from the client. client should initiate any action on decanting tenants
- Provide alternative/temporary accommodation to tenants

## **Protecting The General Public**

- Put up clear signs, barriers and notices of dangers, and the nature of the work undertaken
- Maintain good housekeeping
- Keep up-to-date with safety regulations, especially the COSHH regulations
- Make sure the workforce move all hazardous substances to safe positions and make site safe at the end of the working day

#### Programming and Scheduling of the Works

- Conduct site visits to building site before commencement of the works. this should help clarify certain issues about the site layout
- Close liaison between site management team and the planning department
- constant monitoring of construction programme
- Make realistic allowances of "float" in programmes to cope with numerous hidden variations that inevitably occur
- close liaison between site management team and tenants

## Quality Control and Assurance

- Ensure adequate supervision at all stages of the work
- Select suitable workforce and reputable sub-contractors
- Have a "Quality Control Officer" to implement BS 5750 if it exists
- Produce project quality plan and audit
- Educate and train workforce on the importance of quality requirements

#### **Contract Documentation and Arrangement**

- Early, and a great deal of involvement of the site management team on contract documentation and arrangement
- More time for preparation of contract documentation
- All parties to work closely together
- More warranties and collateral agreements
- Bills of quantities and specification are rarely good because it cannot cover a whole range of "hidden" works

## **Restriction and Working Hours**

- Careful planning and close liaison with tenants
- Consider weekend working
- Piecemeal working around "siting" occupants
- Consider decanting building and provide temporary accommodation

#### Protecting the works and Adjacent Building

- Employ good working methods, using quality materials, skilled labour force and suitable plant/machinery
- Use dust and noise control measures

## **Materials Handling**

- Bring materials as and when required to site in order to avoid double handling
- Close liaison with buying department

#### Handling and Disposal of Site Rubbish

- Use close skips to keep tighter control of wastes
- Constant cleaning of site, including out of hours cleaning
- Close liaison with police and other statutory authorities

#### Long and Unsociable Working Hours

- Efficient bonus schemes and better pay conditions
- Sharing over-time work and split shift supervision
- Close liaison with tenants

#### **Restriction in Plant Usage**

- Use suitable plant/machinery
- Consider increasing labour hours

#### Supervision of the Works

- Regular site rounds
- Employ skilled trades supervisors
- Careful scheduling of the work packages
- Sub-contractors work must be closely monitored

#### Liaison with Tenants/Occupiers

- Employ a Tenant Liaison Officer/Public Relations Officer
- Open door policy with genuine commitment
- Hold regular meetings with tenants
- Make allowance with one-to-one counselling with tenants

#### Selection and Recruitment of Workforce

- Obtain references from previous employers/agencies
- Formal procedures for selection of specialist sub-contractors
- Site management must be involved with the head-office in selection of labour force

#### **Materials Supply**

- Careful scheduling and control of materials supply in relation to the works
- Close liaison with buying department
- Deal with reputable materials suppliers
- Conduct weekly materials reconciliation exercise; and document all materials receipt sheets

#### Coping with employee Stress and Absenteeism

- Provide an organised counselling system
- Employ efficient bonus schemes
- Shift work to be employed if long working hours are needed

#### **Building Regulations & Other Statutory Controls**

- Enforce and monitor the COSHH regulations
- Close liaison with statutory authorities

#### **Plant Supply**

- Deal with reputable plant suppliers

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- conduct weekly plant reconciliation exercise; and document all plant/machinery receipt sheets

