THE UNIVERSITY OF HULL

The Development of Vocational Education and Training in the British Construction Industry: 1970-1990.

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Doctor of Philosophy

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by

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FOREWARD

This thesis is written from the perspective of a practitioner with many years of experience within this field of study. The author therefore takes a practical approach in undertaking the research.

The lack of previous research in this field of study was one of the attractions of undertaking this topic for study, and is an attribute which gives added academic value to the thesis. However the lack of published literature created initial difficulties whilst compiling a knowledge base from which the analysis could evolve. To overcome this problem it required a method of research which was based on two forms of analysis. The first or primary form is an analysis of practical events, processes and structures which forms the knowledge base of the topic, and this primary analysis is not reliant on academic concepts and models. Rather it stems from a practical level of analysis which provides the cohesion to the written and oral evidence available on the topic. This practical analysis serves two purposes, it brings together the strands of knowledge and expands the level of understanding of the concepts involved. For example, the training levy introduced by the Construction Industry Training Board was recognized as a control mechanism for the funding of training, but from a practical analysis it was possible to show that in fact the

levy discriminated against smaller size employers and thus served to restrain the level of training instead of encouraging it as was the original intention.

Therefore the description of events, processes and structures that form the content of the study in itself involves analysis based on the interpretation of available evidence.

The secondary stage involved, secondary analysis in terms of the model adopted for the two case studies of craft and technician provision. The model was an adapted form of the Becher and Maclure model which was originally devised for higher education, and is presented in their book "Process and Structure in Higher Education".

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I thank the Principal and other senior members of staff at North Lincolnshire College for allowing me release to undertake this study, in particular Mr. P. Roberts, my Head of School.

An important aspect of the research was a series of interviews conducted with representatives of key organisations and practioners involved with education and training in the Construction industry. I would like to show my appreciation to these people who agreed to take part in these interviews.

Finally, I would like to thank my wife, Ann and the three girls, Jane, Andrea and Charlotte, for their encouragement and help.

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CHAPTER ONE

INTRODUCTION

1.1 SUBJECT

The purpose of this thesis on Vocational Education and Training in the British Construction Industry: 1970-1990 is to analyse the development of education and training provision for the construction industry and the ways in which it has responded to change over the last twenty years.

The thesis begins by establishing the broad historical, technological and economic context of construction education and training. The thesis then considers the main concepts, patterns and issues that relate to vocational education and training and the relationship between policy and provision. This chapter provides the bench mark for an in-depth analysis of the provision of craft and technician education and training in the construction industry in the period under study. The thesis concludes with an evaluative analysis of the changes in educational and training provision that have occurred during the twenty year period and discusses the implications of these for the future.

Although there is of course an extensive literature on vocational education and training in general in the United Kingdom, there has been little research to date on the specific field of construction education and training. Apart from a

small number of official reports, the literature is confined to short articles in specialist journals, often of an ephemeral nature. The basic task of this thesis is therefore a descriptive one: it attempts to identify and map out the main changes in provision that occurred in the period under study, and by so doing provide an account of developments of the last twenty years which does not currently exist. While such an account is concerned with only one occupation or industry --- construction --- it may also be relevant to accounts of change in other vocational fields.

However, any attempt to describe such changes soon raises analytic questions about the relationship between policy and provision in vocational education and in the construction field in particular. The thesis therefore explores two main questions in its analysis of changes in craft and technician education. First, at what level was provision controlled ? Was it in the direction of top down, or bottom up ? Was it largely planned at national level, and simply 'delivered' locally, or did the providing institutions (colleges) and the basic units within them (departments) have much influence over the curriculum ? Did significant control lie even at the level of the individual lecturer or trainee ?

Secondly, what kind of process was involved in the turning of policy into provision ? Was the process of planning construction education and training primarily a systematic one,

or a more gradual, incremental one ? Is the process better analysed not in terms of a conventional educational planning models, but as a political process in which key organisations, interest groups and actors were the main factors influencing provision, often for non-educational reasons ? Was the planning process a proactive, forward-looking one, or did events move so swiftly that organisations and individuals were forced into a mainly reactive mode, coping with changes as best they could in the circumstances ?

The answers to these questions about the level and process of planning are not clear cut but it is hoped that the analysis of them in this particular field of work may help to raise similar questions in fields outside construction.

1.2 RATIONALE

There are five key reasons why this study was undertaken:

- It was a period of major change in the field of construction education and training.
- These changes came about for various political and economic reasons.
- The literature on this period tends to be in Vocational Education and Training in general and there is a gap on Construction.
- The study provides a useful case study into the aspects of policy and planning, and the kinds of models: top down - bottom up; systematic - incremental; rational - political; proactive - reactive; best used to explain it.

The topic of construction education and training is an area of study that has not been widely researched and those papers that have appeared in recent years have generally concentrated on one aspect of the topic, such as the development of construction craft training. Therefore, the thesis aims to provide a comprehensive analysis of this field of study in the light of recent developments which have affected the provision of education and training generally, such as the New Training Initiative, the development of the Youth Training Scheme, and the Review of Vocational Qualifications.

During the past twenty years vocational education and training has undergone fundamental changes in order to respond to political and economic pressures. The growth in unemployment and particularly youth unemployment caused major problems for

government. Many of the new initiatives have been introduced by government through its departments and agencies in order to respond to unemployment. Two of the major problems facing government were the low participation rate compared to other industrial countries of 16-19 year old's in further education and training, and the poor contribution to training by industry. (1) The Manpower Services Commission and the Further Education Unit acted as the main change agents for the Government, though not always in concert. In the period 1970-90, the F.E.U's role was to provide expertise for the development of new curricula structures. The M.S.C. had control of funding for both youth and adult training schemes and later a 25 per cent stake in non-advanced further education following the Government White Paper Training for Jobs (2). The M.S.C. programmes of vocational preparation for 16+ were designed to be employer based instead of college based, with the intention of obtaining a more direct involvement in training by employers. The new emphasis placed on vocational education and training by Government led to the concept of

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1 PARKES, D.L. (1985) Competition ... Competence?: education, training and the roles of DES and MSC. pp. 159-171. in McNAY, I. & OZGA, J. (Ed) Policy-Making in Education; The Breakdown of Consensus. Oxford: Pergamon Press.

2 DEPARTMENT OF EMPLOYMENT. (1984) Training for Jobs. London: H.M.S.O.

"vocationalism" which spread into the school sector and resulted in the introduction of school/industry projects and the implementation of the Technical Vocational Education Initiative for 14-18 age group. The pressure to ease the rate of adult unemployment and to meet the need for industrial and technological change gave new impetus to the concept of continuing education and training, and many adult training schemes were introduced, but these were mainly for the unemployed.

The study endeavours to analyse one example of the education service's response to these changes within the field of construction, thereby giving an insight into the career development of an industry that uses a vertical structure of training. However, because of the wide range of provision within the industry it has been necessary to limit the scope of the study and to focus on the main forms of provision at craft and technician level, thus excluding from the study education and training below craft and above technician levels. It is however, within the scope of craft and technician provision that the main changes have taken place.

1.3 METHODOLOGY

The study is based on three main sources:

(1) documentary evidence which includes both published and unpublished materials.

(2) semi-structured interviews with members of key organisations and practitioners who were active in the field during the period under study.

(3) relevant experience from working as a Construction lecturer in further education for the past twelve years.

Although there is a large amount of literature on Vocational Education and Training in general, the amount of published literature specific to construction education and training is relatively small, and much that has been published is either dated or narrowly specific to one particular aspect of the topic such as B.T.E.C. programmes. However, the material that was available was supplemented by unpublished documents provided by some key organisations within the field of construction education and training.

This documentary evidence was then supplemented by focused interviews with relevant officials who represented their organisation rather than speaking for themselves. These interviews with key organisations were used to explore further the questions that had emerged from the documentary evidence and therefore, each interview was carefully structured to ensure that these key issues were discussed. In some cases the interviewee was sent a copy of these focused questions prior to the interview, a list of these key questions is included in

Appendix A. Once these questions had been adequately covered the interview was more informal to allow for spontaneous discussion. The pattern of interviews changed in relation to the organisation involved. In addition to the interview evidence from key organisations, a number of interviews took place with practitioners in one area of the country who were also active in other areas during the period 1970-1990. The intention in structuring the interviews in this way was to obtain evidence relative to policy from the national bodies and then to check this with evidence from practitioners about the implementation of the changes to the provision. A list of all the interviews is listed in Appendix B. Thirdly this evidence gathered from the first two sources was supplemented by the researcher's experience from working in the construction industry for seventeen years and a further twelve years as a construction lecturer in a further education college and involvement in various consultative bodies.

1.4 STRUCTURE.

The thesis consists of six chapters. This chapter (1) gives a brief description of the scope and rationale of the study. It also outlines the research methodology adopted and concludes with an outline of the six chapters. Chapter two considers the contextual aspects of construction education and training. It considers the historical development of the industry and in particular the way in which the social structure of the industry has evolved. Traditionally construction was controlled

by the craft guilds. The power of these guilds was weakened by structural and social change and was eventually replaced by the entrepreneurial system of general contracting, which produced competitive tendering, speculative building and sub-contracting. Technological change was also considered, in particular the way in which mechanisation and computerisation has affected construction work. Technological change was a continuous process and there were trends towards the use of system building methods and the use of computers as a tool for planning and controlling site work. Construction was also particularly affected by economic factors. It was a major service industry in Great Britain and received a considerable amount of its work from government. The value of construction output in Great Britain in 1988 amounted to £40.5 billion. (3) Constant fluctuations in demand were experienced by builders in the last twenty years and the casual nature of the industry illustrates the way in which construction adapted to the economic cycle of boom and recession. It was a industry that was labour intensive and changes in employment trends had a direct impact on it. For example, it was estimated that

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3 DEPARTMENT OF EDUCATION AND SCIENCE (1990) A Survey of Construction Craft Courses 1987-1989; H.M.I. Report. London: D.E.S. p.5.

between 1978 and 1982, some 250,000 building workers lost their jobs (4) due to the economic recession, decline in public spending, and structural changes in employment such as the growth of self-employment. The major political influence experienced in construction education and training during the period under study was the rise of the Manpower Services Commission. The Construction Industry Training Board was one of the major providers of the Youth Training Scheme and the industry structured its foundation training to comply with some of the requirements of the M.S.C's specification for the Y.T.S. programme. The growth in youth unemployment resulted in greater emphasis being given to preparing young people for work. This new emphasis in secondary education came to be termed "vocationalism", and many new educational schemes were introduced for the 14-19 year age group. One outcome of this new vocationalism was the re-structuring of educational provision according to ability and career opportunity, in terms of three broad strands or streams: general education; job-specific education or training; and vocational preparation.(5)

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4 CENTRAL STATISTICAL OFFICE. (1984) Annual Abstract of Statistics: 1984 Edition. London: H.M.S.O. p. 112.

5 PRATLEY,B. (1985) Signposts '85: a review of 16-19 education. London: Further Education Unit.

Chapter three considers the nature of Vocational Education and Training in general. This chapter analyses the various concepts and models that underpin the provision of vocational education and forms the basis of the analysis throughout the remainder of this thesis and particularly in the concluding chapter. The chapter is sub-divided into six sections dealing with the concepts, scope, levels, and patterns of vocational education, the structure of courses and qualifications and concludes with policy, planning and provision.

The concept of vocational education is analysed in relation to general or non-specific education. The concept of vocational education as being 'specific' derives from a paper by W, Mitter, who considers Vocational Education as one form of 'Special Education'(6). The comparison between the two highlights both the differences between the two and also the areas of overlap. The scope of vocational education not only included the traditional job specific training but increasingly the growth in vocational preparation schemes. The growth in such schemes for the 14-18 year age group was due partly to the uncertainty of career opportunities particularly for the low

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MITTER, W. (1984) 'Education for All' International Year Book of Education, 36, 101-14. Paris: UNESCO.

achieving groups of children. This section considers four approaches to vocational preparation. The level of course within vocational education can be considered from several perspectives. There are occupational levels such as operative, craft, technician and professional. Then there are levels within occupational groupings for example, basic and advanced. Both these concepts of level are expressed in educational terms, and if we consider level in terms of employment then responsibility and experience are also important factors. The concept of level proposed by the National Council for Vocational Qualifications combines both the industrial and educational forms of level. The pattern of vocational education can be distinguished in terms of three broad approaches: the schooling model which places greater emphasis on a generalist approach; the dual model which is associated with apprenticeship, and the mixed approach in which emphasis is placed on providing training outside the main educational system.(7) Britain is considered to tend towards the latter pattern but there are examples of both the other two approaches within the British system. This next section gives an overview of recent developments such as the N.C.V.Q.(8)

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7 ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (1985) Education and Training after Basic Schooling. Paris: OECD.

8 NATIONAL COUNCIL FOR VOCATIONAL QUALIFICATIONS (1989) National Vocational Qualifications: Criteria and Procedures. London: NCVQ.

framework and the changes brought about by the Education Reform Act.(9) The implications of these major changes for the vocational curriculum are considered. The chapter ends with a discussion of the relationship between policy and provision, in terms of the two basic analytic questions of the thesis: at what level did the control of the curriculum lie ? and was the curriculum planning process essentially a systematic, rational, incremental, political, reactive or proactive one ? This section sets out the framework for the subsequent analysis of craft level and technician level education and training in the two subsequent chapters of the thesis.

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9 DEPARTMENT OF EDUCATION AND SCIENCE. (1988) Education Reform Act. London: H.M.S.O.

Chapter four describes and analyses the nature of craft training which changed considerably in the period under review. The growth in Y.T.S, saw the decline in the traditional apprenticeship which was based on site experience and part-time formal education and training usually provided at a local F.E. college. The duration of training was reduced from 5 years to the present 3 years, and time serving was replaced by skill testing as evidence for craft recognition. This reduction in the training period led to the need to intensify training off-the-job in order for the trainee to reach the required competence in the reduced time allowed for training. This led to the C.I.T.B Standard Scheme of Training which was based on intensive initial training to boost the trainees' skill level. This method of training proved popular with the medium-large employers but was less favoured by the smaller firms who preferred day-release. As the majority of construction employers were small in size this tended to limit the success of the scheme. Following a decline in craft training during the economic recesssion of the late 1970's, the introduction of the Y.T.S. Construction Schemes helped to revitalise craft training after its period of decline. The reason for this increase in craft training was mainly financial. The previous C.I.T.B Standard Scheme of Training was mainly financed by an employer levy, but since many of the smaller firms neither paid a levy nor were entitled to training grants therefore they remained outside the system. Funding for Y.T.S. training was paid for by government and topped up by levy, the training

grants encouraged the smaller firm to train. Furthermore, the new traineeship arrangement meant that small firms could train young people without the commitment of employment and with no wages or training expenses to pay. The status of craft training has declined in recent years as more young people become career minded. The more able school leavers have tended to opt for opportunities at technician level where there appeared to be greater career scope. With the demographic decline in school leavers and the greater numbers of young people staying on at school the industry had to take a new look at its recruitment strategy if the target of 70,000 new entries each year were to be achieved. (10)

Chapter five, describes and analyses the nature of technician education and training during the period under study. It was recognised in the late 1960's that if the industry was to adapt to an increasing rate of technological change and scientific progress, the gulf between the craftsman and the technologist must be bridged by a middle band of occupations. This middle band of technicians should possess the specialist knowledge, experience and skills, and have the ability to apply them under the direction of a technologist. They would also be given the additional responsibility of supervising work. It was

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10 FULCHER, A. C.I.T.B. Director of Training Policy. Lecture given at the H.M.I. Construction Craft Teachers Conference, Wolverhampton Polytechnic. July 3-5th 1990

recognised that a purpose made programme of education and training should be developed for technicians. This initially resulted in a dual provision of courses being offered by both the D.E.S. National and Higher National qualifications and the City and Guilds of London Institute Technician Certificates. These two forms of provision were eventually rationalised by the introduction of the Technician Education Council programmes of study. Within the building sector there were some eight categories of employment which fitted into the technician band. It was therefore important that course design for building technicians be wide ranging and flexible to meet such a varied spectrum of needs. The unit structure of T.E.C. courses was designed to meet these requirements. Subsequently the Technician Education Council and the Business Education Council joined together to form B.T.E.C. and since then there has been greater emphasis on the application of knowledge and the development of personal skills and competences as a preparation for work. Technician education and training was not affected to the same extent as craft training was by the introduction of Y.T.S. Programmes. Furthermore, the rise in youth unemployment and the lack of job opportunities resulted in an increase of full-time students entering B.T.E.C. courses.

Chapter six, the concluding chapter, analyses the main features of change in construction education and training during the period 1970-1990. It evaluates the policy changes imposed through various government initiatives and considers the way in which construction education and training responded to these

and other changes brought about by external influences. It considers to what extent these changes exemplify a rational, systematic, incremental, political, reactive or proactive method of planning in the industry. With so many recent influences soon to take effect such as the change in funding arrangements and the formation of Training and Enterprise Councils, the implementation of National Council for Vocational Qualifications framework and the Education Reform Act, the thesis concludes with a summary of recent developments and their possible future implications for vocational education and training in the construction industry.

CHAPTER TWO

THE CONTEXT OF CONSTRUCTION EDUCATION AND TRAINING.

This chapter analyses the contextual influences that have affected the planning and provision of Construction education and training. Vocational education has traditionally had strong links with industry. Construction is a key industry and is one of the major providers of employment. The traditional craft based nature of the industry makes it still labour intensive, and conservative in accepting change. The historical development of Construction has provided a strong cultural ethos and the changes in the structure of labour on-site has played a major role in affecting the structure of Construction education and training. During the period of the study 1970-1990 there was a long period of deep economic recession which led to high unemployment and large numbers of bankruptcy within the Construction industry. The Government's response to this economic and social crisis was to provide a national system of vocational education and training for all school leavers. Therefore the planning and provision of vocational education and training became more centralised in terms of control, funding and programme structure. This chapter will analyse the contextual influences that have affected Construction education and training in terms of the historical, technological, economic/employment, political and educational factors.

2.1 HISTORICAL CHANGE.

Men have been undertaking building work for thousands of years. The development of civilisation is in some respects the story of the progress of builders. The types of materials used to form buildings depended upon the natural resource within an area. If the area had many trees, it was easy to cut them down and shape them into posts and beams and fill the space with twigs and branches. The roof would then be thatched with reeds or straw. In areas where there were fewer trees, blocks of stone could be quarried or clay could be dug and shaped into bricks which were dried in the sun or burnt in a kiln. The type of material used influenced the method of construction and also the appearance of the building.

The appearance of buildings brings in another vital factor:design. Most of the large and important buildings of the last four or five thousand years have been deliberately designed. The development of buildings can be divided into two groups. On the one hand are simple buildings made to more or less standard patterns and by traditional methods. These methods were handed down from father to son or from master to apprentice in each of the crafts. This type of building was termed vernacular. Secondly there were buildings purposely designed. The architect was the inventor of some methods, and

many new ideas came from other countries. At various periods architects have copied Roman, Greek or Ancient Egyptian buildings. It was in Rome that the first style of mixed origin based on the use of stone, brick and timber came into being, and it was the Roman style that was carried all over the western world as provinces were conquered for the Roman Empire. Roman methods of building became well known because a Roman Architect named Marcus Vitruvius Pollio wrote a famous encyclopeadia of architecture called 'De Architectura, (11) which he dedicated to the Emperor Augustus in 25 B.C. and many copies were made. It is worth noting that Vitruvius was both a designer and a master builder.

The technical development in the methods of building and the evolution of the Gothic style had reached a peak by the end of the twelfth century. In France and England there were architects, mostly master masons who could design and build on a grand scale. The skilled men were divided into gangs according to their craft, but all of them came under the control of the master mason as architect. In charge of each gang was a foreman and when the master was away from the building his place was taken by the warden of masons, whose work was equivalent to a modern site architect. Working masons

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11 YARWOOD,D. (1974) The Architecture of Europe. London: B.T.Batsford. p.38.

were taken on in sufficient numbers for the size of the job. For the King's works and other great buildings masons and other craftsmen were impressed, that is conscripted. The mason who cut the stone worked on a bench or "banker" inside a hut or shelter called a lodge. At the cathedrals and other large buildings, where maintenance work was always going on, there would be a permanent lodge with a few maintenance masons. If a new addition was to be made to the building, a new lodge might be built with separate staff. In some cases there were two masters, one for the old work, and the other who was the architect for the newly designed addition. The master did not usually work in a lodge but in his "tracing house" where drawings were made. In the tracing house there would be drawing boards on trestles and part of the floor was often laid with a slab of plaster of Paris. On the slab large drawings could be made by scratching lines into the plaster. Two of these plaster floors, covered with a confusing mass of lines from many drawings, exists at Wells Cathedral and York Minister.(12) In charge of all major building work were the masters, mostly master masons. In the case of timber framed buildings and complex roofs the architect who designed the work was the master carpenter.

Architects, who were not trained in the mediaeval way to work with their hands on the material but only to make designs and

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12 HARVEY, J. (1973) Man the Builder. Norwich: Priory Press Limited. p.51.

to supervise, were uncommon until the end of the eighteenth century.(13 A number of factors led to this change. In the early years of the reign of Henry VIII, decoration imitated from ancient Roman buildings spread from Italy and France and was taken up by Henry as a matter of Royal fashion. The Church was attacked by the Reformers and lost support. A few years later the monasteries were dissolved and yielded immmense sums of money which helped the ailing exchequer. In 1547 when Henry VIII died, the government ruling in the name of the boy King Edward VI, became extremely Protestant. The new ruling classes had been able to buy the lands that had belonged to the monasteries, so within a few years the pattern of building was entirely changed. Instead of building very large churches and chapels, great houses were being built using the stone and other building materials from the monasteries. The style in which the new houses were built was to begin with the same Tudor form of Perpendicular, though with some of the newly fashionable decoration based on Roman sources. But soon there was a deliberate attempt to avoid Gothic style and to substitute an imitation of Roman architecture. There was three reasons why there was a complete change in architectural

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13 ibid., p.54.

fashion. First, there was the destruction of the monasteries, and the power of the Church. The greatest of patrons of the Gothic style of architecture no longer existed. There were no continuing jobs of the old kind, for even at the cathedrals which survived, building work stopped for two hundred years or more. (14) Secondly, the fashion at the Royal Court for decoration in the imitative classical style put Gothic details out of favour. Foreign artists, most of them not architects, could draw the fashionable "antique" work on paper and get better pay than the master masons. Finally, the book of Vitruvius had appeared in print and anyone who could read, and had learned to draw, was able to make designs of his own in the Roman manner.

The geometrical rules for designing Gothic buildings were very complicated. To be a sound Gothic architect meant spending an apprenticeship of seven years learning how to cut, set and carve stone. Then another three years at least were demanded before the methods of proportion and design could be mastered. The body of tradition which had grown up over four hundred years was a complex subject to study. To make all the training worthwhile there had to be good jobs at the end. By 1550 these jobs had gone. So the way was open to the amateurs, including some of the nobility and gentry, who wished to display their talents and taste. Armed with a copy of Vitruvius, or one of the new pattern books, they were able to design buildings.

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14 ibid., p. 71.

The building still had to be built by the craftsmen who knew how to handle the materials, but they were controlled by the new amateur architects. Architects since the Renaissance have designed on paper without practical knowledge of how the building was to be built. Architects became "professional men" remote from the master craftsmen who possessed the building skills. The old tradition in vernacular buildings went on until the nineteenth century. Villages and country cottages, built and rebuilt by generations of local craftsmen carried on a part of the legacy left by the Middle Ages. The end came with the founding of the Royal Institute of British Architects in 1834. From that time onwards the design of the building became the preserve of a professional class, entirely seperated from the practical knowledge of the master craftsmen of the building trades.

The methods of building did not stand still, but tended to change slowly. Essentially a builder of three thousand years ago would have been at home on a ordinary building site of the early years of the twentieth century. Within one life-time all this has changed. All the development of building skills through the centuries had come about by trial and error. An idea was tested by using it and a factor of safety was built into strength calculations. Even in the fourteenth century

additional strength had been given to stone buildings by inserting links of iron. In 1778 a complete structure was made from iron, the famous Iron Bridge of Coalbrookdale. From then on iron and steel came to be used more and more as part of building construction. Metal joists and beams were used for floors and later metal roof trusses replaced timber. The early sky scrapers were made possible by the development of steel construction. Reinforced concrete established itself during the last sixty years as an entirely new form of construction. At the start of the twentieth century the Functionalist view of architecture developed. This view considered that buildings should be entirely practical. Not only decoration or detail that imitated past styles were left out, but all decoration or enrichment. Surfaces were left flat and plain, without mouldings or any features to break the monotomy. Thus the constant innovation of many new materials has often meant the departure from, or adaptation of, traditional methods and the learning of new ones.

Changes in the Organisation of Building Work

From the fourteenth century various building trades in almost every important town in the country had their guilds, with general regulations for undertaking work, rules of entry into membership and rules for the training of apprentices and for mastership. No man was allowed to pursue his craft unless he

was a member of the appropriate guild. The fact that a man was a member of his guild in a particular town did not, however, entitle him to pursue his craft in another town. The rules of the guild were quite strict, and any craftsman entering a guild had to be a person acceptable to all the other members. He undertook to uphold all the ordinances of the guild, and not to encroach on the work of his fellow members. There were two aspects of a guild's activities, the "mystery" and the "fraternity". (15) The "mystery" was the organisation within the guild which controlled and regulated the trades of its members; the fraternity was the brotherhood to which members subscribed to provide a fund for the relief of distress among its members. The fraternal activities were both social and religious. They were sanctioned by the Church authorities and the "fraternity" was dedicated to a saint, often the patron saint of a particular craft. The master craftsmen had to look after the welfare of their apprentices and to see that they did not lack religious instruction and a moral upbringing. The Craft Guilds became very influential and many of the members held important positions in their towns, such as Mayor or Elderman (Alderman). (16)

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15 DAVEY, N. (1964) Building in Britain . London: Evans Brothers. p. 56.

16 FORSTER, G. (1978) Building Organisation and Procedures. London: Longman Group Limited. p. 44.

The Black Death and the plague had a profound effect on building. About a quarter of the population died and there was a shortage of labour. Building workers, including many who had not served their apprenticeship demanded high wages and sold their services to the highest payer. This made the traditional organisation of labour very difficult to maintain. Much later the Industrial Revolution also had a profound effect on the building industry in England. The drift of the population from the country districts to the new industrial centres kept the building industrty very busy. In the eighteenth and nineteenth centuries the amount of building work was enormous. (17) It included road improvements, bridge construction, canal digging, factory and mill construction, housing estates and civil buildings. Unfortunately, the building industry at this time was greatly discredited by speculators, who with little knowledge of building took advantage of the situation to make vast sums of money. They bought land round the factories as cheaply as possible and crowded as many cottages as they could on to it. These were often built back-to-back, the workmanship and materials were of a low standard, and slums of the worst type were created. Towards the end of the nineteenth century there was a reaction against the great mass of slums that had

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17 DAVEY, N. (1964) op cit., p.82

created in the great industrial towns. An act passed in 1875 prevented houses being crammmed together, and it gave local authorities power to enforce minimum requirements on house builders. Each house had to have a least two bedrooms, a lounge, kitchen, its own tap and lavatory. (18) A number of reformers took the initiative in developing garden cities such as that at Letchworth in Hertfordshire. Private house building continued to increase up to 1939. The bulk of the houses were soundly built, but some people took advantage of the position to make quick profits and some shoddily built houses were produced. This led to the introduction of the National House Builders' Registration Council. The Council maintained a register of builders who were prepared to build to an approved standard.

The Structure of the Industry

The building industry was and has remained an industry where the importance of tradition has been a strong feature of it's structure. Building was the industry which employed the fourth largest number of workers in 1851. (19) In its ownership structure it was dominated by the small firm, and modern building differs little in this respect from that of the mid

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18 STACEY, R.W. (1985) Industrial Studies : For Building Craft Students. London: Collins. p.187.

19 PRICE, R. (1980) Masters Unions and Men. London: Cambridge University Press. p.19-20.

nineteenth century. The figure for unit of employment in the 1960's are directly comparable with those gathered for the census of 1851, in both periods small size employers comprised 80 per cent of the total. Until the eighteenth century the building industry was dominated by small masters who would sub-contract work to other skilled men.

However, in 1851, a new system was introduced which completely changed the nature of the industry, and this was called 'General Contracting'. General Contracting involved the building investor employing the craftsmen under a foreman craftsman, instead of arranging with the craftsmen to carry out particular jobs. The importance of the emergence of general contracting lay not so much in the creation of a small class of dominant owners but in the profound series of changes it stimulated in the structure of the industry. The broad effect general contracting had on the industry was to replace the stability which had previously been a distinct feature of the industry with a casual and competitive structure. The system altered the social pattern of the trades and eventually destroyed the usage of the term master craftsman. In addition, general contracting destroyed traditional stability by accentuating fluctuations in employment. It was a consequence of the system that labour costs became the largest single item of cost to the employer and with increased competitveness and speculation it became important that there was a pool of reserve labour which could be hired and fired at a moments' notice.

General contracting was a dynamic mode of organising the industry - the direct equivalent of the factory system in other trades - but it threw into question the relative stability and security that traditionaly came from small-scale units of production who built to a real rather than to a potential demand. Stability was replaced with chaotic competition in which speculation became a dominant characteristic of building activity, an integral part of the process. Large employers were forced to supplement their contract work with speculative enterprise to utilise more efficiently their capital and resources. The pressures to undertake speculation were unavoidable but the result was to accentuate the instability of the industry by tying its fortunes firmly to credit supply and fluctuations in the availability of credit. In addition to the inevitable instability that was imposed on the industry by the practice of speculation, the practice of tendering for contracts resulted in competition which encouraged employers to underbid and operate with the smallest of profit margins with obvious consequences for the craftsmen. Subcontracting was one of the new forms of work organisation created by general contracting.

In spite of the appearance of continuity in the industry general contracting had revolutionary effects upon the nature and structure of the industry. It had replaced the small master craftsman who contracted for a specific part of the work with the large entrepreneur who contracted for the whole job and either employed his own craftsmen or sub-contracted a

portion of the work out. Unlike most other industries, building was an industry where laissez-faire was an accurate description of reality. There never was the same kind of basis for regulation and limitation of competition in building that one could find elsewhere in other industries. It was imperative because of the structural nature of general contracting that the employers possessed a total freedom to order and organise the work and the labour force as they pleased. Survival and profits depended not upon stability but upon the employer's complete authority to rearrange the work, to hire and fire at a moment's notice, to demand overtime working suddenly, to sub-contract, and to order the conditions of working according to particular needs of the moment. This instability in work patterns and fluctuating work loads does not provide a good basis for planning training needs and as a result the industry's historical attitude to training has reflected the low status given to it by many in the industry.

2.2 TECHNOLOGICAL CHANGE.

In the building industry valuable knowledge of the properties of traditional materials, their use and durability and of techniques of construction has been accumulated over the years by practical experience and handed down by generations of craftsmen. Materials may have been used extravagantly in the past when judged by present day standards and the forms of construction may have erred too much on the side of safety. It was only when the demand for new building began to increase so

rapidly at the beginning of the Industrial Revolution that a more economical use of buildings had to be devised. Some of the newer materials like steel and reinforced concrete led to new methods of design and construction, and heavy masonry buildings gave way to lighter framed structures.

During the twentieth century the increase in building has been vast. The search for new materials has gone on unabated and new methods of construction to supplement the traditional ones had to be developed to satisfy the need. In urban areas where the land available for building was scarce and increasingly costly, the tendency was to build higher and blocks of flats and offices up to twenty storeys or more have become a familiar sight. Constructing tall buildings in confined spaces such as city centres has called for the development of new methods of handling materials and components. Research had been carried out during the last few decades to produce lightweight building materials not only to reduce the the weight of the structure but also to improve the structure's thermal insulation, thus saving energy. The placing and fixing of many of these new materials have made new demands on the resourcefulness of builders. In general, many of the old traditional wet processes of construction have given way to dry processes, for example the development of timber framed buildings.

Entirely new building materials have been produced in recent years by the plastics industry. The term plastic is rather loose and is used to cover a wide variety of materials, mostly synthetic, which at some stage of their manufacture are plastic

and can be moulded into various shapes under heat and pressure, extruded into continuous lengths or formed into sheets amd membranes for waterproofing. The use to which plastics have been used in modern buildings are considerable and include, windows, doors, plumbing pipes and fittings, electrical fittings, damp proof membranes and adhesives, to name but a few of their common uses.

In building by traditional and conventional methods, much time is taken up assembling on site the many small units, for example mortaring bricks and blocks, cutting timber to size, often with considerable wastage, and the preparation and processing of materials like mortar, plaster and concrete. Another matter which slows down building work is the inability to phase accurately the work of the various trades. One method adopted to overcome these problems involves the prefabricaton of large sections of the building under standardised conditions in a factory, thus reducing the amount of work undertaken on site. Prefabrication implies the preparation in special factories of large units such as concrete floors and wall units. These units are transported from the factory to the site and moved into position by means of cranes and other mechanical devices. The amount of site work is greatly reduced and delays in building due to bad weather are kept to a minimum.

Where fabricated systems of buildings are employed mechanisation of the process of lifting, transporting and erecting is vitally important. The extent to which

mechanisation on a building site can be adopted depends on the size and scope of the work to be carried out. Small sites find it more difficult to utilise large equipment because of the limited space available. The more expensive plant is limited to firms of an appreciable size. The capital investment in such equipment is very large and it cannot be allowed to remain idle for long periods. Smaller firms can hire expensive plant as an alternative to buying such equipment.

Thus, over the past 50 years the building industry has undergone many major changes not just in the materials used but also in the way that work is carried out. Those involved in all parts of the construction process have been forced to realise that labour costs are only made cost effective if utilised efficiently. During the recession of the late 1960's and early 1970's many companies went bankrupt because they could not compete. Those that did survive realised that fork lift trucks, excavators, loading shovels or even air and petrol driven tools could make more efficient use of manpower. More and more builders were utilising plant and machinery. Materials handling was one area which has seen the most significant changes in recent years. Nearly all materials are delivered to site in palletised loads requiring the use of a fork lift truck to unload them. Even small building firms are being forced to consider the use of plant in order to make their operations more efficient. Another significant area of development has been in the widespread use of excavators on

site. While many of the larger contractors have been using excavators for many years, recently small house builders have begun to purchase their own machines. This has been brought about by the manufacturers of machinery producing smaller excavators which can be used on sites with limited access and working space. The industry is only at the beginning of its transformation towards greater efficiency, and materials handling and the reduction of manual digging are just the first steps towards that aim.

Another area of development has been in the use of power tools. Hand held power tools rationalise the jobs of drilling, sawing, planing, grinding and fixing materials. Every year the various branches of the construction and allied trades buy large quantites of these tools. Power tools make the work of the craftsman less strenuous and therefore his work output becomes more efficient. The tools are generally powered by bottle gas, petrol or electricity. The potential dangers of using electrical equipment in unsuitable site conditions had been overcome by the introduction of the cordless electrical tool. Most manufacturers have supplemented their product range with a variety of cordless tools. The advantage of cordless tools is that there was no need for a nearby supply of electricity or long lengths of cable. The operator is free to use these lightweight tools virtually anywhere and in complete safety. Initially the batteries supplied had a short life and although improvements have been made the need to carry spares can outweigh the advantages of the lightweight equipment.

However, moves are being made to standardise batteries so that a range of tools can use one battery and a charger can be used to replenish used batteries. Many finishing trade operations, where power tools are most extensively used are now sub-contracted out by the main contractor to small size specialist firms which are responsible for providing whatever equipment is necessary for carrying out the work. This has resulted in the growth of tool hire firms operating alongside plant hire companies. These firms offer a wide range of specialist tools which can be hired for the length of time required at a reasonable rate.

Computers are expanding increasingly into all aspects of daily life and the building industry is not immune from this change. In the past planning and estimating have been the initial entry points into computing for those contractors with sufficiently large operations to justify the very considerable expense involved. The high price of computer hardware in the 1960's excluded the use of computers by all but the biggest organisations. The continuous decrease, in real terms, in the price of hardware makes it attractive to bring the computer interface nearer the user. This may be achieved by the use of visual display units (V D U) linked to a main frame or mini computer or by individual micro computers dedicated to specific functions. This has resulted in the technologist or technicians being able to use the hardware themselves rather than relying on computer staff to process the information. Large companies use computers for integrated accounting

including pay roll, labour costing, contract cost control, programming work and final accounting.

The construction industry finds itself working in a commercial and business climate which has changed dramatically. The speed of business activity in general is demanding a faster and more efficient response from builders because other businesses are using computer systems. Competition from within the industry demands greater economy and increased efficiency. The success of any construction project is largely determined by management control over both the project organisation itself and the activities which take place in connection with it. The use of computers has a great deal to offer bringing with it the facility to analyse and process large volumes of information quickly, accurately and economically. However, the impact made by computers on construction had been possibly less than in most other industries. Attitudes towards computers vary very much with the size of the firms and the economic situation at the time of this study did not appear helpful to an expansion of computer investment.

One area in which computer investment has taken place was in the field of woodworking machinery. The micro chip has had considerable impact on the woodworking machinery industry. Traditionally this industry had considered full automation as being something not entirely possible. It had been thought that timber being such a variable commodity in itself would not lend itself to such automation. However, it became clear that very many of the requirements of the industry have been

met by the new technology. There were increasing numbers of computer numerically controlled (CNC) machines in operation. Companies were finding that the initial cost outlay for this technology can be recovered from labour cost savings. Large companies can use C.N.C. machines with high memory capacity to link into their own centralised computer systems. This has enabled large companies with a variety of machines and sites to control from a central area with operators being employed to check material input. Businesses were faced with the fact that if competition was to be met, advantage must be taken of the highest technology available. A computerised window frame production line had been completed by a Highbridge joinery manufacturer. (20) The machines can be programmed for a whole month's work and are capable of producing 1000 units per week.

One technological development which had not proved totally successful for the builder was the drive to reduce energy consumption. During the last 20 years two major changes have come about in the way we treat our buildings. The first, is that as a rule most buildings in Britain are now heated, and secondly, that having generated this heat building owners and occupiers had gone to some lengths to make the most of preserving as much heat inside the building, for as long as

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20 BUILDING TRADES JOURNAL (1985) Vol.189. Jan.10th. p.20.

possible. This drive to conserve energy had been undertaken with the support of Government. The problem is that the industry has not had the time or money to research the subject adequately. The result was that far from reducing the number of incidents of building failures, this drive for energy conservation and the techniques being used to meet its ends, is in some cases causing greater problems for the designer and builder. The main problem is condensation which develops in the internals of the construction hidden away where it can cause active problems and yet not be visible to be corrected. Today, insufficient ventilation in a well insulated structure with adequate heating facilities results in the entrapment of large quantities of moisture vapour. The high cost of fuel and the desire to save energy have resulted in rooms not continuously occupied not being heated. With most members of the family being out all day with the heating turned off, when the family returns at night moisture producing activities such as cooking and bathing are concentrated in a short time period. The consequence is that an airtight cold box is heated rapidly giving ideal conditions for condensation to occur.

In recent years a system of building called timber framing has become popular. The system consists of inner walls of timber which are bolted together and made in a factory. This timber frame is then clad, usually with brickwork and roofed. Timber frames were initially popular because they offered a quick, dry method of construction which produced a warm, well insulated house with fewer shrinkage cracks. However, over the past few

years timber frame as a method of construction had come in for a lot of criticism both from the industry and consumers. Unlike traditional brick and block wall construction, timber frame was more susceptable to bad site practice. A report by the Building Research Establishment revealed a catalogue of potentially disastrous faults relating to the construction of new timber framed houses. Bad site practice accounted for 59 per cent of the faults. Some site supervisors had little or no experience of timber frames, and quality control was inhibited by the speed of construction. Faults included inadequate allowances for the frame to shrink, ineffective measures to prevent fire spreading and ineffective precautions against water penetration and water vapour and structural defects. Nevertheless, other system building methods have been successfully developed. The Vic Hallam Company has developed timber frame housing beyond the on-site assembly methods in what is called the Volumetric System.(21) The System enables complete houses, flats and bungalows to be built on production lines at the factory. The Volumetric Homes are fitted with plumbing, sanitary ware, kitchens, electric installations and central heating as an integral part of production. Built in furniture and other fixtures can be installed to individual specifications. The house units are transported to the site in the form of pre-stressed box modules and are placed on to a

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21 BUILDING TRADES JOURNAL (1984) Vol.190. July 4th. p.41.

prepared foundation. They are then clad, roofed and connected to services ready for occupation.

It is clear from this section concerning technological change that construction has not totally avoided automation and the influences of the computer. However, the industry is still craft based, labour intensive and traditional in its outlook.

It is also clear from the changes outlined and the problems experienced that the industry's education and training service must be constantly up-dating the knowledge and skills required in the industry to meet the challenges of technological change. In practice most craftsmen and technicians receive no further training after the initial period on entering the industry, and therefore, the opportunities to up-date knowledge and skills is often limited to on-site training of an informal nature.

2.3 ECONOMIC AND EMPLOYMENT FACTORS.

In comparison with virtually all the major industrialised and developed nations the growth of Britain's economy has made poor progress since World War II. British industry has had a bad economic record since the early 1950's, and even with the economic boost from North Sea Oil the economy still took some time to improve. Britain's economy began to run out of steam from a position of relative strength at the same time as other countries, notably West Germany, Japan and the United States of America were building up their own economies. Thus, from being one of the richest countries in Europe at the end of the Second World War, Britain had, by the late 1970's become one of the

poorer countries in terms of per capita income.

It is far easier to outline Britain's growth problem than it is to provide a rational and logically balanced explanation for its cause. There have been many explanations given, based upon both economic and sociological interpretations including notions such as the " British Disease " and the "British National Character". Britain's growth failure in the post-war period has been attributed to a variety of factors including inadequate investment, a shortage of skilled labour, fluctuations in economic demand, Government policy, poor industrial management, and over powerful unions.

The State is the chief economic agent in the economy of Britain, since it dispenses a large share of the nation's resources and is responsible for the overall management of the economy. For example, Government spending on construction can amount to over 50 per cent of the total of all money spent on construction work.(22) Furthermore, the Government control of the money supply regulates demand for construction work. Generally, if interest rates are high the industry experiences a decline in demand because of expensive borrowing and high interest rates are accompanied by high mortgage rates which

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22 WARD,A.P. (1979) Organisation and Procedures in the Construction Industry. Plymouth: Macdonald and Evans Ltd.p.12.

affect the demand for housing. While the employment rate had improved and remained stable up to the early 1970's, it was considered by some economists that the consequences of government policy generally were detrimental to economic performance and industrial regeneration. It was argued that success in maintaining high employment rates was due to overmanning in some industries. One of the main critics of Government policy, Professor Pollard, stated in a letter to 'The Times' newspaper, dated the 20th July 1978.

> While Montagu Norman had only 11 years (c1920 - 1931) to damage the British economy, the Treasury have had over 30 years since the end of the last war. In that period they have transformed the strongest, the technologically most advanced and most promising of European industrialised economies into the weakest, poorest and most backward. It is an achievement of economic mismanagement unparalled in the annals of the civilised world. And the tragedy is that even today, after over 30 years of the most resounding failure, neither the Treasury, nor those who achieved high honours in advising them seem to have the slightest inkling that there is anything wrong or that they have anything to apologise for. (23)

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23 ALDCROFT,D.H. (1982) Britain's Economic Decline 1870-1980. in RODERICK, G. & STEPHENS, M. (Eds) The British Malaise. Lewes: The Falmer Press. p.41.

An employment determined policy was blamed for the country's economic decline. This policy involved maintaining the employment level above a natural or sustainable rate. This led at times to a rate of growth higher than the equilbrium rate, that is a rate consistent with stability. This resulted in a phenomenon known as the "Stop-Go" policy. The erratic nature and frequent changes in the direction of policy were not conducive to long-term business investment. This constant fluctuation in demand was experienced in the construction industry, partly due to the fact that construction was and still is a service industry and as such was partly used by government to regulate demand in the economy.