## Table 1: The Relative Importance Of Management Skills And Knowledge For Refurbishment

Skills/Knowledge (Job dimensions)	<u>Mean</u> <u>Scores</u> (N=142)	<u>Very</u> <u>Impt.</u> (%)	<u>Imp</u> (%)	<u>Fairl</u> Impt (%)	y <u>Not</u> Impt (%)
1. Leadership	1.197	81.0	18.3	0.7	0.0
2. Communication (oral/written)	1.197	82.4	15.5	2.1	0.0
3. Motivation of others	1.218	79.6	19.0	1.4	0.0
4. Health and safety	1.246	78.9	19.0	1.4	0.7
5. Decision making	1.338	71.8	23.9	3.5	0.7
6. Forecasting and planning	1.359	66.9	30.3	2.8	0.0
7. Site organisation	1.394	68.3	25.4	4.9	1.4
8. Budgetary control	1.408	63.4	33.1	2.8	0.7
9. Supervision of others	1.415	63.4	32.4	3.5	0.7
10. Team building	1.423	62.0	33.8	4.2	0.0
11. Quality control and assurance	1.528	58.5	31.7	8.5	1.4
12. Managing time	1.542	54.2	37.3	7.7	0.7
13. Materials planning and control	1.549	57.0	33.1	8.5	1.4
14. Manpower planning and control	1.563	51.4	41.5	6.3	0.7
15. Setting objectives and goals	1.592	52.1	37.3	0.6	0.0
16. Conducting meetings	1.606	43.7	52.1	4.2	0.0
17. Managing conflict/crisis	1.606	50.7	39.4	8.5	1.4
18. Recruit/select: supervisor/foreman	1.627	53.5	31.7	13.4	1.4
19. Delegating responsibilities	1.634	45.8	44.4	9.9	0.0
20. Programme maintenance (update)	1.641	53.5	31.7	12.0	2.8
21. Tenant welfare	1.676	47.2	40.8	9.9	2.1
22. Public relations	1.676	50.0	34.5	13.4	2.1
23. Recruit/select: subcontractors	1.683	50.0	34.5	<b>14.1</b>	1.4
24. Employee training: supervisor/foreman	1.683	44.4	45.1	8.5	2.1
25. Competitive tendering	1.690	52.1	31.0	13.4	3.5
26. Analysis of project risks/uncertainty	1.690	43.0	46.5	9.2	1.4
27. Programme design	1.711	49.3	33.8	12.7	5.6
28. Identifying personal strength/weaknesses	1.725	45.1	40.1	12.0	2.8
29. Employee training: management	1.739	43.7	43.0	9.9	3.5
30. Site security	1.746	43.0	41.5	13.4	2.1
31. Productivity maintenance and control	1.754	43.7	39.4	14.8	2.1
32. Negotiate: client	1.761	47.9	33.8	12.7	5.6
33. Costing and estimating	1.789	47.9	31.7	16.2	4.9
34. Competitor awareness	1.810	47.9	30.3	15.5	6.3
35. Managing change	1.831	35.2	47.9	15.5	1.4
36. Recruit/select: management	1.831	48.6	28.9	14.1	8.5
37. Negotiate: main contractor	1.859	38.7	42.3	13.4	5.6
38. Negotiate: subcontractor	1.894	38.0	40.8	14.8	6.3
39. Organisation of communication systems	1.923	40.1	35.9	16.9	7.0
40. Managing job stress	1.951	33.8	42.3	19.0	4.9
41. Recruit/select: manual labour	1.993	32.4	39.4	22.5	5.6
42. Employee training: manual labour	2.021	29.6	43.0	22.5	4.9
43. Plant planning and control	2.028	31.0	38.7	26.8	3.5
44. Negotiate: supplier	2.077	26.8	45.8	20.4	7.0
45. Creativity	2.077	28.9	39.4	26.8	4.9
46. Career development and appraisal	2.077	33.8	32.4	26.1	7.7
47. Decanting buildings	2.183	23.2	40.8	31.0	4.9
48. Company accounting	2.218	27.5	33.1	29.6	9.9

49. Company (strategic) planning	2.239	28.2	30.3	31.7 9.9
50. Construction law	2.246	23.9	35.9	31.7 8.5
51. Property insurance	2.246	35.9	21.1	25.4 17.6
52. Organisation structure	2.261	24.6	33.1	34.5 7.7
53. Termination/dismissal: subcontractor	2.282	23.2	35.9	30.3 10.6
54. Job analysis/specification	2.303	19.0	40.1	31.7 9.2
55. Code of practice/working rule agreement	2.331	21.8	34.5	31.7 12.0
56. Termination/dismissal: supervisor/foreman	2.352	22.5	34.5	28.2 14.8
57. Contract drafting	2.373	18.3	37.3	33.8 10.6
58. Sources of finance	2.387	26.8	27.5	26.1 19.7
59. Employment legislation	2.415	16.2	34.5	41.5 7.7
60. Client/consumer protection law	2.472	20.4	25.4	40.8 13.4
61. Promotion and transfer	2.472	16.9	27.5	45.8 9.9
62. Employee welfare/counselling	2.479	13.4	36.6	38.7 11.3
63. Negotiate: government bodies	2.507	19.7	29.6	31.0 19.7
64. Advertising and promotion	2.521	19.7	27.5	33.8 18.3
65. Market research	2.521	26.7	18.3	33.1 22.5
66. Termination/dismissal: management	2.542	15.5	32.4	33.8 18.3
67. Negotiate: trade unions	2.577	19. <b>7</b>	23.9	35.2 21.1
68. Termination/dismissal: manual labour	2.592	12.0	32.4	39.4 16.2
69. Company law	2.592	16.2	28.2	35.9 19.7
70. Use of computer technology	2.599	15.5	25.4	43.0 16.2
71. Organisation culture	2.634	15.5	21.8	45.8 16.9
72. Planning law	2.761	13.4	20.4	42.3 23.9
73. Managing other national culture	2.873	12.0	19.7	37.3 31.0
74. Demotion and retirement	3.049	4.2	19.7	42.3 33.8
75. Foreign language	3.507	1.4	9.2	25.4 64.1