Poor industrial management had also been blamed for Britain's economic decline. Factors such as management conservatism and limited time horizon with regards to investment and innovative development have been considered to be the main problems caused by British management. The rate of investment and the amount of development of innovation have both been relatively low in Britain. In comparison with European managers, their British counterparts were less qualified in technical amd managerial skills. The reason for this could be the low status given to careers in management in Britain in contrast with the professional status of managers in West Germany, Japan and the United States of America. The education system in Britain gives higher status to academic subjects and low status to technological studies. It was claimed that at the school level a premium was placed on intellectual and theoretical skills at

the expense of practical skills. This was verified by the status given to ordinary and advanced level academic subjects in comparison to more practical studies such as design and technology. In recent years the Government has had to offer financial incentives to encourage people to undergo teacher training in these less 'popular' subjects such as Craft, Design and Technology. There are many factors that have contributed to the economic stage of development which advanced industrial societies have now reached in various parts of the world, factors which have sharpened considerably the problems of unemployment for mainly unskilled people in the labour market for example, automation, and the growth in information technology and electronics. In Britain there has been a large and intense experience of de-skilling and de-industrialisation of the economy. To this was linked a long-term growth in unemployment for the under 25 year old's which continued to increase during a part of this study. It seemed appropriate to ask if Britain would ever again reach a point where there would be full employment. The problems generated by advancing technologies, and by organisational and structural changes in manpower deployment have transformed manufacturing industry. Traditionally labour intensive industries were making steady efforts to reduce wage bills whilst maintaining profitability. This was also true to a certain extent for many service industries and for the public sector. As more ways were found of saving human labour, the problem of unemployment for the semi-skilled and unskilled had become ever more difficult to

resolve. The popular answer given to this problem include job sharing, shorter working days and weeks, earlier retirement and new styles of working and new levels of skills and technology. The catergory of people most likely to belong to a group with unstable work styles of short-term employment and compulsory leisure are those who have the least to offer to the labour market. This category included young school leavers and others in the 16-19 age group.

The Growth of Unemployment

Between 1948 and 1966 unemployment averaged 1.7 per cent (24) and was almost entirely "frictional" in nature, that is due to short intervals moving between jobs. From 1966 however, unemployment began to rise. The unemployment levels rose irregularly in a cycle corresponding to the economic cycle of recession and recovery. From under half a million unemployed in the mid 1960's the figure rose to three million in 1983. Meanwhile, the number of vacancies remained very low. In March 1983, there was only one vacancy for every 24 people unemployed. (25) It was also argued that the official figures underestimated the true extent of unemployment. For example, it excluded unemployed school leavers, young people on Government Training Schemes and those employees on short-time

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24 WATTS, A.G. (1983) Education Unemployment and the Future of Work. Milton Keynes: Open University Press. p.16.

25 ibid., p.17.

working. Young people were particularly hard-hit by the rise in unemployment. Between 1972 and 1977, school leaver unemployment rose by 120 per cent compared with 45 per cent among the working population as an whole. (26) One in four 16-19 year olds found themselves without a job in Britain in the summmer of 1983.(27) It was little surprise that unemployment amongst the young was top of the political agenda. The effect for education was to focus attention on how to cope with unemployment rather than considering what kind of work we should be preparing young people for. The rise in youth unemployment had resulted in the emergence of a new kind of student, one who would prefer to be at work. This group included those who stayed on in full-time education, knowing the job situation, and those who were recruited from the ranks of the unemployed or potentially unemployed school leavers.

What impact did the large increase of unemployment in general, and youth unemployment in particular, have on education and training ? First, for school leavers and their parents it represented a challenge to the legitimacy of schooling. In the 1960's, education was seen to be opening doors to better

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26 ibid, p. 19.

27 WALFORD, G. PURVIS, J. & POLLARD, A. (1988) Ethnography, Policy and the Emergence of the New Vocationalism. in WALFORD, G., et al. (Ed) Education, Training and the New Vocationalism. Milton Keynes: Open University Press. p. 6.

occupational opportunites. The claim to be offering access to opportunities had begun to ring hollow. Secondly, there began in the mid 1970's to be increasing suggestions that the growth of youth unemployment had to some extent been caused by the deficiences of schools. There were calls to make the secondary school curriculum more practical. In political terms James Callaghan's 1976 speech at Ruskin College Oxford was a decisive influence on the future changes that were made to form a stronger links between school and work. (28) It was suggest that young people were not acquiring the skills and attitudes which would make them more employable.

Thirdly, education was seen as an instrument with which to respond to the problem of youth unemployment. There had been fears that unemployed young people might turn to crime and delinquency resulting in a threat to the social fabric. Attention was focused on ways of keeping unemployed young people 'off the streets' by using education or training as a means of social control. In both schools and colleges the main effects of unemployment had been to tighten the bonds between education and employment. The anxieties of individuals when employment is scarce tends to make people judge educational provision by vocational criteria.

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28 HOLT, M. & REID, W.A. (1988) Instrumentalism and Education: 14-18 Rhetoric and the 11-16 Curriculum. in POLLARD, A., et al. (Ed) Education Training and the New Vocationalism. Milton Keynes: Open University Press. p. 15.

The implications of unemployment for education depend on what are seen to be its causes and how society responds to them. The issue of the extent to which unemployment is voluntary, cyclical or structural is disputed. The voluntary thesis is that unemployment is caused by the erosion of the will to work due to increases in state benefits. The cyclical thesis asserts that unemployment is due to the economic recession and that it will decline when the economic system recovers. But the pattern of unemployment in the 1960's and 1970's showed beneath the cyclical pattern an underlying upward trend and suggested that unemployment was being caused to a significant degree by structural changes in the economy. Advances in technological change and a move towards capital intensive methods were continually undermining labour intensive methods of production. It appeared that structural changes were taking place in the economy which meant that high levels of unemployment were likely for the foreseeable future. The proportion of the working population employed in manufacturing had fallen and it appeared unlikely that the service sector could absorb the surplus.

The future of work was a political as well as an economic matter. The way in which employment policy develops depends upon the political will of the government of the day. It is possible that those outside employment could form the basis of a new leisure class. Alternatively, it is possible that ways could be found of distributing employment and the income and status associated with it more evenly. A further alternative

is that the concept of work is broadened beyond that of employment with greater value attached to self-employment and to forms of work outside the formal economy. The implications of these scenarios were labelled by Watts (29) as the unemployment, leisure, employment and work scenarios. Arguably, it was only the employment scenario which permited the satisfactory maintenance of current educational structures based on the close bonds between education and employment. If unemployment continued at high levels, maintenance of the educational status quo was not a satisfactory option. The most evident effect of unemployment had been to tighten the bonds between education and employment. However, if this had continued with high unemployment it would mean that investment had been made in promises which could not be delivered. There had been particular strains on the meritocratic ideals of the comprehensive system, the establishment of which was based on expanding opportunites within a growing economy. The pressures to introduce tighter and earlier curriculum divisions, so as to lower aspirations and expectations had been an option which developed.

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29 ibid., (1983).

2.4 POLITICAL FACTORS.

The major political influence on construction education and training system in Britain in the period 1970-1990 was the development and growth in size and influence of the Manpower Services Commission (M.S.C.). The M.S.C started in 1974 as a small public agency. From that humble beginning successive governments turned it into a huge organisation whose activities changed the nature of education and training in Britain. The M.S.C. grew not only in size but also in its range of influences. At the start its role was limited to forecasting trends in employment and providing national guidelines. Gradually, however, it took over some of the work of other government departments and national agencies. For example, much of the work of the Careers Service was influenced by the M.S.C., and large numbers of school leavers progressed to Youth Training Schemes instead of entering employment. The Job Centres also regulated entry to adult employment. It influenced the Department of Education and Science by announcing it was to commandeer a quarter of all non-advanced further education in England and Wales, and by introducing new vocational schemes into schools. Both major changes to the education system were undertaken without much regard for negotiation or consultation with local education authorities. Its powerful command of scarce financial resources made it difficult for institutions to reject its interference or influence.

The programmes of the M.S.C. represented the active policies of the government for responding to the crisis of mass unemployment. The Youth Training Scheme was designed to accomodate over 250,000 school leavers each year. The Technical Vocational Education Initative which was contrary to the principles of comprehensive education, was operating in most L.E.A.'s and when fully operational directly affected up to 100,000 school pupils. The Adult Training Strategy was designed to cater for over 250,000 people and the Community Programme was expanded to 230,000 places. All this amounted to considerable influence over education and training by the M.S.C., especially when added to the control of a quarter of all non-advanced further education. Through government control and intervention the M.S.C. was using education and training policy to create a new type of work force, which the then Chancellor Nigel Lawson described in his budget speech of March 1985 as having the right skills, adaptable, reliable, motivated and prepared to work at wages that the employer can afford to pay. (30)

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30 FINN, D. (1986) YTS The Jewel in the MSC Crown. in BENN, C. & FAIRLEY, J. (Eds) Challenging the MSC on Jobs Education and Training: enquiry into a national disaster. London: Pluto Press. p. 54.

Many of the Industrial Training Boards which had formerly provided traditional apprenticeship training for their industry became Managing Agents for the Youth Training Schemes. The Youth Training Scheme accelerated the decline of the apprenticeship system and it became the new route into craft level training. An M.S.C. survey of managing agents, presented to the Youth Training Board on the 14th March 1985(31) found that only 18 per cent of trainees in Mode A schemes were classified as apprentices or long-term trainees, and these enjoyed better wages and quality training, spending on average 32 weeks on off-the-job training. In most of these cases the Y.T.S. year covered the first year of a three or four year training programme. Most of these trainees were training for skilled occupations in construction or engineering. What had emerged from the survey was that there had developed a two tier system within Y.T.S. schemes. The majority of trainees received a programme of vocational preparation and work experience, while a minority were involved in the process of "real" vocational training comparable to a first year apprenticeship. (32)

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31 ibid., p.58.

32 AINLEY, P. (1988) From School to YTS: Education and Training in England and Wales 1944-1987. Milton Keynes: Open University Press. pp. 92-93.

An H.M.I. survey of Further Education courses for Y.T.S. trainees (33)found that attempts to provide a broad based introduction to a cluster of jobs were not readily acceptable. The best results and the most motivated students were found in the apprentice type courses which provided more specific training and led to nationally recognised qualifications.

The history of further education over the past decade has been one of continual change. Developments in educational provision for 16-19 year olds have brought both an unprecedented expansion of new courses as well as changes in the quality and nature of post compulsory education and training. The major outcome has been the emergence of a new tripartite structure in further education.(34) The immediate origins of these new divisions lie in the intervention of the M.S.C. in youth training from the mid 1970's onwards, and the attempt of various governments to resolve new social and economic problems concerning youth. Prior to 1976 further education was primarily concerned with the education and training of employed youth. Before the Youth Opportunities Programme began in 1978,

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33 DEPARTMENT OF EDUCATION & SCIENCE (1984) The Youth Training Scheme in Further Education 1983-84: An H.M.I. Survey. London: H.M.S.O. p.6.

34 PRATLEY,B. (1985) op cit.

60 per cent of school leavers had no further education after leaving school. The situation since 1983 has been very different, and the vast majority of 16 year olds received some form of education or training. The primary reason for the development of youth training was the growth in youth unemployment between 1976 and 1978. Another critical issue for governments after the mid 1970's was the collapse of the youth labour market, the disappearance of young people's jobs through recession and new technology. The government saw the answer to be the development of a mass youth training programme which first appeared in the form of the Youth Opportunities Programme, which was formed in 1978. The development of a new training philosophy for unemployed school leavers had clearly followed economic and social imperatives. The philosophy has been described as the new "vocationalism". Vocational education has normally meant preparation for a particular job and its connotations of "calling" or vocation , are tied up with the a protestant work ethic and the middle-class preoccupation with choosing a career. Youth training schemes however, were explicitly concerned with training for work in general and not for preparation for a particular job.
Within a broad Further Education setting there evolved three tiers or streams of courses which were differentiated by their educational practice and related to the assumed future position of their students in the occupational structure.

Tier one comprised the academic/technical studies. These were students mainly on full-time technical or business course such as B.T.E.C. and those doing G.C.E. 'O' and 'A' levels. The potential occupational destinations included professional, managerial, technican and technologist jobs. Tier two included craft courses and junior clerical courses with progression into craft and clerical occupations. Tier three included the range of pre-vocational programmes, the main one being the Y.T.S. scheme, programmes offering preparation for the job market by providing basic skills and broad based work skills. These programmes of vocational training included an element of work experience either on an employers' premises or alternatively simulated work experience in a college. Within the three tier system there were overlaps, for example, some craft courses were funded as part of the Y.T.S. scheme. The primary objection to the three tier system in education was that they reproduced social divisions. The students were allocated different tiers and the curriculum and pedagogic styles were determined by what was considered appropriate for particular social groups. At this stage in life such allocation was usuallyon the basis of prior assumptions about future work

roles. As David Raffe has concluded:

> Far from advancing the supply of technnically necessary skills, or generating alternative routes or changes for working class youth, these divisions have tended to lock students into pre-existing class and gender divisions.(35)

A critical factor in the way that the new philosophy had taken root in further education had been the way in which the training pattern had evolved by drawing on key progressive themes and elaborating them in new ways. Central amongst these have been the concepts of curriculum relevance and experiential or active learning. The new training philosophy shared with progressive educationalism an antipathy towards over academic or bookish learning and the traditional transmission model of teaching. Social and life skills and work experience were therefore justified in terms of their relevance to the working class youth, whilst the experienced based model of learning gained credence through its apparent appropriateness to those who have demonstrated their aversion to academic teaching in schools. At one level one could say that what had occured in prevocational training was simply a question of good ideas

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35 RAFFE,D. (1983) The End of the Alternative Route : The Changing Relation of Part-Time Education to Work-Life Mobility Among Young Male Workers. in GLEESON,D.(Ed) Youth Training and the Search for Work. London: Routledge,Kegan Paul. p.112.

being misused. No one would object to the idea that learning should be relevant to the needs of the learner, nor to the proposition that learning occurs best where the learner internalises what is learnt, through an active process of learning. Similarly, other practices in prevocational programmes such as, counselling, criterion referenced assessment and student profiles were positive contributions to the development of more appropriate teaching strategies. What had gone wrong in M.S.C. courses in the eyes of some critics was that these progressive techniques were used for reactionary purposes. Thus relevance was restricted to work orientated learning, experiences were selected so that they involved experience of work and counselling and group work wereused for social control. The danger of instant relevance was that in its desire to 'meet people where they are at', it ended up leaving them exactly there and in the case of working-class youth, in working-class jobs. Many working-class youngsters were encouraged to join schemes with the promise of a job and at the end of their training, went back to unemployment. This fact was verified by the numbers of Y.T.S. trainees who failed to get jobs at the end of their training.

In April 1986 56 per cent of former Y.T.S, trainees in Scotland and 67 per cent in England and Wales were in full-time jobs.(36) Construction had a better recruitment record because it was using the Y.T.S. scheme and funding to operate its former apprenticeship scheme. Therefore, the numbers of Y.T.S trainees only represented a slight increase in the usual target number for annual recruitment into the industry. Both Y.T.S. and the new Adult Training Strategy were promoted as employer-led training schemes whose character would be determined by the operation of market forces. In further and adult education the ideological and financial attack on local accountability had been apparent. Following the 1984 White Paper "Training for Jobs", (37) control of 25 per cent of funding for courses in further education, which are non-advanced, passed into M.S.C. control. This change took effect from April 1986. If local authorities refusd to co-operate they would have lost a similar amount from their rate support grant. Clearly this was a controlling stake in the F.E. system for the M.S.C. The ability of L.E.A's, college staff and governing bodies to make their own decisions about college

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36 RAFFE, D. & COURTENAY, G. (1988) 16-18 on Both Sides of the Border. in RAFFE, D. (Ed) (1988) Education and the Youth Labour Market. London: The Falmer Press. p. 29.

37 DEPARTMENT OF EMPLOYMENT (1984) Training for Jobs. London: H.M.S.O.

courses in terms of local needs and priorities was likely to be destroyed. By taking existing provision away from further education and putting it under the M.S.C. the Government had shown clearly that it intended to put a significant slice of education under the control of employers and market forces and beyond the control of local authorities. This direction had been further advanced with the Education Reform Act (38) which had given more power to local employers on governing bodies and had introduced institutional control of finance by school/college governors and management. The Training and Enterprise Councils, again controlled by employers, will have a financial control over all Youth and Adult Training Schemes. There was an obvious trend to give back to employers responsibility and control of training by reducing the Governments funding contribution.(39)

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38 DEPARTMENT OF EDUCATION AND SCIENCE. (1988) Education Reform Act. London: H.M.S.O.

39 BEAVIS,S. & HARPER,K. (1990) July 17th. No Protests as Aid,Research and Training are cut. London: Guardian Newspaper.p.3.

2.5 EDUCATIONAL CHANGE.

Education typically has a close relationship with the world of work. Societies expect schools to develop in young people the knowledge, attitudes and skills which will enable them to contribute to the economy. Young people and their parents, too, expect schools to help them enter a worthwhile job. A survey carried out by Morton-Williams and Finch (1968) (40) found that 87 per cent of 15year old school leavers thought that schools should 'teach you things which will help you to get as good a job or career as possible', and 89 per cent of parents agreed with them. Only 47 per cent of teachers and 28 per cent of Heads at that time considered this objective as very important for schools.

Historically, the vocational connections of education in Britain were strong. The first forms of organised vocational education were the medieval universities which taught law, medicine and theology to the cloistered monks who undertook a period of preparation for the monastic life, and the craft teaching fostered by the craft guilds. (41) As education grew during the Middle Ages, it was organised in relation to a firm structure of inherited and destined status: the craft apprenticeship, the religious vocation, and the future Knight.

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40 WATTS, A. G. (1983) Education, Unemployment and the Future of Work. Milton Keynes: O.U. Press. pp.2-3.

41 KELLER, F.J. (1948) Principles of Vocational Education: the Primacy of the Person. Boston: D.C. Heath & Co. pp. 37-42.

It was during the Industrial Revolution that a clear distinction grew up between traditional classical education for the professions, the church and the civil service and that of the new disciplines of science and technical education. In 1944, secondary education for all was established on a tripartite basis with grammmar, technical, and secondary modern schools. The division was intended to relate broadly to likely occupational destinations. The tripartite structure produced a system in which students were selected early for their occupational and social level, and therefore were prepared for their status in terms of appropriate skills and expectations, standards of behaviour and values. The rigidities of this system attracted increasing criticism during the 1950's and 1960's. It was pointed out that early selection meant decisions about the level of pupils' occupational destinations were being made prematurely before their abilities and aptitudes were evident. The concern for greater equality of opportunity, together with the demands for a more highly skilled work-force from a then prospering economy provided a climate in which the decision was made to merge the three forms of school into comprehensive schools, catering for the full range of ability. This change was never fully implemented, and some areas continued to maintain selective schooling. The retention of rigid streaming in many comprehensive schools permitted curricula division to survive institutional integration.

The links with employment continued to be a powerful influence

on the development of education in Britain. A.G. Watts has listed four functions which educational institutions had played in relation to employment: selection, socialization, orientation and preparation. (42) In the past ascription of status by birth was common; in more recent times it was through education. As a result, the educational process was used to allocate and select as well as train individuals for their future adult roles. Qualifications were a necessary prerequisite for entry into many occupations as a means of selection by potential employers. The principle of efficiency recognises the importance of developing the most talented to maximise their ability, thereby allowing the most able people to fill the most important and demanding jobs. However, in practice credentialism seemed to be unsatisfactory as a guide to efficiency. In terms of efficiency, the relationship between educational qualifications and degree of success in an occupation is often very low. (43) Many of the attributes which are most important in determining occupational success, such as social skills are not measured by educational qualifications.

In recent years there have been efforts to include the social skills into the vocational curriculum. In construction craft

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42 WATTS, A. G. (1983) op cit., p.6:

43 Ibid., p.7

studies, social skills were introduced into the curricula by the Youth Training Scheme, which made the development of social skills a standard part of the programme. Within technician training the introduction of Common Skills as part of all B.T.E.C. courses has meant that social skills are part of the standard content of technician education.

At higher levels of the occupational hierarchy, qualifications are often necessary but not sufficient to guarantee job selection. Employers use them as a pre-selection device for sorting out which applications to consider more carefully, but afterwards pay little attention to them. At the lower occupational levels, qualifications are frequently used simply as a crude measure not of cognitive abilities or practical skill but of qualities such as perserverance and capacity for hard work, or are simply ignored altogether. The demand for education has been increased by credentialism. Rowntree (1977) indicates the potential danger of over emphasising credentials. " On account of these credentials, which may tell little about the individuality of the holder, many people are barred from the life-chances they seek-whether more challenging job, further education, or whatever. And many are barred not because they are not qualified but simply because they are not certified. An associated problem is that intrinsic educational "(44)

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44 ROWNTREE, D. (1977) Assessing Students: How shall we know them? London: Harper & Row Limited. pp. 76-77.

values were subordinated to the extrinsic need to provide tickets to employment. Yet the content of these tickets often has very little direct vocational relevance. The content is controlled not by the employers but ultimately, by the universities. For at each stage of the educational system, the content of the curriculum tends to be determined by the needs of those who had gone on to the next stage, and at the apex of this structure stand the universities. Their control has 'protected' the school curriculum from vocational influence. The result has been an extension to almost all school pupils of an academic curriculum. This curriculum was experienced by many young people as irrelevant to their immediate and future needs and interests. The examination system provided an effective motivational spur for some, but it was counterproductive for others and could alienate them permanently from formal learning.

The second function which educational institutions can play in relation to employment is that of socialization, influencing students' attitudes to the world of work, and their function within it. Bowles and Gintis (1976) (45) argued that in many respects the structure and social relations of education accurately reflect and reproduce the structure and social relations of the work-place. Both are organised hierarchally, in both alienated workers are motivated by extrinsic rewards,

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45 BOWLES, S., & GINTIS, H. (1976) Schooling in Capitalist America. London: Routledge & Kegan Paul.

for example pay at work and examination marks at school, and in both work tasks are fragmented. This close correspondance between the social relationships which govern personal interaction in the workplace and the social relationship of the educational system, means that schools nurture within young people of different types, likely future levels of participation in the labour force. Those destined for managerial and professional occupations are presented during their educational careers with situations in which they are asked to be automonous, independent and creative, while those destined for the shop-floor are subjected to regimes which stress obedience to rules, passivity and conformity.

In the British context, Ashton and Field (1976) [46] have described how the identities of pupils destined for different occupational levels are established or reinforced by the identities created within their school. Those destined for 'extended careers' - characterised by long training and the continual prospect of advancement, come to see themselves as possessing superior abilities and to see school tasks in the light of the long-term rewards associated with entry into a 'good career', and to understand the importance both of personal advancement and of loyalty to the organization. The importance of 'getting on' and of 'making something of themselves' is also transmitted to those destined for short-

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46 ASHTON, D.N. & FIELD, D. (1976) Young Worker London: Hutchinson.

term careers in skilled manual trades, technician occupations and some forms of clerical work, which again were characterised by formal training but offered limited advancement beyond a certain level. Finally, there are those destined for 'careerless occupations' which require little training and offer no prospects of promotion and little or no intrinsic job satisfaction. Their realisation that academic subjects have no rewards to offer them persuades them instead to seek some alternative sources of reward or satisfaction in the here and now, through persistant rule breaking and messing about. Not only are these young people committed to semi-skilled and unskilled work by their educational experience, but by their self-image of being academically inferior, and a desire to leave school as soon as possible. As Willis (1976) (47) points out, this means that the forms of resistance used within a school counter-culture by alienated groups of working-class boys lead them to make a willing entry into unskilled forms of labour in which they then get trapped, a form of self-induction.

The movement from the tripartite to a comprehensive system meant that the forces of socialization have been weakened,

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47 WILLIS, P. (1976) The Class Significance of School Counter-Culture. in HAMMERSLEY,M. & WOODS, P. (Ed) The Process of Schooling. London: Open University Press. pp. 188-200.

because the point of differentiation has been postponed and relaxed to some extent. Teachers have become resistant to the notion that they should be performing a 'sorting' function. Such resistance has proceeded to a point where numbers of employers have grown concerned about the discrepancies between the expectations and attitudes that school-leavers have been encouraged to develop and the demands that will realistically be made of them. However, the process of socialization into employment remains a strong feature of the educational system, all the stronger because it is often implicit rather than explicit, and hidden even to the teachers who promote it. Watts' third function is concerned with deliberate curricular interventions designed to help and to prepare young people for the choices and transitions they have to make on entering the labour market. To some extent it can be seen as an attempt to reinforce the process of socialization where it had not proved sufficiently effective. This orientation function has two distinguishable facets. One is career education, which is concerned with helping students to prepare for their individual career choices and transitions. Many schools and other educational institutions have developed curricular programmes focused around four broad aims: opportunity awareness, self awareness, decision learning and transition learning. The second facet of the orientation function is learning about work, as part of social and political education within schools. The central concept here is that all school pupils should be taught to understand the place of work in society. Various

approaches have been developed, including curriculum courses on industry and related topics. There has also been emphasis on experiential methods, including work experiences, work simulation and the use of adults other than teachers, including employers and trade unionists visiting the classroom.

The fourth function is that of promoting the acquisition of specific skills and knowledge which students had be able to apply in a direct way after entering employment. The general view is that such preparation should properly be left to employers and to other post-school institutions like colleges of further education and polytechnics. It is argued that introducing significant vocational training into schools would require resources, equipment and expertise which schools rarely possess. It would also run the danger of limiting pupils occupational horizons prematurely, and unless great care is taken, it might develop knowledge and skills which would be inappropriate in a rapidly changing labour market. Further, it was pointed out that many of the skills that were most important at work are generic skills like numeracy and literacy: if schools concentrate on these, then they were providing a form of preparation but without closing options unecessarily.

On the other hand, it is recognised that a 'vocational curriculum' can be a powerful incentive to learning. Also, unless steps are taken to introduce a wide range of vocational skills into the school curriculum, the effect of schooling may be to establish a bias in favour of academic forms of learning.

On the whole, however, the tendency until recently had been to limit the extent to which schools have been involved in vocational preparation. The vocational courses set up in many secondary modern schools in the 1950s to yield the motivational advantages of the 'vocational impulse' largely disappeared with comprehensive reorganization, and teachers became resistant to them. Even employers tended to be of the opinion that education given at school before the minimum school leaving age should be general rather than vocational in character. Trade unions, too, has consistently opposed vocational education in schools, on the grounds that it would operate to the disadvantage of working-class children.

The period 1970-1990 saw the launching of a number of education and training initiatives for the 14 - 18 age group. These included, the Technical and Vocational Education (T.V.E.I.), the lower Attaining Pupils (L.A.P.) programme, the Certificate of Pre-Vocational Education (C.P.V.E.) and the Youth Training Scheme (Y.T.S.). Most of these intiatives had vocational preparation as a central focus, either as a means of exploiting work as an incentive to learning, or to the end of rendering young people more employable and therefore competitive in the labour market. Perspectives on preparation for work in a context of continuing high unemployment were divided. Geoffrey Holland, then Chairman of the M.S.C., argued that the level of youth unemployment was irrelevant to the urgent need of the country to increase the supply of occupationally technically and otherwise qualified young workers. However the prospect

that some young people would be unemployed following participation in vocational preparation programmes filled many teachers with unease to think they were orientating young people towards goals that society could not fully deliver. However, a consensus did emerge that a balance of preparation for employment and for the transition to adulthood was needed for all young people, and that all the initiatives should attach some importance to the principle of personal development.

Construction has played its part in this move towards vocational options for some 14 - 16 year olds. The area of Construction craft studies has been a popular topic for vocational preparation courses, and had much to offer because it was craft based and therefore more practical, with emphasis on doing things rather than knowing. This type of practical emphasis tended to be popular with low achieving pupils who often found academic subjects uninteresting. Many pupils opted or were advised to take a prevocational option, because it was unlikely that they would achieve any formal recognition of their abilities in the schooling system. Many pupils were considered to be non-examination pupils, and the pre-vocational course gave them a chance for a qualification. Alternatively the pupils considered the schemes to be a way out of academic learning. A few of the pupils had a genuine interest in a future career in the construction industry. Construction craft also had a broader relevance in that it could be considered a useful life skill. Many households in

Britain opted for do-it-yourself home repairs in order to save on the cost of home maintenance and for many people it becomes a hobby activity. Therefore construction can be seen as both a vocational subject and a leisure activity. However, the trend to introduce the pre-vocational option for low achievers also had spin off advantages for the schools. The F.E. Colleges were often asked to cope with some of the more alienated and therefore disruptive school children. There was strong pressure from all areas to place these "troublesome" children into pre-vocational courses. The children themselves would find it an attractive option, the teachers would have the opportunity to teach the more academically motivated pupils and the school heads would be seen to be doing something positive for the 40 per cent low achievers who did not fit into the normal GCE/GCSE type structure.

The introduction of these initiatives for the 14 - 18 age group and the backing given to their implementation by the Government, had led some teachers to fear a return to the tripartite division experienced prior to the comprehensive system. The option of providing a curriculum with an academic, technical or vocational slant was available and had been in operation in some local authorities.

We can recognise from this contextual chapter that there were many external factors of a historical, technological, economic/employment, political and educational nature which influenced and shaped the changes that took place within Construction education and training during the period 1970-

1990. These contextual factors formed the basis of the first analyses of the provision of Construction education and training and the second analyses is based on the nature of vocational education in general.

CHAPTER THREE

THE NATURE OF VOCATIONAL EDUCATION

3.1 THE CONCEPT OF VOCATIONAL EDUCATION.

Having considered in chapter two the context of vocational education and training in the construction industry, this chapter considers the various models and concepts that underpin vocational education and training. The nature of vocational education consists of a number of interrelated factors which need to be considered when analysing its structure. These include the following six main factors: the concepts, scope, level, pattern, the structure of courses and qualifications and policy, planning and provision. These factors will be considered separately for convenience of analysis, although in practice they are interrelated and should be considered together. We must begin by considering the concept of vocational education and a comparison is made with general education. The concept of vocational education varies from that of a broad preparation for adult life and work, with connotations of vocational calling, to the much narrower concept of training in a limited range of tasks, such as training to operate a specific machine. The concept of vocational education can also be clearly divided into initial and continuing. In recent years there has been much emphasis on initial training, with the trend towards generic education

programmmes which included preparation for the world of work, as well as specific occupational training. This study generally concentrates on initial forms of vocational education because this was the main type of provision available in the construction industry during the period of this study. Like many other British industries the Construction Industry places its main training emphasis on initial training for new entrants into the industry. However, due to several factors such as the demographic decline in school leavers, long-term unemployment and the changing nature of work due to structural and technological change, more industries are being forced to consider continuing vocational education for adults. This takes the form of re-training and skill up-dating. Therefore, the future pattern of vocational education could include more intermittent periods of skill and knowledge up-dating and retraining programmes as people change jobs to meet new employmnet needs. This type of provision might best be met by a modular curriculum, an issue which will be discussed later in this thesis.

The recognition given to the level of vocational education can also vary. Vocational education can be seen as including education relating to all forms of work and at all levels of employment. Alternatively, vocational education can be restricted to lower or medium level work, with a clear distinction made between it and higher levels of study such as professional education, and sometimes between technical and vocational education. We must recognise therefore, that there

are several distinct ways of viewing the nature and scope of vocational education and training.

Vocational education can be viewed as a preparation both for work and adult life. It usually follows a period of compulsory education when the emphasis on learning is placed on general rather than specific knowledge and skills. General education is typically broad in its scope and therefore may include a wide range of subjects. By contrast vocational education tends to be narrower in its coverage of subjects and is recognised as being specific or specialised. An example of this distinction from broad to narrow, can be observed during the options period of compulsory education. The pupil has studied a wide range of subjects during the early years of secondary education. At the options stage some subjects are no longer studied to allow a concentration on a smaller number of subjects in which the pupil has decided to specialise. The option is usually based on career choice and ability. We can see from this example that the range of study gradually becomes narrower as the pupil advances towards a career option. This process continues with a further choice of 3-4 subjects at advanced level, followed by further specialisation of the same subjects or others during further or higher education. This pattern does not apply to all students but is a general pattern.

General Education.

Any analysis of the nature of vocational education must begin with an understanding of general education because it is this general education which forms the basis for, and provides a contrast with vocational education and training. Vocational education and training is impossible without some basic education and skills. There is no absolute distinction between general and vocational education; the two are intertwined.

A good example of the inter-relationship between the two forms of education can be illustrated by considering the study of mathematics. In the context of compulsory education mathematics is regarded as a subject that is 'general' in character, particularly if we use the definition of general education proposed by Evans 1971: ' General education is that education needed by all students'.(48) We can argue that in a modern society a basic understanding of mathematics is essential to everyone. Indeed this fact is recognised in the compulsory education sector by the designation of mathematics as a 'core subject' in the national curriculum. Mathematics is also recognised as a core subject in vocational education and therefore, many foundation or basic vocational courses include mathematics. However it is the scope and level of

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48 EVANS, R.N. (1971) Foundation of Vocational Education Ohio USA: Charlies E Merril. p. 92.

mathematics that determines the generality or specificity of the subject. Mathematics at advanced level would cease to be 'general' in the context of Evans definition because it would meet a specific need for those individuals who could benefit from this level or type of work. Likewise, mathematics in the context of post-compulsory education could be specific to a particular vocational area and in this sense may be called applied. However, the distinction may not be so clear cut within the vocational context, because many students will begin their study of mathematics at a basic level, which could be considered in another context as general education. We can recognise from this illustration that general and vocational education reinforce each other and in many areas there is a direct transfer of knowledge. This relationship between general and vocational or specific education is recognised by Mitter (1984) (49) and is outlined by Squires in terms of degree and context.

... not an absolute distinction (between general and specific education) there are degrees of generality and degrees of specificity, and much depends on the context of the discussion. Squires (1987). (50)

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49 MITTER, W. (1984) 'Education for All' International Yearbook of Education, 36, Paris: UNESCO. pp 101-114.

50 SQUIRES, G. (1987) The Curriculum Beyond School, London: Hodder and Stoughton. p. 26.

Nevertheless, compulsory education typically emphasises general education as a basis for the post-compulsory education sector, which is typically specific in nature within the context of a vocational area. However, it is also suggested that a more current function of post compulsory education is that it provides a foundation or preparation for specific vocational education or advanced study. (51)

As general education is placed within the context of compulsory education, it is not surprising that there should be a number of different theories about what constitutes a worthwhile curriculum for everybody. This conflict of opinion has resulted in a number of distinct frames of reference for constructing and planning general education: organised knowledge, culture and student development. All three approaches place a different emphasis on what is considered necessary to produce an educated person.

The case for using organised knowledge as the basis for general education stems from the fact that over the centuries bodies of knowledge - typically refered to as subjects, disciplines or fields - have developed.

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51 SQUIRES, G. (1989) Pathways for Learning: Education and Training from 16 to 19 Paris: OECD. p. 11.

Alongside this organised knowledge has developed common knowledge based on life experiences which have been handed down from generation to generation and are commonly known as 'common sense'.(52) The structure of organised knowledge consists of facts, concepts, models, theories methods and procedures. These elements of organised knowledge become the tools for the process of general education based on the current body of knowledge. This body of knowledge consists of groupings of subjects, disciplines or themes around which the curriculum is designed. A basic problem arises when a choice has to be made on what constitutes essential knowledge which should be included in the general curriculum, and what is secondary or non-essential knowledge which can be safely left out. Hirst (1969) and Phenix (1964) (53) have identified domains of knowledge which contain all the 'essential' knowledge. Hirst's list of essential 'forms' of knowledge comprise mathematics, physical science, human science and history, literature and fine arts, morals, religion and philosophy. A curriculum

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52 BERGER, P. and LUCKMANN, T. (1971) The Social Construction of Reality. Harmondsworth: Penguin.

53 HIRST, P.H. (1969) The Logic of the Curriculum Journal of Curriculum Studies, 1(2). pp. 142-158.

PHENIX, P.H. (1964) Realms of Meaning New York: McGraw-Hill. p.8.

designed or based on these forms would according to Hirst provide a 'complete' education because the whole realm of knowledge and meaning are contained within their context. A curriculum based on organised knowledge is based on what is recognised as worth while knowledge, that is knowledge which leads to a 'well-educated' person. Therefore, the knowledge domains listed by Hirst and Phenix provide the opportunity for the learner to become educated in fundamental forms of knowledge and meaning. Alternatively, organised knowledge can be seen as a vehicle for developing the mind to deal with the world. In this context education is through knowledge rather than education in knowledge.

The justification for using organised knowledge as the basis for general education stems from three types of rationale, which are the now-or-never argument, the deprivation argument and the disciplinary culture argument.

The first rationale for using organised knowledge, the now-or-never concept, is based on the fact that knowledge is structured in levels and subjects, and thus allows students to progress at different levels throughout their schooling, usually starting with a basic foundation of knowledge from which to develop. This rationale is formalised in the way in which levels and subjects are structured through the education system. At each stage of education, certain pre-requirements are needed to progress on to the next stage.

The deprivation argument is based on the idea that a curriculum designed on organised knowledge provides all the modes of understanding and dealing with life, and therefore, anyone who does not receive this complete education is in fact educationally deprived. The deprivation rationale rests on the judgement of what is valuable and worth while knowledge, and stresses the intrinsic value of education without full regard for relevance or needs.

The third rationale for the adoption of a knowledge-referenced curriculum is related to the concept of disciplinary culture.[54] This argument supports the idea that a disciplined exposure to curriculum based on organised knowledge affects the way in which people think and perceive the world. For example, it can be said that the study of advanced mathematics develops logical thought, or that a study of art or literature can bring out a person's creative abilities. Religion, philosophy and morals are subjects that influence the character and values of an individual. Therefore, a curriculum based on organised knowledge produces not simply an educated person but a 'complete' and 'whole' person. The disciplinary culture argument has strong links with the English form of 'liberal education'. The main notion of liberal education is the releasing or freeing from ignorance so that the individual can develop to his or her full potential by overcoming ignorance

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54 BECHER, T. (1981) Towards a Definition of Disciplinary Cultures. Studies in Higher Education, 6(2), 109-22.

and prejudice. Bailey (1984), contrasts liberal and vocational education. He states that vocational education is concerned with useful subjects, liberal education is not. Vocational education stresses extrinsic values and is concerned with means whereas, liberal education emphasises intrinsic values and is concerned with ends. (55)

There have been two distinct problems associated with the use of knowledge as the basic principle for the curriculum. At a practical level, the fact that knowledge is constantly in a process of change means that a knowledge centred curriculum needs to continually include new knowledge and this leads to the overloading of the curriculum. Secondly the knowledge based curriculum is associated with academic type learning, and this type of curriculum would fail to meet the needs of the non-academic students who may require a more practical or vocational led curriculum, particularly during the later period of compulsory education. Therefore, the main practical challenge to the knowledge-led approach is that it may lack relevance, and enhance interest to many non-academic students. The second problem faced by the organised knowledge approach is a theoretical one. This criticism stems from a sociological standpoint that questions the fact that knowledge is socially produced and therefore selection of knowledge implies that

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55 BAILEY, C. (1984) Beyond the Present and the Particular: A theory of Liberal Education. London: Routledge & Kegan Paul. p.19.

certain forms of knowledge are being excluded to make way for other forms.(56) It is therefore, incorrect to assume that there is general consensus over what constitutes 'worthwhile' or even valid knowledge.

The use of 'culture' as a frame of reference for general education can result in a rather different kind of curriculum. In sociological terms culture can be defined as meaning "the way of life of a group of people". It is recognised that within society there is a dominant culture which represents the way of life of the majority of its citizens, but that also there may be smaller sub-groups which live contrary to these norms and which constitute sub-cultures.

A curriculum based on culture would encompass knowledge of all the main structures that constitute the society's culture. It would therefore, vary according to the type of culture because each curriculum would be designed for each type of society. A key feature of the culture rationale is the direct relevance that this type of education would have for all members of the culture.

Lawton (1983)(57) has analysed general education in terms of eight subsystems, as follows: social, economic, communication,

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56 GRIFFIN, C. (1983) Curriculum Theory in Adult and Lifelong Education. London: Croom Helm.

57 LAWTON. D. (1983) Culture and Curriculum (Unit 3, E204, Purpose and Planning in the Curriculum). Milton Keynes: Open University Press.

rationality, technology, morality, belief, and aesthetics systems. Lawton envisaged that some of the subsystems would carry more importance than others and that selection from each of the subsystems would take place to formulate a curriculum. The basic aim is to educate the individual in the essential elements of the sub-systems that go to make their society. The main difficulty in planning and formulating a culture-led general education curriculum, lies in the selection of what would be valid and what to exclude. How would a culture-led curriculum provide for the needs and relevance requirements of sub-culture groups, within a main culture ? For example, what would be the effect of a main stream cultural education for children from ethnic minority groups ? Furthermore, a curriculum based on sub-systems contained within a culture could fail to innovate and encourage new ideas and ways of perceiving things. It could become constricted by the culture that forms it, rather than being 'open' to accept change. However, a culture-led input into general education should ensure that the school curriculum is not just academically based and therefore, helps to provide the non-academic students with a curriculum that is both interesting and relevant to their needs regardless of academic ability. We see for example, a tension between knowledge and culture as frames of reference in the Education Reform Act.

The concept of 'student development' provides a third frame of reference for general education. One of the main criticism of a knowledge based general education is that it tends to stress

academic ability to the detriment of both practical skills and affective development. A large proportion of young people enter occupations that demand social and practical skills as well as cognitive ability. As Fleishman (1972), (58)argues, the development of manual dexterity is also relevant to academic professions such as engineering and dentistry. All types of occupations whether they be practical or academic, demand social and personal skills and these skills are important in everyday life if people are to enjoy full social lives. However, schools still tend to emphasise cognitive abilities at the expense of the other two forms of ability. Cross (1976)(59) argues that the school system undervalues manipulative and practical skills and virtually ignores the interpersonal skills which are a key element in many jobs in the service sector. Therefore, the rationale for providing general education on the basis of ability, sees the aim of general education as developing the whole person in terms of a full range of abilities. Hargreaves (1982)(60)

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58 FLEISHMAN, E.A. (1972) Structure and Measurement of Psychomotor Abilities. pp 78-104. in SINGER, R. (Ed) The Psychomotor Domain: Movement Behaviour. Philadelphia: Lea & Febiger. p.104.

59 CROSS, K.P. (1976) Accent on Learning, London: Jossey-Bass.

60 HARGREAVES, D. (1982) The Challenge for the Comprehensive School London: Routledge & Kegan Paul.

identifies five types of ability, namely, cognitive, aesthetic, affective, physical and personal. Therefore, a general education planned on the basis of the development of ability is one which gives an adequate emphasis to each type of ability, rather than stressing one at the expense or the exclusion of others.

We can recognise even from this brief analysis of each of the three models of general education that each type provides strong arguments for their use in planning general education. However, a curriculum planned in terms of only one or two models is likely to be deficient in terms of its 'general' nature. A common curriculum planned entirely in terms of organised knowledge may lose its relevance and interest for a large number of non-academic students, and it will also fail to develop other non-cognitive skills that are equally important. A curriculum planned on the basis of common culture, may fail to meet the needs of the more academic students because it has neglected to build a foundation for the more advanced study of organised knowledge. Thirdly, a curriculum based solely on the concept of ability and student development may operate in a social vacuum and could fail to stress sufficiently organised knowledge as a means to achieving higher levels of study.

Furthermore, the concept of student development goes beyond cognitive development to encompass moral and personal development. We can recognise that in order to provide a truly general education that meets the needs of all students we must plan a curriculum in terms of all three frames of reference of

organised knowledge, culture and student development.
As Squires (1987) (61) illustrates, the three models are more usefully seen as three dimensions, which provide both a framework for thinking about planning a curriculum for general education and as a basis or foundation for further education.

Vocational Education

General education is seen as education that is needed by every student. Vocational education has a more specific nature in that it is linked directly to work and therefore needs to be designed to meet the needs of the relevant type of occupation. This also implies that whereas in general education the overriding theme is common or core studies, within vocational education the emphasis must be on specifity and range of choice. Therefore the character of vocational education is relatively diverse and the structure of provision is fragmented. When we compare the rather uniform nature of general education to the complex character of vocational education and of further education in general, it is not surprising that this sector of education has been called a 'jungle' .(62)

A definition of vocational education offered by Evans illustrates the close link that post-compulsory education has with the labour market. Evans defines vocational education as

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61 SQUIRES, G. (1987) Op.cit. p.48.

62 PRATLEY, B. (1980) Signposts. London: FEU. p.1

'that part of education which makes an individual more employable in one group of occupations than another.' (63) We note in this statement the relative nature of the definition, because the statement recognises that general education may also help to prepare people for work in terms of both generic skills and screening. This definition also illustrates two of the three basic objectives of a vocational education curriculum; it identifies the link with manpower needs and the opportunities for career choice provided by vocational education. It does not however highlight the third objective which is the motivating of students to continue their learning in other areas of study. It is often through following a successful vocational course that students feel motivated to continue their studies either in their own vocational area at a more advanced level, or to take on some unrelated study. For this reason further education is sometimes seen as a second chance for those individuals who failed to achieve during their studies in general education. Vocational education, linked to a job, has that concrete element which some people find easier to study than abstract knowledge.

The fact that there is such a strong link with work means that the objectives of meeting manpower needs tends to take first

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63 EVANS, R. N. (1971) Op.cit. p. 1.

place.(64) Educational economists recognise the importance of education for employment needs. (65) However, there is a danger that this can be seen by employers to be the only aim of vocational education and the broader aims of providing further opportunities and motivation for other studies, can come to be ignored by employers.

This mismatch between manpower needs and skilled labour is still a problem that has not been solved. This problem was particularly apparent during the recent periods of high unemployment when many young people with redundant skills or who were unskilled were unable to find work, and yet in some areas there was a shortage of skilled workers. The problem was made worse by the regional variations in which there was high unemployment in areas of heavy industry like the North East and the West Midlands, and skill shortages in the more prosperous South and South East. The high unemployment rates during the period of this study have thrown into question the strong link between vocational education and work. With a high percentage of school leavers unable to find employment, should we be preparing people not only for employment but also for unemployment?

A further change forced by high unemployment among young people

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64 ATKINSON, G.B.J. (1983) The Economics of Education London: Hodder and Stoughton. p. 60.

65 BLAUG, M. (1968) Economics of Education Harmondsworth: Pengum Books Limited. p. 261.

was the balance between specific vocational education and training, represented by apprenticeships, or more broad based courses such as the polyvalent foundation courses like the Youth Training Scheme. It is interesting to note that as unemployment among school leavers has declined in recent years the demand for broad based non-specific YTS schemes has been replaced by more specific education and training, even though these schemes are still under the YTS structure. The change in vocational education caused by high unemployment resulted in greater emphasis being placed on personal and social skills as part of a general preparation for work. This change was further accentuated by the suggestion that specific education and training was irrelevant during a period of economic change and recession, when unemployment was high and widespread. However, as the British economy and the unemployment situation improved in the late 1980's there was a swing back again to providing more specific vocational education. This situation was further helped by the growing recognition that the emphasis in previous years on developing initial training had resulted in current needs for training at a medium and advanced level, in order to up-grade the economy's skill stock.

In sociological terms the main function of vocational education is to teach people to fit into the social hierarchy, which is embodied in and perpetuated by the work structure.66) The discipline of work and the work culture associated with most jobs is seen as a means of slotting people into their place in society. Finn (1987), offers a sociological perspective on the increasing influence of 'vocationalism' in recent years, with the almost compulsory nature of the two-year YTS, and the introduction of TVEI in comprehensive schools. He states:

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66 GLEESON, D. & MARDLE, G. (1980) Further Education or Training. London: Routledge & Kegan Paul.

GLEESON, D. (ed). (1983) Youth Training and the Search for Work. London: Routledge & Kegan Paul.

RAFFE, D. (1983) Education and Unemployment; Does YOP make a Difference (and will the Youth Training Scheme)? in GLEESON, D. (ed) Youth Training and the Search for Work. London: Routledge & Kegan Paul.

DALE, R. (ed) (1985) Education, Training and Employment Oxford: Pergamon.

The new vocationalism displaced equal opportunities as the central reference point for educational change. The guiding philosophy behind educational policy became the creation of appropriate curricula for different groups of pupils, to be derived mainly from their assumed destination in the division of labour. It is not that schools are simply expected to prepare their pupils to get jobs, but they are now required to make them cognitively and attitudinally better employees.(67)

We have seen through the changing emphasis of Youth Training that the attitudes and behaviour of the worker is a key element in the running of an efficient production process and the new vocationalism outlined by Finn (1987), places as much, if not more, importance on developing the right attitude and behaviour as on vocational skills and knowledge.

An alternative perspective offered by some economists views vocational education largely as a 'screening' process. (68) The vast range of opportunities made available by vocational education and training serve to allocate individuals according to ability to their place in the work market. According to this argument the value of qualifications lies in the way in which they provide the potential employers with a direct

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67 FINN, D. (1987) Training Without Jobs : New Deals and Broken Promises. London: Macmillan Education Limited. p.168.

68 ATKINSON, G.B. (1983) The Economics of Education. London: Hodder and Stoughton. p.29.

measure of the individual's ability. This method of selection of job candidates by qualification is often used as a crude method of de-selecting large numbers of applicants and to short list candidates for closer scrutiny. In this sense qualifications are a pointer to ability within a vocational area. However, it is recognised that personality and interpersonal skills do play a major role in the selection process for job interviews.

In summary, the role of vocational education is still in the main that of providing specific education to make a person more employable in a particular vocational area. However, in recent years vocational education has been used in a wider context as a means of preparing young people in a more general way for future employment. The rise in youth unemployment forced the change in compulsory and post-compulsory education which was termed 'vocationalism'. The main consequence of this change was to emphasise broad based polyvalent foundation courses which placed greater emphasis on improving attitudinal and behavioural factors rather than specific vocational skills and knowledge, thus weakening the direct link between specific vocational education and work.

3.2 THE SCOPE OF VOCATIONAL EDUCATION AND TRAINING.

There was growing interest in the 1970'S and 1980's in all vocational areas of Further Education as to the appropriate scope of education and training, particularly for the 16-19 age group. Whereas in the past most Further Education students attended courses that were specifically related to their career choice or current occupation, this link between Further Education and work became less direct in the last twenty years. After the beginning of the mid 1970's the emphasis moved towards a more broad based approach to initial training, with the need for a period of general vocational preparation followed by employment and/or specific training. This thesis focussed on intial rather than continuing vocational education. One of the main reasons for this change in emphasis was the uncertainty about career development brought about by the economic recession which affected Britain from the mid 1970's to the mid 1980's. This economic recession resulted in high unemployment particularly among school leavers and young people generally. Many employers prefered to employ older more experienced workers rather than school leavers. The apprenticeship system which had traditionally offered employment to a large number of school leavers was also in decline. There were other reasons why a broader-based training was gaining support. There was a shift towards service industries and the pattern of employment was more fluid. There had been a decline in unskilled and semi-skilled employment

brought about by the greater use of mechanisation and automation, these having replaced many of the low level skills previously found in the production process.

Hence, young people tended to need higher levels of competence to get jobs. The restructuring of industry and the introduction of new technology led to relatively more jobs in service occupations, such as information processing, personal services and installation and maintenance jobs. The skills needed to perform these types of jobs were not specific to a particular employer or industry. Furthermore, the number of jobs dependent primarily on product skills had declined and the demand for process skills had increased. These process skills tended to be more 'generic' in character and could be developed from an initial foundation programme which was broad-based and non-specific, such as the Youth Training Scheme or the Certificate of Pre-Vocational Education. Many young people unable to find employment were directed towards the Youth Training Scheme. Unlike the former apprenticeship system the Youth Training Scheme did not offer direct employment to the trainee but in practice a proportion of young people on YTS programmes were eventually offered employment with the firms they had been allocated to for work experience. The take-up figures varied from industry to industry, with the Construction Industry Training Board Scheme claiming a 90 per cent take-up

rate and other industries recording a much lower success rate. (69)

However, a large proportion did not find employment after their YTS training, and the young people were left with skills they were unable to use. The approach that was developed to overcome this problem was to devise a scheme which gave young people generic and transferable skills so that the training they were given could be used across a wide range of occupations. It was even suggested at the height of mass youth unemployment that foundation training should also be a preparation for life without paid work. However, pressure was on to provide training that would make young people flexible and versatile, and the aim was to encourage young people to use their initial education and training as a foundation for continued learning throughout life. There evolved from this need for flexible and versatile training four distinct approaches to enable young people to acquire a 'skill' foundation on which to build their career.

One method was to prolong general education to ensure a breadth of knowledge and skills on which subsequent learning could be built. The second method was to take a group of occupations and to use them as the basis for a broad programme of initial

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69 CONSTRUCTION INDUSTRY TRAINING BOARD (1986) CITB Annual Report 1985/86. Bircham Newton: CITB. p.16.

vocational education and training. A third approach was to base the initial training on an occupation and to build into the training a thorough understanding of the subject matter, and an appreciation of jobs associated and related to the main occupation. The fourth approach was to base training on basic skills. This approach could be linked to the 'occupational group approach' to select core skills from a range of occupations as a basis for foundation training.

The 'general education' approach

Although a large number of the more able youngsters still prefered the general education approach to career preparation via the 'A' level route to higher education or professional training, the vast proportion of young people and certainly those young people who were less academically able opted for Youth Training Schemes and tended to prefer a more vocational curriculum that was less academically orientated. A study of education and training for the 16 - 19 age group undertaken in countries which are members of the OECD showed that there was an increase in numbers of young people opting for general education courses, but this increase still only represented some 20 - 30 per cent of the age group. (70) This expansion of

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70 SQUIRES, G. (1989) Pathways for Learning: Education and Training from 16-19 Paris: O.E.C.D. p.69.

general education in the United Kingdom led to a dual stream of general education, e.g. the traditional stream of academic general education represented by the 'A' level route and the non-academic stream represented by new programmes such as the Certificate of Pre-Vocational Education (CPVE), which was a mixture of general and vocational education. This type of course tended to attract the less able youngster who had preferred the general education approach to a pure vocational type course.

The main weakness of the non-academic general courses was that the student left the course with few or no job competences to offer when compared with a student who had followed an occupational specific training, and in terms of general ability also scored much lower than his more academic counterpart. Therefore, in terms of job prospects, his chances of obtaining employment were probably much lower than those who had followed an academic or vocational type course. There was also a further disincentive for the less able to undertake general education courses rather than Youth Training and this was the training allowance payable to young people undertaking YTS programmes, but not available to those who 'stayed-on' at school or those who took a non-vocational route. This factor must have influenced young people from working class and low income families, who needed the additional income. However, the dominant influence of GCE "O" level as currency on the

minds of young people and employers, tended to depreciate the value of other courses.(71) Although the academic general education was not vocational in a direct sense, qualifications such 'A' levels were and are used as a screening device for employment. That is, a candidate will not be considered or even encouraged to apply for a job unless he or she can offer 'A' levels. This was administratively convenient in cutting down the number of applicants. Under this system many jobs required general qualifications as minimum entry requirements and employers use general qualifications as evidence of cognitive-intellectual ability.

The 'occupational group' approach

This type of approach to foundation training was recommended by the Institute of Manpower Studies, whose report entitled 'Training for Skill Ownership' (72) introduced the idea of Occupational Training Families (O.T.F.). Occupational Training Families were based on the grouping of jobs into eleven occupational families. The main feature of the approach was that it focussed training across a range of work options and involved a broad based range of competencies which could be

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71 FURTHER EDUCATION UNIT (1982) A Basis for Choice London: FEU. p.6.

72 HAYES, C et.al. (1983) Training for Skill Ownership Brighton: Institue of Manpower Studies.

transfered to various work settings, thus providing the flexibility required in an uncertain job market for school leavers. Each Occupational Training Family had a key purpose which encapsulates the overal aim or intention of the work in that occupational grouping. For example, the key purpose of the Admininstrative Clerical and Office Services O.T.F. was 'information processing'. The Learning Objectives for each O.T.F. represented the key competencies for each Family. The aim was that the learning objectives were expressed in the form of 'general' competencies and not job/occupational specific skills. Another key factor in this approach was the aim to transfer learning. Each learning objective had an associated transfer learning objective.

The Transfer Learning Objectives built onto the competencies and experience acquired in the workplace. The achievement of 'Skill Ownership' implied that the trainee could demonstrate the ability to successfully complete a task in a range of different contexts. It was assumed that skill transfer was made easier because jobs in each OTF had a similar Key Purpose. Assessment of competence was based on a criterion referenced approach.

The main benefit of this approach was the versatility in skills and experience this training offered to both the young person

and the employer. However, a report undertaken for the FEU by Ron Johnson (73), which appraised the implications of Occupational Training Families for FE, suggested that the argument that grouping of occupations provided versatility was not proven. Johnson suggested that a grouping based on similar tasks would be more effective than one based on a common Key Purpose. There was also a strong argument that training which was too broad failed to motivate the less academically able youngster. There was also some difficulty in fitting some occupations into Occupational Training Families. For example, Construction trades fit into three different Families: Craft and Design, Installation, Maintenance and Repair, and Manufacturing and Assembly. The Johnson report concluded that there appeared to be no compelling reason to group occupations into Occupational Training Families. (74)

Occupationally based approach

This third approach to foundation training was to opt for a specific occupation but to broaden the scope of the scheme by including core skills and associated skills. The associated skills were based on occupations that were linked with the main

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73 JOHNSON, R. (1984) Occupational Training Families: Their implications for FE London: FEU.

74 ib id. p.9.

occupational option. For example, a trainee electrician might need to make good plasterwork after channelling out the plaster to fix cable. Therefore, basic plastering skills would be taught as part of the associated skill component. The occupationally based approach was adopted by one of the largest providers of Youth Training, the Construction Industry Training Board. This approach suited CITB schemes because they still retained their traditional apprenticeship structure of a broad skill and knowledge base. The traditional apprenticeship scheme was adapted to meet the YTS requirements by introducing the core skills and associated skill elements.(75) The benefit of this occupationally based approach was that it provided competence in an occupation and gave the young person a sense of identity which was particularly important for young people trying to establish themselves as independent adults. Thus this identification with a skilled occupation provided the motivation to learn and develop as an adult. This fact was recognised by a Council of Europe report into basic training, which argued that:

> Many new trainees at the age of 16 know or have a good idea of the specialist discipline in which they wish to be trained .... usually this type of trainee starts his training full of enthusiasm to learn the skills of his

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75 CONSTRUCTION INDUSTRY TRAINING BOARD (1986) The Building Foundation Training Scheme: Notes for Guidance Bircham Newton: CITB.

chosen craft. At this stage, few trainees fully appreciate the value of a broad based training programme, and any tendency to impose such a programme immediately could make them become unco-operative, reduce their motivation and induce problem of discipline. (76)

However, this type of approach to training was best suited to industries where manpower planning provided a clear indication of training needs and where the skill base of the occupations was broad enough to prevent too narrow a training content. It was therefore more appropriate for craft type training than unskilled or semi-skilled occupations, which may benefit from a more general type of training.

Basic Skills Method

The basic skills approach had been adopted in two ways, firstly, to devise core skills which could be used to help young people who had no clear vocational goals, and secondly, to use core skills as part of an occupational based approach. The Manpower Services Commission defined core areas as "those abilities commonly found in a wide range of occupations in a variety of work setting, and at different levels".

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76 COUNCIL OF EUROPE, (1979) Occupational Basic Training: Preliminary Definition of a Polyvalent and Cultural Occupational Basic Training Strasbourg: Council for Cultural Co-operation. p.135.

Through a system of planned work experience and off-the-job training all schemes were required to provide core areas under the following headings; number and its application, communication, problem solving and planning, manual dexterity, computer literacy/information technology, and interpersonal relationships.(77) The aim of this basic skills approach was to equip young people with the knowledge, attitudes and skills required to obtain a job and successfully retain employment. The emphasis on basic skills for young people without clear vocational goals was similar to the CPVE course, except the former was more vocationally based and the programme was more suited to low achieving groups. These courses aimed to continue the general education through programmes that had occupational relevance without being job specific. They stressed the central importance of basic skills and personal and social development. The FEU'S report 'Common Core Teaching & Learning' recommended a structure for basic skill courses.

(i) a common core of studies (60%)

(ii) studies with a vocational bias (20%)

(iii) occupationally specific studies and experience (20%) (78)

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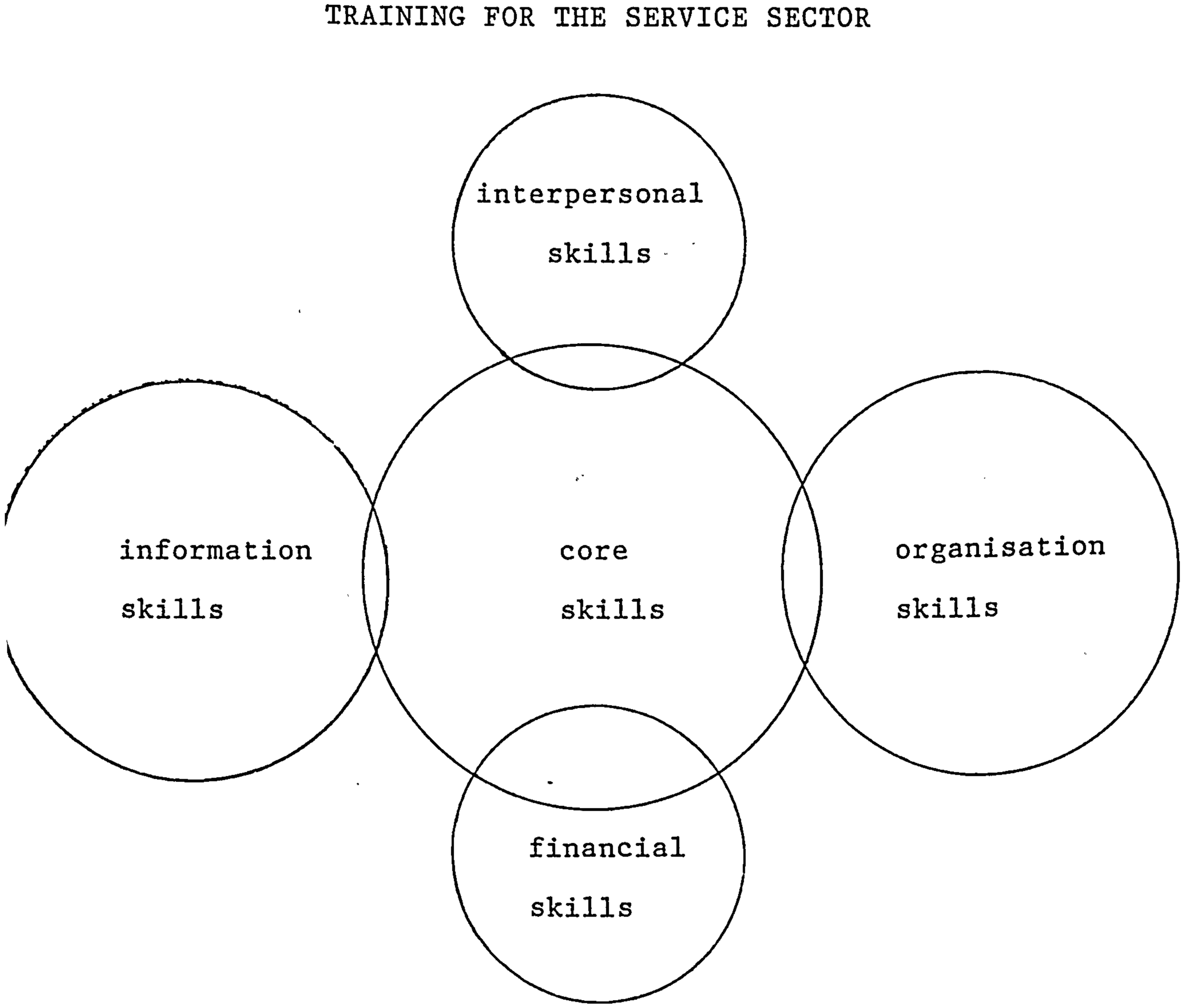
77 FURTHER EDUCATION UNIT. (1983) Supporting YTS London: FEU.

78 FURTHER EDUCATION UNIT (1984) Common Core Teaching and Learning London: FEU. p.1.

One view of this relationship between basic core skills and the Service Sector is illustrated by Fig 1 [79]



The core skills are those specific to that particular occupation. The other four skills interpersonal, information, organisational and financial, are enabling skills.

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79 Figure 1. SQUIRES, G. op.cit. p. 107.

After the introduction of the Youth Training Schemes in the late 1970's, there was a greater diversity of students coming into Further Education and many occupations that had previously not offered formal training under the YTS funding introduced a formal and core element into their training programmes. Therefore the diversity of students entering FE in terms of ability, motivation and background have to be met by more diverse patterns of provision. This diversity in student and employers needs indicated that there was no one ideal method of providing foundation training but rather that a variety of approaches were more appropriate to meet these needs. The curriculum had to provide a more experiential and occupational relevant slant to the studies, concentrating on skills which can be developed in a number of subject contexts. The curriculum had to meet the students' individual needs and achievements and had to assist the young person to make a successful transition from full-time compulsory education to adult life.

3.3 LEVELS OF VOCATIONAL EDUCATION AND TRAINING.

The levels of subjects and courses form the main hierarchical structure of education and training. Within the vocational education sector there are occupational levels e.g. operative (unskilled/semi-skilled manual), craft (skilled manual), technician (technical/supervisory), and finally professional (specialist/management). The occupational levels are further sub-divided into subject levels which are usually classified as basic/ordinary, and advanced/higher. For example, at craft level we have two distinct levels of study: basic craft and advanced craft. Usually a student must have been awarded a Craft Certificate before being eligible to undertake advanced craft studies. The same type of distinction was made at technician level, with Ordinary Technician and Higher Technician levels. These two categories of technician qualifications represent the level and depth of the relevant study. Within the category of professional education and training the main dividing level will be between pre-professional education and training and post-professional which was termed Professional Development. This Professional Development was an on-going process of up-dating knowledge and skills and the development of professional standards.

In recent years with the introduction of the National Council for Vocational Qualifications, a new concept of level has been developed. This new notion of level was based on occupational

ownership of competence and applies across a range of subject areas and vocational spheres. Under the system designed by the National Council for Vocational Qualifications, programmes of vocational education and training are placed within four qualification levels, with the intention to devise a fifth level for degree courses and professional occupations. The definition provided by the NCVQ, as a guide to the levels at which vocational qualifications can be accredited are given as follows:

> Level 1: competence in the performance of work activities which are in the main routine and predictable or provide a broad foundation, primarily as a basis for progression.
>
> Level 2: competence in a broader and more demanding range of work activities involving greater individual responsibility and autonomy than at Level 1.
>
> Level 3: competence in skilled areas that involve performance of a broad range of work activities including many that are complex and non-routine. In some areas supervisory competence may be a requirement at this level.
>
> Level 4: competence in the performance of complex technical, specialised and professional work activities, including those involving design, planning and problem-solving, with a significant degree of personal

accountability. In many areas competence in supervision or management will be a requirement at this level. (80)

Within these four levels we can still accommodate the traditional occupational levels. Level 1 represented the pre-vocational category which offered a more 'general' type of training programme. Level 2 included the operative level and semi-skilled craft occupations such as fence erector. Level 3 covered craft training including the often supervisory nature of craft work. Level 4 clearly related to technician education and training with provision for broader management type competencies. However, within these new levels of qualification there was greater flexibility and a clear recognition of the over-lap between occupational levels. For example, a craftsman undertaking supervisory responsibility although clearly in a craft/manual category, may be undertaking work at an higher level of responsibility than say a technician who was working in a builder's office under the supervision of a chief technician. The traditional levels of education based on occupations have been more visible in the Construction Industry because there was not the overlap between craft and technician tasks that are seen in the Engineering Industry. In construction, craft work was directly concerned with the

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80 NATIONAL COUNCIL OF VOCATIONAL QUALIFICATIONS (1989) National Vocational Qualifications: Criteria and Procedures London: NCVQ.

construction process and therefore was predominantly based on traditional manual skills such as, carpentry or brickwork. By contrast, technician tasks were generally connected to administrative, supervisory or technical services which were knowledge rather than skill based. The Construction Industry has not been affected by mechanisation or automation to the same extent that the Engineering Industry has and therefore the traditional demarcation of tasks and jobs still remained within the Construction Industry.

Operative Occupations.

At operative level there were occupations of a semi-skilled nature based on manual work below craft level. These occupations within Construction relate to tasks of servicing craftsmen such as, bricklayer's labourer, or plumber's mate, or tasks related to material handling such as crane operator and access jobs, for example, scaffolder or hoist operator. In the past many of these occupations were learned 'on-the-job' without any formal training. However, with the increasing use of sophisticated machinery on site operations and the greater demand for industrial safety, the increase in formal training for machine operators and scaffolders has grown. The Construction Industry Training Board's Training Centre at Bircham Newton in Norfolk has done much to lead the way in promoting operative training within the Construction Industry. Legislation under the Health and Safety at Work Act has led to the training and licencing of scaffold erectors at basic and advanced level. The growth of operative training has been

officially recognised by the Construction Industry and there was a General Building Operative Scheme which had NCVQ Provisional Accreditation. The Scheme offered broad based training for operatives of below craft level.

Craft Apprenticeship/Traineeship.

The conventional method of craft training was through the apprenticeship system. Hitherto, this system consisted of 'on-the-job' experience complemented by further education mainly on a part-time day release basis. College attendance provided the theoretical aspects of the craft and led to a craft qualification. In recent years there has been a decline in apprenticeships as a result of the industrial recession. In the 1960's for example, 40 per cent of sixteen year old boys were leaving school for apprenticeships but by 1980's this proportion had halved (81). At the same time as the numbers of apprenticeship programmes declined, the standard of apprenticeship training came under attack. One of the main critics was the Manpower Service Commission which in its document "A New Training Initiative: An Agenda for Action"(82), declared it essential to modernise apprenticeship training by

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81 CANTOR, L.M. & ROBERTS, I.F. (1986) Third Edition. Further Education Today: A Critical Review London: Routledge & Kegan Paul. p. 52.

82 DEPARTMENT OF EMPLOYMENT (1981) A New Training Initiative: A Programme for Action London: HMSO.

replacing time serving with training to competence standards that had been set by the industry. The document also stressed the importance of developing standards of practical competence and their associated test pieces and that standards and course syllabuses need to be constantly revised to keep pace with technological and market changes. The apprenticeship system was also criticised for teaching obsolete skills and over emphasizing concern for qualifications rather than performance standards.

Some British trainers looked towards West Germany whose apprenticeship system had shown an excellent example to the rest of Western Europe. (83) The West German system had succeeded in providing vocational training and education for an average of 72 per cent of its 15-18 year olds. (84) This system takes the form of a two-three years training, including day release at Vocational Training Schools for almost all manual/craft occupations. However, the main difference between the apprenticeship system of West Germany and Britain was the level of support West German industry and Chambers of Commerce offer to training, backed by Government legislation.

In the UK, one of the major agencies for promoting industrial training and associated further education was the Industrial

83 COMPARATIVE PAPERS IN FURTHER EDUCATION. (1983) Vocational Education and Training in the Federal Republic of Germany No 10. Bristol: Further Education Staff College.

84 CANTOR, L.M. & ROBERTS, I.F. (1986) Op cit. p. 53.

Training Boards. The Boards were created as a result of the recommendation of the 1964 Industrial Training Act, which recommended methods of improving training and meeting skill shortages. The twenty three Industrial Training Boards came under the aegis of the Manpower Services Commission Training Services Division, when it was established in 1970. Following a review of their effectiveness, sixteen Industrial Training Boards were closed down in 1981 and some more in the late 1980's. Of the Boards that have survived the Construction Industry Training Board was closely involved in arranging traineeships for the Youth Training Scheme. Craft training under the YTS programme lead to the City and Guilds Craft Certificate and craft recognition through skill testing and industrial experience.

Technician Education.

A society that was constantly making technological advances needed the knowledge and skills represented by the next level of training and education namely, the technician. It was estimated that for every technologist or scientist industry employs, it required five or more technicians to put the theories into practice. (85) Therefore, in the overall development of the country it was vitally important that there was a constant supply of highly trained technicians in all fields of industry.

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85 CANTOR, L.M. & ROBERTS, I.F. (1986) Op.cit. p. 65.

During the 1960's there had been concern about the nature of technician education and training and as a result the National Advisory Council for Industry and Commerce was asked to review the national pattern and organization of technician courses and examinations . A committee was set up under the chairmanship of Dr H.L. Haslegrave to look at the provision of courses suitable for technicians at all levels, and to consider what changes were necessary to up date the current system. In 1974, the Technician Education Council (TEC) was formed. The role of TEC was to set standards, validate courses, award qualifications and promote the advancement of technician education. The aim of creating a more flexible and simplified range of technicians courses was achieved, by introducing a unit-based structure for their courses and by allowing a process of continuous assessment rather than relying solely on an end-on examination. Courses could be undertaken by a range of different modes of attendance, and units could be built up over a varied period of time until sufficient had been obtained to award a certificate (part-time) or diploma (full-time) qualification. This system of credit accumulation and credit transfer provided a more flexible service to the students. The Council also promoted the development of open learning systems which combined correspondence study and directed tutorials or workshop sessions. The TEC offered two levels of award, the National certificate/diploma which was equivalent to the Ordinary National qualification and the Higher certificate/diploma which was similar in level to the Higher

National qualification. These two types of qualification can be obtained on a group course usually over a two year period part-time or alternatively on a unit basis spread over a varied period of time until the necessary number and levels of units have been awarded to claim the qualification. In 1984, TEC and its sister organisation the Business Education Council (BEC), amalgamated to form BTEC. This new arrangement has resulted in the technician courses becoming more assignment based and with more emphasis on affective qualities as well as knowledge and skills. Technician courses tend to be more knowledge based with less emphasis on practical skills. Craftsmen qualified to advanced craft certificate level have the opportunity to undertake a 'bridge' course with BTEC units as an entry into the BTEC Higher Certificate course. Through this route it was possible to progress from craft to technician level education.

Professional Education and Training

In recent years there has been a growing recognition of the importance of continuing professional education, even to the point where it has become recognised as a new basic function of the higher education system. There was a close link between higher education and the professions. Many degree courses are overtly professional in that they go some way to meet the requirements for professional membership. The professional institutions have rules of conduct and competence which all members are required to observe and Continuing Professional Development was designed to meet these requirements. As the

need for Continual Professional Development grows there are calls for greater flexibility by institutions to provide better access for adults.

At Higher Education level one can draw a loose distinction between professional and academic courses. Professional courses can lead to a recognised professional qualification and a licence to practice. Professional degree courses can be sub-divided into three types: the sandwich degree in which the element of practice occurs during the degree study, and the 'end-on' degree, where the practice comes after graduation. Thirdly, the post-experience course, when formal training follows a period of professional practice. The two key issues associated with professional education are the balance between practice and theory and the criteria embodied in entry requirements. There was a constant tension in professional education between making it available to more people and keeping entry tightly controlled. This tension was seen in arguments about numbers of entries into the profession and access requirements, along with curriculum control which usually lies in the hands of the professional institutions. In professional courses, theory and practice may be integrated through taught courses and job placement respectively. However, integration of theory and practice raises questions of proper supervision of professional practice and the balance between the two in terms of time spent in placement.

The professions within the Building Industry are fragmented

with a clear distinction between the design and production process. It was argued that as Building was such a highly interactive process with a range of professions working together as a team at both the design stage and during the production process, there would be some benefit in these professions sharing a common core of study. However, in practice the six major professions are trained separately often in different institutions. The six major professions associated with the building process are:

- Royal Institute of British Architects.
- Royal Institution of Chartered Surveyors.
- Chartered Institute of Building.
- Institute of Structural Engineers.
- Chartered Institute of Building Services Engineers.
- Royal Town Planning Institute.

With many of these Institutions, progression into professional courses from technician level was made difficult by the restrictions placed on entry requirements and the fact that many courses are offered only on a full-time basis. One of the main exceptions was the Chartered Institute of Building; in this profession, technicians can study supplementary BTEC units which are post Higher Technician level, as an entry into professional studies. Within the six main professions programmes of Continuing Professional Development are increasingly encouraged among their members in order to keep

pace with technological change and to maintain and raise professional standards.

The concept of level varies between an occupational and an educational context. Within the work setting the concept of level was more fluid and less clearly defined. For example, within some industries the occupational levels have no distinct demarcation and one set of tasks can be given a varied number of job titles and employment status. The changes brought about by technological advancement and industrial restructuring has resulted in workers taking on new roles and many of the traditional work skills have become obsolete. Therefore, the clear distinction between unskilled, semi-skilled and skilled worker was no longer always apparent. Even the traditional distinction between manual and clerical workers has undergone some revision, with the advent of new technology, jobs that were previously classified as machine operators, now operate from computer control and therefore, the task takes on a new status, and the job a new role. Level within an occupational context can also relate to practical experience particularly within the company. Often people in senior positions within a company have proved their 'worth' as a result of many years service to that company and usually at different occupational levels. In an occupational setting, level often related to a combination of job knowledge and skills combined with responsibility. Responsibility was usually related to proven ability and experience and was often the criteria for

occupational advancement. Therefore, within a company the level or position of an employee, generally represents his or her level of responsibility within the company.

Within an educational context the concept of level was more formal and easier to define. Within the three broad ability categories of cognitive or intellectual ability, psychomotor or manual skills and affective qualities, we have further classification of ability or level of competence. Research in the field of educational objectives undertaken by Bloom (1956)[86]; Gagne and Briggs (1974); Fitts and Posner (1967); Krathwohl, et. al. (1964); Cratty (1967); and Simpson (1966); suggests that there are three major domains of educational objectives.

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86 BLOOM, B.S. (ed) (1956) nw imp (1979) Taxonomy of Educational Objectives: The classification of educational goals London: Longman Group Limited.

GAGNE, R.M. & BRIGGS, L.J. (1974) Principles of Instructional Design New York: Holt Rinehart & Winston.

FITTS, P.M. & POSNER, M.I. (1967) Human Performance Califonia: Brooks & Cole.

KRATHWOHL, D.R., BLOOM, B.S., & MASIA, B. (1964) Taxonomy of Educational Objectives: The classification of educational goals. Handbook II: Affective Domain London: Longman.

CRATTY, B.J. 2nd edition (1967) Movement Behaviour and Motor Learning Philadelphia: Lea & Febiger.

SIMPSON, E. (1966) The Classification of Educational Objectives: Psychomotor Domain Illinois: University of Illinois Press.

The cognitive domain places emphasis on remembering, reasoning, concept formation and creative thinking. The affective domain involves attitudes, interests, values and emotional biases. The psychomotor domain covers motor and manipulative skills including speech, physical movement, handwriting and a wide range of practical skills associated with manual occupations Within the cognitive taxonomy produced by Bloom et al, (87) we can distinguish six classifications of cognitive ability around which the level of a course can be formulated. Therefore, a course of study at a basic level would involve say cognitive level I and II, with emphasis on knowledge (as defined by Bloom) and comprehension. Whereas an higher level course would involve higher levels of cognitive ability such as, analysis or synthesis of knowledge. Therefore, within an educational setting the level of a course relates to the level of ability that the course tests. The same was true of the other two types of ability for which similar Taxonomies have been produced. This clear distinction between educational and occupational level was something that was being addressed by the National Council for Vocational Qualifications. Under the NCVQ framework vocational education must be 'employment-led' this implied that there must be greater integration between education and work. This was being acheived by combining the

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87 BLOOM, B.S. et.al. (1979) Op.cit.

concept of occupational and educational levels, for example, one of the criteria for NVQ Level III, was that the occupation must include an element of supervisory competence. If level of competence was to be based on the dual aspects of educational and occupational levels then assessment of competence needed to be undertaken in the college and the workplace and the criteria for the level of a course was determined by employers. This system of structuring vocational studies resulted in qualifications that were directly related to occupational competence and each level of competence reflected the occupational levels within the industry. Thus the aim was to replace the present dichotomy between educational levels and industrial levels by replacing them with an employment led definition of levels for vocational education and training.

3.4 PATTERNS OF VOCATIONAL EDUCATION AND TRAINING.

At the post-compulsory phase of education the patterns of education and training vary considerable. The diversity of approach was particularly apparent at an international level where countries had emphasised one approach or model in preference to another. There are historical reasons for this variation. For example, the Germans placed particular emphasis on craft or trade training and the pattern of apprenticeship training in Germany was still based fundamentally on the pattern first adopted during the Middle Ages (88). This progression consisted of the three stages of apprenticeship, journeyman and master craftsman.

A recent OECD report, 'Education and Training after Basic Schooling'(89), examined various patterns in the structure of provision for vocational education and training within OCED member countries and suggested three distinct models of provision. The first, the Schooling model aimed to integrate most if not all forms of provision after compulsory education within the formal system of schools and colleges, favouring full-time study for the majority of the age group. Countries

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88 TAYLOR, M.E. (1981) Education and Work in the Federal Republic of Germany. London: Anglo-German Foundation. p.8.

89 ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (1985) Education and Training after Basic Schooling. Paris: OECD.

that favoured this system were Japan, USA, Sweden, Belgium, and Finland. The second approach, the 'dual model' was the one dominant in Germany, Switzerland and Austria. This model was based on a long tradition of the apprenticeship system dating back to the Middle Ages. Under the dual system there was a strong partnership between industry which administers the process and the education sector which provided formal training, usually on a part-time basis. (90) The third approach the 'mixed' model was best exemplified by the United Kingdom, France and the Netherlands. The main feature of this model was the greater importance assigned to training outside the formal education system and outside the scope and control of the education authority.

In most countries covered by the OECD report previously quoted, there existed a mix of these three types of provision and the boundaries between them were less clear than they were twenty years ago. The three different settings offering vocational education and training for the 16-19 year old's, still remained

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90 TAYLOR, M. E. (1981) op.cit.

FLOWER, F. & RUSSELL, R. (ed) (1982) The Industrial Tutor in the Federal Republic of Germany. Bristol: F.E. Staff College. pp.39-43.

RUSSELL, R. (1983) Vocational Education and Training in the Federal Republic of Germany Bristol: F.E. Staff College. pp.8-12

separate in their pattern of control and organisational arrangements. For example the Schooling model was controlled and organised by the various government departments responsible for this provision, therefore the main agent of control was the public body responsible. The dual model was controlled and organised mainly by the employers, organised in Chamber of Commerce with legislative support from government. The mixed model in Britain was controlled by a partnership between both private enterprises and government agencies such as the Training Agency, with local authority colleges offering off-the-job services. (91)

In the UK, the "Schooling" approach which included further education, fitted easily between compulsory schooling and higher education, and offered a wide range of courses of a general technical and vocational nature. These courses and programmes were administered and controlled by local education authorities and the full-time students tended to receive a grant rather than a training allowance or wage as with the other two patterns of training.

The predominance of the "dual" model tended to reflect the status and employment value of apprenticeship training and qualifications. Whereas in Germany and Austria the apprenticeship system was strong and highly developed within the social structure of the society, in Britain we have seen in

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91 CANTOR, L. (1989) Vocational Education and Training in the Developed World: A Comparative Study London: Routledge. p.151.

recent years the decline of apprenticeship training with much of it being replaced by a more broad based non-specific initial training pattern.

In the United Kingdom the "mixed" approach seemed to have been considered the most appropriate. British Industry has not had the level of involvement and commitment that has been shown by the West German employers and therefore the apprenticeship system has declined. The traditional system of post-school education has been provided by the formal sector of sixth form schools and colleges of further education but these have failed to attract a large proportion of school leavers. The Training Agency under the Department of Employment was given the responsibility and resources to provide training facilities for the 40 per cent of the age group not catered for by the schools and colleges. (92) Training Schemes have been seen as an alternative to the existing network of formal provision and in some respects represent a competitive sector which was organised outside the power of the local education authority. Schools and Colleges did participate in these Schemes but in most cases as partners providing a service on a contractual basis.

The main claim for the mixed approach was that it fostered greater diversity and flexibility of provision and that it introduced a moderate dgree of competition. The main

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92 ORGANISATION FOR ECONOMIC CO-OPERATION & DEVELOPMENT. op.cit. p.47.

disadvantage of these schemes was that they carried lower status than the traditional forms of training and usually only attracted the less able students. Secondly, the declining numbers of school leavers lead to competition for these youngsters between private providers, sixth form schools and further education colleges, resulting in the wastage of educational resources, as more institutions and organisations spent larger sums of money on advertising and marketing their services.

In the OECD countries generally, there were signs that the gap between the "Schooling" and "Dual" forms of provisions were narrowing. The schools and colleges were trying to strengthen their links with training and work. Many courses had a work experience element to balance the more academic nature of the curriculum. The main problem experienced by the schools and colleges in this development, was to find sufficient employers able and willing to offer meaningful work experience to the young people. The dual system seemed to be moving towards the schooling model by postponing entry into apprenticeships by providing a first year of broad based vocational preparation or an additional year of general education. Many of the non-formal schemes also provided this broad based vocational preparation which served as a transitional period between school and work and in some cases also carried out a remedial function by making the less able youngsters more employable by

improving basic core skills and interpersonal skills.(93)

The structure of study also varied within these programmes. The traditional structure of study was the specialised unbroken line of study. Typical of this approach was the apprenticeship system of training in which a particular craft was studied continuously without interruption until the end of training, usually after three to four years. Under this method of study knowledge was accumulated over a long period but there was no provision to change course part-way through the study. Even if the student had changed crafts, he then needed to start from the beginning. This type of study demanded a long-term commitment by the student. The 'broken line' study method still retained the specialised emphasis but broke down the sequence of study and provided a recognised qualification at the end of each stage. This system allowed for a step by step approach but when long periods were left between each stage of study the student's motivation and commitment could have suffered, and the study may have become fragmented.

A system of study that was common was the progressive specialisation method when study started quite broadly to give maximum choice and progresses towards more specialisation. This method had been used to delay choice and to make training

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93 FURTHER EDUCATION UNIT. (1982) A Basis for Choice London: FEU.

FURTHER EDUCATION UNIT. (1983) Supporting YTS London: FEU.

more relevant during periods of high unemployment. This pattern of study has been promoted by the Training Agency through its emphasis on initial broad based training with a view to forming a foundation of 'skills' on which to build further studies. Critics of the broad based approach argued that if the base was too broad then training can become superficial and the students' motivation will suffer. An alternative approach was to offer a carousel approach within a group of occupations in which the student sampled a series of specific courses. It was also argued that the common core element within foundation training should be dealt with at the compulsory phase of education and not at the post-compulsory stage. There were certainly moves to place more emphasis on core studies within the secondary school sector so that the majority of school leavers will have these basic 'skills' before leaving compulsory education.

The modular structure of studies was the one playing a major role in the new National Vocational Qualification framework. Studies were divided into units or modules of equal size with each unit being a self contained 'package' of study, which was separately assessed, usually on completion. The modular system was being used because it gave greater choice for students, providing a more flexible approach to study and frees students

from restrictions placed on traditional courses such as access and exit times, modes of study, and even delivery methods.(94) It also provided for credit accumulation so that study could be spread over an undetermined period of time and credit transfer so that study could take place in different geographical areas and institutions. Progression was provided by a series of levels within a unit programme. Students were then able to advance in their studies by undertaking higher level units.

Critics of the modular approach argued that this method of study fragments knowledge and destroys sequential and horizontal relationship within subjects. This problem can be overcome by basing study on a series of core or common modules, with study becoming more specialised and therefore offering greater choice. In this way a semi-structured system of units seemed to be preferable to a free choice system. A unit method could also destroy the group dynamics of a course because there were ever-changing student groups, and peer group learning could be lost. The unit structure might also lead to greater emphasis on assessment because each unit contained its own package of assessment, often a combination of continuous assessment and end-on unit testing. Therefore a student who was studying a number of units may find that there was a build-

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94 THEODOSSIN, E. (1988) The Modular Market Bristol: F.E Staff College.

up of both series tests and end tests at the end of the study period. The unit structure also leads to a greater need for record keeping and the administrative workload and assessment setting and marking was increased by this method of study. With the increasing use of modular studies the use of continuous assessment had become more common place. It was thought that a process of assessment at various stages through the study using a combination of methods such as assignments, projects and phase tests, provided a better sample of the students ability than the traditional end-on examination. A variety of assessment methods can test both subject recall and application of knowledge giving a more 'practical' assessment of ability. Many people find the terminal examination as much a test of nerves as of knowledge and as a consequence they achieve lower examination results.