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## <u>Table 2: Degree Of Difficulty In Handling Management Job Dimensions</u> (Skills/Knowledge) In Refurbishment

Job dimensions (Skills/Knowledge)	<u>Mean</u> Scores	<u>Very</u> Diff.	<u>Diff</u> (%)	<u>Fairly</u> Diff	<u>Not</u>
	$\frac{1}{(N=23)}$	(%)	<u></u>	<u>2</u> (%)	<u>2</u> (%)
	-				_
1. Forecasting and planning	1.782	40.8	41.5	16.2	1.4
2. Analysis of project risks/uncertainty	1.852	34.5	47.9	15.5	2.1
3. Competitive tendering	1.894	35.2	42.3	20.4	2.1
4. Budgetary control	2.155	23.9	42.3	28.2	5.6
5. Managing time	2.162	27.5	37.3	26.8	8.5
6. Quality control and assurance	2.218	21.1	41.5	31.7	5.6
7. Health and safety	2.232	26.8	32.4	31.7	9.2
8. Site security	2.338	24.6	30.3	31.7	13.4
9. Use of computer technology	2.345	21.1	35.9	30.3	12.7
10. Managing conflict/crisis	2.352	18.3	36.6	36.6	8.5
11. Motivation of others	2.359	16.2	43.0	29.6	11.3
12. Tenant welfare	2.366	16.2	39.4	35.9	8.5
13. Communication (oral/written)	2,373	16.2	39.4	35.2	9.2
14. Costing and estimating	2.373	17.6	37.3	35.2	9.9
15. Manpower planning and control	2.380	17.6	39.4	30.3	12.7
16. Recruit/select: management	2.401	23.2	30.3	29.6	16.9
17. Recruit/select: subcontractor	2.430	19.0	34.5	31.0	15.5
18. Recruit/select: supervisor/foreman	2.430	19.0	32.4	35.2	13.4
19. Supervision of others	2.444	12.7	42.3	33.1	12.0
20. Employee training:supervisor/foreman	2.444	10.6	43.7	36.6	9.2
21. Materials planning and control	2.444	14.8	38.7	33.8	12.0
22. Programme design	2.451	17.6	33.8	34.5	14.1
23. Negotiate: client	2.458	12.0	41.5	35.2	11.3
24. Employee training; management	2.486	8.5	43.7	38.7	9.2
25. Construction law	2.486	15.5	31.0	43.0	10.6
26. Leadership	2.507	12.7	38.7	33.8	14.8
27. Productivity control and maintenance	2.514	12.0	39.4	33.8	14.8
28. Setting objectives and goals	2.521	14.1	32.4	40.8	12.7
29. Managing change	2.521	12.7	33.1	43.7	10.6
30. managing job stress	2.528	14.8	33.1	36.6	15 <i>.</i> 5
31. Negotiate: government bodies	2.535	16.9	31.0	33.8	183
32. Decanting buildings	2.549	10.6	39.4	34.5	15.5
33. Public relations	2.556	10.6	35.9	40.8	12.7
34. Site organisation	2.563	11.3	37.3	35.2	16.2
35. Programme maintenance (update)	2.563	16.2	30.3	34.5	19.0
36. Company (strategic) planning	2.577	12.0	29.6	47.2	11.3
37. Negotiate: subcontractor	2.596	9.9	35.5	39.7	14.9
38. Job analysis/specification	2.606	10.6	32.4	43.0	14.1
39. Team building	2.606	8.5	33.8	46.5	11.3
40. Competitor awareness	2.627	8.5	38.0	35.9	17.6
41. Employee training: manual labour	2.648	7.0	38.8	46.5	12.7
42. Contract drafting	2.648	10.6	29.6	44.4	15.5
43. Client/consumer protection law	2.655	8.5	31.7	45.8	14.1
44. Recruit/select: manual labour	2.662	13.4	28.2	37.3	21.1
45. Organisation of communication systems	2.669	6.3	35.2	43.7	14.8
46. Company accounting	2.676	7.7	34.5	40.1	176
47. Creativity	2.676	9.2	30.3	44.4	16.2
48. Negotiate: main contractor	2.683	7.7	32.4	43.7	16.2