The traditional method of assessing a group according to group achievement or norms also fails to provide a true indication of ability because the level of ability varies according to the group. The criticism of norm-referenced assessment has led to the introduction of criterion referenced assessment.(95) With criterion referenced assessment a set standard criterion was provided against which each student was objectively assessed. Using this method of assessment, national standards could be introduced by specifying standard criteria of achievement or

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95 NUTTALL, D.L. et.al. (1987) Action on Assessment in BTEC Bristol: F.E. Staff College.

competence. If we relate these patterns of study to craft and technician education and training in the Construction Industry, we can recognise the special balance of stability and change which was common throughout the period of development under study. Craft training traditionally held the apprenticeship model of part-time study sponsored by an employer with emphasis being placed on the unbroken line of study and 'on-the-job' training. However, with the formation of the now Training Agency, most craft training was funded largely by this agency, and therefore a pattern of initial foundation training evolved. This foundation training contained some of the elements of the vocational preparation structure such as core skills and broad associated skills, but otherwise it still remained occupationally specific and in many ways still retained elements of the former apprenticeship training. Craft training was structured on the New Training Initiative and was competence based to standard criteria.(96) It therefore went some way towards the NVQ model and was awarded provisional approval by the National Council for Vocational Qualifications.

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96 HERMANN, G.D. & KENYON, R.J. (1987) Competence-Based Vocational Education London: FEU.

MANPOWER SERVICES COMMISION (1988) The Definition of Competences and Performance Criteria Sheffield: MSC.

MANPOWER SERVICES COMMISSION (1988) The Characteristics of Units of Competence Sheffield: MSC.

The main awarding body for Construction craft training was the City and Guilds of London Institute. A continuous assessment process was used for both craft and advanced craft levels. As part of the NVQ framework craft training became modular and assessment became unit based.

Technician training has adopted the 'Schooling' model with the main emphasis on full-time study which was controlled by the local education authority. The main awarding body was the Business and Technician Education Council and the study pattern was unit structured and assessed using a range of continuous assessment methods. The units can be studied in groups or individually and are set at various cognitive levels. There was a desire on the part of BTEC to involve more practical work experience with their progreammes and the new emphasis on application of knowledge has gone some way towards counter-acting the "academic" nature of the courses. The perceived difficulty in providing work experience for all BTEC students stems from the availability of suitable placements to meet this need. One suggestion to overcome this problem of placement shortages was to set up a simulated working environment within colleges. At present BTEC courses are not competence based and the direct link between unit content and occupational competence was not as strong as it was at the craft level. The

BTEC programmes needed a major change to fulfill the NVQ criteria for employment-led training and education. There was an element of part-time study sponsored by employers but the major form of technician education was through full-time study which often lead directly to higher education for professional qualifications.

3.5 THE STRUCTURE OF COURSES AND QUALIFICATIONS.

The sphere of work within the Further Education Sector which caters for the 16-19 age group has been in a state of almost continual change over the last ten years. During this time there has been an emphasis on what has been described as the "New F.E." that was the provision of vocational preparation courses which were non-specific. There have been developments such as, the Youth Opportunity Programme, the Youth Training Scheme, the Certificate of Pre-Vocational Education and the Technical and Vocational Education Initiative. At craft level we have seen the introduction of the New Training Initiative, and at technician level the changes resulting from the new structured BTEC programmes, with greater emphasis on assignment work and personal effectiveness.

All these changes to the FE curriculum have taken place at a time when the funding of courses has altered in response to the Education Reform Act 1988., and the demographic decline of the 16-19 year old age group has taken place. However, of all these changes that have affected the FE Sector in recent years, probably the major innovative change has resulted from the introduction of the National Council for Vocational Qualifications (NCVQ).

The main curriculum changes introduced by the National Vocational Qualifications were the requirement for a competence based modular delivery structure to provide greater flexibility in the provision of education and training. The new programmes were employment-led and were assessed to standard criteria,

with emphasis on competence performance rather than mode and duration of attendance. The unit structure of the studies provided for credit transfer and credit accumulation and further provision was made for the accreditation of prior learning achievement. This prior learning was of either a formal or informal nature and the onus was placed on the candidate to provide evidence of appropriate competence from previous learning experience.

In this section of Chapter Three, we will discuss briefly three major changes in the structure of courses and qualifications in further education and training: (1) competence-based learning, (2) modular or unit courses, and (3) the accreditation of prior learning, with specific reference to the influence of the NCVQ.

Competence Based Learning

The development of standards was identified as an important objective for vocational education and training. These standards embody the skills and knowledge required to a level of performance relevant to the work activity.(97) Vocational standards are based on the needs of employment which are determined by skills analysis. Since the implementation of the New Training Initiative in 1981., standards have formed the prime focus of training and the basis of vocational qualifications.

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97 BURKE, J.W. (ed) (1990) Competence Based Education and Training Lewes: Falmer Press.

The vocational standards development has been based largely on the concept of competence. The definition of competence as provided by the Manpower Service Commission was as follows; "A competence is a description of something which a person who works in a given occupational area should be able to do. It is a description of an action, behaviour or outcome which the person should be able to demonstrate".(98)
Competence being a wide concept which included the ability to plan and organize work, transfer skills and have problem-solving capabilities. It also encompassed personal qualities which were required to work effectively with other people including customers, managers and colleagues. Therefore, the operational definition of competence was equivalent to the development of an occupational standard within a work activity. This was achieved by deriving a set of individual elements of competence and performance criteria.

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98 MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: The Definition of Competence and Performance Criteria Sheffield: MSC p. 5.

An element of competence described what could be done; this included the skills, knowledge and understanding which were essential to the performance of the competence. Each element of competence had associated performance criteria which defined the expected level of performance. In some competences this performance criterion also entailed a time factor as part of the required standards. An example of the structure of a competence for a bricklayer would include:

Skill Performance:

On completion of training the trainee will be able to:

Lay bricks to a line.

Job Knowledge:

On completion of training the trainee will be able to:

Indicate the methods of securing bricklayer's lines to erected corners using pins and corner blocks.

Performance Criterion:

No face plane deviation more than 5mm in 3m length.

Time:

Not less than 30 bricks/hour in facing brickwork jointed/pointed both sides. (99)

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99 CONSTRUCTION INDUSTRY TRAINING BOARD (1985) Training Specification: Bricklayer NTI 032A Bircham Newton: CITB section 1.2.

The unit of competence was made up of a number of elements of competence with the associated performance crieria, which when combined together were recognised by employers as a valid skill that warranted separate accreditation. The vocational qualifications were made up of a number of related units which together comprised a statement of competence relevant to an occupation, such as bricklayer.

The performance criteria were statements which were used by an assessor to judge the evidence that an individual could perform the activity specified in a competence, and to a level acceptable in employment. The emphasis was placed on evidence of performance; the method of obtaining the competence was of no consequence to the assessment. The six key features of performance criteria were that they should be described as clear as possible, that what they described must be observable, that they described the essential aspects of the performance, and that they refered to the product where practicable. The performance criteria should also have included a description of the work organisation and work role, without specifying procedures or methods. (100)

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100 MANPOWER SERVICES COMMISSION (1988) Op.cit. pp.8-9.

The units, elements and performance criteria were produced by the Lead Industry Body, based on consultation with the industry and formulated from a process of skills analysis. The systematic analysis of skills was essential if new standards were going to reflect accurately the key current or emerging elements of competence. (101) It followed from this statement that the skills analysis was not a one off exercise but rather that it was undertaken at regular intervals to respond to changing work patterns.

The emphasis in competence based learning was on the ability to 'do' rather than to 'know'. The development of a unit based system which was produced to national standards provided greater opportunity for access to training and credit accumulation which benefited the adult working population who wished to up-date their vocational skills or retrain for career development or advancement. Competence based vocational education was based on occupational analysis, thus ensuring that training needs were relevant to employers' needs and that

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101 MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: A Code of Practice and a Development Model Sheffield: MSC. p.5.

new skills could be quickly inserted into a training programme. With a change of emphasis from 'knowing' to 'doing', the integration of theory and practice took on a new dimension. Theory was the framework of principles and experiences which underpinned the competence. Therefore; the format of each element could consist of practical skill elements and associated job knowledge and understanding. With this close relationship between theory and practice, much of the associated knowledge and understanding was assessed through the practical assessment rather than being assessed separately. The transfer of learning was seen as a process involving first the original learning which may take place within a college workshop, then relating the learning to a new situation, for example transfer to site. It was also important that the new skills and knowledge were remembered, therefore it was unsatisfactory to assess competence on the basis of one attempt at the task; the skill had to be practiced and retained by the trainee. Finally, the trainee had to have sufficient mastery of the skills to be able to solve problems associated with the operation. The mode of attendence and the time taken to complete a unit was of less importance than the mastery of the competencies associated with the particular unit. The time taken to obtain a unit could be affected by many things including the prior learning, the current opportunites to

learn, the individuals aptitute and motivation and the persons learning style. (102)

Therefore, the focus was placed on the ability to achieve a predetermined criterion referenced standard. Prior to the study of a unit of competence the student was given a list of competencies which had to be achieved along with the criteria for mastery. The programme of learning was based on a mastery learning method. The students would continue to learn the skills and knowledge at their own pace and using various modes of attendance and methods of learning until they reached the set standard required. They would then undertake a test to determine their level of performance. Once the student had achieved the required standard he would be credited with the unit and could if he wished continue to the next unit. If the test was not passed, further learning of the same skills and knowledge were undertaken until mastery was attained.

This system of self-paced learning allowed students to move through a course at different rates, allowing more flexible

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102 MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: The Characteristics of Units of Competence Sheffield: MSC.

access to courses enabling more capable students to quickly attain recognition of their competence. It did however, place greater demands on college facilities and staff to manage a group of learners all undertaking different tasks at any one time. Some system of individualised learning, possibly by using learning packages needed to be adopted.

The concept of mastery learning was outlined by Block et. al. (103) This method of individualised learning recognised that each person brings to the learning situation certain pre-requisite skills and knowledge which had been affirmed from previous study or experience and that each individual has his own pace and style of learning.

If students were undertaking individualised mastery learning they needed to recieve frequent feedback to enable them to adjust their response to meet the required standards. The structure of competence based learning allowed for the successful introduction of Mastery Learning. The unit structure enabled the student to achieve short-term goals. The use of criterion referenced assessment based on predetermined standards allowed the student to assess pre-requisite skills and to work towards mastery with clear guides for performance

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103 BLOCK, J.H. (ed) (1974) Schools Society and Mastery Learning New York: Holt Rinehart and Winston.

BLOCK, J.H. (ed) (1971) Mastery Learning: Theory and Practice New York: Holt Rinehart and Winston.

standards.

The individualised system of learning not only changed the nature of teaching from a more traditional didactic approach to a more informal relationship between student and teacher, but also placed greater responsibility on the student. The student had greater control over the pace of learning and the learning methods. Therefore, in order to ensure successful progress the student was given assistance in learning how to learn. (104) This assistance was not just in study skills, which were important, but also in other skills which were needed in a self-paced course such as self direction, the ability to plan and control one's learning and self evaluation skills to enable the student to assess his own progress and to recognise areas where more practice was needed or possibly additional help from the lecturer. At the end of each unit there was a post test based on criterion referenced assessment. The post test needed to assess all the elements listed for the unit of competence and each element had to be attained to the level indicated in the pre-specified criteria. The student undertook the post test when he felt ready to meet the required standards. Ideally, the post test was undertaken in the normal work situation where the skills were to be used. This raised the issue of site or workplace assessment and the problems of maintaining valid assessment in the workplace that meets

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104 SQUIRES, G. (1982) Learning to Learn Hull: University of Hull Department of Adult Education.

national standards. However, if site assessment was impracticable then the tests were undertaken in colleges or skill centres that had the facilities and trained assessors. The results of the post test were shown as competences attained without the use of grades, and the marking of the test was based on either pass or fail.

The Modular Structure.

It was argued that a modular approach to training fitted the future needs of British Industry, with greater reliance on training adults and the need to up-date skills to keep pace with technological change. The modular approach allowed for the accumulation of credit, thereby allowing the flexibility in study required by adults who have other pressures, such as family, financial and career commitments. A trained manager may decide to up-date his skills by long-term accumulation of credit so that his study did not overburden his already busy life style. Alternatively, the short-term unemployed could have used the opportunity to undertake full-time study to gain a qualification which would enhance their chances of a more rewarding job.

The modular approach also provided a more economic provision of programmes to meet individual needs. For example, a company may not have wished to release a key worker for one day each week for two to three years in order to retrain for a better career. Under the modular system the training needs of both the employer and employee were met more economically. The

employer could train his 'key' worker in-house and provide open learning support, followed by college or workplace assessment of competence. Alternatively, the trainee could undertake a formal course and also obtain part exemption for prior learning. The modular approach allowed the adult employee to attend college in his spare time to gradually gain credit towards a vocational qualification.

Choice within programmes allowed employers and employees to select units or modules that were particularly relevant to their needs, and this could be appropriate at advanced craft level of training, when specialism becomes more common. For the already qualified, Units could be offered which up-date the employee's skills and knowledge. The flexibility offered by a modular structure also enabled new materials and methods to be rapidly included in the training programmes by adding or up-dating a module. This adaptability ensured the continual relevance of vocational training to industrial practice.

The major weakness of the modular system was the fragmentation of skills and knowledge which can result if safeguards are not included in the system. There was a danger that if employers were given too free an option, particularly at basic craft level the result could be too narrow a training programme. The general principle of training for the industry's needs rather than local needs had to be maintained. This was the job of the Lead Body to ensure that the industry got what was required in terms of the correct depth and breadth of training and not just

enough to supply local needs. For these safeguards to take effect basic training had to be broad and based on sequential units which provided the competence across a range of vocational skills. Beyond basic level, greater specialisation could be introduced but still a balance at this level was important. However, in the area of skill up-dating when dealing with fully qualified workers who required new or additional skills, the selection of units could be geared to individual employer/employee needs.

Accreditation of Prior Learning

The emphasis in a competence-based vocational education programme was on performance capability, rather than on subjecting all students to an identical teaching programme. Students who had already attained competencies from previous experience could be pre-tested for a competency and should it have been demonstrated that competence had been attained, it was credited to the students record of achievement. It also meant that they could proceed to competencies not yet attained. In order to facilitate the assessing of prior learning and the subsequent creditation, a system was put into place to provide Centres for the approval of prior learning.(105) These Centres

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105 NATIONAL COUNCIL VOCATIONAL QUALIFICATIONS (1989) NVQ Information Notes 5: Assessment in NVQ's: Use of Evidence from Prior Achievement London: NCVQ.

assessed from interview and written evidence the prior learning of an individual.

The concept of prior learning was given a much broader meaning than that associated with formal learning, although of course this type of learning was taken into account. Formal learning could be credited together with informal learning which could have been undertaken at home or as part of a hobby or voluntary activity. From the initial assessment individuals could have been accredited with certain units of competence before starting their programme, alternatively a pre-test could have determined the entry level of competence. The APL system gave formal recognition to peoples' learning achievements and was used to begin the process of learning new "skills" and obtaining a qualification. It had the benefits of raising the motivation of a learner by recognising their current achieved competences and it avoided the duplication of learning which was wasteful in time and resources. The APL process was also used to determine an action plan towards a qualification by matching together the learners present competences with further training to reach the learning goal. The NVQ's facilitated Accreditation of Prior Learning because the qualification was based on a statement of competence by which candidates matched their achievements by current assessment or past experience. This past experience had to be "relevant" to the skills associated with the qualification.

The APL system involved a four-stage process: reflection, identification, gathering information and assessment. The first stage involved a systematic reflection on experience which was significant to the NVQ path. The reflection process could be undertaken in consultation with a guidance counsellor and/or as part of a self-help group of candidates. Stage two involved the identification of significant learning, which had been expressed in terms of competence statements which constituted claims to the possession of knowledge and skills. This process involved matching together NVQ competences to the candidates' prior learning experience. When the identification process had taken place, the next stage was the gathering of evidence to support the claims made to the knowledge and skills. Evidence was broadly split into two: direct evidence which was the candidate's own work, for example a product such as a piece of furniture; and in-direct evidence that was based on what someone else had said about the candidate, for example a letter of recommendation that verifies learning. The final stage in the APL process was assessment. Assessment could take two forms, performance and supplementary evidence. Performance evidence could be from observation in the workplace or by direct testing through practical skill tests or written tests and assignments. Supplementary evidence included interviews, reports, certificates from previous study and letters of recommendation. Although it was recognised that both forms of evidence were necessary, indirect and supplementary evidence alone was not sufficient to ensure authenticity and therefore,

direct evidence carried greater weight in terms of proving competence. Assessment was undertaken by trained vocational assessors and assessment was based on evidence produced by the candidate in a portfolio of source material. The process allowed for each portfolio of evidence and test outcomes to be verified by a moderator from the examining body.

The APL process had a number of potentially direct advantages for the Construction Industry. It provided the vast numbers of unqualified craftsmen operating in the industry with a way to have their competence formally recognised. It motivated adults to enter formal training which could have lead to career progression and regular skill up-dating. The system rationalised training because adults were not expected to undertake training in skills they already own. This rationalisation saved time and resources, and prevented unnecessary training. Furthermore, the NVQ statements of competence gave the employers clear evidence of their staffs' abilities. The NVQs' offered a better source of performance indicator than the traditional qualification and as a result the new type of qualification carried greater currency. The end result could be a better trained and more flexible workforce.

Certain competencies needed to be assessed within colleges or training centres, if the testing was not possible in the workplace for either safety or practical reasons. The introduction of a competence-based system of vocational

education has had a profound effect on the colleges, with the traditional role of lecturers being replaced by a less formal role which required greater management skills in the planning, preparation, and implementation of systems of learning. The college lecturer acted as a facilitator of learning, ensuring that pre-testing, resource management and post-testing were properly undertaken. The continual assessment and recording of competencies placed greater administrative responsibility on the lecturer. Some training could be undertaken in-house with an open-learning back-up for students unable to obtain release from work to attend college. Access patterns to vocational education and training could be made easier not only by the introduction of Unit programmes with open-entry and open-exit but also by the growing trend towards part-time employment which could in the future replace full-time employment as the dominant form of employment contract. Adults who were employed on part-time or temporary contracts or even self-employed, would be available for training programmes at various periods when their work commitment allowed; for example, the part-timer could train on their day or days off. The person on a temporary contract could undertake training at the end of an employment period before starting a new contract of employment. The self-employed person could structure his working week around periods of study or training. The incentive to invest in training could be promoted by more direct competition with our European partners in 1992, when the trading restrictions

are lifted and European norms may influence British attitudes to training.

National Council Vocational Qualifications

The National Council for Vocational Qualifications was set up by the Government in 1986. The role of the National Council was set out in a White Paper entitled, "Working Together - Education and Training". (106) There are nine tasks that the Council was expected to implement. They are the following:

1. Identify and implement the changes necessary to achieve the specification and implementation of occupational competence to meet the full range of employment and self-employment.

2. To design a new National Vocational Qualification framework and monitor its adoption.

3. To assist the implementation of the framework NCVQ has to accredit the provision of approved certifying bodies.

4. Secure comprehensive provision of vocational qualifications by the certifying bodies.

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106 DEPARTMENT OF EMPLOYMENT (1986) Working Together - Education and Training London: HMSO.

5. Secure arrangements for quality assurance.

6. Maintain effective liason with those bodies having responsibilities for qualification which give entry to and progression within and from the system of vocational qualifications into higher education and the higher levels of professional qualifications.

7. Collect, analyse and make available information on vocational qualifications and secure the operation of an effective, comprehensive and dependable database.

8. Undertake or arrange to be undertaken research and development where necessary to discharge these functions.

9. Promote the interests of vocational education and training and in particular of vocational qualifications, and to disseminate good practice.(107)

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107 NATIONAL COUNCIL VOCATIONAL QUALIFICATIONS (1989) National Vocational Qualifications: Criteria and Procedures London: NCVQ. frontice piece.

From this comprehensive list of tasks we can clearly see that the full implementation of an NVQ framework represented probably the most major change to vocational education and training ever seen. A view expressed in a recent FEU Report "Implications of Competence Based Curricular", the report argued that:

> "it would be futile to attempt to meet this challenge with marginal change to existing curricular, along with a small dose of staff development. If colleges wish to remain major providers of vocational education and training, they will have to reassess their organisational aims, structures, processes and resources to see if these align with what is required for an effective implementation of Competence Based Curricular" (108)

It was argued that a major change was needed in the Further Education sector to meet the changing needs of society. One major concern was the need to sustain economic growth against growing trading international competition. If the British economy was to survive such international competition then two economic attributes were essential, these were the production of a quality product or service and efficient production

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108 FURTHER EDUCATION UNIT REPORT (1989) Implications of Competence Based Curricular London: FEU. p. 23.

methods. For Britain to hold its position in the world we needed to provide top quality goods and services both effectively and at a resonable price. A key factor in achieving these aims was to have a highly trained and flexible workforce that could keep pace with changing economic, technological and markets demands. Through the provision of NVQ's the National Council aimed to make vocational qualifications relevant to both employers and individuals.

To achieve this aim qualification approved by the National Council were more closely linked to industrial needs and were based on national standards of competence and assessment criteria laid down by the Industry Lead Body. It was also envisaged that through the NVQ framework more individuals could be encouraged to develop their vocational competence by improving the provision of access to vocational qualifications. This improvement in access was brought about by lifting present restrictions and allowing a full range of modes of attendance, and methods of delivery including Open Learning methods. The progression routes were more clearly defined and individuals were encouraged to implement a training action plan in order to 'map out' their training needs and goals. Learning was self-paced with time restriction lifted to enable individuals to work at their own pace. The switch to competence based learning was intended to set national standards which had been laid down by the Lead Industry Body, this being the organisation which co-ordinated and monitored industrial

standards.

The new system placed greater demands on keeping long-term records of acievement so that unit credits over a long period could be stored. It was envisaged that each student would be required to maintain a National Record of Vocational Acievement. This record contained an Action Plan, Assessment Record, Records of Acievement and certificates.

Conclusion.

The implications of these changes for further education and training were profound. A massive programme of staff development was required. New skills in facilitating learning, in writing competence objectives and self learning packages were essential. The financial implications for practical based subjects such as craft training were enormous. Workshops had to provide a wide range of facilities and materials for groups which consisted of people doing different tasks, at different levels and at different stages, all within the same working area. It seemed that some form of phasing of units was necessary if effective training was to be achieved, otherwise the free entry approach could make systematic training difficult to achieve. The phasing of resources which under the previous system fell into a regular pattern was currently less predictable and more difficult to plan. The provision could be for more trainees, attending for shorter periods and undertaking a selection of modes of attendance. We could see a return to more evening and part-time attendance and a decline

in the numbers of full-time as the numbers of school leavers declines. In some colleges in the south of England courses were offered on a twilight basis such as, 3-9pm or Saturday mornings in order to improve access to courses.

The competition for training could be made greater if more firms opt for in-company and distance learning methods particularly if assessment of competence and accreditation of prior learning could be managed from the workplace.

The role of the college lecturer could become orientated more towards guidance and counselling, assessment and consultation, and less towards formal teaching.

3.6 POLICY, PLANNING AND PROVISION.

It was stated in the introduction that this thesis had both a descriptive and an analytical aim. The descriptive aim was to provide a coherent account of changes in construction education and training during the period 1970-1990, an account which does not currently exist. The analytical aim was to examine the relationship between policy and provision during that period in terms of four basic questions.

(1) At what level was provision controlled, from the top down or from the bottom up ?

(2) Was the process of planning the curriculum systematic or incremental ?

(3) Was the process of planning the curriculum rational or political ?

(4) Was the process of planning the curriculun proactive or reactive ?

The purpose of chapter two and the preceding sections in this chapter have been to set both the description and the analysis in a clear historical and organisational context, since neither can take place in a vacuum. This section addresses in formal terms the issue of the relationship between education and training policy and currricular provision and in so doing attempts to establish a framework for the analysis of craft and technician education in the construction field in chapters four and five.

These four analytical questions point to two key aspects of curriculum planning, namely the control of the curriculum and

the type of planning process involved. The distribution of control of the curriculum involves decision-making and responsibility for the process. The educational service is provided through a large number of separate institutions and many decisions are taken within the individual institutions and by teachers and others within schools or colleges. However such day-to-day decisions are usually taken within a framework laid down elsewhere and related to resources of different kinds. The extent and distribution of these resources have been decided by others outside the institution. Power and responsibility within an educational system relate chiefly to the extent and nature of the resources provided, the curriculum and teaching methods, the character and purpose of the individual institutions and the internal organization of these institutions.

Top Down or Bottom Up ?

Becher and Kogan (1980), writing on higher education, suggest that the control of curriculum planning may be located at one of four levels in the educational system: (109) centre, institution, basic unit and individual. To this we may add a fifth level, that of the learner: the student or trainee. The central level includes the various national and local authorities which are between them charged with overall planning, resource allocation and the monitoring of standards.

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109 BECHER, T. & KOGAN, M. (1980) Process and Structure in Higher Education. London: Heinmann.

The second level includes all the various types of individual institutions. The basic unit level is a sub-division of the institution, which may be a department, school or course team. The main characteristics of such basic units are that they have direct educational responsibility for a particular group of courses or an individual course. They may also control an operating budget, recruitment of students and in some cases staffing. The fourth level is that of the individual teacher, responsible for implementing the curriculum. Finally, the learner, whose control over the curriculum may be direct, through a negotiated or student-centred curriculum, or indirect through the student's response to the curriculum. This indirect influence can be realised in terms of motivational response, or evaluation of attainment.

Two considerations need to be emphasized in the interpretation of this part of the model. The first is that the five elements are meant to represent functions rather than entities. For example, the same people may operate as individual teachers and at other times as representing basic units when they are involved in the curriculum as members of a department or course team. The second consideration is that the fivefold categorization deliberately simplified reality. The more complex components, and especially the central authority and the institution, function in a variety of different styles and embody a diverse collection of entities.

The central authority may relate in three ways to the other systems for which it is responsible.(110) The first is by adopting a managerial approach in which the central authority gives instructions, allocated resources to specific ends and rewards and punishes according to the degree of conformity to its instructions. The second approach relies on a measure of consensus on functions, objectives and processes so that prescription is unnecessary. The third strategy rests on an acceptance that there are divergencies of values and hence that there have to be negotiations between the various components of the system. Reliance on a negotiative pattern follows recognition of what is appropriate and possible.

The institution is the body that unites the basic units together. The institution operates in two modes, the normative and operational mode. In the normative mode, the institution relates its own assessments to the central authorities' appraisal of the needs and the quality of particular courses. The central appraisals are informed by national economic and social needs and by peer group judgement on what constitutes good academic standards.

In the operational mode the institution negotiates with and recieves allocations from the central authorities. It also develops the organizational forms, allocates budgets and programmes to the basic units and undertakes forward planning. The institution makes a case for resources and receives them

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110 Ibid., p. 54.

from the central authorities and negotiates contracts with other agencies. An institution promotes a view not only of its basic units but also of its total development, in a form which convinces the central authorities.

The basic unit serves as an immediate and direct source of educational identity for individual students and staff, and also as a vehicle for the preservation and development of specialist expertise. In this latter respect the basic unit occupies a powerful position within the organisation. In a situation of conflict the basic unit often closes ranks more effectively than the rest of the institution with its diverse interest groups. The curricular pattern influences the nature of basic units and the organizational structure of the institution. The curricular pattern can range from closed subject boundaries to modular and interdisciplinary courses. The various basic units that formed the institution (e.g. a college) competes for operational and developmental resources and this creates competition between the various institutional units.

The most distinctive and significant feature of the educational system in England and Wales in the period under study was the comparatively large degree of autonomy accorded to individual educational institutions and individual teachers. (111) The main arguments in favour of greater institutional automnomy

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111 GLATTER, R., et.al., (1979) E222 The Control of Education in Britain: Unit 1 Milton Keynes: Open University Press.

were concerned with meeting local needs. A curriculum that was responsive to local circumstances and needs was able to relate better to the clients and learners. It was also thought that teachers were likely to teach more effectively if they had a considerable degree of control over the content of their teaching. It was argued by Briault (112) that when responsibility for the teaching process was accepted and exercised by those engaged in teaching, then the teaching was likely to be responsive to the needs of the learner and that the teacher would exercise responsibility because of the control the teacher had over what he/she was doing. The power exercised by the individual teacher related to this 'professional' autonomy and the reputation gained by the individual in the view of their collegues and students. This influence of the teacher within the institution was also varied according to the perceived status of the subject he/she taught.

The fifth level of control was that of the learner or client. Within the category of client we can include here the learners sponsor or employer, who may be a particularly important influence in the construction field. The learners prime function within the control of the curriculum is that of

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112 BRIAULT, E.W.H. (1976) A distributed system of educational administration: an international viewpoint in GLATTER, R., et al. (1979) E222 The Control of Education in Britain: Unit 1 Milton Keynes: Open University Press. p. 32.

consumer and evaluator. The relevance and quality of the educational process is often monitored through the direct and indirect response of the learner/client. The output of the teaching methods and course content are often assessed by the achievements of the student group. The reputation of a institution, basic unit and individual teacher are often judged by the success or failure of the students under their care. Furthermore, the students' other currency lies in their numbers. The student population of each institution and basic unit affects both resource allocation and perceived status within the educational system. In analysing the curriculum in the construction field, we need to try to ascertain what degree of control over what lay at each of these five levels of the system and whether the process changed in terms of becoming more 'top down' or 'bottom up' during the period under study.

Systematic or Incremental ?

The second important aspect of curriculum planning was the extent to which the process could be described as systematic or incremental. The Systematic approach is associated with

writers such as Tyler, Bloom, Wheeler, and Davies. (113) It is distinguished by its emphasis on clear identification of learning aims and objectives. There is also an emphasis on means, implementation and evaluation of the curriculum. Curriculum planning in a systematic system is a process of sequential activities. First, the educational aims are identified: the values, goals and objectives related to the aims are then classified. Second, the most important strategies for achieving the desired goals and objectives are listed. Third, the major consequence of the educational process is compared with the desired goals and objectives. Lastly, a curriculum policy or strategy is selected which matches the goals and objectives. Such a rational plan is presented as a coherent fully worked-out strategy for identified aims.

The incremental planning process is associated with a piecemeal approach which takes a more gradualist or evolutionary emphasis. Unlike the rational process this method places less

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113 TYLER, R. (1949) Basic Principles of Curriculum and Instruction Chicago: University of Chicago Press.

BLOOM, B., et. al. (1956) Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain London: Longman.

WHEELER, D.K. (1983) thirteenth impression. Curriculum Processes London: Hodder Stoughton.

DAVIES, I.K. (1976) Objectives in Curriculum Design London: McGraw-Hill Book Company (UK) Limited.

emphasis on the planning of the 'whole' curriculum. The incremental process is associated with the writing of Lindblom. (114) Lindblom offers an alternative model of decision-making. He stresses a model of 'successive-limited' process. Instead of the 'ideal' rational model, decision-makers can concentrate on improving their understanding of and control over the constituents of the curriculum. Within this model the selection of values, goals and analysis of the action needed are not distinct but closely interwined, whereas within a rational mode the clarification of values or objectives are distinct from and usually prerequisite to analysis. Within the incremental approach means/ends analysis is often limited because means and ends were not distinct. The test of a 'good' plan or policy is typically that various analysts find themselves agreeing on it. To what extent then, could the planning of construction education during the last two decades be described as 'systematic' or 'incremental' ?

Rational or Political ?

The Rational approach to planning the curriculum assumes that the analysis of educational needs or aims is the determining factor. By contrast, the political process of planning puts a greater emphasis on curriculum ends, and these may be influenced by political actors involved with the curriculum

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114 LINDBLOM, C. (1959) The Science of Muddling Through Public Administration Review, 19, pp. 79-88.

either directly or indirectly. With this latter approach, the curriculum is shaped by economic and political factors rather than educational theories. Indeed this approach is often associated with training because of its links with the economy.Vocational education must meet the needs of the various interest groups associated with the curriculum. The requirements of the examination/validation bodies, employers and student groups must be recognised. Often there can be the conflict between pure instrumental and broader educational aims. Course funding is usually a key political influence, in that the group or organisation that funds the curriculum often has most control. However, the teacher and learner still has the power to influence the curriculum during the implementation stage and often the formal curriculum is adapted to meet the students needs and teachers requirements. The political analysis of curriculum planning has been carried out by Becher and Maclure, Easton and Kogan, and Howell and Brown in different context.(115) Here the key question is : was

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115 BECHER, T. & MACLURE, S. (1978) The Politics of Curriculum Change London: Hutchinson.

EASTON, D.A. (1965) A Framework for Political Analysis Chicago: University of Chicago Press.

KOGAN, M. (1978) The Politics of Educational Change Manchester: Manchester University Press.

HOWELL, D.A. & BROWN, R. (1983) Educational Policy Making: An Analysis London: Heinemann.

construction education primarily the expression of rational, educational considerations, or was it more the outcome of the political forces which affected it ?

Proactive or Reactive ?

A Proactive process involves planning ahead with adequate time to formulate the curriculum. A reactive planning process, by contrast is driven by external factors and events which lead to a more reactive and hurried mode of curriculum decision making. The reactive curriculum is generally formed in response to problem-solving or coping criteria. This type of externally led curriculum development calls for a rapid and flexible approach to curriculum planning. In contrast to the proactive approach which places greater emphasis on forward planning, evaluation and control of the curricula, the reactive process is planning 'on the move'. One example of this type of curriculum process was the 'training' programmes developed in the 1980's in response to high youth unemployment as a result of the economic recession in Britain. The first fully national training programme developed in response to growing youth unemployment was the Youth Opportunities Programme. This was soon followed by the Youth Training Programme, which provided contracts of training for the trainee leading to vocational qualifications. This was then further developed into a two year programme of training. In each case, the new programme displaced the existing one very quickly, and seemed to represent a largely reactive response to the wider political and social problem of youth unemployment. But we must wait

until the detailed analysis in chapteres 4 and 5 to see if construction education followed this largely reactive general pattern of development.

We have now identified the four key questions which will concern us in the analysis of construction education and training in the period 1970-90. Although the answer to these may well not be clear-cut, we will attempt to discover whether policy and provision during this period can be described as top down or bottom up, systematic or incremental, rational or political, proactive or reactive. These issues will be raised periodically during chapters 4 and 5, and taken up explicitly again in the conclusion.

CHAPTER FOUR

CRAFT EDUCATION AND TRAINING IN THE BRITISH CONSTRUCTION INDUSTRY 1970-90

4.1 Introduction.

The Literature on Craft Education and Training.

The Structure of Craft Education and Training.

4.2 The New Pattern of Training 1969 - 1983.

The B.R.S. Report and its Consequences.

The Phases of Training.

The Impact of the CITB Plan.

4.3 The Youth Training Scheme 1983 - 1990.

The Policy Background.

Foundation Training.

Induction.

Craft Training.

Guidance and Counselling.

Assessment.

Relevant Site Experience.

Craft Training and Recognition.

4.4 Policy and Provision in the Y.T.S.

Finance.

On-site Supervision.

Status, Recruitment and Progression.

4.1 Introduction

This Chapter will describe the development of craft education and training in the period 1970-1990. There were two major developments which took place during this period, these were the New Pattern of Training, which was introduced following the B.R.S report and the later introduction of the Building Foundation Training YTS Scheme, based on the NTI document. The Chapter will conclude with a review of the policy and provision of the Youth Training Scheme for Construction craft trainees.

The Literature on Craft Education and Training.

The topic of Construction Craft Education and Training in Britain has received limited attention in the education and training literature in recent years. The most recent books written on the subject were published in the 1960s and late 1970s and these dealt with the apprenticeship system in general and included construction craft apprenticeship only as one example of an industry's training system. Liepmann's Apprenticeship : an enquiry into its adequacy under modern conditions,(116), published in 1960 , was one book that dealt in some detail with building apprentices. It was written following the 1958 Carr Committee Report. The Liepmann book

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116 LIEPMANN, K. (1960) Apprenticeship: An enquiry into it's Adequacy under modern conditions London: Routlege and Kegan Paul.

considered the complex problems associated with the apprenticeship system, for example funding. It recognises that features of the system were changing continuously and at a great pace. One question raised by the book was the extent to which the apprenticeship system was adapted to modern conditions.

Three trades were selected for investigation; engineering, printing and building trowel trades. The study was based on the Bristol area and a rural district of North Somerset, during the years 1954-56. The book was divided into two parts, part I looked at the background and framework of the apprenticeship system; part II considering the system in operation. The book concluded by recommending that the State should take the prime responsiblity for training, both in its quantitative and qualitative aspects.

Another book, by Gertrude Williams Recruitment to Skilled Trades (117), published in 1957, outlined the development of the apprenticeship system, beginning from an historical perspective and leading to the then present day (1950s). The book then turned to the main issue of the day, the shortage of skilled workers. The trades considered included engineering, shipbuilding, the motor repair industry, print and the building industry. The survey of the apprenticeship system was

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117 WILLIAMS, G. (1957) Recruitment to Skilled Trades London: Routledge and Kegan Paul.

undertaken over a highly dispersed area including the Midlands, Southampton, Tyneside, Clydeside and the Home Counties. The concluding chapter considered the future, including a brief comparative study of apprenticeship systems in France, Germany, Netherlands and the United States of America. The book concluded by arguing that training should be adapted to the needs of the individual, so that apprenticeship training could become available to a wider group of young people. It also recommended that levels of training should result in a grading system recognising the levels of skills and ability: an issue that was to form the core of the NCVQ framework thirty years later.

Venables' Apprentices : out of their time (118)published in 1974, was a follow-up study of 20,000 twenty year old men. All had participated in previous studies when they were first year students. The majority, some 90 per cent, were engineering apprentices, the remaining being students of either building, catering or commerce.

Ryrie and Weir's Getting a Trade (119) was published in 1978. The book was the result of a project on craft apprenticeship carried out by the Scottish Council for Research in Education. The project involved a longitudinal study, undertaken over a

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118 VENERABLES, E. (1974) Apprenticeship Out of Their Time: A Follow-up Study London: Faber and Faber.

119 RYRIE, A.C. & WEIR, A.D. (1978) Getting a Trade London: Hodder and Stoughton.

four year period, of apprentices entering various engineering trades. The book was in two parts. The first part was descriptive and examined the apprenticeship system through the eyes of the apprentices, employers and other participants. The second part was based on statistical analysis of a large body of data and was designed to identify the factors making for success in apprenticeships.

In more recent years the development of government training schemes and the re-structuring of the apprenticeship system led to a number of articles being published on the Construction Craft System. The Further Education Staff College Report Craft level education and training in the Construction Industry (120), published in 1982, was a collection of papers based on a Coombe Lodge Conference. The conference examined the effectiveness and efficiency of current provision for craft education and training in the construction industry. It also considered the ways in which changes were likely to occur over the next few years. The Report included papers from representatives of the CITB, industry, examining bodies and college staff. Another report, published in 1983, Initial Skills Training in the Construction Industry(121) was concerned

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120 COOMBE LODGE REPORT. (1982) Craft Level Education and Training in the Construction Industry Vol 15. No. 2. Bristol: The FE Staff College.

121 COOMBE LODGE REPORT. (1984) Initial Skills Training in the Construction Industry Bristol: The FE Staff College.

with new developments in initial skills training which had arisen from the key MSC publication A New Training Initiative an agenda for action(122) which led to the setting up of the Youth Training Scheme. The report consisted of a number of papers from representatives from MSC, the CITB, industry, the education authority and trade unions, each outlining their response to the NTI document. Over recent years there has been a number of comparative reports on the apprenticeship system of various European Countries including Britain. (123) Since this is not a comparative study they fall largely outside the scope of this thesis, although they do offer a useful, broader perspective on the British system.

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122 DEPARTMENT OF EMPLOYMENT (1981) A New Training Initiative: A Programme for Action London: H.M.S.O.

123 BRITISH ASSOCIATION COMMERCIAL AND INDUSTRIAL EDUCATION. (1972) Vocational Training in the European Economic Community with particular reference to its likely impact on British Training Policy and Practice London: British Association for Commercial and Industrial Education.

COMPARATIVE PAPERS IN FURTHER EDUCATION. (1983) Vocational Education and Training in the German Democratic Republic Number 11, Bristol: The Further Education Staff College.

INTERNATIONAL LABOUR OFFICE. (1966) European Apprenticeship: Effects of Educational, Social and Technological Development on Apprenticeship Training Practices in Eight Countries Geneve: C.I.R.F. Publications.

123 PARKES, D. (1979) Craft Apprenticeship in Europe Comparative Papers in Further Education, Number 5. Bristol: The F.E. Staff College.

RUSSELL, R. & NEALE, M. (eds) (1983) Experiments with the First Year of Apprenticeship in the Federal Republic of Germany: The Report of the Visiting Party Bristol: The F.E. Staff College.

STUDIES IN VOCATIONAL EDUCATION AND TRAINING IN THE FEDERAL REPUBLIC OF GERMANY. (1982) The Industrial Tutor in the Federal Republic of Germany Bristol: The F.E. Staff College.

TAYLOR, M.E. (1981) Education and Work in the Federal Republic of Germany London: Anglo-German Foundation for the Study of Industrial Society.

WILLIAMS, G. (1963) Apprenticeship in Europe: The Lesson for Britain London: Chapman and Hall.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT. (1979) Policies for Apprenticeship Paris: O.E.C.D.

The Structure of Craft Education and Training.