49. Identifying personal strength/weaknesses	2.690	9.2	27.5	48.6	14.8
50. Career development and appraisal	2.704	4.9	35.2	44.4	15.5
51. Termination/dismissal: subcontractor	2.711	14.8	23.2	38.0	23.9
52. Company law	2.718	9.9	32.4	33.8	23.9
53. Decision making	2.732	7.7	30.3	43.0	19.0
54. Termination/dismissal: supervisor/foreman	2.739	13.4	23.9	38.0	24.6
55. Conducting meetings	2.746	3.5	31.0	52.8	12.7
56. Delegating responsibilities	2.775	7.0	26.8	47.9	18.3
57. Organisation structure	2.796	7.7	21.8	53.5	16.9
58. Employment legislation	2.803	6.3	24.6	51.4	17.6
59. Managing other national culture	2.859	7.7	25.4	40.1	26.8
60. Negotiate supplier	2.859	5.6	25.4	46.5	22.5
61. Plant planning and control	2.859	3.5	26.8	50.0	19.7
62. Promotion and transfer	2.859	5.6	20.4	56.3	17.6
63. Sources of finance	2.866	7.0	23.9	44.4	24.6
64. Termination/dismissal: management	2.873	12.7	19.0	36.6	31.7
65. Foreign language	2.894	20.4	14.1	21.1	44.4
66. Planning law	2.915	5.6	22.5	46.5	25.4
67. Negotiate: trade unions	2.951	6.3	19.7	46.5	27.5
68. Organisation culture	2.958	4.2	14.8	62.0	19.0
69. Code of practice/working rule agreement	2.986	3.5	23.2	44.4	28.9
70. Employee welfare/counselling	2.986	4.2	19.0	50.7	26.1
71. Market research	2.993	8.5	19.0	37.3	35.2
72. Property insurance	3.007	6.3	16.9	41.5	35.2
73. Termination/dismissal: Manual labour	3.056	6.3	17.6	45.1	31.0
74. Advertising and promotion	3.063	2.1	20.4	46.5	31.0
75. Demotion and retirement	3.085	5.6	16.2	42.3	35.9
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## <u>Table 3: Job Dimension For Which Senior Managers Need Education And Training</u> <u>In Their Present Jobs</u>

Job Dimensions	Mean Scores (N=23)	<u>Need Training (%)</u>
Tenant Welfare	2.652	30.4
Company law	2.652	30.4
Company accounting	2.652	26.1
Delegating responsibilities	2.696	26.1
Planning law	2.696	39.1
Negotiate: subcontractor	2.696	30.4
Job analysis/specification	2.696	47.8
Creativity	2.739	34.8
Code of practice/working rule agree	eement <b>2.739</b>	34.8
Termination/dismissal: subcontract	tor <b>2.73</b> 9	34.8
Negotiate: government bodies	2.783	17.4
Materials planning and control	2.783	43.5
Programme maintenance (update)	2.783	43.5
Company (strategic) planning	2.783	39.1
Employee welfare/counselling	2.783	39.1
Site security	2.783	30.4
Employee training: manual labour	<b>2.</b> 783	43.5
Negotiate: main contractor	2.783	56.5
Negotiate supplier	2.826	26.1
Termination/dismissal: supervisor/	foreman 2.826	34.8
Employment legislation	2.870	30.4
Termination/dismissal: manageme	nt <b>2.87</b> 0	26.1
Site organisation	2.870	47.8
Advertising and promotion	2.913	39.1
Recruit/select: manual labour	2.957	26.1

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## <u>Table 4: Senior Managers' Perceptions On The Job Dimension For Which They Do</u> <u>Not Need Education And Training In Their Present Jobs</u>

Job Dimensions	Mean Scores (N=23)	Need Training (%)
Organisation culture	3.348	52.2
Promotion and transfer	3.304	47.8
Decanting building	3.261	43.5
Demotion and retirement	3.261	47.8
Foreign language	3.261	56.5
Property insurance	3.217	39.1
Sources of finance	3.174	39.1
Managing other national culture	3.130	43.5
Organisation structure	3.087	34.8
Plant planning and control	3.087	39.1
Termination/dismissal: manual	3.087	43.5
Negotiate: trade unions	3.087	47.8
Competitor awareness	3.043	39.1
Market research	3.000	34.8
Client/consumer protection law	3.000	34.8