Construction craft education and training comprised some seventeen different occupations which represented the range of training schemes offered by the Construction Industry Training Board. Information from the Further Education Statistical Returns indicated that the approximate distribution of craft students attending college during 1987-88 was as follows: Carpentry and Joinery 30 per cent, Electrical Installation and Brickwork each 20 per cent, Plumbing 11 per cent, Painting and Decorating 10 per cent, and other crafts including Plastering and Machine Woodworking 9 per cent.(124) The distribution of craft students in each major craft between 1983/84 to 1987/88 is shown in figure 2. The length and depth of training varied according to the choice of craft; for example, the major crafts such as, bricklaying and carpentry and joinery required a training programme lasting from three to three and half years. These training programmes included regular off-the-job training and site experience, leading to the City and Guilds of London Institute qualifications. Other more specialised crafts, such as wall and floor tiling, required shorter training periods and less "off-the-job" training. The main consideration of this chapter will be the schemes designed for the major crafts because these were the schemes which formed the bulk of the

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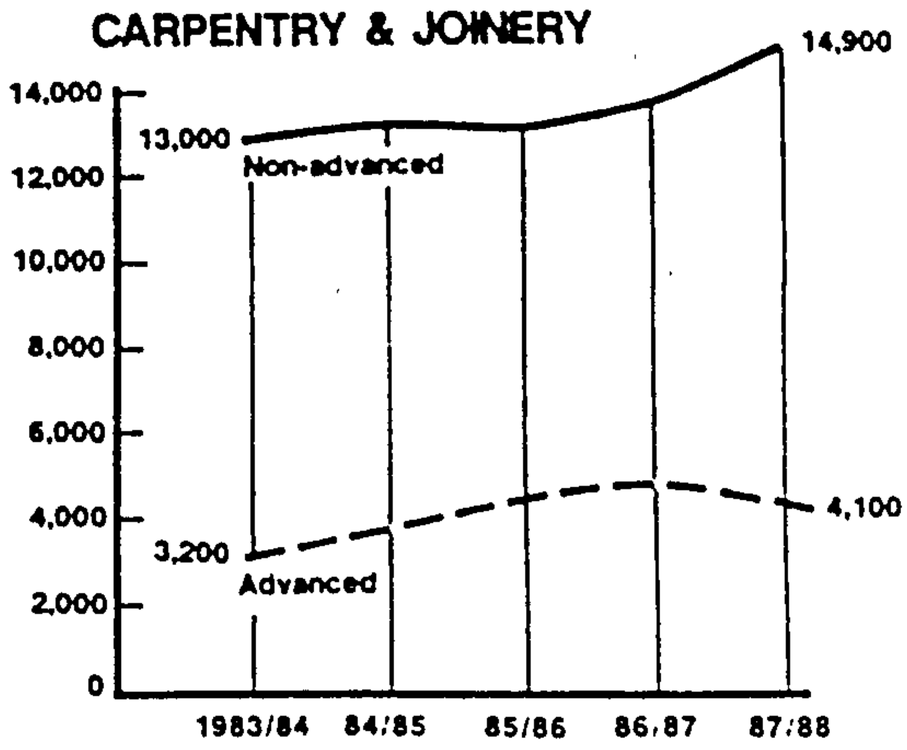
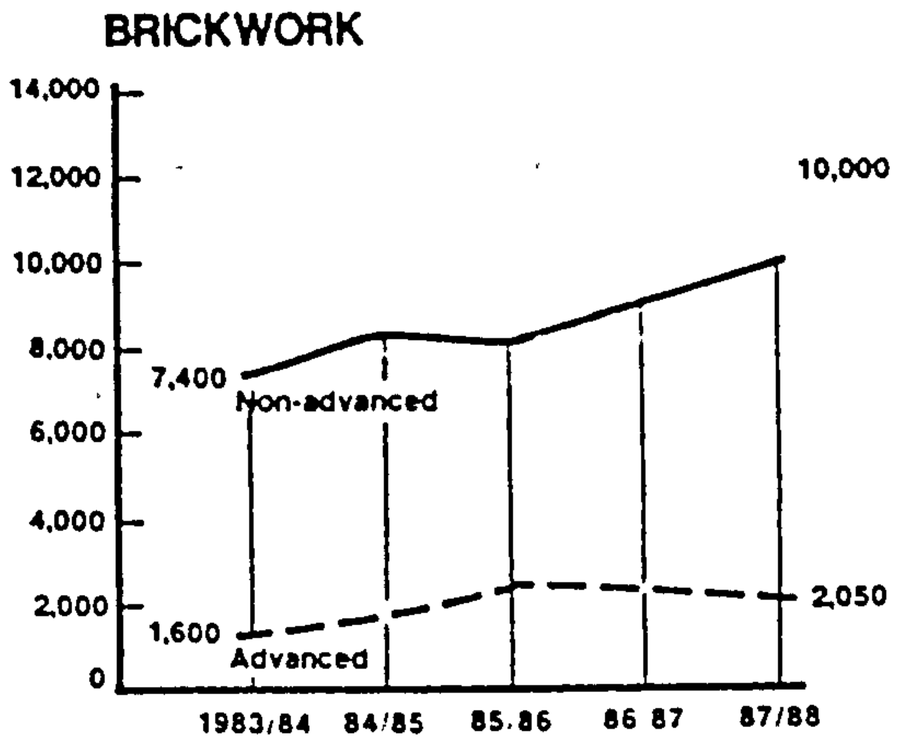
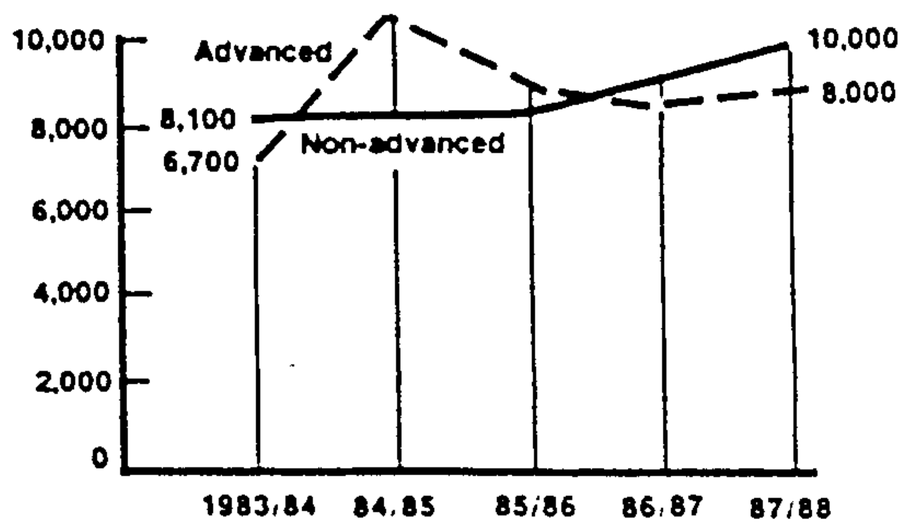
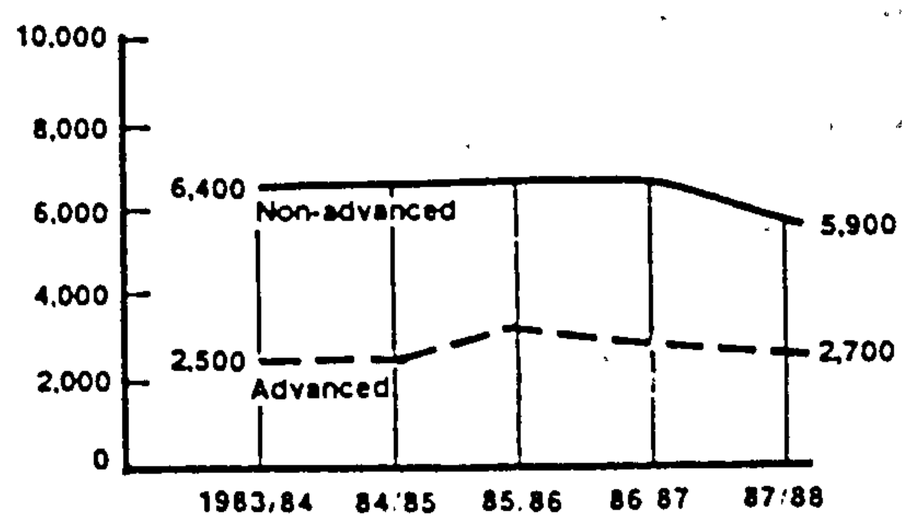
124 DEPARTMENT OF EDUCATION AND SCIENCE (1990) A Survey of Construction Craft Courses 1987-1989: A Report by H M Inspectorate London: D.E.S. p.9.

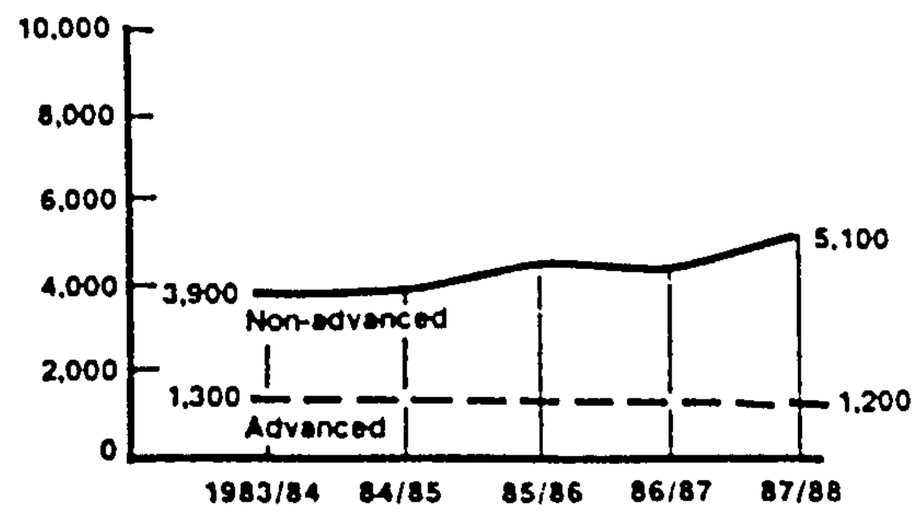
THE NUMBERS OF CRAFT STUDENTS IN EACH MAJOR CRAFT ATTENDING FURTHER EDUCATION COLLEGES BETWEEN 1983/84 to 1987/88

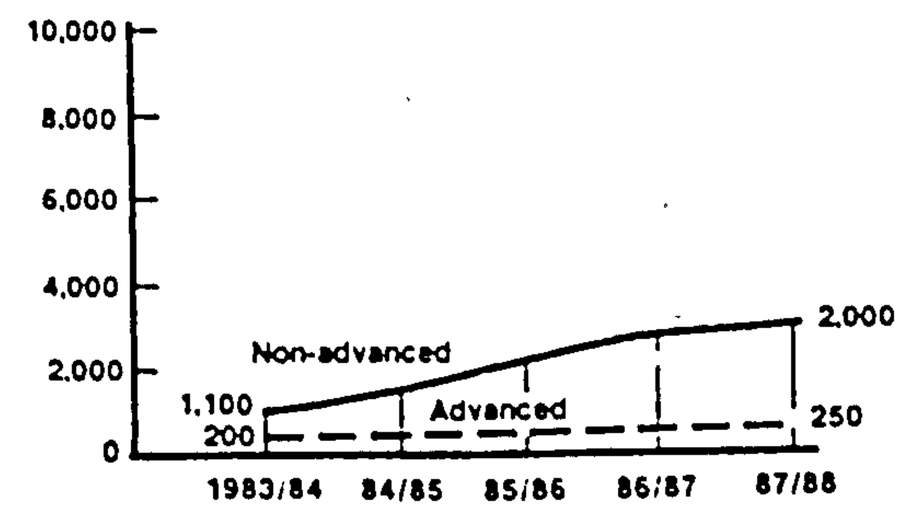


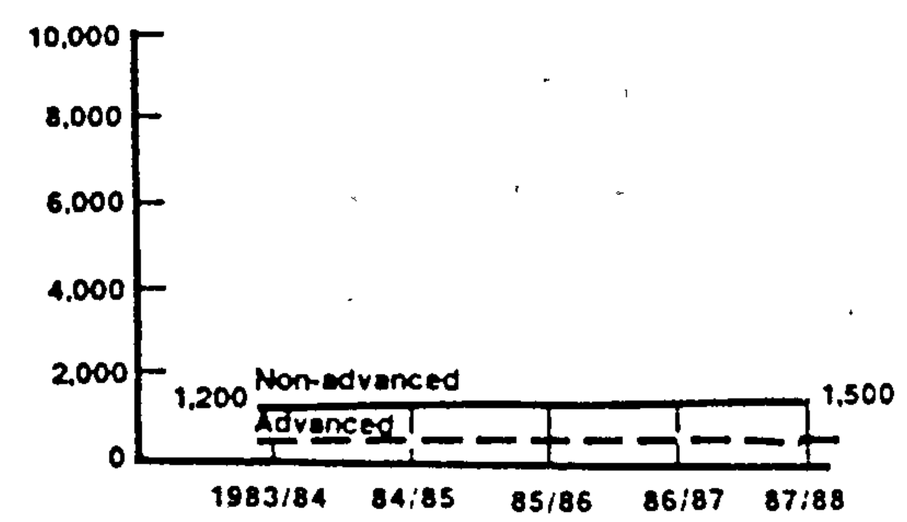












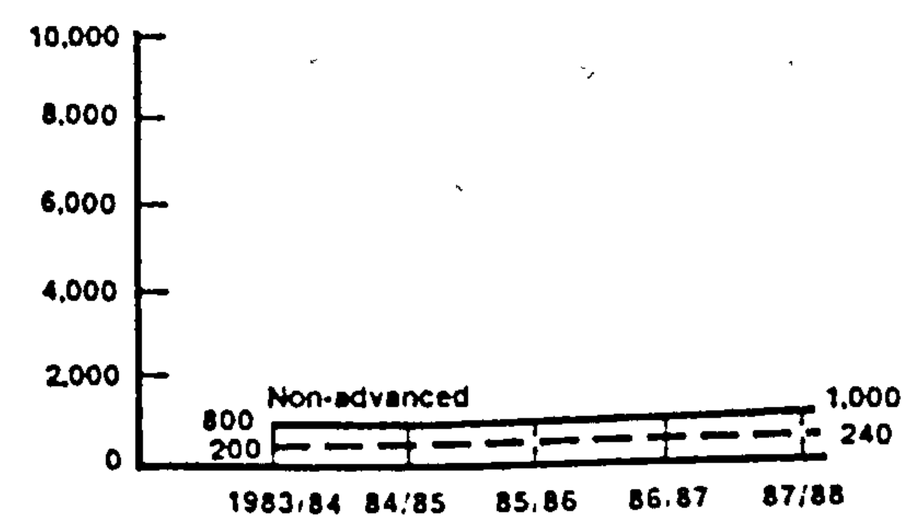


Fig. 2.

Source: ibid., p.2.

training programmes at craft level. The U.K. system does not allow variations in the training pattern within craft options. For example, a carpenter involved mainly in small maintenance work would still receive the full programme of training enjoyed by other apprentices who may be occupied in more demanding and varied work. However, certain options were available for apprentices who wished to limit the content of their training, and they could 'opt out' of training after the craft level qualifications had been obtained. Many employers could encourage their apprentices to forgo further training after craft training was completed; in fact, many apprentices did not continue into advanced craft studies. In the year 1987-88, for example only 40 per cent of craft students continued onto advanced craft courses. (125)

A second option to vary the training could be taken by the course tutor, who may decide to emphasise certain aspects of a craft programme to suit local requirements. For example, the plastering tutor whose students did not work for fibrous plastering firms, may decide to limit the depth of cover given to fibrous work and to provide greater emphasise on the 'solid' plastering aspects of the craft. Therefore, there was a certain amount of control over the curriculum at the 'individual' level but generally when the 'menu' was set most apprentices tend to follow the standard national programme.

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125 Ibid. p.9.

There was however, good reason for this practice. The main reason for this approach was that construction firms were varied and the scope of work was so wide that any group of students from a dozen or so different firms may have differing needs in terms of matching training to their firm's requirements. Furthermore, most craft apprentices had little or no opportunity to expand their skills and knowledge once they had completed their initial training. Many employers appeared to fail to recognise the value of further training after basic craft training. This fact was verified by the large fall-off rate of craft students undertaking higher level courses. For example the figures recorded in 1987 showed the following distribution of courses: craft level 70 per cent; advanced craft level 27 per cent; and post craft supplementary studies 3 per cent.(126) A further problem was that many employees who were given release to attend post craft courses were liable to move into non-craft careers and were therefore being trained 'out of their jobs'. This was particularly a problem with small firms because most craft employers were specialist sub-contractors who could not offer a career progression within their own company.

The broad training that craft trainees received initially also became more beneficial later in their career, when the individual moved firms or transfered to a different aspect of

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126 Ibid. p.7.

the craft, such as from modern to renovation work. Training for individual firm's needs tended to result in too narrow a training programme, particularly when training was often a once and forever thing. Another factor for consideration was the trend in work patterns. Changes in the nature of the work load were governed by economic factors which are largely beyond the control of the industry. Many of these economic factors were influenced by central and local government. Firms who specialise in say, housebuilding, could find that this type of work was declining and needed to move into another growth area such as modernization and maintenance work. Therefore a narrowly trained work force in such a firm would find it difficult to adapt to the new demands. It was the craftsman who had received a broad and in depth training who was able to survive the changing work patterns because of his adaptability.

During this period under study, the demarcation of skills were still traditionally defined but there was commercial pressure to develop more narrow specialisms within crafts and to train some multi-skilled craftsmen for maintenance and small size projects, both areas where multi-skilled craftsmen would be advantageous to production. The general pattern of craft level training was designed according to the vertical structure of progression from craft to technician, supervisory or management level on-site. Foundation training was designed to develop basic craft skills along with a combination of both formal technical education and site experience with an employer. The

foundation year also incuded aspects of vocational preparation including social and life skills and general core skills. In the 1980's, second year of craft training was also part of the Youth Training Scheme and formed part of the New Training Initiative programme, leading to craft recognition. The skills introduced in the foundation year were extended and further skills introduced during the second year of training. The pattern of progression was continued in the second year, because it developed some of the knowledge and skills used in advanced craft studies. At the end of the second year of formal training the main craft level assessments were undertaken but a further period of site work was experienced before the Skill Test was undertaken. The students' examination success rate in the major crafts, shown in the craft survey of 1987/88, matched those figures published by the City and Guilds of London Institute. At craft level the pass rate was approximately 75 per cent and at advanced craft about 60 per cent.(127)

The apex of craft level training was the advanced craft studies. This programme of education and training expanded the knowledge and skills obtained during craft level and introduced more specialised skills and knowledge. This course also brought the level of training up to that required for post-craft ie. technican level training.

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127 Ibid. p.4.

4.2 THE NEW PATTERN OF TRAINING 1969 - 1983.

The B.R.S. Report and it's Consequences.

In 1966 the Building Research Station published a report entitled "Building Operatives Work"(128) The term "operative" was used here to include both skilled building craftsmen and semi-skilled general building operatives, this caused some ambiguity about the use of the term operative because this broader definition had been used. The Report was commissioned by the National Joint Council for the Building Industry to provide a factual background against which a review of training could be undertaken. This report was particularly important for the development of craft training because the ideas which originated in the report have formed the bench mark for future developments. The main difficulty in implementing this report was the fact that it was too radical at the time it was produced. The study involved analysing the work done by building operatives in relation to their training and experience. The study included a survey of 4,400 operatives employed on 107 new construction sites, 400 operatives engaged in repair and maintenance work and 600 operatives engaged in factory or workshop activities.

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128 BUILDING RESEARCH STATION (1966) Building Operatives Work London: H.M.S.O.

The initial aim of the study was indentified as follows:-

(i) "to determine the use being made of various types of operative skills at the present time.

(ii) to determine the work required by various types of building projects and new forms of construction.

(iii) to assess the effect of new types of construction work on the skills of the operatives in order to identify trends in skill use" (129)

The main findings of the survey showed that the skills used by craftsmen could be divided into two groups: the first group involved skills most commonly used, the second group were skills used infrequently. It was also recognised from the survey that some craftsmen undertook work other than that traditionally associated with their craft, and this was particularly apparent with craftsmen engaged in repair and maintenance work.

In terms of our analysis, two aspects of this B.R.S. report are worth noting. First it was a national survey with implications for the planning of training at the national level. Thus it was a top down process. Secondly, it was a systematic survey,

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129 Ibid. p. 3.

based on a detailed analysis of current working practices. It may thus be regarded as an example of a 'rational' approach to the planning of the building curricula, in which the planning process was based on a detailed analysis of training needs - the first steps in the rational planning cycle.

As a result of the findings of the B.R.S. report, the Construction Industry Training Board published a training document entitled, "A Plan of Training for Operative Skills in the Construction Industry" (130) This document and the training system it outlined became commonly known as the "New Pattern of Training". The aim of this new system of training was to overcome the perceived weaknesses of the current training system and to provide a foundation of training which was flexible and formed the basis for further development. The objectives of the "New Pattern of Training" included the following:

(i) "improvement of the image of the industry by showing the public that it offers suitable entrants a permanent and progressive future.

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130 CONSTRUCTION INDUSTRY TRAINING BOARD. (1969) A Plan of Training for Operative Skills in the Construction Industry London: Construction Industry Training Board.

(ii) the provision of a framework within which competence and application are clearly rewarded.

(iii) increased productivity, benefiting the industry itself and the community in general.

(iv) improved safety, fewer accidents through safe working practices." (131)

The pattern of training was designed for two distinct groups of operatives. The first group were the craftsmen who required a "stock" of skills and who drew from this "stock" to do a range of complex tasks. The second group included the specialist operatives who were trained in-depth in one particular skill or aspect of one trade, for example the glazier. One of the fundamental changes in the new plan of training was the grouping together of trades. Nine principal groupings were devised.

(a) Trowel Trades

(b) Wood Trades

(c) Roofing Trades

(d) Asphalting

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131 Ibid. p. 37.

(e) Painting and Decorating

(f) Glazing

(g) Mechanical Engineering Services

(h) Electrical Engineering Services

(i) General Construction Operatives.

The grouping of trades facilitated a broader basic training for craft operatives. Where in the past training concentrated on one craft, under the new scheme trainees received basic skill training in a number of loosely related trades; for example Trowel Trades included Brickwork, Plastering, Masonry, Floor and Wall Tiling. The new training plan gave recognition to formal training at general construction operative level, whereas previously this level of occupation in the industry had received only on-the-job training. The plan also dealt with the integration of formal 'off-the-job' training and planned work experience. The level of skills practiced off-the-job was more complex and advanced than those practiced on-site. The application of the skills training received off-the-job was difficult to phase on-the-job. Often the skills learned at college compensated for the lack of skill training on-site, and the lack of opportunity to practice a full range of craft skills. Typically, within the work situation the trainee would only be trusted with simple repetitive tasks. There was a gradual process of confidence building on the part of the trainee and the supervisor before the trainee was given more complex work to undertake on-site. Whereas the skills

practiced off-the-job were prescribed by the client and/or the examination body, on-site the opportunity for skill practice depended on the site supervisor and the range of skills used by the firm employing the trainee.

The situation could arise for example where a trainee bricklayer might be producing decorative brickwork panels or forming brick arches at college, and on-site he might only be allowed to undertake basic routine tasks. Therefore, there could be a long skill lapse between skills practiced on-site and those introduced at college. It may also have been the case that the skills taught and practiced at college might not be practiced on-site until later in the craftsmans career, when he might need to recall skills he learnt some years in the past. The aim was to consolidate the training received 'off-the-job' by providing planned work experience.

The introduction of a log book for site and college use was designed to monitor work experience in order to ensure that the trainee received the appropriate type and quantity of practical experience. The log book recorded the tasks the trainee had successfully undertaken during both aspects of the training programme. Following a general induction, each trainee received basic training in an appropriate sector of the industry, for example Trowel Trades. The basic training included tool skills, craft theory and safe working practices. This level of training was broad based in order to form a foundation for later training. Operational training provided practice in applying the tool skills and craft theory to

particular craft activities, for example laying bricks and fixing wall tiles.

This integration of instruction, practice and planned experience was a crucial factor in the training programme. An important aspect of inter-relating 'off-the-job' instruction and 'on-the-job' experience was that the people supervising the planned experience should know the level of skill and knowledge the apprentice had achieved. It was recognised that firms offering 'on-the-job' training should be involved in the scheme's planning and that the craft supervisors responsible for the trainees had to be aware of the training objectives and recognise their own contribution to the scheme. The importance of site training and its proper supervision was raised in the Building Research Station report, which stressed the importance of the 'industrial tutor' - an issue which was to receive further emphasis in the 1980's:

> "one particular aspect of supervision, even as undertaken by craftsmen, deserves mention, the supervision of trainees. These men require training to do this important job successfully. The craftsman not only needs to know how to do a job, but also may need to be able to communicate 'know-how' to others" (132)

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[132] BUILDING RESEARCH STATION (1966) op. cit. p. 91.

It was apparent from these comments and the importance given to integrated training, that for the new training plan to be fully effective, firms involved in the scheme had to be aware of the training programme and of the trainee's development throughout the scheme. It was recommended that craftsmen providing the site training should receive some formal training in the pedagogy of instruction. In practice, there was no requirement that site supervisors should be qualified in the appropriate craft. Therefore, there was no basic standard for site training.

Following the basic and operational stages of training, the trainee received specific training within the trade grouping. At this stage training was divided in modules. A single module was based upon a skill or group of skills which constituted a viable unit in a job situation. Each module had a training element consisting of formal instruction, a site experience element and where necessary a further education element including the job knowledge of the skills involved. The job knowledge included the knowledge and understanding that underpin the craft skills, and was therefore an integral part of the training.

The new plan offered two approaches to modular training, progressive and grouped modules. The progressive module approach offered various levels of training within each trade sector. The approach recognised that not every man seeks or was able to reach an advanced level of achievement. For example, a scaffolding programme could have included modules

for a scaffolder's labourer, scaffolder and scaffolder chargehand. The trainee had the option to stop at any level as and when he or his firm considered appropriate. The grouped modules approach involved taking a number of interrelated modules either together or in succession. The justification for adopting a modular system of training was to provide flexibility in terms of the depth and breadth of training that could be provided, based on the concepts of progressive and grouped modules.

The modular system could be used to adapt training to regional, local or employers' needs. The system could also be used to up date craftsmen's skills to meet the needs of changing technology. The C.I.T.B. made the case for modular training in the following way:

> ....the outstanding advantage of training by modules is that it permits flexibility. Modules can be varied to cater for local needs. When new technology or materials bring forward new methods, modules can change and the mature trained operative can be brought up-to-date with new modules. (133)

Training packages were prepared; these included syllabuses, instructional plans, and supplementary visual aids and handout

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133 CONSTRUCTION INDUSTRY TRAINING BOARD (1969) Op. cit. p.6.

materials. There was a new emphasis on the content of the training and not just the structure.

A planned work experience programme was also prepared to ensure that this aspect of the training directly related in content and level to the 'off-the-job' training. The further education was to be implemented under three headings; remedial, job knowledge and general education. The remedial element was intended to bring the new entrant up to the basic standard required to benefit from the training programme. The job knowledge related to the practical training, and the general education element consisted of two parts. Part one included the technical aspects of training and covered science, calculations and technical drawing.

The second element of general education included liberal studies. The aim of the liberal studies was to 'broaden the mind' of the trainees. It was intended that the vocational education undertaken by apprentices should serve to enhance their specific job skills and knowledge and to prepare them to adopt an adult role in society and to enhance career progression. The Liberal Studies element of the training was intended to help the apprentice to adopt an adult working role and to provide general education to raise the young persons general ability. One of the key abilities associated with liberal studies was communication skills and social abilities. Thus liberal studies was seen as a way of providing a more balanced curriculum to counter the instrumental nature of craft training.

The Phases of Training.

Within each of the craft groupings there were four progressive phases. The first and second phase covered Training for the Industry. These phases incorporate induction, basic and specific module training. At the completion of phase two, the trainee's level of competence should be at an acceptable level for the industry. This might not be the ultimate desirable level of competence but would serve as a minimum capability. The third Phase: was called Training for the Firm and the Man. This phase included the advanced modular training to suit the needs of individual firms and trainees. Usually this training immediately followed the first and second Phase in order that the skills of the operative could be developed to a high level, but modules could be taken at any time to prepare a person for new responsibilities or to up-date their skills.

Many aspects of this programme foreshadowed the Youth Training Programme in the 1980's. The initial broad based course which included training in a group of crafts would particularly suit the Y.T.S requirements for non-specific training.

The modular concept of training used by this scheme also provided a clear example of the kind of criteria used today for the introduction of the N.C.V.Q framework. In the initial stages of NVQ development within construction it was suggested that a modular structure could be used to train multi-skilled craftsmen and thus break with the traditional demarcation of craft skills. A pattern could develop were two or three types of multi-skilled craftsmen could undertake all aspects of

construction work instead of the present need for a possible range of twenty four crafts for one building project.

The 4th Phase of the scheme involved the development of operational efficiency. This phase was outside the pattern of formal training. It was intended as a post-training, in-company activity. The justification for this phase was described as follows:

> "the man is given the opportunity to appreciate the necessity for his skills to be applied to suit production requirements of his firm and to fit logically into the whole range of his company's business. In other words, an appreciation of 'team training' for operational efficiency." (134)

This phase was considered beneficial in blending the newly trained man into the 'ways' of his company, to orientate him into the company's ethos, to make him a 'company man'. In this way the link between the craftsman and his employer could be strengthened, thus improving the stability within the industry in terms of employment security and the image in which the industry was perceived by the general public.

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134 Ibid. p. 8.

This 'New Pattern of Training' represented a radical change to the pattern of training in the construction industry, and it was expected that this new pattern of training would be generally adopted by the industry. As we shall see, this expectation was not realised but the discussion generated by its development drew attention to the advantages of courses of integrated education and training, supplemented by planned experience in the industry. Therefore, many of the developments brought forward by the "New Pattern of Training" were adopted.

The development of the Standard Scheme of Training established the foundation year of training for Construction Craft students. This scheme was for a one year duration and included integrated training consisting of 26 weeks off-the-job craft specific training followed by planned site experience. The scheme was developed by the C.I.T.B. in 1973-4, and became the preferred method of entry into the industry at craft level. Generally, trainees were sponsored by an employer prior to entering the scheme. The building employers preferred this method of initial intensive training, because it helped to overcome a number of training problems experienced by the industry. These training problems included the reduction of the training period from five to three years and the growth of sub-contracting which had reduced the training base on-site. Therefore, the off-site intensive training produced a trainee

with a basic skill ownership who was more economically acceptable on a production orientated site and less reliant on site training.

The Standard Scheme for Building Crafts proved so successful in a comparatively short time that within four years about 70 per cent of the building craft intake of firms in scope to the Board were on the scheme. However, the main weakness of the scheme was the fact that many of the small firms were not in scope with the Board and therefore, did not receive the training grants available to in scope employers.

NOTE

'In scope' refers to the regulations relating to a firm's ability to pay the statutory training levy. The firms obligation to pay levy depended on the amount of business turn-over. Small firms with low trading turn-over were excempt levy but were also outside the entitlement for training grants. The grant system operated so that small employers did not need to register with the C.I.T.B and therefore, paid no training levy, but if these firms did train they could not apply for grants. This situation was a particular problem in specialist craft areas because most employers were in the small size category and therefore their incentive to train was reduced.

During the late 1970's the depth of recession began to dramatically affect the craft training in the industry. In the autumn of 1980 the C.I.T.B. Standard Scheme showed a 16 per cent (135) decrease over the previous year. It was agreed within the industry that a 1,000 (136) award holder places, for those who were temporarily without employment, were to be added to those sponsored by employers. The national picture of the downfall in training was made worse by the fact that unemployment was unevenly distributed with very little unemployment in the South East and high proportions in areas such as the West Midlands and North East.

The Impact of the CITB Plan.

In practice the New Plan of Training was ahead of its time and contained many features which foreshadowed later developments. It was an example of 'rational' planning which became undermined or at least modified by 'political' factors at the national and local level, for example:

- the employers felt that they had not been consulted at the national level by the CITB.
- the scheme involved extra costs for local employers.
- the scheme was costly to provide, and resulted in a financial crisis for the CITB.

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135 SHINE, J. (9180) A review of the current apprenticeship problem London: Building Trades Journal. p. 21.

136 Ibid. p. 21.

- the employers failed to offer enough support because they disliked the idea of multi-skilled training at the initial stage of training.
- the grouping of crafts for training purposes went against the traditional demarcation of crafts roles.

We can see that this was a case of an attempt at rational planning which fell foul of political interest groups. Even though it did not succeed as a whole, it did preceed the incremental changes in the pattern of training, especially in the initial years.

4.3 THE YOUTH TRAINING SCHEME 1983-1990.

The introduction of the Youth Training Scheme in April 1983 gave the financial support and government backing to training that was badly needed in the Construction Industry. The proposals outlined by the Government were to improve the U.K.'s training system. The proposals involved a major restructuring of youth education and training.

The Government made a commitment to all school leavers to be entitled to a year's training and work experience along with the reforming of the apprenticeship system. To back up their initiative the Government allocated £1,000 million for training the unemployed. The financial commitment to training resulted in a major change in the power structure of training bodies. The new schemes had to meet the approval of M.S.C. before they would fund their implementation. Of particular interest to the industry was the proposal to continue with the volume of

training irrespective of the current economic climate. Therefore trainees were recruited into the industry without a recognised employer. The C.I.T.B. field officers were involved in finding suitable work experience providers who would eventually employ the trainee after the initial Y.T.S. year. The Scheme became known as the C.I.T.B. Building Foundation Training (Y.T.S.) Scheme.

The main structural differences to this scheme when compared with the S.S.T. was the fact that trainees received a training allowance, the same as all other Y.T.S. trainees in other industries, and that the C.I.T.B. acted as 'Managing Agents' for the M.S.C. Although employed trainees were allowed on to the scheme, in practice most trainees were unemployed. These new financial arrangements favoured the building employers and particularly the small size firms, and so the increasing numbers of trainees received in the industry were absorbed by the new training providers. The firms were allocated a young trainee on work experience, many of whom were able to achieve a resonable level of work both in terms of quantity and quality. The firm in return paid no wages or employment contribution and could prolong the decision whether to employ the trainee until the end of the YTS programme.

This situation changed in subsequent years with firms contributing towards the training allowance and making a commitment to the trainee either at the start of training or soon after the start of work experience. The C.I.T.B. were able to part finance the Y.T.S. year by increasing the off-the-

job element to 24 weeks and to offer training incentives to firms to continue training after the foundation year. The scheme was similar in character to its predecessor with a few exceptions; the period of induction was recognised as a time for a more general broad based introduction to the industry and the chosen craft. Certain core skills recognised by the M.S.C. were incorporated in the scheme and were integrated into the craft theory. The industry developed a two year N.T.I. programme leading to the job knowledge test as part of the criteria for craft recognition. After a period of site experience the trainee would complete the skill test to obtain craft status. During the period of development of the Building Foundation Scheme a number of changes were made to cater for demands by the M.S.C. to provide a "broader based" scheme. Two major additions were the introduction of site skills during the induction period and secondly, the development of associated job skills which gave a broad introduction into the practical skills of the other associated trades. Both those elements represented only a small proportion of the training package. However, they satisfied the requirements of the M.S.C. for a broader based foundation scheme.

The Policy Background

The New Training Initiative (N.T.I.) was published by the Manpower Services Commission in 1981. It aimed to bring about major changes in the British system of training and education, in order to provide a more flexible and adaptable work force,

able to cope with change. The New Training Initiative planned to assist British industry to adjust quickly to continuing technological development so as to compete effectively in changing world markets. The N.T.I. programme consisted of three linked objectives, each requiring programmes for the following needs:-

(a) Skill training, including the reform of the apprenticeship system, to be achieved by 1985.

(b) Vocational preparation which led to the introduction in 1983 of the Youth Training Scheme.

(c) Adult training and re-training.

The M.S.C. initiatives with regard to skills training involved both the reform of traditional apprenticeships and the development of new, more structured vocational education and training programmes in other occupational areas. The M.S.C.'s intention was to introduce a standards-based, as opposed to a time-served system of assessment and recognition. The Youth Training Scheme was designed to respond to the need for a general vocational preparation programme and to embrace the New Training Initiative in general, acting as a foundation for future training and re-training. Similarly, N.T.I. objective 3, with regard to adult training and re-training, was intended to remove some of the barriers to the provisions made for adults, whether through specific up-dating and re-training programmes or through access to skilled status.

The M.S.C.'s intentions were to stress the inter-dependence of the three objectives, so that it would be possible for a young

person to progress from the foundation year of Y.T.S. into skill training, possibly at an accelerated rate through exemption, or for adults undergoing training or re-training to achieve skilled status. Similarly, the foundation year of Y.T.S. was intended to provide the basis upon which young people could progress through further training and re-training programmes. Thus, it was expected that many young people having completed Y.T.S. would return to Further Education as adults for further training.

Following publication, the N.T.I. proposals were widely distributed across the country. The analysis presented in the document outlined the fundamental changes in the structure of British industry and the rapid expansion of future technical development. The increase in the number of jobs at technician level and above was balanced out by the disappearance of jobs below semi-skilled level. This implied a shift up the technical spectrum of jobs, as people became more highly skilled and the work force needed to become more adaptable to meet these structural changes.

The response to the N.T.I. document showed considerable concern for people who did not have occupational skills or whose skills had become out-dated. These people risked being passed by during this period of structural change. Respondents to the N.T.I. document felt that a comprehensive training strategy was crucial and an integral part of the nations economic development. There was universal agreement that all young people should receive good quality basic training as a

foundation for work.

Three concrete proposals were agreed by the M.S.C. as a means of implementing the N.T.I. objectives:-

(1) "to develop skill training including apprenticeship in such a way as to enable people entering at different ages and with different educational attainments to acquire agreed standards of skills appropriate to the jobs available and to provide them with a basis for progression to further learning.

(2) to move towards a position where all young people under the age of 18 years have the opportunity of either continuing in full time education or entering a period of planned work experience combined with work-related training and education.

(3) to open up widespread opportunities for adults whether employed, unemployed or returning to work, to acquire, increase or update their skills and knowledge during the course of their working lives." (137)

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137 LANCASTER, M. (1982) The New Training Initiative (NTI) in COOMBE LODGE REPORT Vol 15. No.2. Craft level education and training in the Construction Industry Bristol: F.E. Staff College. pp. 52-57.

These proposals clearly committed Britain to a process of continuing vocational education for everyone who wished to benefit from the system.

Foundation Training.

The Construction industry's response to the New Training Initiative was to develop, through the Construction Industry Training Board, a programme of training including Foundation and Basic Craft training up to full craft status. The structure of the C.I.T.B.'s integrated training scheme is illustrated in Fig. 3.(138) Without doubt the major change made to the former training system for building craftsmen was the restructuring of the initial training into the Building Foundation Training (Y.T.S.) Scheme. This scheme embraced much of the character ofthe Youth Training Scheme but still retained its craft specific nature.

The quality of entrants to any course was undoubtedly an important factor; no matter how good the course content or teaching, the ability of the people recruited was a critical component. Recruitment into the Construction industry was in a diverse number of 'hands'. Contractors of all sizes, local authorities, the C.I.T.B. and the careers service were responsible for selection. The range of entrants' abilities and the numbers from which to choose were constantly changing

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138 CONSTRUCTION INDUSTRY TRAINING BOARD (1985) Building Foundation Training Scheme: Notes for Guidance Bircham Newton: CITB p.1.

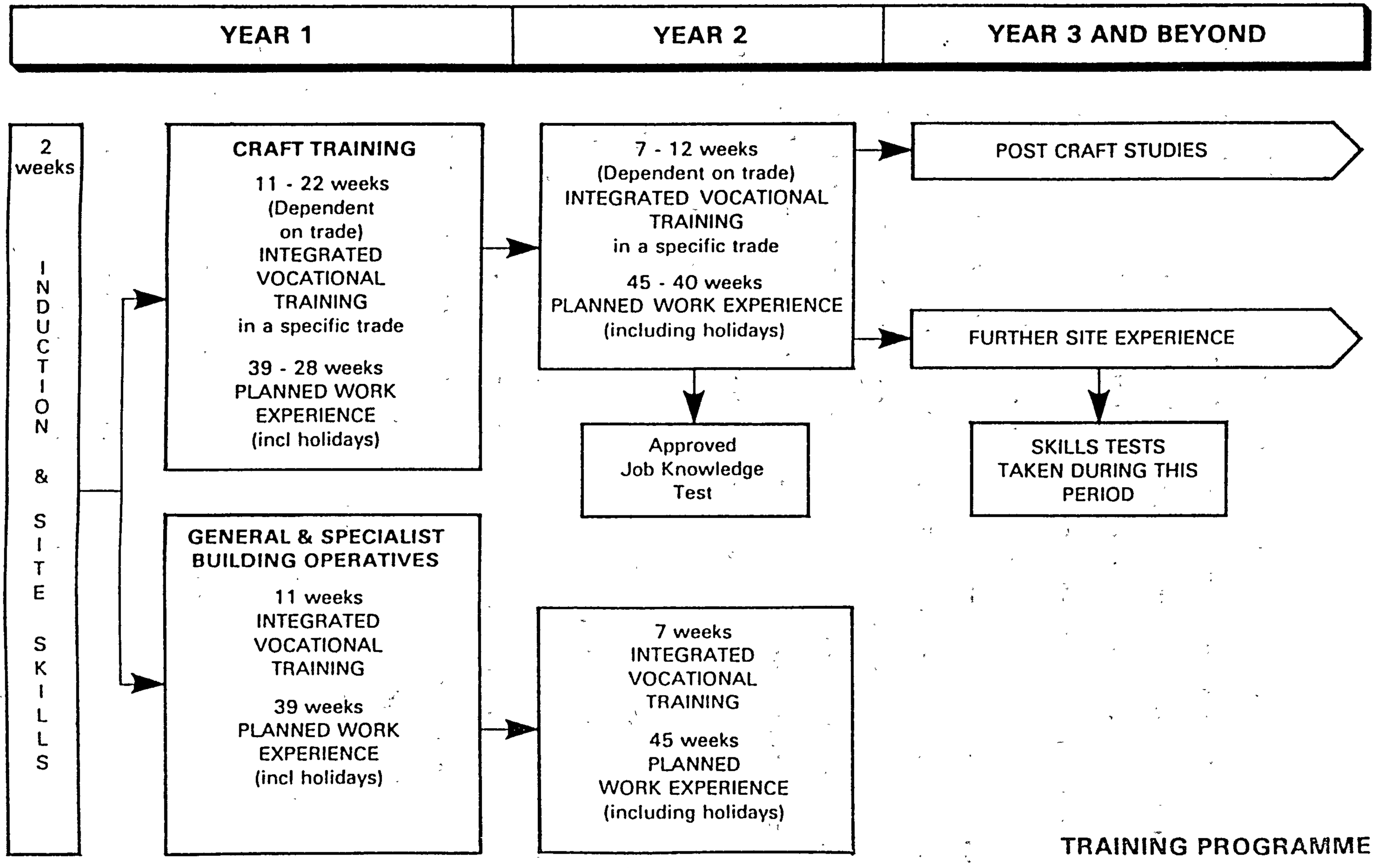

Fig. 3.

Source: ibid., p. 1.

due to varying social and economic shifts. In the South, recruits to the building crafts were often of poor quality if they were available at all. However, during one period of time within this study, in most areas of the country there was a surplus of applicants due to high unemployment and the good placement record of the C.I.T.B. schemes.

Many school leavers wishing to enter the construction industry as a craft trainee applied to the C.I.T.B. schemes first before turning to private training agencies. The selection of prospective apprentices for the Building Foundation Scheme was made initially by the C.I.T.B. who tested the applicants for numeracy, literacy and aptitude. The selection process also included a formal interview after which an offer of a place on the scheme was made. The Building Employers Confederation fully supported the use of the C.I.T.B. selection tests. However, the selection test only provided evidence of cognitive ability and aptitude for training. It did not assess the individual's level of interest in the craft, attitude to working with others or reliability. It was therefore important that the employer had the opportunity to interview the trainee to assess his or her suitability before agreeing to offer training with the company.

The C.I.T.B. laid down three criteria for selection to any particular training programme:

(i) trainees' preference and ability

(ii) what course were available in the area

(iii) the number of job opportunities in the locality.

The C.I.T.B. policy on trainee preference and ability was that these should be given prime importance in the selection procedure. Some circumstances might prevent the offer of the requested option. For example, the selection tests could have indicated that the applicant's abilities did not match the training option he had chosen. Alternatively, popular schemes were soon filled leaving a surplus of applicants who might be directed towards other less popular training options. During the selection interview, the C.I.T.B. field officer provided guidance to applicants about possible alternative schemes available, if the trainee's choice was not offered. Applicants were required to offer alternative training preferences when making application for their training option. In some areas certain programmes were not available, in which case the trainee was required to travel daily or to find temporary accommodation near to the training centre or college. Certain specialist trades, such as stonemasonry, were only offered at a small number of training centres. This meant that applicants requesting these programmes could be unsuccessful because of the small number of places available each year. Job opportunities were also a key issue in the selection for training places. Some schemes for jobs with limited job opportunities were restricted to a small number of places each year. Available training options were allied to opportunities for 'on-the-job' work experience and full employment.

Induction

Induction was also a feature of this new scheme.Traditionally the induction period for apprenticeship training was an informal stage of training starting from entry into employment and lasting until the apprentice began his formal training. At the same time the apprentice would become indentured to his employer. The length of this period of induction varied, but generally it lasted for twelve months. During this induction stage the employer was able to assess the suitability of the person before commiting himself to offering a lengthy apprenticeship training. It also allowed the young person an opportunity to sample the job and to decide if he wished to continue his training. The Y.T.S gave more formal recognition to the induction period of training. The M.S.C. criteria for induction stated that the opportunity should be provided for the trainee to:-

"be properly inducted into the programme and each element of it and assess his/her attained skills, attainments and needs." (139)

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139 FURTHER EDUCATION UNIT (1985) Supporting Y.T.S.: Third Edition London: F.E.U. p.14.

These induction criteria implied that induction was a continuous process, starting more intensively and gradually declining as the trainee's orientation took effect. The induction process had three broad functions, firstly, as a means of introduction or source of information at the start of the programme and continuing through the various stages of the training. Secondly, it was a means of assessment, used to assess the ability and suitability of the individual. Assessment was made on a wide range of abilities such as physical, mental, personal and motivational attributes. Thirdly, induction served to orientate people, a process of preparation for the transition through different phases of the training. Planned induction programmes covered the following three stages:

(1) Pre-entry, covering the information the trainee needs to know before they start the scheme.
(2) On-entry, giving information needed by the trainee when they first start the scheme.
(3) During the programme, a continuous process of orientation at certain key stages, for example, the end of the 'off-the-job' and the commencement of 'on-the-job' work experience. (140)

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140 Ibid., p. 15.

The pre-entry induction offered on the Building Foundation Training (Y.T.S.) Scheme was given during the formal selection interview and was then followed with information being mailed to the trainee prior to beginning the 'off-the-job' training. During the pre-entry stage the successful applicant was issued with a training plan. The training plan outlined the following main points of information for the trainee, as follows:

(i) the competence objectives of the scheme.

(ii) details of people responsible for the training programme. This could include the C.I.T.B. field training officer and the college programme tutor.

(iii) where the various parts of the training would take place. Some trainees began the programme with a sponsoring employer.

(iv) details of the induction programme, particularly the initial on-entry programme.

(v) the pattern of attendance for 'off-the-job' training either block release or day release.

(vi) a broad outline of the full scheme content.

(vii) an outline of the learning opportunities available at the planned work experience stage.

(viii) proposals on how the planned work experience would be integrated with the 'off-the-job' training and education.

Much of this information given on pre-entry was reinforced during the next stage of induction. The on-entry programme was divided into five sections.

The first section was the Introduction to the Youth Training Scheme. The objectives of this section covered the following items:

(1) understanding the purpose of Y.T.S. and the trainees' role in the scheme.

(2) making the trainees familiar with the working environment of the scheme.

(3) outlining what 'off-the-job' training they would receive, including a time table of daily events.

(4) ensuring that the trainees understood the health and safety rules that apply.

(5) ensuring an understanding of the scheme's administration, including, allowances, attendance and discipline procedures.

This section was particularly important because of the status of the trainee. The Youth Training Scheme involved a trainee status for these young people under training. The training contract arrangement must have seemed quite complex to the trainees. The scheme operated in a system of shared arrangements, with the M.S.C. as the main training sponsor. Then there was the CITB which acted as Managing Agent, responsible for the overall programme of training. Thirdly, there was the college which provided the off-the-job training. In the first year the college input could be the first twenty two weeks of the scheme, therefore, during the initial stage the trainees had most contact with the college staff involved with the scheme. Finally, there was the work experience

provider, who could eventually become the employer. The system involved a series of different interest groups which must have seemed confusing for the trainee who had just left school and entered the 'world of work'.

The second section, Introduction to the Building Industry, provided the trainee with a basic understanding of the nature of the industry and of the role of the craftsman. The inter-relationship of the various craft activities on-site was also considered. The team work aspect of construction work was an important orientation factor.

The third section of the induction programme, Life Skills, had two aims. The first was to assist in the transition to adulthood, and the role of worker. Consideration was given to subjects such as social and economic affairs. There was a section about facilities offered by banks and other financial institutions. Trainees were encouraged to open a bank account so that their training allowance could be paid directly into the bank.

Secondly, the Life Skills element aimed to develop the personal effectiveness skills of the trainee. There was a section on communication skills and consideration was given to job applications and interview techniques. During the early period of Y.T.S. job interview techniques were considered an important aspect of the induction. With many school leavers seeking employment and few job vacancies available a good interview technique was important. However, in the construction industry

formal job applications were often not the most effective method. Many trainees wrote letters to firms and never received any reply. The informal method of making direct contact by simply going along to site was more typical and usually proved more successful than the official method. This was one reason why Y.T.S. proved a successful recruitment method with small firms, because the system provided young people with the opportunity to prove their worth to the employer by working on-site as part of their work experience.

The fourth section, Safety at Work, covered general health and safety training and also industry specific training, for example, safe use of scaffolding and safe working on construction sites. The Safety at Work section was recognised as one of the key induction topics. It was considered important that this section was fully grasped along with its practical application, before a trainee should experience site working or the more hazardous aspects of workshop training, for example, working from scaffolding.

The fifth section, Basic Transferable Skills, introduced the trainees to a number of practical skills that are common to all building craftsmen, for example, measuring, plumbing, sawing, hammering and use of a trowel. This aspect of the induction introduced the basic core tool skills and also gave an appreciation of the inter-relationship of the various crafts. It also helped to establish an assessment of the trainees manual dexterity and work planning ability.

All trainees received as part of their induction training two weeks 'off-the-job' instruction in general site skills. This included basic safety training which had to be fully completed before the trainee moved on to the craft specific training. The first two weeks provided a general introduction to the Youth Training Scheme and the industry and this period was used to create an awareness of personal responsibility for safety. The Site Skills training covered the following areas of work:

concreting	lifting
small plant	storage
manual handling	access e.g. use of ladders
servicing main trades	and scaffolding

Site skills were common to all trades and provided a general introduction to site work. The areas of work covered in this section are an important aspect of the craftsman's skills and knowledge, when operating on-site. For example, a basic understanding of the use and maintenance of small plant was vital if the craftsman was to rely on this equipment to operate efficiently. The increasing use of power tools and equipment made the basic understanding of their correct and safe use a key factor. Site skills was also an excellent medium for site safety training. The two topics covered, manual handling and access equipment, are the two areas which are possibly the most dangerous on site. Access equipment includes scaffolding, hoists, towers and any other type of equipment that can give access to working areas either above or below ground level. Working at heights is one of the main causes of accidents and

deaths on construction sites. Through the use of site skills training the new entrants to the industry were made aware of the main site hazards and the correct procedures to avoid these dangers. During the remaining period of 'off-the-job' training the trainees received specific craft training.

Craft Training.

The specific craft training took two main forms, craft practical skills and craft theory. Craft practice occupied some 60 per cent of the 'off-the-job' training at this stage of the programme. The practical objectives ranged from the basic tool skills and maintenance through to a broad range of basic process skills. The first year of training set out the basic skill requirements that were developed further in the second year, in preparation for the practical learning tasks and the skill test element of the craft recognition. The basic skills obtained during the 'off-the-job' period placed the trainee in a position that when he began the site experience he could produce a satisfactory standard of work at a basic level with proper supervision.

Craft theory occupied the remaining 40 per cent of the scheme's timetable during this stage of the programme. Generally, craft theory was sub-divided into craft technology and science, drawing practice, geometry and industrial studies. All these subjects were carried through to the second year and a sound knowledge of these topics was required to meet the requirements of the job knowledge test for craft recognition and the craft

certificate qualification. All elements of study were integrated along with the core skills such as numeracy and communication studies. The general breakdown of the course content is illustrated below:-

Subject	Approx. Duration
Practical 60% of the Course	
General site skills	40hrs
Associated job skills	40hrs
Specific skill training	633hrs
Theoretical 40% of the Course	
Y.T.S. Induction and introduction to industry	12hrs
Personal effectiveness	12hrs
Communication	12hrs
Numeracy	12hrs
Planning and problem solving	6hrs
Safety	15hrs
Drawings	12hrs
Computers	23hrs
Guidance and counselling	36hrs
Specific job knowledge	335hrs

The topics covered by the induction and the computer studies were requirements specified by the M.S.C. and were obligatory for all programme providers. However, the insistence on a formal induction was later given less emphasis as employment

opportunities increased there was greater importance given to specific vocational competence. The duration of study quoted above was the maximum recommended for the major building crafts. For some more specialised crafts e.g. floor and wall glazed tiling the hours were reduced. The hours of training also covered the two years of Y.T.S. off-the-job training.

Guidance and Counselling

In addition to the above structure in the course content there was added one hour each week for guidance and counselling. The aim of this element was to:-

" -Provide trainees with objective feedback of their progress.

-ensure informal and formal induction procedures are adhered to.

-make the trainee aware of the relationship between 'off-the-job' and 'on-the-job' training.

-provide trainees with guidance and support.

-discuss the trainee's career prospects and future training needs.

-ensure that trainees complete their training record book.

-explain how core skills relate to specific trades and how they are transferable between various occupations."

(141)

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141 CONSTRUCTION INDUSTRY TRAINING BOARD. (1985) Op. cit. p. 14.

It was apparent from this list of aims that the guidance and counselling element of the scheme was of prime importance, even though the time allocated was barely enough. However, apart from the time allocated to the trainee for guidance and counselling, much of this was done informally during both practical and theory sessions.

Associated Job Skills were intended for craft trainees only and aimed to give a broader base of skill training and enable the trainee to develop both transferable skills and an appreciation of the work of other crafts. For example, the Construction Industry Training Board recommended the following list of associated job skills for a trainee undertaking the Painter and Decorator option.

-dropping and refitting radiators.

-removing and rehanging doors and sashes.

-removing and replacing small panes of broken glass.

-making a hop-up (small trestle steps).

-making good plaster work.

We can appreciate from the list that these are skills although associated with other crafts, that are nevertheless, extremely useful to a painter and decorator craftsman. However, it could be argued that these types of skills are not required at such an early stage of training and that they were introduced during the foundation period to satisfy the insistence for a broader based programme.

Assessment

The record of achievement and trainee's progress was an essential part of the Building Foundation Training Scheme and trainees were assessed regularly throughout the two years of training. A training record book and a series of practical progress tests were provided to achieve the assessment aims. Every trainee received a training record book which had to be maintained up-to-date throughout the two year period. The books contained the full training programme and gave an indication of the standards that had to be achieved to gain craft recognition. The record of training given 'off-the-job', was used by the employer to indicate the range of skills and knowledge the trainee had received prior to his site experience. The record of training was also used for regular twelve week reviews of the trainee progress. The information recorded was used by the C.I.T.B. to complete a Y.T.S. certificate for each trainee at the end of the course.
The recording of objectives covered by the trainee whilst on-site was more difficult to monitor because with most firms there was no formal system of training and what training did take place was left to the site supervisor to record. Ideally a programme of on-site training should have been planned by the person responsible for the trainee's on-the-job training and this should have been recorded in the Record Book.

The series of practical progress tests were taken when the trainee had reached the required standard for each individual test. The aims of the tests were to provide a profile of a trainee's strengths and weaknesses. The tests were set to a high standard and there was a recommended completion time given for each test. The progress tests were similar in character to the series of tests which made up the existing skill test, although the latter were set at a standard suitable for more experienced trainees, capable of considerable speed as well as high skill standards. However, the progress tests were certainly excellent preparation for the more demanding skill test, taken later in the training programme. The marking of these tests was based on a pass/fail method. The main weakness in the assessment procedure for these tests was that they failed to recognise that some skill elements were more important than others. For example, finished appearance received the same weighting as that of preparation elements which although important were not as critical as the finished work. If the completed work did not achieve the required standard of competence, then the test was failed. However, under the CITB test system the appearance could be recorded as a fail but the test could be an overall pass if most of the other elements of work had been achieved to the required standards. There was also no system in place to deal with trainees who persistently failed to achieve the standards required to pass the Progress Tests.

Relevant Site Experience

The M.S.C. criteria for planned work experience required that the Managing Agent must state in the training programme:

(1) "what skill learning opportunities they intend to provide through planned work experience.

(2) how the planned work experience will be integrated with the 'off-the-job' training and education.

(3) how they give trainees an opportunity to review their progress with supervisors at regular intervals." (142)

There was no doubt that a key feature of any training programme for craft students was the planned work experience. The skills and knowledge developed during the foundation programme and through other periods of 'off-the-job' training were made relevant in the context of a live site. The trainee's newly developed skills could be displayed in an adult environment, and this gave the young person new confidence and a sense of purpose. The intensive formal training obtained during the 'off-the-job' period was applied and refined during the multiplicity of experiences and situations confronting the trainee on-site. No two sites are alike. The work place

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142 FURTHER EDUCATION UNIT (1985) Op. cit. p. 9.

differed from the workshop in college, in that on live sites there was the commercial pressure which dictated the pace and character of site working.

However, the integration of 'on-the-job' and 'off-the-job' training proved to be one of the weaknesses of the programme. The C.I.T.B. tried to meet this problem by increasing the number of field training officers, in order to monitor trainee's progress on-site. The trainee's log book was also used as a means of recording the skill training received during the work experience period. However, the very mobile and complex nature of the construction industry made the monitoring of training on-site very difficult to achieve. There was, however, feedback from trainees and the record of the number of young people who left the work provider, that were also used as a guide to the quality of training provided by the placement. Some placements failed to retain their trainees after the initial training period and this could be taken as an indication that the firm may not have been fulfilling the requirements expected by the other parties in the training process.

Craft Training and Recognition

All the building crafts had a craft certificate qualification designed for that particular craft. There were no specific educational qualifications required for entry to the craft certificate course. However, the trainee had to have had a sound basic education in order to successfully complete the

craft certificate course. The craft certificate course was designed for young people and adults who were receiving training and industrial experience of a satisfactory nature. The majority of students completed the craft certificate scheme successfully in 600-900 hours. The examination success rate in the major crafts in the period 1987-89 was approximately 75 per cent.(143)

The aim of the City and Guilds courses was to:-

(a) provide knowledge and appreciation of techniques and materials which craftsmen will need to do their job with efficiency and understanding.

(b) provide a broad understanding of relevant science and technology with background industrial studies, so that student craftsmen:

(i) acquire understanding of their own craft.

(ii) appreciate the work and problems of craftsmen engaged in associated occupations and other jobs.

(iii) better equip students to adjust to changes in the nature of the work caused by technological development, changes in industrial conditions, and changes of jobs within industry.

(c) provide opportunity for continual studies in preparation for advancement in industry.

(d) widen understanding of the industry and society.

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143 DEPARTMENT OF EDUCATION AND SCIENCE (1990) Op. cit. p. 4.

(e) develop a responsible attitude to quality of work and costs.

(f) introduce a study of the elements of supervision and job organisation.

(g) develop as people, encourage growth of mature attitudes in industry and society in general, to develop power of thought, reasoning and communication and to develop their appreciation of the value of learning. (144)

The industrial studies topic included the forms and elements of construction and was common to all craft options. It aimed to give an appreciation of the total building process, the structure of the industry and the importance of building to all the community. The theme of industrial studies followed the design and planned usage of buildings through the construction process to completion. This subject provided a basis of the general building concept, which progressed into Site Procedures at advanced craft certificate level.

Assessment at craft level took three forms:-

(1) a multiple choice paper.

(2) coursework assignments.

(3) practical assignments.

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144 CITY AND GUILDS OF LONDON INSTITUTE. (1986) 590 Plastering Syllabus Pamphlet London: C.G.L.I. p. 11.

The multiple choice paper consisted of 60 questions and was a two hour examination. This part of the assessment came towards the end of the final or second year of the course. In the past most crafts set a short answer question paper but after 1986 most papers were of the multiple choice format. The multiple choice test forms part of the job knowledge test that was required for full craft recognition. Coursework Assignments consisted of four craft specific assignments. Each assignment was designed around a particular craft operation and tested the craft theory and associated subjects. The assignments were sub divided into six sections, each section testing a different aspect of the candidates knowledge. The sections included planning, measurement and costing, setting out, communications, inspection and problem solving. The marks given to each section varied according to the particular assignment but generally the planning section carried a high proportion of the mark, usually about 30 per cent.

These four assignments were drawn from a bank of assignments covering a wide range of craft operations. The industrial studies topic was not covered in the craft specific assignments. The industrial studies assignment was set by the training centre and was a compulsory part of the assignment element of assessment. The final grade awarded to the candidates was based on the average marks given on the four craft specific assignments, plus the successful pass mark for the industrial studies assignment. The practical coursework was graded according to the results of two practical

assignments, undertaken during the latter period of the second year of study. The first assignment, which was of a longer duration (usually 15 hours) was undertaken with the assistance of the craft lecturer and there was no time penalties. The second assignment which was generally of a shorter duration, (usually eight hours) was undertaken under test conditions. During this second assignment no assistance could be given and there was time penalties if the candidate exceeded the stated time, (generally five marks per 15 minutes over the stated time). There were also mark penalties for breakage of work during this assignment. If for example, a section was broken during fixing and had to be replaced, the candidate would be supplied with a new section but would have marks deducted for his carelessness. Both practical assignments involved preparation work prior to beginning the assignment from working drawings. The final grade awarded was based on an average mark for both practical assignments. The grading was based on the following range of marks:

50 per cent or above, a pass grade.

65 per cent or above, a credit grade.

80 per cent or above, a distinction grade.

This range of grades applied to both the written assignments and the practical assignments. To be awarded the City and Guilds Craft Certificate, the candidate had to be successful in all three elements of assessment e.g. the multiple choice paper, written assignments and practical coursework assignment.

The introduction of skill testing and craft recognition in 1986 added extra importance to the craft certificate job knowledge test. The skill test, job knowledge test and three years industrial experience were the requirements for craft recognition. Therefore employers and trainees were given the added incentive of knowing that the craft certificate qualification placed the trainee on the first rung of the craft recognition ladder. The skill test consisted of a battery of practical tests that were considered by the industry to assess the basic skills to a level of satisfactory competence. The test consisted of a range of tasks undertaken frequently by craftsmen. The test assessed both the standard of workmanship and speed of application. It was recommended that the skill test be undertaken by the apprentice after two and a half years of training and when the trainee was ready to achieve the required standard. Provision was made for a registered apprentice to retake the test if the first attempt was unsuccessful. After this, the apprentice's employer would be expected to contribute to the cost of the test. Assessment of the completed skill test was undertaken by a trained assessor from industry, usually an active member of the employers' federation or a trade union representative. College lecturers were invited to act as assessors when the tests were first introduced but after the initial period industrial assessors were preferred, and some college lecturers became reserve assessors, only being commissioned to test when industrial assessors were not available.

There were fixed marking points that were objectively marked as either Yes or No for achieving the required standard on each item. If the result for a marking point was No, then the amount of error beyond the tolerance allowed was recorded. The assessor did not grade pass or fail; this decision was taken by a committee of employer representatives. Their decision was based on the analysis of the marked test, both the number and distribution of fails and the degree of error indicated in the tollerances.

It will take a number of years before the craft recognition status, based on assessed competence rather than time serving, will take full effect in the industry. However, eventually most craftsmen will have qualified in their craft through this process of assessment.

Advanced Craft Studies

The educational requirement for advanced craft studies was the craft certificate. The studies came at the end of the formal training period and as such fail to attract all the craft certificate award holders. At advanced craft level much of the work begun at craft level was developed in more depth and new elements demanding advanced skills and knowledge were introduced. Site Procedures extended industrial studies and fostered the communication abilities of the craftsman. The craft technology and practice developed the range of activities begun in the craft certificate and expanded the work to include specialist operations in modern construction methods and materials. The syllabus also covered the maintenance of old

and historic buildings. Therefore advanced craft studies developed modern specialist techniques and knowledge and also introduced skills and appreciation of renovation and conservation work.

The assessment pattern for advanced craft qualifications was different from that of the craft certificate. There were two written papers, both of a two hour duration requiring structured answers. Paper one, covered "Materials and Techniques", and the second paper involved "Site Procedures, Principles and Measurement." The practical assessment was based on continuous assessed work during the one year course. A range of practical projects were set by the course tutor. The combined assignments covered a wide range of the practical syllabus content. The practical work was inspected by a visiting assessor before the candidate's final grade was determined. All three elements of the assessment e.g. both written papers and the practical course work, had to be successfully completed in order for the candidate to be awarded the advanced craft certificate. The advanced craft qualification allowed the apprentice to progress to technician studies or to pursue the City and Guilds Licentiate award. The advanced craft course of only one year part-time attendance provided a limited opportunity to develop advanced skills. The difference in level of work between craft and advanced craft was quite wide and many trainees lacked the skill development at this stage of their training to fully benefit from this advanced training. For the student to fully benefit

from these studies he needed to have the maturity of site experience to complement his level of skills and understanding. In the past, the apprentice craftsman would have had the benefit of four-five years site experience before he began advanced craft training. By contrast, in the later part of this study a CITB trainee would have only received 18 months training on-site before beginning advanced training. This situation tended to undermine the status of advanced craft, because trainees with limited site experience and maturity were awarded an advanced craft certificate. If industry accepted the value of continuing education and training, it would be more beneficial for trainees to undertake two or three years of site experience before returning for advanced craft training. It would also be necessary for the studies for this qualification to be extended to enable a fuller coverage of the advanced skills that were now only sampled under the present system.

As the previous pages have suggested, the introduction of the Youth Training Scheme led to major changes in Construction Education and Training, and not just at the foundation stage level. However, the impact of the Scheme was coloured by various factors at various levels in the system of provision. In particular there was the issue of finanace at the institutional level. Then the influence of on-site supervision at the individual level, and the effect of the image of craft occupations at the learners level, which affected recruitment.

4.4 POLICY AND PROVISION IN THE YOUTH TRAINING SCHEME.

Finance

The C.I.T.B. preferred the trainee craftsman to seek a suitable potential employer prior to entering the scheme. The advantage of this system was that the trainee was encouraged to use his own initiative to contact an employer to request consideration for sponsorship on a Y.T.S. scheme. The employer also had the opportunity to meet the trainee and to discuss his future prospects with the company and the nature of the industry. By using this method of selection and contact with employers, most trainees began the scheme with a provisional offer of work placement. Both the C.I.T.B. and employers recognised the benefit of this, and for the C.I.T.B. it helped to ease the burden of recruitment because trainees had already made arrangements with their sponsoring firms.

However, there was a more fundamental reason for adopting this method than the more practical one mentioned above. The linking of trainee and employer prior to beginning the training was considered by all concerned to be one of the main reasons why some 90 per cent of Building Foundation trainees found employment after the first Y.T.S. year. The employers preferred to be given some say on who they offered training to and saw the system as an initial selection with a loan back arrangement to C.I.T.B. as managing agent, for the first year of training. In the second year of training the sponsoring employer was encouraged to employ the trainee and the C.I.T.B.

offered substantial grants to support this process of employment and further training. The method of selection was contary to the system recommended by the M.S.C. for the Y.T.S. schemes. The M.S.C. considered that the first year of Y.T.S. should have been prevocational and therefore an early selection of employer might restrict the intended flexibility of the scheme. Selection could also imply 'creaming off' the more able trainees before the other youngsters had had the opportunity to prove themselves to the potential employers. To fully implement this policy, managing agents should have provided work experience placements when they had assessed the needs of trainees after an initial training period. The C.I.T.B. scheme further strayed from this policy by having specific training from the beginning of the first year to meet the requirements of industry.

On-Site Supervision.

Probably the main weakness with the craft training scheme was the control over the content and depth of training offered during the on-the-job element of the scheme. The benefits of an intensive formal training period were lost during the following on-the-job training when trainees were given little if any structured training. The result was that at the beginning of the next off-the-job training many trainees had failed to maintain the skill levels that they had reached during the previous period of formal training.

There were possibly two reasons for this situation, one

economic, the second cultural. The first reason was that on site, where commercial pressures are high, the role of the trainee changes from that of the student/trainee when off-site. During site operations the trainee soon became part of the work team, another pair of hands and as a result his main role became that of worker rather than learner. The work he was most useful at might not necessarily be the type of work he was being trained for. For example the apprentice bricklayer might be engaged in assisting the bricklayer's labourer in mixing material, clearing work areas, altering and erecting scaffolding: all work which is fundamental to bricklaying operations but not beneficial in establishing bricklaying skills. In the past many craftsmen trained over a long period of years and the rate of progress was slow and controlled by the men they worked with. The actual pattern of on-site training was thus largely determined at the 'individual' level, whatever the formal Scheme might say. This tradition of the 'boys' role on site still continues even though trainees were now expected to reach full craft competence in half the time available in the past. Furthermore, in recent years the speed of site work has increased. There are more pressures to complete work faster in order to achieve high incomes. The bonus systems and self employed contract work in which craftsmen were only paid for what they produce, has resulted in less time being available to supervise trainees. Therefore, the trainee is easier to manage doing simple repetitive tasks such as helping the labourer, than having to be closely

supervised doing craft skills.

The situation in the past was somewhat different. Craftsmen were paid on an hourly rate and there was opportunity for the senior craftsman to supervise the progress of the apprentice indeed this would be seen by the employer as part of the senior craftsmans role. The current work ethos during this period of this study was geared more towards meeting bonus targets and less towards supervising trainees. Hence the trainee became experienced in general site work associated with his particular craft and not skilled in laying bricks. There were certainly some firms which ensured that their trainees received some craft skills training on-site but there were also many firms which did not consistently provide craft skills experience to their trainees.

The second possible reason for the lack of systematic training on-site was a cultural problem. It has always been the tradition that apprentices served their time doing the subservient tasks on-site. During a seven or five year training period there was plenty of slack time for the apprentice to act as 'errand boy' and general helper, and still acquire the basic craft skills at the end of a training period. However this situation changed with the reduced apprenticeship period, and the flexibility was not there for trainees to waste time doing many tasks which were not directed towards developing and consolidating skills. Therefore there needed to be a change of attitude by experienced craftsmen on site to realise that the system under which they trained was now

extinct and that trainees were now expected to obtain a sound basic skill range in less than half the time allowed in the past.

It must also have been difficult for experienced craftsmen to accept that at the end of a twenty-four week training period most trainees could achieve a good standard of work on a basic range of skills, provided they were given adequate supervision. There were still craftsmen who thought that it took them five or more years to become competent craftsmen and would not accept the fact that youngsters could now be trained in a shorter period of time. The training policy and ethos which was to a large extent shared by the Construction Industry Training Board, colleges and M.S.C. were not always transmitted to site level where the real 'live' training took place. Thus policies involved at the national or even institutional levels were not always carried through at the level of the basic unit or individual, where discretion remained in the actual pattern and control of practical training.

The M.S.C's decision to ask C.I.T.B to increase their field staff trainee ratio had certainly helped to eradicate the worse offending firms through more stringent monitoring. The C.I.T.B also introduced the log-book system which helped to control to a certain extent the type of training offered on site. The problem highlighted the need to have someone in each training firm who was responsible for training and who could ensure that the trainee got a fair deal on site. Some argued that the solution to this problem of inadequate site training would be

to introduce the German Meister or master craftsman system to supervise site training. (145) The system of Meister has been successfully operated in West Germany for many years and could prove effective in Britain. The Meister is a highly trained and experienced craftsman who is actively involved in all aspects of industrial training within his own particular craft. If a company wished to offer training they must have a fully trained Meister before they are allowed to operate a training programme. Part of the Meisters own training is concerned with the techniques of instructing apprentices and included planning, organising, and management of training. The Meister in a particular firm will take responsibility for the training of the firm's apprentices and he will also assess and evaluate the progress of the trainees.

The Dual system which operates in West Germany was structured so that the apprentice receives the theory and educational part of his training at a college and the practical aspects of his training is undertaken in the work place. This system places greater emphasis on the use of industrial tutors. However, the

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145 STUDIES IN VOCATIONAL EDUCATION AND TRAINING IN THE FEDERAL REPUBLIC OF GERMANY. (1982) The Industrial Tutor in the Federal Republic of Germany Bristol: The FE Staff College.

TAYLOR, M.E. (1981) Education and Work in the Federal Republic of Germany London: Anglo-German Foundation for the Study of Industrial Society.

Building employers in the UK seemed to be against the introduction of the master craftsman, because of the implications for a grading system for craft work, based on skills, knowledge and responsibility. The Building employers have been against having to pay rates of pay on this basis.

Status, Recruitment and Progression.

Another problem with the current U.K. system was the lack of regard given to career progression and job status. This was a point made by the C.I.T.B when they introduced the New Pattern of Training in 1969.(146) In the past many talented youngsters entered the crafts because they were offered secure employment in a skill which was regarded as valuable in society. The status given to a craftsman was equal to any other type of non-professional occupation. In recent years however the crafts had received a bad press in terms of their declining status and consequently the recognition given to them by the general public, in particular parents of prospective apprentices. There was a multiplicity of reasons for this, but the main reason was the 'squeeze' effect on craft recognition from the raising of the status of technicians and the creation of a recognised status given to general operatives. The additional

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146 CONSTRUCTION INDUSTRY TRAINING BOARD (1969) A Plan of Training for Operative Skills in the Construction Industry London: C.I.T.B. p. 37.

attention given to technicians and the image created of technician training leading to a responsible, secure job which could eventually lead to full professional status had obviously affected recruitment to the crafts of the more able students. The technician career offered a career development which could result in professional staus through additional training and experience. Alternatively, the technician qualification was used to bridge into higher education for professional courses By contrast, many of these students saw the crafts as a dirty, low status occupation, that did not carry the job security and progression offered by the 'staff' status of technician. This declining status of the crafts was further worsened by the added emphasis on recognising the general operative occupations in the industry, even to the extent of acquiring semi-craft status, for example scaffolding erectors, and plant operators. The status given to these general operative jobs resulted in the gap between unskilled labourer and craftsmen being narrowed, particularly with the increased specialisation of some crafts. Therefore, in the eyes of prospective apprentices and their parents the difference between labourer and craftsman was sometimes increasingly vague.

Furthermore, the greater recognition given to general operatives on site and the equalising of incomes due to bonus payments has led to their conditions of employment becoming very similar. The overall effect was to reduce the differentials between general operative and craftsman, and at the same time, to widen the differentials between craftsman and

technician. The effect this has had on recruitment was that young people who were more able tended to opt for technician training, whilst the less able and undecided went for the crafts.

With the trend in the future towards certificated training at operative level the problem of craft status could get worse. The industry needs to match the large amount of money being invested in craft training to improve the image of the crafts both for the general public and at site level.

One way of doing this would be to pay more attention to career progression within the crafts as well as beyond them. The craft skill test could provide the first two tiers. Tier one would be the uncertificated craftsmen, for those who had failed to pass their skill test. Tier two would be the basic craftsman, able to provide a high quality of work at a basic level. Tier three would be the advanced craftsman who had achieved basic standard and had progressed by both experience and qualification to specialise in more skilled operations or who had undertaken craft supervisory duties on-site. Tier four would be the master craftsman, the top tier of the craft occupations; this would be an advanced craftsman who had undertaken further studies in industrial tutorship and was responsible for the supervision of trainees and up dating craftsmen in new techniques and materials. It would be important that this craftsman should be a practicing craftsman and therefore apart from time allowed to supervise and train apprentices, he would assume normal craft duties.

This system would obviously lead to some additional cost which would have to be met eventually by the general public, but in the long term with better quality recruits and a more stable workforce, the cost would be off-set by the higher quality of work provided to the general public. Alternatively, the crafts will only attract people of low ability and the standard of workmanship will decline. The problem of recruitment is likely to be worsened by the decline of 16-19 year olds in the early 1990's. The industry will be competing then with all other industries for a declining number of school leavers.

The revision of the craft certificate syllabus to bring it in line with the C.I.T.B.'s N.T.I. document resulted in a wide gulf between craft certificate level and the advanced craft certificate. The craft certificate was based on more basic skills although a fairly broad range of content was still possible. This could change over time because of the pressure from employers' representatives to concentrate on basic skills during the first two years of training, (i.e. the type of operations most common on the majority of sites). A representative sample of these skills was found in the skill test. The employers were particularly concerned at the high numbers of trainees who were not achieving sufficient standards on the range of tests that make up the skill test. One of the main problems was the lack of systematic training on-the-job, and this was particularly important in the second year when the amount of off-the-job training was reduced to 10 weeks. To overcome this problem the employer would prefer the trainees to

concentrate on common basic skills during their off-the-job, instead of the broad range of skills previously offered at craft certificate level. The new 1986 syllabus (147) had gone some way towards catering for this change. However, it left the advanced craft certificate remote from the previous work, and this was particularly a problem for a one year course. Any revision that took place had to take into account the need to adapt the advanced craft to bring it in line with the level reached at craft certificate level.

It seemed that some type of modular system would eventually have to be introduced along lines similar to those of B.T.E.C. courses. To make courses viable there would be a need to set a number of core modules and then certain optional ones; the introduction of this system would allow more specialisation and could allow a trainee to accumulate modules over a period of time to achieve the quota to obtain the certificate. There was of course a danger that the emphasis given to basic craft training could result in the eventual demise of the advanced craft certificate. There was the fear that the modules could be used by firms to offer short specialised modules to cater for the firm's needs only. This could become dangerous for the individual craftsman, in that it would weaken his skill base and thus limit the range of tasks he could undertake. It would

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147 CITY AND GUILDS OF LONDON INSTITUTE. (1986) 590 Plastering 1986-88 London: C.G.L.I.

also be dangerous for the industry because certain skills could be lost completely, never to be revived.

Despite these problems, by the end of the period, the future for Construction Craft Training seems secure. The technological changes that have taken place in the industry have only resulted in an enhanced level of skill for craftsmen. In fact in recent years many of the older materials and skills have received renewed popularity. For example, after a period of pre-cast concrete cladding the brick is now popular again for the design of most buildings; also there is a trend away from the plain to more decorative design in many areas of the industry, with the result that many of the old skills in crafts such as plastering, joinery and woodmachining are again in high demand. Craft training had to meet the renewed demand for highly skilled building craftsmen.

We can see from this chapter that control has been based mainly on a top-down process. However at the stage of implementation there were influences at institution, basic unit and learner levels which shaped the character of the final provision of craft education and training. With the development of national policies which were implemented locally. The introduction of the New Pattern of training was clearly a rational and systematic attempt to introduce a curriculum process that served the needs of the industry. However, the influence of political factors prevented the full implementation and as a result there has been an incremental process of change leading up to the end of this period and the introduction of the NCVQ

framework. Again the intention to plan in a proactive manner was affected by external factors which resulted in the introduction of the Youth Training Scheme, a Scheme in which there were reactive pressures from central government that determined the structure of the curriculum.

CHAPTER FIVE

TECHNICIAN EDUCATION AND TRAINING IN THE BRITISH CONSTRUCTION INDUSTRY 1970-1990

5.1 INTRODUCTION

During the late 1960's the issue of technician education and training was at the forefront of industrial concern. The rapid expansion of technological change and the increasing move away from craft-based industries to a more mechanised and technical appproach to production had created a major problem for British industry. It was realised that future industrial development would require an increasing demand for qualified technicians to implement the technological changes. It was also recognised that the present shortage of technicians was resulting in a wasteful use of highly qualified engineers and technologists who were undertaking tasks more suited to a technician. The recognition given to technicians in industry was rather patchy with variations between industries and firms. Some industries failed to distinguish clearly between craft and technician grades of workers. These central concerns about technician status and a clear career structure for all groups of technicians and the need for expansion of further education and training were expressed at a Commonwealth Conference held at Huddersfield in October 1966.(148)

It was estimated from the Cambridge University computerised model of the British economy, formulated in 1961, that by 1970 there would be a need for an increase of 50,000 technicians

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148 COMMONWEALTH EDUCATION LIAISON COMMITTEE. (1967) Education and Training of Technicians London: H.M.S.O.

each year to meet the growing demands and to replace losses due to natural wastage.(149)

Traditionally technicians had been recruited from upgraded craftsmen and from groups of failed professional technologists and engineers. It became apparent that the way forward for the future was to promote technician courses with their own identity and integrity, without over-reliance on recruitment from the other two groups of potential technicians.

There was to be no bar placed on recruitment of craftsmen because it was realised that many technicians benefited from the experience and training as craftsmen before upgrading to technician; this was particularly true of technicians with direct responsibility for the work of craftsmen on site. With regards to re-directed technologists and engineers, it was recognised that a certain percentage of students would find these professional courses too demanding and therefore the opportunity to transfer into technician occupations was important for these people. With this group of students it was also recognised that re-directing large numbers of students who had failed professional courses was wasteful of educational resources and indicated a weakness in the selection procedures for these higher level courses.

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149 CITY AND GUILDS OF LONDON INSTITUTE. (1964) Further Education for Technicians London: C.G.L.I.

As was indicated in Chapter two, construction was traditionally a craft-based industry and most recruitment and training was undertaken at craft level, with some provision for technicians. However, the numbers of technicians being trained were not sufficient to meet the projected need for this group of workers in construction as in other industries.

A report published in Economic Growth and Manpower,(1963), based on research undertaken by the Department of Applied Economics of the University of Cambridge, concluded :

> ...an increase in the industrial use of higher skills is indispensible if this country wants to achieve a faster rate of economic growth and hence a higher standard of living. An advancing technology requires a skilled labour force and requires more of it. Until this is understood it is useless to talk of faster growth, economic expansion and so forth. In particular, the skills which should receive more encouragement in the future are these of the technician and craftsmen.

Secondly,several obstacles must be removed from our present training system if this

improvement in the skill pattern is to be brought about....The number of places in technical colleges should be increased and apprenticeship schemes expanded. (150)

The type of education and training envisaged was a scheme which integrated further education and industrial training.
To allow for the rapid technological changes taking place, the education would need to be broad based initially with a progression towards specialism. However, this specialism would not be to the depth required for professional training.
As part of the broad foundation of training, the schemes would also have to include some study of mathematics and science.
General studies were also to play an important part of the preparation for a technician career. Emphasis was to be placed on communication skills but a broader preparation for good citizenship was also important through the medium of general and social studies.

The Literature on Technician Education and Training.

The literature covering technician education and training during this period was relatively sparse but a number of useful sources have been drawn on in this chapter. One may mention first the report of the City and Guilds of London Institute. Further Education for Technicians. (1964) This monograph was

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150 Ibid. p. 28.

published following the passing of the Industrial Training Act 1964 and was intended to disseminate information and experience gathered by the Institute and to make a contribution to the debate about the future training in the technician occupations. As already mentioned, The Commonwealth Education Liaison Committee published Education and Training of Technicians. in 1967.(151) The primary purpose of this Conference was to provide an opportunity for an exchange of ideas and information on the education and training of technicians between experts from participating countries. The conference intended to create a forum within which problems could be identified and solutions discussed. Also in 1967 The Department of Education and Science National Advisory Council on Education for Industry and Commerce completed a report entitled, Report of the Committee on Technician Courses and Examinations .(152) The Secretary of State for Education and Science invited the National Advisory Council to review the national pattern and organisation of technician courses and examinations. This report considered what changes are desirable in the present structure of courses and examinations to meet the changing needs. The Committee also considered the future administrative and co-ordinating machinery necessary to implement a future system.

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151. COMMONWEALTH EDUCATION LIAISON COMMITTEE. (1967) Op. cit.

152 NATIONAL ADVISORY COUNCIL ON EDUCATION FOR INDUSTRY AND COMMERCE. (1969) Report of the Committee on Technician Courses and Examinations London: H.M.S.O.

Maclennan's Educating and Training Technicians(153) published by the Commonwealth Secretariat in 1975, was written at a time when there was a serious shortage of technicians. As a result of this shortage, plans for industrial expansion had been retarded. The book was based on six linked essays covering various aspects of technician education and training. The text was the result of the Commonwealth Secretariate invitation to review and up-date the earlier Conference held in Huddersfield. Later in 1980 the Further Education Curriculum Review and Development Unit published Signposts (154) a review of courses 16-19. Chapter 3 deals with Education and Training for those who have made a career decision and looks at the structure of TEC courses for technicians. The Construction Industry Training Board, Building Technicians Training Recommendations. (155) These recommendations are designed to help firms in their recruitment, selection and training of building technicians. Another report produced by Moor C , Andrews,S and Dean,A. was entitled T.E.C Programmes Evaluated (1981) (156). The research was undertaken for the National Foundation for Educational

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153 MACLENNAN, A. (1975) Educating and Training Technicians London: Commonwealth Secretariat.

154 PRATLEY, B. (1980) Signposts London: Further Education Review and Development Unit.

155 CONSTRUCTION INDUSTRY TRAINING BOARD (1981) Building Technicians Training Recommendations Bircham Newton: C.I.T.B

156 MOOR, C. ANDREWS,S. & DEAN, A. (1981) T.E.C. Programmes Evaluated Windsor: NFER-Nelson

Research. This evaluative research had three main objectives which were to describe TEC's students' progress, attitudes and characteristics; and to investigate the acceptability to industry of TEC programmes and newly qualified technicians. The report also examined the role of employers in TEC programmes design and development. The focus of the Report was on TEC programmes in Mechanical and Production Engineering (A5), Building Studies (B2) and Science (C1/2/5). The Joint CB1/Coombe Lodge Conference report entitled TEC: Towards the Next Decade (1981) (157) was aimed to give employers and College representatives the opportunity of further progressing the development of a sound, relevant and cost-effective system of technician education under the auspices of the Technician Education Council. The Report investigated two questions, firstly, was TEC achieving the objectives it set out to achieve ? Secondly, was TEC through its organisational structure, able to have the beneficial impact on industry it was initially intended to have ? The Further Education Curriculum Review and Development Unit published Curriculum change: An evaluation of TEC Programme Development in College (1981) (158). This Report represents an attempt to evaluate the curriculum processes introduced by the Technician Education Council.

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157 C.B.I./COMMBE LODGE. (1981) T.E.C. Towards the Next Decade Bristol: The Further Education Staff College.

158 FURTHER EDUCATION CURRICULUM REVIEW & DEVELOPMENT UNIT. (1981) Curriculum Change: An Evaluation of TEC Programme Development in College London: F.E.U.

The study undertaken by Dr.Parkin et.al concentrated on internal curriculum issues affecting centres offering TEC programmes. There is also some discussion of technician education in standard texts such as Cantor, L M, and Roberts, I F. Further Education Today : A Critical Review (159). Chapter 4 concentrates on the development and character of Technician and Business education and considers the factors which influenced the nature of technician education. The Business and Technician Education Council statement, Policies and Priorities in the 1990's (1984) (160), this document describes the policies and priorities on which the operation of BTEC will be based into the 1990's. It followed a discussion document (161) published in January 1984 which was distributed to all interested parties to try to ascertain future needs and to ensure that BTEC Programmes meet these needs. A joint Report published by the Building Employers Confederation and Chartered Institute of Building. The Building Industry Technician Training Scheme (1985) (162). This Report gave recommendations from the Joint Board for Building Technician Training.

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159 CANTOR, L.M. & ROBERTS, I. F. (1983) Further Education Today: A Critical Review London: Routledge & Kegan Paul.

160 BUSINESS & TECHNICIAN EDUCATION COUNCIL. (1984) Policies and Priorities in the 1990s London: B.T.E.C.

161 BUSINESS & TECHNICIAN EDUCATION COUNCIL. (1984) Discussion Document on Educational Policy London: BTEC

162 BUILDING EMPLOYERS CONFEDERATION/CHARTERED INSTITUTE OF BUILDING (1985) The Building Industry Technician Training Scheme

The Further Education Staff College Coombe Lodge Report entitled Action on Assessment in BTEC (1987) (163). This Report consists of a series of papers outlining issues in assessment. The Report looks at the way in which BTEC is tackling the current issues in assessment such as, Accreditation of Prior Learning and Work-based Assessment

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163 COOMBE LODGE REPORT. (1987) Action on Assessment in B.T.E.C. Bristol: Further Education Staff College.

5.2 THE STRUCTURE OF TECHNICIAN EDUCATION AND TRAINING 1970-73

The system of education and training for construction technicians during this period was based on the two main providers of technician programmes : the City and Guilds of London Institute, which provided a wide range of courses that took account of the many routes into the technician career, and the National Certificate provision which was administered by the Department of Education and Science, through various committees, made up of interested parties from the various industries. This tripartite structure had developed historically and incrementally to meet needs as they had evolved over time, and these courses had existed for a very long time.