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## <u>Table 5: Job Dimension For Which Middle Managers Need Education And Training</u> <u>In Their Present Jobs</u>

Job Dimensions	<u>Mean Scores (N=59)</u>	<u>Need Training (%)</u>
Client/consumer protection law	2.441	28.8
Decision making	2.441	37.2
Job analysis/specification	2.458	33.9
Company (strategic) planning	2.458	32.2
Identifying personal strength/weak	inesses 2.475	37.3
Conducting meetings	2.508	25.4
Company law	2.508	37.3
Site organisation	2.525	32.2
Negotiate: government bodies	2.542	32.2
Contract drafting	2.542	42.4
Recruit/select manual labour	2.542	42.4
Company accounting	2.542	40.7
Delegating responsibilities	2.559	37.3
Negotiate: subcontractor	2.559	30.5
Employment legislation	2.559	42.4
Competitor awareness	2.576	27.1
Promotion and transfer	2.576	35.6
Negotiate: trade unions	2.576	35.6
Negotiate: main contractor	2.593	28.8
Termination/dismissal: subcontract	tor 2.610	16.9
Termination dismissal: supervisor/	foreman 2.627	28.8
Termination/dismissal manual labo	our 2.644	44.1
Sources of finance	2.644	40.7
Organisation structure	2.661	40.7
Termination/dismissal: management	nt 2.695	30.5

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Job Dimensions	Mean Scores (N=59)	<u>Need Training (%)</u>
Foreign language	3.186	57.6
Demotion and retirement	3.034	33.9
Managing other national culture	2.949	30.5
Organisation culture	2.881	27.1
Property insurance	2.847	27.1
Site security	2.814	28.8
Plant planning and control	2.780	27.1
Creativity	2.780	23.7
Employee welfare/counselling	2.780	23.7
Advertising and promotion	2.763	30.5
Decanting building	2.763	27.1
Code of practice/working rule agr	eement <b>2.763</b>	27.1
Negotiate: supplier	2.746	28.8
Market research	2.746	27.1
Planning law	2.729	20.3

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#### Table 6: Middle Managers' Perceptions On The Job Dimension For Which They Do Not Need Education And Training In Their Present Jobs

## <u>Table 7: Job Dimension For Which Junior Managers Need Education And Training</u> <u>In Their Present Jobs</u>

Job Dimensions	<u>Mean Scores (N=59)</u>	<u>Need Training (%)</u>
Negotiate: client	2.533	25.0
Employee training: management	2.533	31.7
Job analysis/specification	2.533	36.1
Negotiate: supplier	2.550	26.7
Negotiate: government bodies	2.550	30.0
Company law	2.567	25.0
Negotiate: main contractor	2.567	36.7
Contract drafting	2.583	41.7
Company (strategic) planning	2.600	30.0
Negotiate: subcontractor	2.617	35.0
Decision making	2.617	30.0
Site security	2.617	45.0
Career development and appraisa	al <b>2.617</b>	40.0
Client/consumer protection law	2.633	43.3
Employment legislation	2.633	43.3
Company accounting	2.650	26.7
Negotiate: trade unions	2.667	35.0
Code of practice/working rule ag	reement 2.717	36.7
Recruit/select: management	2.717	41.7
Competitor awareness	2.733	38.3
Organisation structure	2.733	48.3
Delegating responsibilities	2.767	36.7
Promotion and transfer	2.767	48.3
Managing other national culture	2.783	31.7
Creativity	2.800	35.0

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Job Dimensions	Mean Scores (N=60)	<u>Need Training (%)</u>
Demotion and retirement	3.250	48.3
Foreign language	3.150	46.7
Termination/dismissal: management	nt 3.133	41.7
Termination/dismissal: manual lab	our 3.117	38.3
Termination/dismissal: supervisor/	foreman 3.117	38.3
Advertising and promotion	3.067	41.7
Market research	3.050	36.7
Organisation culture	3.000	25.0
Decanting buildings	3.000	26.7
Property insurance	2.983	35.0
Plant planning and control	2.900	30.0
Employee welfare/counselling	2.850	23.3
Termination/dismissal: subcontrac	tor 2.817	30.0
Sources of finance	2.817	30.0
Planning law	2.800	25.0

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## <u>Table 8: Junior Managers' Perceptions On The Job Dimension For Which They Do</u> <u>Not Need Education And Training In Their Present Jobs</u>

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