The three main groups of technician courses operating at that time were :

a. The City and Guilds "ab initio" technician courses.

b. The City and Guilds technicians' course,
"end-on" to craft courses.

c. The National Certificate courses at ordinary and higher levels. (Figure 4.) (164)

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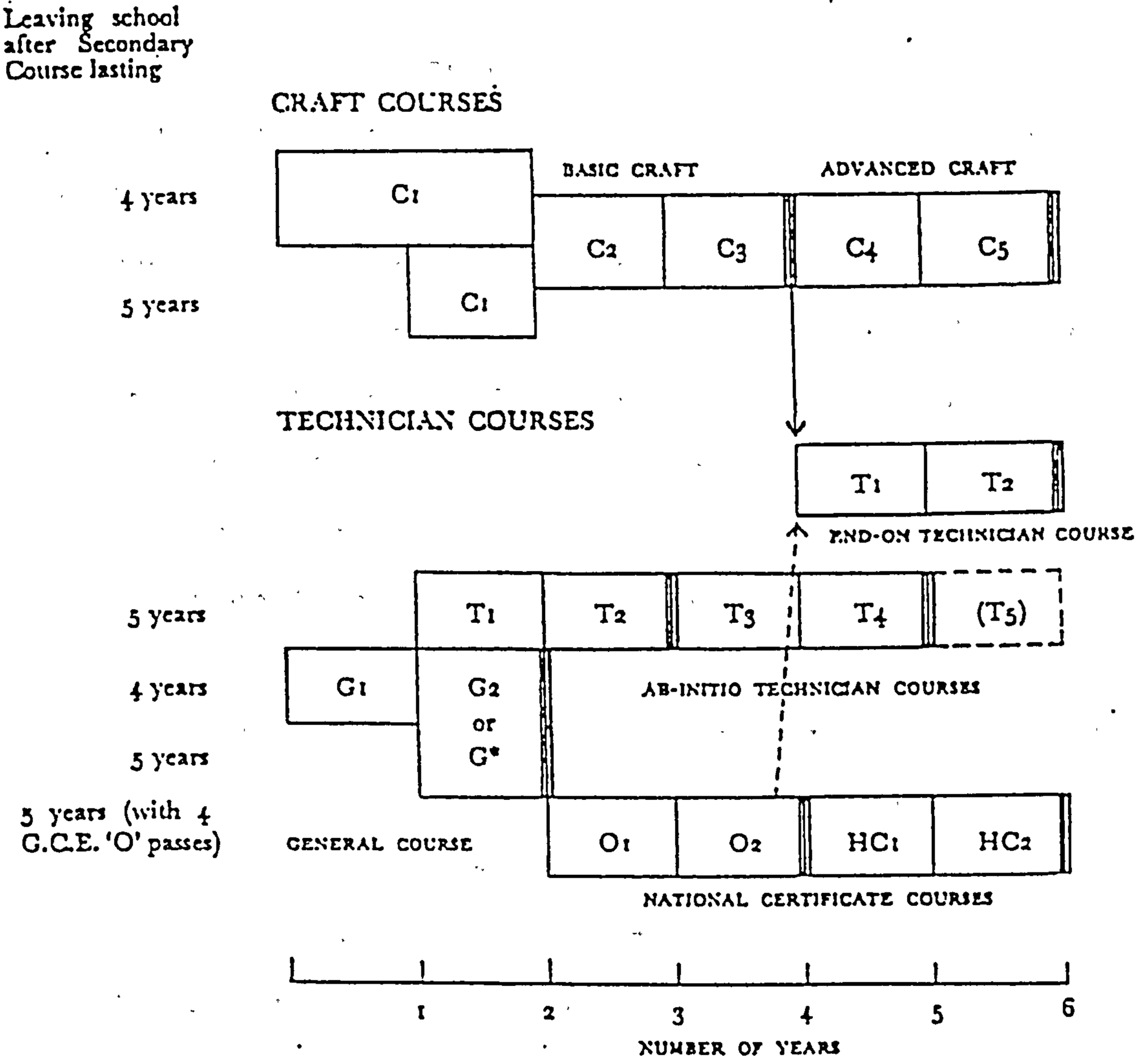
164 Ibid., p. 8.

PART TIME COURSES FOR TECHNICIANS (AND CRAFTSMEN)



C Craft Course
T Technician Course
G General Course
O Ordinary National Certificate Course
HC Higher National Certificate Course
||| Denotes an intermediate or final stage associated with an examination
* Students leaving secondary school after a 5-year course will normally take a one-year General Course.

Fig. 4.

Source: ibid., p. 8.

Ab Initio Courses.

The City and Guilds "ab initio" Technician course was prepared by an advisory committee representative of the industrial, professional and educational interests concerned. Its purpose was to provide a broad technical education with provision for appropriate specialisation. The scheme was designed in three stages; Part 1, Part 2 and Part 3. Part 1 was a two year part-time course designed primarily for those in their initial stages of technician training. It provided a broad general basis common to all types of technicians. There were also additional optional "supplementary" subjects. These subjects could form part of a preparation for later specialisation or alternatively could cover an associate area that was relevant to the particular branch of the industry. For example, a supplementary subject could be Building Services this topic would cover subjects such as electrical insulations, hot and cold water supplies and gas services.

Part 2 was also a two year part-time course. It made provision for further study in the technology area of building and further specialisation, along with studies in mathematics and science. At this stage in the study the successful student was expected to obtain the Technician Certificate. Part 3 was a two year course based on evening attendance. By this stage of the programme the student had reached an advanced level of

specialisation. Some studies at this level would introduce supervisory skills. The successful students on completion of this final part were awarded the Full Technological Certificate.

In summary, the City and Guilds "ab initio" Technician course provided a general foundation, followed by two stages of specialism, providing overall an integrated scheme of technical education and industrial training. The balance between technology and industrial practice on the one hand and science and mathematics on the other provided the student with the necessary relevance of his studies to his working experience and additional general education to enable him to study further for career advancement.

Throughout part 1 and 2 there were studies of a non-technical nature termed General Studies. General Studies as part of the technician scheme was intended to widen the technician's outlook on life and to improve his communication skills. It was expected that with careful selection most students entering the Technician course would successfully complete Part 1 and Part 2 and thus gained a technician qualification. However, only a proportion of these students were expected to attain the standard represented by Part 3 level, and gain the award of the Institute's Full Technological Certificate, a qualification at the higher technician level.

"End-on" Technician Courses

Often the work of the technician was closely allied to and requires a detailed knowledge of craft work, although at a higher or broader technical level, and involved greater responsibility. The work of the site supervisor was a good illustration of this situation. In this case the work involved the direct supervision of the work of craftsmen. The practical knowledge and experience of the building process enhanced the site supervisor's effectiveness, particularly in the area of problem solving. For this category of technician, selection was often made from individuals who had completed craft training and then gone on to further technician studies.

The sequence of graded courses based on the building crafts was as follows : -

a. a three year basic craft course , providing the technical knowledge and skills for normal craft competence.

b. a subsequent two year advanced craft course for the above average craft apprentice, still concentrating on craft work at a higher and/or broader level.

c. a one year part-time Full Technological Certificate course covering topics such as Principles of Construction, Building Science and Mathematics, and Craft Foremanship Studies. At this stage the student was at the transition point between craft and technician levels and he was introduced to a broader coverage of construction, studying the building as a whole rather than a particular craft process. The course also acted as a preparation for more advanced studies:

d. an advanced course in General Foremanship Studies, covering the full range of site administration and control:

e. the alternative route for technicians not intending to work on site but to undertake work of a technical or administrative nature based on the building contractors office. This course was also the bridge course to the National Certificate course. It was more general in nature in comparison with the General Foremanship Studies and covered topics such as Principles of Construction Mathematics and Science.

National Certificate Schemes

These schemes formed an important part of the national provision of courses and qualifications at technician level. They were administered by joint committees appointed by the Department of Education and Science and the professional institutions appropriate to the particular technological field. They provided for part-time study leading after two years to the award of the Ordinary National Certificate and after a further two years to the Higher National Certificate. The entry qualifications for the O.N.C course were four passes at Ordinary level of the General Certificate of Education; two of these subjects had to be mathematics and science. The principal emphasis of the O.N.C course was applied science and mathematics, with technology. The H.N.C qualification was set at the higher technician level and was used as a route to the educational requirements for professional institutions, by the study of supplementary and end-on endorsements to the Higher National Certificate. Thus, students could progress to full professional status as technologist or engineer.

General Courses

For those students who failed to obtain the necessary academic qualifications at G.C.E "O" Level, to gain entry to the Ordinary National Certificate course, there was the option to study one of the "general" courses. These courses were introduced for the purpose of selection and preparation for one

of the specific technician courses. For pupils leaving school at fifteen, who appeared from their school record to be capable of reaching the standard required for a technician course or O.N.C course, the general course lasted for two years. At the end of the second year, according to performance, students either entered the second year of the City and Guilds Technician course or the first year of the O.N.C course. The "G Star" course was intended for pupils who had left school at sixteen, without gaining the necessary entry qualification into the O.N.C course, but who had done sufficiently well at school to justify the expectation that after the one year on a general course they would reach the required standard.

Within each type of technician courses there was an element of general studies. The main aim of this study was to improve the technician's general communication skills. The technician in most occupations needed to prepare clear and concise reports and to handle administrative procedures. His duties may involve him in directing the work of others and he must be able to speak clearly and engage in discussions.

General studies provided the opportunity for the student to improve his verbal and written communication skills. The use of general studies within part-time courses had always been an area of much dispute. Many employers felt that these studies were irrelevant to mature students because they already possessed the communication skills that were offered by the topic and that time would be better spent concentrating on the

vocational aspects of the courses. To counteract these criticisms the City and Guilds Institute defended the use of general studies in vocational courses.

> The Institute urges that all industries concerned with schemes for the further education of technicians should permit an adequate treatment of English and general studies. This will greatly assist the students concerned to gain fluency in speech and writing, to think clearly and make critical use of source information. (165)

It was recognised that the general success of these courses depended upon their integration with industrial training. The schemes operated on a part-time basis with most students being employed in the industry and receiving training from their employer, even if on an informal basis. Therefore the framework of the integrated scheme was based on appropriate recruitment, industrial training and further education. Although the industrial training and further education were provided under different auspices, the aim was to co-ordinate the entire process to achieve the proper integrated scheme. To achieve this co-ordination it was important that the local employers were consulted and actively involved in the further

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[165] Ibid., p. 27.

education their employees were receiving. However, towards the end of this period it was recognised that the future demand for technical staff would not be met by the current training which relied so heavily on employers first recruiting the technicians before they undertook further education

The solution to the problem of skill shortage within industry was to recommend more manpower planning by the newly formed Industrial Training Boards and the expansion of further education provision for technicians by the introduction of a more flexible system of courses with more "open entry" and an increase in the number of full-time courses thus taking away the direct responsibility of employers to recruit young people for training for the future technician needs. These requirements eventually led to the setting up of the Technician Education Council and its programme of technician training and education.

5.3 THE DEVELOPMENT OF THE TECHNICIAN SYSTEM 1973-84.

Throughout the 1960's there was concern about the "wastage" from technician courses and the adequacy of the dual provision of National Certificate and City and Guilds Technician courses. Movement between the two types of provision was minimal. Uncertainties about the nature of the technician's job and the growing realisation of the changing needs of industry made the situation worse. The old system which relied on part-time release from employment was generally slow in qualifying students and failed to train sufficient to meet the growing demands of technicians. Technician training involved a long-term commitment to part-time education, sometimes as much as six years attendance at a further education college. Many students found the level of the National Certificate courses too demanding and the level and length of training were the two main reasons why there was a high rate of wastage associated with these courses.

In 1967 a Committee on Technician Courses and Examinations, under the chairmanship of Dr. H.L. Haslegrave was appointed by

the National Advisory Council on Education for Industry and Commerce. The remit of the Committee was :

> to review the provision for courses suitable for technicians at all levels and to consider what changes are desirable in the present structure of courses and examinations. (166)

The committee stated that in its view a modern, flexible and well conceived pattern of technician courses and examinations should be devised. The question of future arrangements for co-ordinating and administering technician courses and examinations was accorded high importance in most of the evidence received, and this was seen as the central issue. The committee recommended that the existing administrative structure should be re-organised and simplified to make it more responsive to the needs of the industry. To achieve this aim it was proposed by the committee that a Technician Education Council should devise and approve courses, establish and assess standards of performance and award certificates and diplomas as

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166 DEPARTMENT OF EDUCATION AND SCIENCE. (1969) Report of the Committee on Technician Courses and Examinations London: H.M.S.O.

appropriate. The recommendations of the Haslegrave Committee concerned three main issues.

(i) Better links between the education service and industry

(ii) The restructuring of technician courses to make them more adaptable to modern needs.

(iii) The revision of the course content including improved teaching methods.

It was realised that a closer link between education and industry was necessary if future techician courses were to meet the needs of industry.

There would be greater response from employers if representatives from industry were actively involved in the planning and implementation of technician courses. It was required that each centre offering TEC courses should form a consultative committee consisting of representatives of local employers. It was felt that the involvement by local employers was a key factor in the development of modern viable courses. This greater co-operation with industry would also enable the integration of the off-the-job and industrial training. Employers would be making known their training needs and therefore course planning would be made easier. The involvement of local firms would also assist the identification

of future work placements for technicians. Employers would become training orientated and could perceive the advantages of maintaining an active recruitment and training programme. It was recognised that the involvement by the Industrial Training Boards would also enhance the aim of integrating educational and industrial training interests in the technician field. The Training Boards were ideally situated to monitor employers needs and to undertake manpower planning. The Boards close links with firms gave them the unique opportunity to encourage employers to become training conscious. The levy on training ensured that there was a financial incentive to invest in training. Therefore technician programme providers had much to gain and little to lose from the drive to encourage active involvement by industries in the Technician Education Council.

In the Construction Industry as in other industries there was an expansion of the use of technicians. The employment opportunities came from the professional offices and the medium-large size building companies. The 1965 Triennial Survey of Scientific and Technological Manpower (167) forcast an expansion of the need for technicians. The 1968 survey confirmed this expansion of some 14 per cent overall, with an extra 61,000 in construction (168). It was anticipated that

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[167] Ibid., p. 6.

[168] Ibid., p. 7.

this growth in demand for technicians would continue in the future. However, the demand for construction work tends to fluctuate and the demand for technicians was likely to reflect the workload trend. Nevertheless, the introduction of full-time TEC courses reduced the direct reliance on employers' sponsorship and on market forces. Full-time courses enabled the student technicians to spend two or three years in education before moving on to training in industry or alternatively continuing their studies in Higher Education for a further number of years to obtain a Higher Diploma or degree qualification. The trend towards full-time studies and the progression to higher education did not alter the importance of employer involvement in programmes, thus ensuring currency for courses and their qualifications and also the opportunity to keep up-to-date with current industrial practices.

At the forefront of the move to restructure technician provision was the decision to unify the dual system into a series of course programmes which encompassed all the levels of study previously available under the City and Guilds Technician courses and the National Certificate programme. The new technician provision would come under direct control of one central body, which would provide a national system of technician education. The Technician Education Council would gradually establish a new general pattern of technician courses that would be better suited to its needs. It identified its function in its first policy statement as

essentially to rationalise existing provision thus saving valuable resources, to keep the system which it introduces under review, and to innovate. (169)

In order to ensure that the courses were kept up-to-date, it was proposed to devise an effective arrangement for keeping the subject matter and structure of courses under regular review. With regard to course content the general aim was to place greater emphasis on equipping students with the skills necessary to function effectively in industry. It was recognised that the new courses must be designed to produce technicians capable of readily adapting themselves to changing circumstances. The courses were also seen as a vehicle for developing the right attitudes on the part of the student, thus broadening the aims of the course from that of purely cognitive development. There was less emphasis given to imparting a wide range of information because the pace of technological development in the production process caused some knowledge to become out of date. Rather the emphasis was on helping technicians to train and educate themselves in preparation for a continuous process of education for life, an aim that is particularly relevant to technician work.

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169 CANTOR, L.M. & ROBERTS, I.F. (1983) Further Education Today: a critical review London: Routledge & Kegan Paul. p. 67.

One recommendation which aimed to ensure that TEC courses would be more flexible was the introduction of a unit structure which allowed for a credit system of accumulating passes in subjects which could be studied separately or in groups. This system allowed students to pace their studies to suit their particular needs and if students had to take a break in their studies they could carry forward their credits from successfully passed units and re-start again at a later date. The unit system allowed for students who "dropped-out" of their studies to return later or take a new route whilst retaining some credit for their previous studies. Thus the student goal post was made more immediate and this improved student motivation.(170)

The new course structure also adopted a more flexible approach to assessment. Greater emphasis was placed on careful selection at entry to the course. The award of a technician qualification would no longer depend on the student's performance in a formal examination. A process of stage assessments was introduced, termed phase tests. These tests were designed to ensure that the students had mastered a particular section of study before progressing onto the next stage. Assignments and project work were encouraged, the aim being to promote active learning and also the application of knowledge. Each item of assessed work formed part of the

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170 BLOCK, J.H. (ed) (1971) Mastery Learning: Theory and Practice New York: Holt Rinehart and Winston.

continuous assessment which contributed to the final grade. Each course component could have a different assessment profile that was determined by TEC and the college centre providing the course. The assessment profile also indicated the weighting given to each type of assessment used within the course unit. The main principle governing this assessment of TEC courses was that any student who fulfilled the entry requirements for his course and worked reasonably hard should be entitled to expect that he would pass the examination. The pressure to pass examinations was also reduced by the grade accumulation system, by which the student who had performed well in his course work assessmment could enter the end examination having accumulated enough marks to need only a bare pass mark in the final examination to receive the award. This system of continuous assessment helped to reduce the amount of "wastage" connected with technician courses but brought into question the validity of the courses and their qualifications and highlighted the problem of maintaining national standards. By devolving some of the control over assessment to the level of the basic unit and individual lecturer, the TEC reforms signalled a major shift in the control of standards and qualifications.

The Report also recognised that a more comprehensive style of technician education would better suit modern educational needs and would bring technician education into line with developments in the secondary education system. The secondary education system had adopted a comprehensive approach to the

education of pupils and the new proposals in technician education would provide a natural progression from it. The previous dual system had been based on the division of individuals into grammar and secondary modern schools, with the former pupils fitting into National Certificate courses and the latter group of pupils entering the City and Guilds Technician courses.

In order to make full use of this new open and flexible approach to recruitment, it was recommended that links between colleges and schools should be strengthened so that potential technicians from school would be made aware of the opportunities available to them as industrial technicians. The new system gave the opportunity to a broad ability range to opt for either the academic route via the sixth forms or the dual vocational route of technician or craft streams according to ability and aptitude.

The Technician Education Council eventually began operations in March 1973, taking control of the administration of technician courses from the City and Guilds of London Institute, whose technician level courses TEC replaced. The Technician Education Council was a registered limited company which was financed initially by a grant from the Department of Education and Science. Eventually the Council became financially self-sufficient through a system of student registration fees, which became the Council's main means of income. It was envisaged at the beginning of the Council's work that by 1986 there would be sufficient students undertaking TEC courses to enable it to

become financially independent.

The technicians employed in the Construction Industry were offered courses in Sector B of the TEC programme. The unit structure enabled the TEC programmes to offer a broad range of subjects at various levels. The Building Studies programme could include units covering Building Technology, Land Surveying, Measurement of Building Work, Mathematics, Physical Science, Materials, Organisation and Procedures and Elementary Accounting Procedures. Some subjects were studied at one level only, other topics would cover more levels up to level five, following on in sequence of levels. The subjects were offered in a series of levels which were progressively more specialised and complex. It was usually recommended that before a higher level was studied the basic level was successfully undertaken.

The certificate or diploma awards were comparable in level to the City and Guilds of London Institute Part II or the Ordinary National Certificate, with the diploma awards involving a broader range of studies and about twice the hours of attendance of the Certificate course. The particular attraction of the Diploma course was that students who achieved pass grades with merit would be accepted by institutions of Higher Education for degree or higher diploma courses, which could eventually lead to full professional status. Many students used the TEC diploma course as preparation for Higher Education and eventually professional occupations, a fact verified by the National Foundation for Education Research,

whose evaluation of TEC's programmes found that some 58% of all Building Studies Diploma students intended to carry on with their studies. (171)

It was possible to convert a certificate to a diploma award by adding more units of study. Conversely a student who was unsuccessful in a diploma course could qualify for a certificate award, providing the appropriate units have been sucessfully completed. Although the unit structure was not an obligatory requirement for TEC programmes, it did make this kind of interchange between programmes possible.

Course Design

Prior to the introduction of TEC programmes , courses for technicians were based on specific vocational areas and transfer from one vocational area to another involved the student undertaking a completely new course. The unit structure adopted by TEC was based on a collection of learning objectives called a unit which would take the average student about sixty hours to achieve. In theory this structure allowed students to complete a unit at their own pace making their learning of units individualised. It also allowed for individual students to miss out units from which previous study exempted them, for example a student with GCE 'O' level maths would be exempt from TEC Mathematics Level I. It also meant

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171 MOOR, G. ANDREWS, S. & DEAN, A. (1981) TEC Programmes Evaluated: student progress and employers perceptions London: National Foundation for Educational Research. p. 111.

that students could transfer between programme or 'pick up' extra units to suit their own needs; for example, a student who had started a Building Studies Programme, who wished to transfer to Civil Engineering could transfer to the new programme taking with him the relevant units he had already obtained. Some units woulds have a common value between programmes such as Building Technology, Mathematices and Science, whereas other units such as Land Surveying did not carry the same relevance within the new programme. Certain units within a Civil Engineering programme would be compulsory and yet not be included in a Building Studies programme. Therefore, the value of direct transfer of some units was restricted to appropriate units.

Nevertheless, there could be direct transfer of some units thus avoiding the need to restart a completely new programme. In fact in some colleges Building and Civil Engineering students undertaking a full-time Diploma course started on a common set of units and eventually specialised in units appropriate to their vocational area. The danger of the unit structure leading to an over-compartmentalised approach was avoided by the use of different levels within subject areas through which students should progress, where level I was a pre-requisite for study at level II and so on. As a result of this unit structure each year of the course was associated with a range of units at similar level.

The Technician Education Council set out minimum requirements for its certificate and diploma awards in unit terms, as follows :

	Certificate	Diploma
Minimum units for award	12	20
Maximum level I units	5	8
Minimum level III units	2	6
Maximum free standing	2	4 (172)

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172 FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT. (1980) Signposts: a review of courses 16-19 London: FEU. p. 16.

Each programme included certain compulsory units which were considered necessary for the Sector programme and other optional units. For example, for the Building Studies certificate award, Building Technology and Mathematics would be compulsory units and Elementary Accounting Procedures an optional unit. This system of compulsory and optional units not only related to subject but also level, with some levels being compulsory and others optional within one subject area. The main aim of the TEC was to provide a coherent system of awards to replace the previously complicated pattern at technician level. Progression from craft courses into TEC courses was still possible by a variety of routes. The most common point of transfer was on completion of the Advanced Craft Certificate course. For students at this stage in their studies, a bridge year was undertaken which included a range of TEC units which would progress the student up to the first year of a two year part-time Higher Technician Certificate course.

Central to TEC's approach to course design was the emphasis on behavioural objectives. TEC justified its choice of an objectives based approach on the grounds that it would greatly enhance employers', teachers' and students' understanding of the curriculum and also provide a basis for determining course levels and standards. As such, it adopted one of the main features of the rational model of curriculum planning. However, evidence from the FEU evaluative research into TEC programmes

indicated the problem caused by the introduction of behavioural objectives.(173) It was intended that the use of behavioural objectives would 'open' access to the curriculum content by prescribing the learning objectives. However, this change was perceived by some teachers as an encroachment on their autonomy and a means of monitoring the teachers' work by assessing the range and depth of the objectives achieved by the students. Lecturers thus saw the emphasis on objectives not so much as a move towards rational planning, but as a shift in the level of curriculum control. The FEU Report found that generally while some 88-90 per cent of those teachers surveyed were working to the objectives, a large proportion of the students, 65 per cent, had no access to the unit objectives.(174) Many teachers complained that they felt constrained by the objectives in that it gave them less scope to draw on their own experiences to influence course content.

Added to this problem was the lack of experience teachers had in writing objectives. In its guidance notes for teachers and its standard units TEC relied heavily on a modified version of Bloom's Taxomomy of Behavioural Objectives.(175) Two features

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173 FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT. (1981) Curriculum Change: An evaluation of TEC Programme development in Colleges London: FEU.

174 Ibid., pp. 30-31.

175 BLOOM, B., et al. (1956) Taxonomy of Educational Objectives, Handbook I: Cognitive Domain London: Longman.

of the taxonomy were particularly relevant to TEC purpose. First, it distinguished between psychomotor, affective and cognitive objectives and it suggested that due weight should be given to all three. The use of this modified version of Bloom's Taxomomy gave greater scope for ensuring that TEC programmes were not solely cognitive. Secondly, the distinction the taxomomy made between high and low level skills within these three dimensions would facilitate the writing of objectives for the different TEC levels.

The FEU research study revealed a considerable discrepancy between the theory and the practice in the use of behavioural objectives both within college based units and also standard units that were developed and issued by TEC. From the analysis of five standard units representing the work of different programme committees and different TEC levels it was found that all five units were overwhelmingly cognitive in emphasis. Even in level III units there was a predominace of relatively low-level information recall, whereas higher level skills such as the ability to analyse, sythesise, evaluate and apply knowledge, got very little emphasis. Therefore, the use of objectives to determine level of course units was not being correctly applied and the stated advantage of using objectives across a range of skills and levels was not being put into practice. Once again, a gap had opened up between the attempt to plan rationally at a national level, and the implementation of these plans at lower levels in the system.

Had the range of objectives been applied to job requirements

and skills required at various levels of technician grade, then full use could have been made of the behavioural objectives used by TEC.

This detailed job analysis was not undertaken because there was not the financial resources or the time to implement this type of investigation in a wide range of industries. In the absence of this information the curriculum developers were forced to resort to translating the content of the previous technician courses into behavioural objectives.

There was great emphasis given to the system of assessment for TEC programmes, assessment related to the learning objectives. The adoption of a continuous process of assessment was perceived by building students as,

> helpful in enabling them to revise and learn unit material and they considered that it provided a fairer test of their ability because their success did not hinge upon performance in one single examination at the end of the course. (176)

Colleges were required to submit an assessment plan for each unit in its TEC programme. As part of the TEC validating procedure the college had to give details of the number of assessments, the skills and knowledge to be assessed, the type of assessment being used and the marks awarded for each

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176 MOOR, C. ANDREWS, S. DEAN, A. (1981) Op. cit. p. 105.

component of the total assessment. This makes a clear shift in the control over assessment, from the national to institutional level. The research undertaken by the FEU evaluation committee (177) highlighted the weakness of this system of college based assessment for a nationally validated programme. The assessment plans submitted by colleges varied considerably. Analysis of twelve College assessment plans showed enormous diversity in the detail of assessment patterns derived for the same standard unit by different colleges.(178) This lack of uniformity raised doubts about standards and the equivalence of different college programmes. In recognition of this problem TEC produced model assessment plans for their standard units, which colleges had the option to use if they wished. However, the FEU Report found that a very substantial number of teachers found it impractical to interpret the assessment plans to take account of categories of knowledge and skills.(179) Another aspect of the TEC assessment system that caused problems for colleges was the acceptance by TEC of criterion-referenced assessment, requiring a criterion or standard against which to judge the students' performance. Traditionally in technician education assessment had been norm-referenced. The transition

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177 FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT (1980) Op. cit.

178 Ibid., p. 44.

179 Ibid., p. 93.

from norm-referenced to criterion-referenced assessment caused many problems with some colleges unwilling to drop norm-referenced testing. The setting of standards or criteria for knowledge and skills being judged within assessment criteria was a new skill that the lecturers had to learn. The transition from one system to another was also confused by TEC's insistence on a grading system for each unit, a point made by the FEU Report :

> TEC confused the issue by assuming that criterion-referenced tests could be used for norm-referencing by discriminating between student levels of achievement with a grade of pass for a mark of over 50% and pass merit for a mark over 65% (180)

The TEC's approach to assessment also assumed regular testing of mastery combined with remedial learning where necessary. This system involved the use of "phase tests", where at the end of a block of related objectives a phase test assessment was undertaken to determine mastery of that section of the unit. However, many colleges found the organisational and resource demands too great to change over successfully to a process of testing that caters essentially for individualised learning and

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180 Ibid., p. 51.

achievement rates. Due to the increased workload and the accompanying timetabling problems, it was easier to preserve the pre-TEC method of group paced learning, and phase testing simply became another form of the continuous assessment process. As the FEU Report recognised :

> for proposed curriculum changes to be realised in practice, implementors must have adequate understanding of the intentions of the initiators . (181)

In the absence of a nationally planned staff development programme to assist the introduction of TEC policy and changes required, the support that the teachers received to cope with the changes varied enormously from college to college and between lecturers. A major curriculum change such as that brought about by the Technician Education Council, requiring change in course design, teaching methods and assessment, needed to make adequate provision for staff development. Unfortunately the time and financial constraints placed on TEC prevented the provision of a full national programme of staff development and therefore many of the problems that TEC encountered in establishing its programmes of courses stemmed from the absence of staff development, with many of the innovations not being properly communicated to the colleges and therefore not being put into practice.

This lack of communication and staff development led to a gap

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181 Ibid., p. 109.

opening up between stated national policy, and actual local provision; again, a problem of lack of control!

Teaching Methods

The TEC's approach to curriculum development appeared largely to have excluded a consideration of teaching and learning strategies at the design stage. The development of the TEC curriculum placed the accent on what students should learn rather than how they should learn and as a consequence there "was a pre-occupation with the coverage of specific content at the expense of stressing transferability, probably the most crucial of technician skills" (182).

This emphasis on formal direct transmission of information as the prime teaching method was verified by a survey undertaken as part of the FEU evaluation report. This survey discovered that the main teaching method was formal lecturer/lesson delivery accounting for 89% of the method of teaching and that the main teaching aid was the chalkboard or whiteboard, accounting for 92% usage (183). This teaching style encouraged passive learning which was contrary to the perceived needs of trainee technicians. Instead the learning strategies should have been encouraging application, problem solving and trasferability of knowledge and skills. There was a positive response to tutorial sessions and it was considered a useful

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182 Ibid., p. 62.

183 Ibid., p. 34.

method of improving coursework. However, the FEU Report recommended that there should be more training and guidance given to both teachers and students in the effective use of tutorial time. General and Communication Studies represented 15% of the curriculum, and it was intended by TEC that this topic should be integrated into the rest of the curriculum but in practice the units were designed and implemented separately (184). Although most employers saw the value in communication skills, many considered that General Studies were a waste of time.

The introduction of the TEC reforms created a number of problems to do with the level of control of the curriculum. These involved not only the relationship between the national (TEC) level and the institutional (college) level, but between the institution and its basic units (department) and the individuals in them.

The Technician Education Council's policy made every college responsible for its own range of programmes. This meant that each college determined the content and structure of their TEC courses including the intake requirements, teaching methods and rules on exemptions and student failures. The intention was that the entire curriculum was under the control of the providing college who worked in co-operation with industry through college committees. However, in practice most colleges adapted the standard units provided by TEC and used them as

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184 Ibid., p. 41.

syllabuses from which to teach. This situation was mainly due to the pressure placed on colleges to get TEC courses running following the change-over from CGLI technician courses. The problem of implementing the new courses was made worse due to the widespread assumption that course units needed to be expressed in terms of behavioural objectives. The art of writing behavioural objectives was unfamiliar to most college lecturers and there was limited provision for staff development. The pressure to adopt TEC units was unfortunate as it went against the original intentions of asking colleges to submit their own programmes which would be validated by TEC. The Council was funded as a validating body and as such had little if any funds for curriculum or staff development work. The standard units which it had produced had been intended simply as guidelines from which colleges could design their own units in close consultation with local industrialists.

But the pressure on colleges meant that they were unable to adopt control over their own curricula, and hence passed back that control to the national level, which did not particularly want it.

The initial college involvement in TEC programmes received a rather mixed response. Many teachers felt that there was no need to replace the well established courses offered by the CGLI and the National Certificate courses. This response was hardly surprising in view of the fact :

much of the evidence presented to the Haslegrave Committee highlighted the need for change in technician education within the engineering industry but not necessarily in other sectors. (185)

The complete structure and nature of the Construction Industry was different to that of the Engineering Industry and therefore a system of education and training which was appropriate for enineeering was not necessarily right for construction. It was therefore dangerous to enforce change across both industries. This was particularly so when these established courses were being replaced by a new and untried TEC programme. Employers involved in building construction mourned the loss of the CGLI Construction Technician's Certificate which in their opinion catered for the more "practically orientated trainee". In addition, some of the professional institutions associated with the building industry had reservations about TEC's ability to cater for specialist needs within a ten unit Higher Certificate programme. Concern was also expressed that TEC groups would consist of a wide ability range, represented by the previous dual technician courses.

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185 MOOR, C. ANDREWS, S. DEAN, A. (1981) Op. cit. p. 150.

The liaison between the employers and the colleges and the TEC and colleges proved to be a key issue. The effectiveness of this liaison influenced the employer's perception of TEC programmes and also the development process of the technician courses within colleges. The employer's views concerning the extent to which TEC met their needs was mixed. The National Federation of Educational Research evaluation of TEC programmes explained that :

> while the certificate programme seems largely successful in providing trainees with a general theoretical background, it does not always fulfill employers' requirements in terms of job specific knowledge and skills. (186)

This issue was also highlighted by a survey of students undertaken by the FEU which indicated that 79 per cent of building students thought that their TEC programme was too theoretical. (187)

One of the main difficulties was the range of technician jobs and employers associated with the Building Sector programmes. The five main groups of technicians that the Building Studies programmes were designed for were those working in the fields

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186 Ibid., p. 60.

187 F.E.U. (1980) Op. cit. p. 104.

of architecture, building, building surveying, building control and quantity surveying. The nature and scope of jobs within these five categories varied considerably according to the type of employer concerned. The National Federation of Building Trade Employers felt that TEC was too remote from industry and that programme changes tended to reflect college views rather than industrial needs. The Federation preferred a more practical approach within the Building Sector programmes particularly with units which deal with the building function on site. This criticism made by the largest employers' organisation within the Building Industry added weight to those who argued that task analysis should have been the starting point for TEC programme development. Such an analysis would have provided a truly rational basis for planning courses, rather than incrementally tinkering with existing courses.
The FEU Report indicated that it was mainly senior staff that undertook consultation with employers. The lecturers actually involved in teaching the TEC programme were not able to hear at "first hand" the employers' needs. What consultation did take place was mainly with larger companies because of the difficulty of contacting and liaising with smaller firms. The situation gave rather an unbalanced view of employers' needs because larger companies often have different needs to smaller firms.

Liaison between TEC and the colleges was the second area of concern ,and the factors hindering the process of development of TEC programmes, poor communication was listed as a key factor. " Lack of information and a slow or no response from TEC was seen as the main problem in the initial stages". (188)

What seems to have been a major factor in this weak link between colleges and TEC was the lack of adequate resources. The FEU Report compared funding of TEC programmes in comparison with the Open University and although student numbers were comparable, the financial support from Government was remarkably different. For example, in the fifth year of operation TEC received £666,969 compared with the Open University, whose income from the Government was set at £996,700 (189).

A combination of poor communication, the lack of pilot schemes and staff development programmes and the over-reliance on the "goodwill" of College staff, all led to a rather patchy implementation of TEC programmes and pointed to a major national curriculum innovation which was severely under financed.

The main communication link between colleges and TEC was made by the programme moderators who visited colleges to monitor courses. However, there were only a small number of moderators

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188 Ibid., p. 99.

189 Ibid., p. 56.

and therefore their effectiveness as a channel of communication was weak. For example, in 1977 there were only two full-time and twenty seven part-time moderators. This increased in 1980 to ten full-time and 400 part-time moderators (190). This represented a considerable increase in the number of programme moderators, but indicated a high reliance on part-time moderators. Most of the part-time moderators were not subject specialists in all the subjects they were moderating and there was a call from colleges for TEC to use subject assessors rather than non-specialist moderators. The Communication link between moderators and TEC was weak and not all moderators were fully conversant with TEC policy. "Part-time moderators advised colleges on the basis of their own experience rather than on a common understanding of TEC policy" (191). A large proportion of part-time moderators were college lecturers and the point was made at the Joint CBI/Coombe Lodge Conference that there was a need for more involvement of employers in TEC moderation than was the case at the time. It was reported that only 10 per cent of moderators were drawn from industry (192). The evaluative study undertaken by the FEU illustrated the problem of communicating this major curriculum innovation at the chalkface.

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190 Ibid., p. 101.

191 Ibid., p. 101.

192 C.B.I./COOMBE LODGE. (1981) Op. cit. p. 8.

> Even when moderators visit the colleges there is no gurantee that all teachers concerned with TEC programmes will have access to them. In particular junior and inexperienced members of staff are least likely to meet the moderators, though they are the teachers most likely to confront the problems of translating the behavioural objective into teaching and learning activities. (193)

The hierarchial structure within colleges and the perceived "power" of the visiting moderator resulted in moderators mainly seeing the senior staff within the departments: Heads of Departments, Principal Lecturers, or Senior Lecturers. Therefore, such TEC policy as filtered down to Lecturers was second-hand and provided no interchange of ideas or feedback on problems of implementation. Thus the problems of the relationship between the various levels of the system went right down to the individual lecturer, and through him or her, to the trainee.

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193 F.E.U. Op. cit. p. 102.

5.4 THE DEVELOPMENT OF THE TECHNICIAN SYSTEM 1984-90

In the September of 1984, the newly formed Business and Technician Education Council set out its major policy statement for the future. The document was entitled "Policies and Priorities into the 1990's" (194).

The main subjects for early attention were listed as follows :

- relevance of provision
- availability of programmes of study
- core studies
- inter-discipinary themes
- updating the curricula and learning strategies
- national credibility of qualifications
- external moderation and quality standards
- liaison and participation
- cost and resource effectiveness
- monitoring and review

It was apparent from the list that this document represented a major review of TEC provision of technician education training,

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194 BUSINESS AND TECHNICIAN EDUCATION COUNCIL. (1984). Policies and Priorities in the 1990's London: B.T.E.C.

which was now to be provided by the BTEC Joint Board. The first commitment was to ensure that the programme retained their industrial relevance and that the courses kept up-to-date in their technological content. To ensure that these aims were met it was important that there was adequate feedback from industry and that regular review meetings were held.

The new trend in mode of attendance which favoured full-time courses did not meet the needs of adult returners and those who wished to accumulate credit towards a qualification over a period of years. Therefore, in addition to the usual modes of attendance it was proposed to offer courses on a more flexible basis. Methods such as Open Learning and Distance Learning were proposed so that students who lived some distance from a local Centre or students who worked unsociable hours were able to pursue their studies in their own time, with the minimum amount of attendance at formal classes or tutorials.
The value of offering single units of study or small groups of Units was also recognised. Students who wished to up-date their knowledge in a particular area of their occupation did not require a fully structured course. In all, there was a commitment to a more student centred approach in the BTEC provision of courses, with the advantage of attracting more clients by widening the net of potential students and also recognising the way in which the "new" student groups could be encouraged back to study. A further aim that became apparent from the BTEC review was the need to broaden the content of

study to the extent that inter-discipinary themes were to be used. The objective behind this development was to train staff who were versatile and more adaptable in their approach to work. The method adopted was to develop groups of core studies around which a variety of cross-disciplinary work could be set. The use of core themes also enabled the course content to become integrated so that it evolved as a coherent programme of study and personal development that was apparent to the student. In order to maintain the occupational relevance it was recognised that the learning process and teaching methods needed to be kept up-to-date. This entailed a greater emphasis on application of knowledge through the use of assignments and less stress being placed on transmitting information for later recall by didactic teaching methods.

The need to develop the students' personal skills was also recognised as a prime concern of the BTEC programme. Personal skills were seen as a means of instilling the work ethic so that students were able to apply their learning and relate effectively to others in a work situation. The need to develop these skills stemmed from the fact that many students on BTEC courses were undertaking full-time study and were receiving little or no work experience. Therefore, when they entered employment after training they needed to adapt their theoretical knowledge to practical situations as well as coping with culture of the industry. The Common Skills enabled the student to prepare for the work situation so that they could make effective use of their training. The Common Skills fell

under the headings of Self-Development, Communication Skills, Problem Solving, Design, Working with Others, Information Technology, Practical Skills and Self Management; all concepts of vital importance in the development of an effective member of a technician team. In the past these skills were being developed at work alongside the formal technical study undertaken at College by students on part-time release from industry. Now these skills were being formally recognised as an integral part of a technician's training.

The Council recognised the previous weakness in course credibility which was highlighted by the FEU Report undertaken by Parkin et.al (195) and the obvious problem of maintaining National Standards in a system which gave great autonomy to institutions (colleges) in their choice of assessment procedures and course content. The TEC system was open to abuse if sufficient monitoring of courses was not undertaken. It was shown by the FEU Report that the initial work load of TEC Moderators was excessive and that thorough monitoring of standards was not possible because of the time constraints on Moderators' visits to centres. With a process of internal assessment it was necessary that all 'end examination' papers should be vetted by the BTEC Moderators prior to the setting of the paper to ensure that the paper's content was set to the

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195 FURTHER EDUCATION UNIT (1981). Op. cit.

correct level and breadth appropriate to the Unit of study. With such a range of different assessment methods and structures, it was difficult to ensure that a truly national and equitable system was being used by all Centres offering the BTEC qualification. The main safeguard that BTEC could offer was the opportunity for all examination scripts, model answers, and the course content to be regularly monitored and the assurance that examination marks and grades were thoroughly moderated before the qualification or credit towards it was given. Furthermore, most TEC moderators were also subject specialists and much of the work they were moderating they had no specialist knowledge of. This lack of subject knowledge was in complete contrast with the City and Guilds Assessors who only assessed work in their own subject specialism. The two main proposals made by BTEC to ensure quality control were to improve the training and development of Moderators and to improve the statistical and sampling techniques for monitoring the assessment and grading of students.

The BTEC Building Technician Programme was the only type of programme of its kind for building technicians. In some vocational areas there was still the opportunity to undertake City and Guilds Technicians Courses, for example, Electrical Engineering. It was therefore particularly important that the Construction courses provided the appropriate level and scope for the whole range of Construction technicians and across all professional, administrative and management occupations related

to the industry. It was also important that access and progression within and between courses should provide a flexible opportunity for students who would benefit from the courses, to be able to enter programmes regardless of age and experience and to further progress to the highest level which they were able to achieve. Many BTEC courses, particularly those of a part-time mode of attendance had mixed student groups of both recent school leavers and adult returners, many of whom had had long experience in the industry at craft level. This type of mixed group had to be recognised and responded to when considering methods of teaching and assessment of Common Skills. Many adult students had already developed these skills from their life experience, whereas recent school leaver had not had these years of experience and needed help in developing these complex skills. The prior experience of adults must influence the level at which teaching must begin; however, the more traditional methods of teaching tended to give a structure that adults prefered. This might be due to the fact that most adults experienced a structured and directed education during compulsory schooling and therefore felt comfortable with a familiar system of learning. However, the mature learner may become more independent after an initial period of returning to formal education. The school leavers had not got the experience to call on but they were more familiar with study skills and the discipline of learning.

The programmes also had to reflect the needs of industry and the Professional Bodies. The BTEC courses were often the starting point for individuals to progress onto professional or degree courses and it was therefore important that the programmes' content matched the needs for those higher level courses if progression was to be achieved. For example, the TEC Level 3 Mathematics did not completely reach the level at which degree foundation mathematics commenced. Students entering degree courses with a TEC Diploma had had less preparation than students with 'A' level mathematics. It was vital that BTEC courses provided the opportunity for progression to higher level courses for those students who wished to progress beyond technician level but whilst catering for those students, it was critical that the level should not be raised to such a standard that less able students were unable to successfully complete their studies at Technician and Higher Technician level. The Unit structure of BTEC programmes did allow for this type of flexibility whereby students wishing to progress to degree or professional level were able to study Mathematics to level four or five and students pursuing only a technician qualification could study Mathematics to level one, two or three depending on their chosen subject area. For example, Building Technicians might only need levels one and two, whereas Civil Engineering students or Quantity Surveying technicians might wish to study to a much higher level.

The role of a validating Body like BTEC was to promote the partnership between education, employers and professional interests in designing, developing and reviewing course units. In effect, this recognised the fact that there were various 'interest groups' which had a legitimate input into the planning of Construction Education and Training and that effective provision implies a good deal of political collaboration at both the national and local level.
To ensure programmes were meeting the needs of students and other interested groups, it was essential that close liaison was maintained between employers, professional bodies, course designers and providers, so that courses could be tailored to meet changing industrial needs. Within each broad vocational area Liaison Committees met to maintain this partnership link. The main method of ensuring that courses were kept up-to-date and relevant and to maintain standards of provision, was to operate a national system of monitoring and reviewing provision in the light of industrial and educational developments. The BTEC Report made a commitment to ensure that there was regular monitoring and review of its provision by the various vocational committees and through a more effective system of moderating Centres and their courses.

In recent years BTEC had placed greater emphasis on teaching methods particularly with regards to development of a more student-centred approach to teaching and learning. The two

major reviews of TEC provision found that the teaching methods were still mainly didactic and teacher-centred and based mainly on providing information with insufficient regard for the application and analysis of knowledge. The traditional method of teaching involving 'talk and chalk' resulted in students passive involvement in the learning process. Furthermore, the higher levels of learning involving application, analysis and evaluation were not adequately developed. It was recognised by the Report that application of knowledge was a vital requirement in vocational studies.

The application of knowledge was particularly important in a curriculum based on a unit structure because there was always the danger that the knowledge would become fragmented. Students needed to be able to link and relate the various units they had studied so that they could make effective use of this knowledge in the workplace. The use of assignments and Projects helped to overcome the problem of a too teacher-centred method of teaching and also assisted in the application of knowledge. Assignments could be designed so that the students could take control of their own learning, and higher levels of learning such as evaluation, problem-solving and analysis could be included in the tasks. Therefore, the assignment also served to prepare the student for the real world where knowledge was not divided into neat packages called units and where external pressures demanded the ability to problem solve.

The assignment was also a vehicle for the integration of theory and practice. The problem of the TEC system was that for those students who were undertaking full-time study, and this was a large proportion, the structure of their training was mainly academic with no provision for work experience. This fact was perceived as a obvious weakness by those employers who were recruiting technicians directly from full-time courses. The introduction of the Vocational Assignment was intended to develop and assess the students' ability to apply their knowledge and skills in a realistic series of tasks that were set with the co-operation of local employers and which simulated a 'live' work situation. Ideally the student would undertake the Vocational Assignment under supervision with a local firm or alternatively the College would provide a simulated working environment. The use of assignment work and projects allowed a move away from classroom based and teacher centred learning, and the introduction of higher cognitive skills such as application, evaluation and problem solving, and assisted in the integration of a fragmented curriculum. Through the use of Vocational and Integrated Assignments students were prepared for work by developing work skills and an attempt was made to integrate theory and practice. The desire for a broad based training that was initially less job specific led to the use of interdiscipinary assignment work which gave an insight in areas of work beyond the traditional scope of subject boundaries.

The BTEC Policy document outlined the important tenets of the BTEC provision for the 1990's as follows :

(a) that one role of a validating body is to promote the important partnership between education, employers and professional interests in designing, developing and reviewing courses and units.

(b) that the main value of vocational study is demonstrated by what a student can subsequently do and to achieve this requires BTEC to specify the curriculum in terms of the intended outcomes of student learning.

(c) that the expectation is that a student who is recruited with integrity to a course should, with diligent study and application, attain a qualification

(d) that the assessment of a student is subordinate to, but supportive of, the purpose of the course, so that assessment confirms achievement of learning.

(e) that the appropriateness of a programme of study lies principally in its relevance as a preparation for success at work, with progression to other studies being important but normally subordinate.

To ensure that these important tenets were being implemented a series of BTEC Boards were to provide expert guidance from employers, educationalists and the professions on the course provision required for each broad vocational area. Each Board

reviewed the trends and needs in the vocational area it covered and monitored the implications of these developments for BTEC. The authority of each subject Board included approving guidelines for courses, devising standard units, arranging validation and revalidation, and undertaking curriculum development. The main form of provision still remained the BTEC National and Higher National awards but Pre-Vocational and Continuing education were likely to emerge as areas of great importance in the future.

The Unit based and Grouped course were the main course structures but to provide that additional flexibility an alternative route to BTEC National and Higher National qualifications was the self-paced accumulation of units, which were taken singly or in two and threes to build up the right cluster of Units for a particular qualification. It was felt that the latter structure was particularly beneficial to adults who were unable to follow the normal attendance patterns of full-time , block release, or day release attendance.

Approval of Centres

As a vital part of its quality assurance system, the Council set certain criteria in terms of staff, equipment, and learning resources for any Centre whether Public or Privately owned

which planned to offer BTEC Courses or Units . These criteria were listed as follows :

(a) qualifications and experience of staff involved.

(b) specialist equipment.

(c) learning support.

(d) course team co-operation and consultation with industry and commerce.

(e) arrangements for managing, evaluating and reviewing the course.

(f) attention to staff development, especially with respect to learning strategies appropriate to a course

For continual approval to be granted there had to be favourable reports from Moderators following their visits to Centres. New Centres were linked to an established Centre for support during the early stages of development. Alternatively any new centres that appeared to have weaknesses in their course provision may have been required to form a link with an established Centre until the new Centre had become successfully established. The main criteria for validation of Course Programmes were a high quality provision, vocational relevance, national consistency and industrial and professional credibility. The system of approval of Centres can be seen as an attempt to resolve some of the problems of control at lower levels in the system which were noted previously.

The Council gave clear guidance about the part played by assessment within BTEC provision. There had been concern about the amount of assessment within TEC courses. The difficulty with continuous assessment was that stages for assessment such as phase tests and assignments for each of the individual Units of study tended to build up particularly towards the end of the course when the students also needed to revise for their end examinations. This could lead to a situation where assessment dominated the learning and created an imbalance in the teaching process. The Council's guidance required that the assessment should relate to students' work throughout the course and that it should cover all the main elements of the study. It was also recommended that the full range of assessment methods should be used and that the choice should be based on it's appropriateness for the unit or course. With this range of assessment methods and stages of assessment it was important that a proper balance be struck between intermediate and final assessment and between formal examinations and other methods such as, project work. It was recognised by the Report that a regular check should be made on the balance between assessment and learning, so as to prevent assessment dominating learning. The major change with regards to assessment was the attention now being given to the personal qualitites of the students. It was formally recognised for the first time that the basic personal qualities and abilities possessed by students may make a difference between success and failure at work. These include attitudinal qualities in relation to work, learning and

interpersonal skills. The Council outlined its policy in the following statement :

> These skills can be as important at work as specialist knowledge and expertise. They can in part be developed through the way in which courses are operated and managed, though they have often previously been considered outside the scope of vocational courses. The Council will be encouraging attention to this kind of personal development, particularly for younger students on BTEC National courses" (196)

This new emphasis on Common Skills added a new dimension to BTEC assessment. Although this type of assessment was now common to YTS training and other pre-vocational studies, it was the first time at technician level that assessment had moved away from cognitive or psychomotor abilities to affective skills. This was partly in recognition of the diminishing distinction between education and training. It was recognised by BTEC that programmes are as much about preparation for employment as they are about gaining qualifications. As employers become accustomed to Profiles of Achievement for their craft trainees, the demand for this type of personal profile would also be required by employers for their trainee technicians.

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196 BUSINESS AND TECHNICIAN EDUCATION COUNCIL. (1984) Op. cit. p. 20.

Employer-led Schemes.

The employer's /industry's contribution to technician training was through two schemes offering similar types of provision. These schemes were practically orientated rather than the academic-led character of BTEC full-time programmes. The CITB was the main Managing Agent in the Construction Industry for the Youth Training Scheme and offered the CITB Building Technician YTS Scheme.(197) The building employers offered an alternative scheme which combined with both BTEC and CITB technician training provision. The employers' provision was called the Building Industry's Technician Training Scheme.(198) This Scheme also operated within the provision of YTS training but also included older entrants and trainees who had completed formal training. However, this was not sufficient to attract school leavers away from the ever popular BTEC full-time Building Studies programme.

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197 CONSTRUCTION INDUSTRY TRAINING BOARD. (1988) Construction Technician Scheme Outline Bircham Newton: CITB

198 BUILDING EMPLOYERS' CONFEDERATION/CHARTERED INSTITUTE OF BUILDING. (1985) Op. cit.

CITB Building Technician Scheme

This scheme offered a two year YTS programme which integrated formal training with planned work experience. Because the work experience was so varied, individual training plans were devised to ensure that integration was fully implemented . The advantage of this scheme to students was that they were able to apply their knowledge during their period of industrial practice. This application of knowledge was in stark contrast to a full-time BTEC student who received very little, if any, work experience. The advantage to the employer was that it provided the opportunity for them to use YTS funding to implement the training programme that was specifically designed for their companies needs. Employers were able to claim CITB grants for training and during the initial foundation stage were able to test the suitability of the trainee they were sponsoring. The programme offered a combination of initial broad-based training followed by specialist training that was directly relevant to employers' needs. The scheme was divided into three component parts.

(i) Induction, designed mainly for new entrants to the industry.

(ii) Basic Training, broad-based, covering core skills and preparing versatility and adaptability and emphasising the need to work as a member of a team

(iii) Specialised training, including work skills based around the on-the-job specification.

At the specialist training stage there were variations in the length and scope of training. The main problems associated with implementing planned work experience were overcome by the need for each trainee to formulate with the employer a Training Programme. The way in which this Training Programme was formulated was for each trainee to receive a systematically planned programme of training and experience in a technician grouping appropriate to the trainee. Guidance on the content of the Training Programmes was given by the Construction Industry Training Board field staff. Modifications of the content of the Training Programme were made to suit individual companies and trainees. This scheme was structured on the standard mix of 'on-the-job', planned experience and 'off-the - job' training. The planned experience was supervised practice in the normal work situation. If the work experience was properly planned as an integral part of the training programme, it was intended to develop and consolidate the attitude, knowledge and skill patterns already acquired by the other two elements of training. Provision was also made for wider planned experience if the sponsoring firm was unable to offer a wide enough scope of work. In this situation where too narrow a training was available, a Group Training Scheme could offer the trainee an opportunity to receive a wider range of practical experience and training. The main means of

monitoring trainee's progress was by the use of a Training Record Book, which was kept by the trainee for the duration of training. The Training Record Book (199) published by the CITB Publications provided a record of all aspects of the trainee's programme. The off-the-job training which led to a recognised qualifications was undertaken in a Further Education College or through in-company courses. The overall length of training varied according to sector option and prior experience. It was expected that trainees would complete their formal training before "qualified status" was given.

In summary the CITB Scheme for technicians was more employer/industry biased when compared to the BTEC route. It provided industry with funding for both the trainee technician and also the training company through CITB grants. The structure of the scheme ensured it was a training programme that was relevant to employer's current needs and that trainees were able to apply and consolidate their training by a process of planned work experience and 'on-the-job' training. The emphasis on specific training ensured that the scheme was practically based and provided formal training and qualifications through part-time study. A further attraction of the scheme was its flexibility which allowed for individualised instruction over varied periods of training. It

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199 CONSTRUCTION INDUSTRY TRAINING BOARD (1987) Training Record Technician Bircham Newton: C.I.T.B.

was surprising that although this scheme offered a financial incentive to trainees through a training allowance, the scheme failed to attract the still large numbers of school leavers who opt for full-time BTEC Technician Programmes.

The Building Industry Technician Training Scheme (BITTS)

The BITTS was devised by a Joint Board for the Construction Industry. This Joint Board consisted of the Building Employers Confederation, Chartered Institute of Building, Business and Technician Education Council, and the Construction Industry Training Board. The purpose of the Building Industry Technician Training Scheme was to broaden the range of training available to technicians, to provide structural training to individual companies' needs. The standards set for the scheme were provided by the Construction Industry Training Board.(200) On successful completion of the scheme the trainee was awarded a nationally recognised certificate of practice to complement his academic qualification provided through BTEC. The scheme, like the CITB Technician scheme, was flexible in its structure and was designed to be relevant to a wide range of employers to cater for as many trainees as possible covering a wide range of technician occupations. The types of technicians eligible for the BITTS programme included the following .

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200 C.I.T.B. (1989) Competences and Performance Criteria for Technical Staff in the Building Industry Bircham Newton: CITB.

Building Foundation Training Scheme (YTS)

Technician trainee

16/18 year old entrants.

21/22 year old HND/Degree entrants.

Former craft trainees.

The main objective of the scheme was to provide a broad based foundation for continuing professional development. A programme of training planned by the employer to suit their specific needs but within the set requirements of the scheme. Each trainee was formally registered for the duration of training. A structured training programme was recorded through the use of individual Log Books. This Log Book was issued at the time of registration and was monitored by the Registration Authority after one year's training and again at the completion of training. The Registration Authority certificated the trainee on successful completion of the training. The programme of training was broad based and lasted over a two year period; this could be reduced for older amd more qualified entrants. Each programme was individually planned between trainee and employer. The general area of training covered the following common areas of work: Obtaining work, Planning work, Producing work, Paying and being paid for work, and Administration. These five headings represented areas of work common to all types of technicians within the Construction Industry, the main difference being the amount of emphasis given to each area according to occupation. For example, an estimator would emphasise obtaining work as a key area of his

work whereas a site manager might emphasise the Producing work as an area of particular importance to his role. Thus the programme could be modified to emphasis the 'key' skills and responsibilities common in each category of technician. However, the scheme placed great importance on the area of work headed as "Producing Work" in terms of understanding the production process. The emphasis given to each of the five common work areas can be understood in terms of three distinct levels, performing a task, assisting with a task or gaining an appreciation of a task. We can see that all technicians can relate to the common work areas in terms of one of the three levels for each of the tasks. In order to ensure that the training programme was relevant to the companies' specific needs, employers proposed appropriate experience requirements within the context of the scheme. The scheme was designed to provide the opportunity for trainee to acquire skills which were broadly transferable within the company and industry. These transferable skills included both occupational and personal skills such as the ability to communicate, calculate, programme and plan work, work in groups and innovate. These skills were similar in character to those listed as Common Skills within the BTEC Programmes.

The process of registration of training included the Trainee's Programme of Training being assessed by an Assessment Panel which was formed by the Joint Board. When the Training Programme was approved the trainee was registered. Employers were encouraged but not obliged to provide a formal training

agreement. It was thought that a formal deed of training would enhance the status of the scheme.

The Joint Board intended to provide employers with a series of model training programmes to serve as a guide and to set national standards within the industry. To ensure that proper standards were maintained it was envisaged that regular monitoring of training was undertaken via the Log Book that each trainee was given by his employer.

The scheme was primarily concerned with practical training and was undertaken in association with existing education provision. The Certificate was awarded on satisfactory completion of approved planned experience gained by the trainee. The certificate included reference to educational attainments achieved during and before registration. On completion of the scheme each trainee received a nationally recognised "Certificate of General Technical Training". The scheme was funded by the payment of a Registration Fee paid by the employer. However, it was recognised that a "setting-up" funding was required. It was also possible that employers taking part in the scheme could have collected additional training grants. The implementation of the scheme was undertaken through the co-operation of the CITB, particularly in the area of YTS funding. For YTS entrants it was envisaged that these trainees received immediate employed status as an additional incentive for young people to join the scheme, the employers were expected to top-up the YTS training allowance to

meet the employed trainee's income.

The trainee completed the BTEC Technician Certificate or Diploma in the two year training period. The BITTS Registration was a mandatory part of the work experience. The CITB was the principal managing agent for the scheme. It was expected that YTS trainee entrants would obtain at the end of their two year' training the following qualifications, the YTS Certificate, BTEC Certificate of Building Studies and the Certificate of work experience.

In conclusion the BITTS Scheme offered a number of advantages to both the individual trainee and the employer. The trainee received employed status and was offered a formal training agreement. The scope of planning covered all aspects of the trainee's working experience, both formal and practical workplace training. The emphasis on core work areas provided transferable skills which enhanced the trainee's ability to adapt and transfer knowledge and skills, and it also assisted the trainee's future career progression. On completion of the training programme the successful trainee received a National Certificate for both workplace practice and the BTEC Building Studies Certificate. This dual qualification carried greater currency than just an academic certificate. Employers were able to take advantage of the YTS funding and CITB grants, thus greatly reducing the cost of training. The broad based training and assessment of the trainee's practical ability were also valuable assets for an employer who had undertaken

manpower planning and made maximum use of their employees' skills. The planned practice which formed part of this scheme complemented the current demands for more vocational and practice assignments as part of the BTEC Technician Studies.

Therefore, the combination of the BTEC Programme and the BITTS Scheme appeared to be an ideal combination for providing a comprehensive system of education and training for technicians. The main danger of this scheme was the high level of direct control of the scheme by building employers. The scheme could be used to train a person specifically for one company. The danger with this would be if the scope of the firms work was narrow, then the value of the training would be limited. The scheme was also likely to place less emphasis on progression if it was company-based, particularly if recruitment had been targeted for certain roles within a company. Some of these roles could be repetitive and require few skills, it would then seem wasteful to the company to provide a broad and thorough programme of training which might result in a sense of dissatisfaction on the part of the trainee.

The type of progression offered by the BTEC courses was often the main attraction of the course. Many BTEC students were not aiming to enter industry as technicians but rather to progress with their technician qualifications to higher education for eventual professional status. This sort of direct progression would not be available to students who were training with employer-led schemes such as, BITTS scheme. The latter scheme

was more suited to students who wished to remain as technicians after training and had no immediate desire to become trained for professional occupations.

CHAPTER SIX

CONCLUSION:

6.1 THE OVERVIEW OF DEVELOPMENTS 1970-1990.

Stability and Change in Construction Education and Training.

It has become apparent from this study of the British Construction Industry's education and training system that it manifested both stability and change over the twenty years period under consideration.

There has been stability in the sense that the actual content of Construction education and training has not changed fundamentally over the past twenty years. Many of the skills and much of the knowledge has remained relevant over this period. This fact was verified in the way in which the training system, particularly at craft level, has strived to remain unaltered even despite strong pressure from Government initiatives to bring about change.

There have been some changes in the skill and knowledge content of the training, for example, new materials and methods have been introduced; the development of plastic components in the plumbing trade was a good example of this. Nevertheless, in the main, the content of a craft syllabus twenty years ago was not much different from that used in the present day. The content of modern craft schemes tended to be smaller only because of the reduced length of training over this twenty

years period. This fundamental stability of Construction education and training was also true of the technician level, where the knowledge base has remained constant, unlike occupational areas like electronics, where knowledge, skills and methods are constantly changing to keep pace with technological development. The external pressure to change was not as intense in the technician field as was the case at craft level. The level of direct Government funding was far less for technician courses than for craft training and therefore its influence was less evidently felt in technician education. The influence of information technology in the Construction Industry has had greater impact at technologist level than at technician and therefore it was only in recent years that computer application was developed in the BTEC technician courses. Certainly in large companies technicians were using Information Technology systems for estimating, accounting and design, but in the majority of small offices the traditional methods still meet companies' needs. Therefore, it is safe to conclude that over the last twenty years the changes made to the content of construction education and training have been on the fringes. The main core of the discipline has remained very much the same. The fundamental changes to the system have come more from external political influences, particularly with regards to the training structure and funding control.

The lack of support for craft training both from employers and government in the early 1970's contrasts with the central

control and funding of craft training by the Government in recent years, through the introduction and development of the Youth Training Scheme. At a time when builders were finding it increasingly more difficult to obtain work, the Government was pouring vast sums of money into Construction craft training. The Youth Training Scheme also affected the structure of training with its insistence on core and transferable skills, but these changes were absorbed within the system hardly affecting the content of craft training.

Stability within the industry stems partly from the conservative nature of builders. New methods and products were difficult to introduce because builders tended to prefer products and methods that have been tried and tested over the years. Another important factor in the traditional nature of the industry was the fact that whereas in most other industries products last usually for a limited period of years (for example, the motor car with a useful life of about 6-8 years) the builder's product is expected to last 80-100 years or more. Producing a product that can last for this length of time, particularly in a climate like Britain's makes the builder cautious about trying new products and methods. A further disincentive is the extra cost involved in using new methods or products. The builder will usually accept new products if they also provide cost saving opportunities. Developments that are more costly even though they provide an improved system are less attractive.

Furthermore, the nomadic nature of the industry also acts as a deterrent against long term investment in new plant, equipment and labour. This was another factor which reduced the impetus for change in an industry which can get by (with little international competition) using traditional methods, equipment and materials. This cultural stability also relates to the builder's attitude to training. During the sixties when training was spread over a four/five years period the cost of training was easily recovered. Apprentices remained on low incomes until they reached their twenties by which time they were well able to earn a considerable profit for their employers. A firm that actively trained could expect to obtain a good financial return on training. It was not uncommon for builders to have teams consisting of one skilled man and one apprentice. However, during the early seventies as the training period was reduced from five to four and then three years and as wage differentials for apprentices narrowed, the financial incentive for builders was drastically eroded. Added to this, many young people on completing their training were either unable to compete with their fellow craftsmen, in terms of quality and quantity of work or if they could, most would become self-employed in direct competition with the firm who had trained them. Over a period of a few years the firms with some twenty to thirty workers, which had previously employed possibly ten apprentices when the work load was high, was now competing against small teams of self-employed craftsmen who were pricing work based on an income plus extra

for expenses, with little overheads and a small profit margin. The result was that firms were forced either to shed their directly employed workforce and sub-contract work or lose orders.

The Control and Process of the Curriculum

The general trend in the control of construction education and training was in the direction of centralised control which was relatively political in nature. This was particularly true of craft education and training, which was at the forefront of political change since the late 1970's. Craft education during the early 1970's was mainly controlled by the examination body, the City and Guilds of London Institute, and the college providers of the formal training. The pattern of provision was educationally based and did not directly integrate with site training and experience. It was recognised that the two forms of training complemented each other but they were treated separately. The college provided the vocational education and the employer provided the site training. This system had developed an high reputation within the industry and was generally accepted as the traditional method of training someone within the industry. The employer played an important role in this process but had little if any direct involvement in the control of the curriculum.

It was a series of external factors which brought about the need to change this system in order to adapt to the new demands being placed on construction craftsmen. The changes included

the reduction in the apprenticeship period, which was reduced considerably from five to three years, in a relatively short period. This reduction meant that there was no longer the time to train gradually the apprentice in the way that had always been the case in the past. The power of the City and Guilds and the colleges was first influenced by the desire to cut the syllabus content to allow the apprentice to complete their training within the shorter period. However, the dramatic cutting that was required to achieve this aim was not implemented and a compromise resulted in a trimming of the syllabus rather than a major cutting of its content. The curriculum at this time was subject based and had become over full with the addition of new methods and materials. The conservative nature of the City and Guilds and colleges had led to the retention of some 'classic' elements in the syllabuses, and this led to criticism from some employers that the course contained some topics that were no longer relevant to modern building methods.

Added to the pressure from the industry to reduce the content of craft training there were also the changes brought about by the new working practices being deployed on building sites. The development of bonus schemes and price work resulted in a more efficient production process. Under the former system of paid hourly rates, there was always a demand for overtime working and the working week could be extended by some fifty per cent. With this system, production and wages were based on

number of hours worked rather than quantity of work. This method of payment for both employers and craftsmen suited the former time serving apprenticeship system. There was always plenty of time for apprentices to be trained and their employers could charge them to clients at their apprenticeship rate of pay. However, when bonus schemes were introduced, work was completed faster and the time spent on-site was greatly reduced. The craftsman was now able to earn high incomes for working a shorter number of hours. Speed became as important as quality and in some cases it became more important. The greater emphasis on speed resulted in greater competition within the industry with the result that bonus schemes were often trimmed and the craftsmen were forced to work faster or longer to maintain earnings.

This new system did not cater for apprenticeship training in the same way that the former system had. The speed of work and more competitive nature of the industry discouraged the craftsmen to 'waste time' training apprentices and those that did train found that the trainees were slowing down the work and ended up by giving them labouring jobs to do because these required less supervision. The new trend towards fast competitive work resulted in the next phase of development which was the widespread introduction of self-employment. Many craftsmen were forced or persuaded by their employers to forsake employed status for self-employment. Within a few years it had become the norm for most builders to employ the

services of self-employed craftsmen rather than directly employ them. This system of labour suited the industry because of the seasonal and casual nature of the industry, with its fluctuating work patterns.

This new trend served as a further blow to the apprenticeship system because now the craftsmen not only had no time to train but were also expected to employ the apprentice rather than the builders. The result was a dramatic drop in apprenticeship training because of the reduced training base in the industry. These major changes in the labour structure highlighted the weaknesses of the apprenticeship system. The former system was now too slow to provide the apprentices needed within the industry to replace the natural wastage, and the industry no longer had the ability or the will to train effectively on-the-job. The employers realised that under the traditional training system the three years of training were not sufficient to train to full craft competence. The apprentice was entering a hostile industry where speed and efficiency were more important than any other factors.

The government's response to the situation was the introduction of the Construction Industry Training Board. The Board's role was to co-ordinate and supervise the industry's training needs. It approached this task by setting up a rational training system based on task analysis and devised a programme which would serve the future of the industry. The programme was

designed so that the craftsman would be trained in one specific craft but with the option to widen his skills into other allied craft areas. This programme will be discussed in more detail later in this chapter. Alongside the traditional system of City and Guilds courses there was now a new 'training' orientated scheme which emphasised basic training based on a short intensive programme of 24 weeks duration of full-time training. This scheme was backed with government funding and an industrial levy. It met some of the training needs expressed by the industry by emphasising basic skills, and by offering concentrated training it gave the apprentice the chance to gain commercial skills before he went on-site, thus enabling him to survive the production pressures. Under the new Scheme the employers had more direct influence through their involvement on the Board and via their levy paying involvement. However, the Scheme which was quickly modified became known as the New Entrant Training Scheme. This Scheme suffered as a result of the economic recession and due to a shortage of employer sponsors, dipped to a low period of strength during the late 1970's.

The double threat to the NET Scheme and CITB was overcome by the adaptation of both to meet the needs of the Youth Training Scheme. The YTS, which was sponsored by the Manpower Services Commission, represented a further step towards more central government control of the curriculum through the involvement of this government body. As the economic recession deepened and

widespread youth unemployment arrived, the need to develop a national 'training' scheme grew. The CITB were in an ideal situation as industry's main training provider to use YTS funding to maintain the industry's own national scheme. The main difference between the NET and the YTS was the breadth of initial training. The NET had been developed as an industry based scheme and therefore catered directly for the various construction craft categories. By contrast, YTS was much broader based than an industry specific scheme. The industry developed the YTS Scheme to suit its needs and accepted the scheme because it offered extra funding for training, a training allowance and unemployed trainee status for young people. Therefore the planning process at this stage of the development was reactive in terms of the external pressures to create a national training programme and also the infusing of the NET and YTS programmes to meet the requirements of both the MSC and Construction employers.

The CITB acquired a high status because of its quality training and the high numbers of trainees finding employment after training. The YTS scheme opened up more opportunities to young people to find employment and training in the industry. As the reputation of CITB training grew, they were able to obtain concessions from the MSC to revise the YTS Scheme to further meet the industry's needs. The main points of quality offered by the CITB were good industrial links, a co-ordinated system managed by the CITB, additional off-the-job training funded by

industrial levy, and real skill training. The new scheme became known as the CITB Building Foundation YTS Scheme and was an integral part of the training system of the industry. At the time of the introduction of the two-year YTS, the control over craft training had moved towards a central system funded from central government and managed by employers and the CITB. The new emphasis was on 'training' with a curriculum that was skill based and directly relevant to modern industrial needs. As the position of the CITB strengthened within the national training system, their influence on construction training widened to include technician and management occupations within the industry.

The craft curriculum changed as the emphasis moved from education towards training. The new emphasis on skills resulted in a more behavioural interpretation of the curriculum. The 'systems approach' to curriculum planning offered clear objectives to be achieved by all providers of the CITB Schemes thus ensuring national standards. The behavioural objectives provided bases on which the scheme could be planned, implemented, assessed and evaluated. It was felt that clear objectives would ensure the development of clear standards of training. The MSC were directly behind the development of these national objectives, and the industry trained towards the standards laid down in the New Training Initiative programme.

This behavioural approach was further developed by the introduction of competence based standards which placed emphasis on performance set to standard criteria. The NTI document served to introduce the widespread use of competence based vocational education within the construction industry, and was intended to raise standards of training.

The influence within the technician field has been less dramatic than that in craft training. The technician system of education and training in the early 1970's mirrored the general education system of grammar and secondary education. The grammar schools served the needs of the academically able minority, and the secondary school provided the education for the majority of young people. This system proved wasteful in human resources and was replaced by the comprehensive system which resulted in a levelling out of ability levels. The comprehensive system offered more opportunity for children to leave school with a qualification and thus the self esteem and increased opportunity to move on to further education and training. The introduction of the TEC system to replace the CG technician and the National Certificate courses seems to have been a natural response to a comprehensive system of formal schooling. The intention of TEC programmes to cater for a wider ability level resulted in the easing of entry requirements and the setting up of preparatory courses for those students who entered the programme without the conventional qualificational requirements. The system of

continuous assessment also provided the opportunity for the less able to succeed in the TEC programmes. The TEC system remained an educationally based programme with little or no provision for integrating the industrial experience with the formal training. The links between education and industry were weaker within the technician field than they were within craft. This was partly due to the fact that TEC courses were mainly academic in nature and attracted students undertaking full-time study, with a view to progressing on to Higher Education. Therefore, the dependance on employer involvement which was crucial at craft level was not as important at technician level. In fact many technician students went on to higher education rather than into industry. There were a number of employed trainee technicians but many of these worked in professional offices of surveyors, architects or planning authorities.

The CITB's involvement in technician education did not prove as successful as the craft programme. Many students preferred the full-time college course, with the opportunity of qualifications which would give access to higher education, to the YTS Technician training with it's training allowance and work experience. The CITB did try direct employed status for technician trainees but even this did not attract the young people away from the TEC/College programmes. The type of youngster that entered technician courses tended to be more academically able, and in general came from skilled or

professional family backgrounds. These types of parents saw the long-term benefit of making the financial sacrifice of supporting their youngsters for two or more years in full-time education if they were able to obtain a career opportunity at the end of it. By contrast, the youngsters who went into YTS programmes tended to be less academically able and were unwilling to study for a number of years and to forego earnings for the same period of time. There was also proportionately fewer young people opting for technician education than those opting for the ten or so craft training schemes.

The BTEC and its predecessor, TEC both opted for behavioural objectives and the systems approach to curriculum planning. The objectives approach seemed to suit the needs of a structured programme of technician education. The courses were developed in subjects and levels offering a progression from ordinary to higher level courses. The systems approach was adopted because it produced a clear set of objectives to plan, implement, assess and evaluate the programmes. However, the more academic nature of the technician courses made it more difficult to translate these behavioural objectives into competence objectives. The performance criteria which were intended to be employment based did not match the educational based criteria of the BTEC system. The BTEC programme was designed on an adapted system of the Bloom Taxonomy and as such represented educational criteria rather than being based on employment performance.

In recent years, the needs of industry have been recognised within technician education and there was a move away from a knowledge based approach to more emphasis on application and problem solving skills. The programmes have developed more project and assignment work, which helps the student to apply their knowledge and to analyse and evaluate information. This process was further developed by the introduction of work based projects and work place simulation developed by some course teams which include industrialists.

Another area of development which indicates the influence of industry was the emphasis on personal skills, which were crucial to trainee technicians who must be able to communicate effectively, work with others and be adaptable to change. The control over the technician curriculum was spread between the validating bodies who laid down the structure and levels of programmes. The BTEC influence was maintained by the system of moderation which monitored programmes and the insistence that Centres should regularly re-apply for permission to offer BTEC programmes. The Institutions had some control over the combination of units they wished to offer, but the main control over the curriculum lay with the individual teacher or course team who were given a high level of autonomy under the BTEC system. This autonomy was indicated by the way in which the college lecturers had adapted the TEC/BTEC proposals to 'suit' the college structure and the needs of the basic unit. The college had influence over the recruitment, assessment and

range of units on offer. The schemes were changed by teachers to make them more workable. For example, the idea that TEC courses should be structured to allow for individualised learning was not fully adapted by teachers. The behavioural objectives were used by teachers as a syllabus, and many of the high levels of learning were ignored for the more basic knowledge and comprehension levels. The insistence on common skills was modified by the lecturers, because these common skills were considered to be of secondary importance in comparison to the technical content of the course programme. The TEC/BTEC system was a good illustration of the way that central curriculum planning was modified by the people who were expected to implement these changes; a case of top down planning modified by bottom up influences.

Technician courses underwent less change because they have been buffered from the external influences experienced by craft training. The BTEC courses developed without reliance on levy, central government funding or employer involvement except within the part-time courses for employed trainee technicians, whereas craft training had a more direct reliance on the industry and was been controlled nationally by central government through the MSC and CITB organisations. However, the extent of change was reduced by the traditional character of builders who were the victims of external pressures to reduce and change their training system at craft level to suit society's needs.

The curriculum process and the forms of control will now be considered in more detail in terms of craft and technician education and training. This analysis must also take into account the various actors, usually in the form of interest groups or organisations, that have influenced the changes over this twenty year period, because often the provision was shaped as a result of compromise and constraint placed on the system by these organisations.

The Development of Craft Courses

The developments that occurred in craft education and training during the period of the study were shaped by the New Pattern of Training. This training programme was born out of a systematic process of evaluating the training needs for the Construction industry. The three main points that emerged from this analysis was that there was a need to improve the image of craft occupations within the industry, and that the skill pattern used by craftsmen fell into two categories, common skills and skills infrequently used. Thirdly, the skills undertaken by craftsmen were much wider than initially thought.

The training programme that emerged from this analysis was called the New Pattern of Training. The NPT was a well designed scheme in that it went some way to meeting the three criteria highlighted by the Building Research Station Report. It was flexible enough to allow the apprentice to specialise in a main craft but permitted the broadening of the individuals skill base by undetaking associated skills within the skill grouping. The levels of modules allowed for further specialisation for those craftsmen who wished to have a broad skill range within their own craft occupation. The programme also allowed for progression within the company. The pattern of training it provided was ahead of its time and many of the characteristics were later included in the NCVQ framework. Of the two main weaknesses of the NPT, the first was the move away

from craft specific training. Many employers considered it wasteful to train outside the scope of the main craft at such an early stage in the training process. There was an argument for cross-craft training after the initial skills had been obtained, say following basic craft level. The NPT was not fully accepted by the Construction employers because of this change to multi-skill training. To add to this the second factor was the extra cost involved in operating a training programme that was both broad based and intensive. The cost factor proved to be the deciding factor in its downfall. Thus if failed primarily for external 'political' reasons rather than inherently educational ones.

However certain elements of the NPT were retained and developed to formulate the New Entrant Training Programme. This foundation training programme provided the intensive training that was required to overcome the problems associated with a shorter training period and the new pattern of organising labour on-site. The concentration on specific crafts helped to reduce the content and cost of training whilst still providing the skill base required by a new entrant into the industry. This method of training reduced the time taken to make an apprentice competent to a basic level. It did place additional strain on the builder to fund the 'full-time' training as opposed to the traditional day-release mode. This proved a problem for small firms who relied more heavily on the use of apprentices within the labour force. The result was that the old system of part-time attendance at college was still used by

an high proportion of smaller firms. In the second year the two schemes came together for the traditional City and Guilds course. This situation did cause problems because the NET apprentices were generally more advanced than their peers who had attended part-time.

This was a situation where the attempt to plan in a rational manner in order to overcome contextual problems associated with Construction education and training was affected by political control outside the influence of the education system. The NET programme represented a way of providing initial training that best compensated for the problems of the industry. It would have been ideal if this programme had reached all new entrants but funding prevented this and also prevented its expansion into the second year of training. The effects that the NET scheme had on the industry were therefore limited and also relatively short-lived because the economic recession of the late 1970's led to the almost total collapse of support for the scheme from sponsoring employers.

The problems stemmed from the lack of construction work which meant that the opportunity to practice the skills was reduced. Secondly, the employers were unwilling to pay wages to apprentices for the duration of their training if at the end of the programme they were unable to offer continued employment: again a frequent problem in a industry that was directly affected by any down-turn in the British economy. The economic down-turn in the industry resulted in training taking a 'back-

stage' role in the concerns of the industry.

The situation eventually levelled out to a position where there were three main types of labour structure: the large company, undertaking major projects, which would still employ some workforce but sub-contract most of their specialist work; secondly, the large house builder who employed site managers and sub-contracted all other labour; thirdly, the majority of small size firms who were single self-employed people undertaking work for other builders. Within this structure it was only the first category of firm that still retained a systematic training programme, mainly because the profit margin on large projects still permitted firms to cover the high cost of training, and also because these firms still valued a core of directly employed workers.

The CITB's ability to collect the levy did not dramatically alter the situation whereby it was usually only the large companies, the one's paying the highest levy which would seek to recover that levy through training grants. The house builders with their sub-contract labour could spread their levy costs by spreading the charge across all their sub-contractors. Therefore, the direct cost was reduced to such an extent that its recoupment was unimportant. For the small company, the levy was small and in some cases firms were exempt, but the opportunities for training grants were not geared to create sufficient incentive to encourage small firms to train. Many sub-contractors were classified as 'out of scope' because of their small turn-over figures for annual trading. These firms

were not entitled to training grants even if they trained. It took the high unemployment rates for young people in the 1980's, along with the relaxing of employment restrictions for the situation to change.

The Government's priority to find something constructive for unemployed youngsters to do resulted in this large investment in training through the Youth Training Scheme. The critical shortage of training opportunities in Construction, which the CITB had been set up to correct, had not been alleviated. The Government realised that the Training Boards had not got the power to create a training system which provided a regular influx of new recruits into the industry. There were particular problems with the Construction Industry because of the nature of the industry. The CITB had created a good training scheme which provided a sound basic training for the major crafts and which in some ways compensated for the lack of opportunity on-site to practise and develop skills over the training period. However, the short-comings of the rest of the system resulted in a good training system with no shortage of good recruits but with little scope for employment due to the industry's structure and the decline in the construction work-load as a result of the economic recession.

The training problem was made worse by the conservative attitude of the CITB which manifested itself in its over cautious and inflexible approach to the situation. For example all trainees had to be sponsored before entering the scheme, although this regulation changed under the YTS system. Schemes

were not run if there were insufficient sponsors to support the training, yet there was no firm commitment to go out to firms and obtain sponsors. This situation also changed following the introduction of YTS. The CITB staff began to see it as a major part of their role to promote support for their schemes and if trainees had not got a sponsor at the start of the scheme the Training Advisers sought sponsorship for them. New courses were difficult to get going because sponsorship was difficult to guarantee and in some areas, Training Board staff were unwilling to go out to firms to drum up support. However the structural problems common to Construction eventually served to stengthen the position of the CITB because it was realised that without them the training situation would get worse, with the volume of training falling to a dangerously low level. A system of award holders permitted unemployed trainees to undertake NET programmes.

Therefore, when the Government was looking for organisations to promote their Youth Training Scheme, the CITB was an obvious choice and thus was put at the forefront of Government training policy for the Construction Industry. Hence the CITB became one of the major providers of YTS training. The industry was ideally structured to fit YTS requirements, with a proliferation of small firms needing manual skill, in an industry based in all geographical areas, and it was a good choice for many young people, particularly those with low academic ability and in some cases low motivation.

Construction was an industry that could absorb all types, from the low worker ability undertaking simple manual tasks, to the high fliers with Construction management qualifications. Its pattern of working was flexible, there was no "clocking-on" or "clock watching", people were free to come and go as they pleased. Income was usually linked to what had been produced rather than the amount of time spent on-site, therefore there was often little control placed on the hours worked but only on the quantity and quality of the work completed. People who found discipline and control difficult easily fitted into a flexible pattern of "construction working".

The opportunity for employers to partake in the scheme was soon grasped, because the company had much to gain from its involvement. The free labour of young people was initially one year, then two years, with no employment responsibility including no wages to pay. Certainly, firms were encouraged to employ their trainees at the start of the second year of training but this was not compulsory and many firms put off employing their YTS trainees until the end of their training period or not at all. Some trainees were offered self-employment with their sponsoring firm as an alternative to unemployment. Added to the incentive of free or cheap labour was the top quality training scheme on offer from the CITB Foundation and NTI Training. Under the standard format, following twenty four weeks of intensive training, the trainee went on-site able to produce a good standard of work at a basic

level. It was little surprise that a new surge of interest grew up among many construction firms. Throughout all this change in sponsorship and funding, the New Entrant Training had remained almost the same with the exception of one or two fringe changes such as the introduction of two weeks of Site Skills which replaced the formal induction period and the introduction of Associated Skills which was again only a minor infringement on a mainly craft specific course content.

Thus the main changes to take place over the twenty year period occurred in the funding, management and control of training, but the actual content of training did not change to any great extent. It appears that the changes that had occurred in the Construction Industry in recent years were less to do with what industry required in terms of training changes, but rather occurred to respond to a lack of interest in training shown by companies within the industry. The second main source of change was national innovations such as the Youth Training Scheme whose influence was imposed on the Construction training system. Here again, the response was to accept the challenge and the funding but still try to retain the structure with regards to the training content.

The main changes in training made by the employers were in response to calls by the Training Agency for better standards. This led to a training system based on competence based objectives to set criteria or standards. These standards were

assessed at various stages throughout the three year training period. In the first and second year of training each trainee undertook a series of Progress Tests which were designed to assess the trainee's competence at the various skills he had developed. In the third and final year of training the trainee undertook the Skill Test which consisted of a battery of tests, some similar in design to those completed as Progress Tests. All the tests were based on competence objectives which were set to standard criteria, the tests assessing both quality of finished work and also the time taken. Each test was given a target time which the trainee must aim to meet. Thus, the development of assessment over the three year period ensured a gradual progression in competence in both depth and speed leading to Craft Recognition.

Other calls by employers to change the content of training stemmed from the desire to reduce training costs either by reducing the skill content or prolonging the training period, thus extending the period in which trainees were receiving a training rate lower than the craftsman. Both these issues were raised before the introduction of the YTS scheme and both have been met in recent years by the changes made as a result of the New Training Initiative. Under the New Training Initiative Schemes, which covered the first two years of training, the content of craft training was reduced with some of the skills that were less frequently used being removed and more emphasis being placed on basic common skills. These changes

particularly focussed on the skills needed to pass the Progress and Skill tests. The second problem was also met when instead of a set training period the new criteria for craft recognition were introduced. Under the new system the trainee's rate of pay increased initially every six months until they reached a point at which only the successful completion of a skill test entitled them to progress further up the scale; then after successfully completing the Skill Test, Job Knowledge Test and on completion of three years site experience, the trainee was entitled to full craftsman's rate of pay. This severed the link with automatic craft recogniton and replaced the time-serving system with a competence based system. This meant that in theory some trainees may never have achieved full craft recognition because they did not reach the required standards.

However the system was undermined by the fact that only trainees registered as apprentices with the National Joint Council for the Building Industry or other similar bodies were called to undertake the Skill Test. This requirement for registration effectively excluded a good many trainees who were not registered for one reason or another. For example, the trainees who eventually become self-employed whilst still under training could not be registered and those trainees with employers who did not bother to register them were not officially recognised as under formal training. Therefore, when their training period was completed they were not notified or invited to undertake a skill test because as far as the

official training bodies were concerned they were not recognised as apprentices. The registered apprentice was entitled to take two Skill Tests free of charge, whereas an unregistered trainee would have to pay the full cost and this could amount to a few hundred pounds when fees and expenses were taken into account.

The consequence of this situation was the lack of trainees being put through the Skill Test. It was argued during the period of this study that if the number of applicants continued to dwindle the future of the Tests could be under threat. If the system was to be accepted in the industry then the Tests must be available to all trainees who had undertaken formal training on the CITB Scheme or any other scheme approved by the industry, regardless of whether the trainee was registered or not. If all trainees, registered or not and of what ever age and training background, were encouraged or compelled to undertake the Skill Test and the Progress Tests at the various stages of training then standards would be raised throughout the industry.

The importance of these series of standards testing devices could become even more prominent within the NCVQ system particularly with regards to Accreditation of Prior Learning (APL). If phase I and II tests were accepted as set standards of competence for those stages of training, then adults requiring accreditation of prior learning could be assessed on these tests to determine their level of competence, and it

would then be possible to develop a training programme to provide the trainee with the further training to bring him up to full craft competence.

Furthermore, at Skill Test level, adults with previous experience could follow an accreditation process which could include pre-tests based on Progress Tests and could be accredited through some of the tests that form the Skill Test. Therefore, an adult with, say, five years industrial experience with no formal qualifications, could follow an APL procedure and be required to undertake two of the five tests that make up the Skill Tests. If successful in both tests he could be awarded the Skill Test certificate of competence. This development would have considerable advantages, for example, it would encourage other craftsmen who had not received formal training to assess their competence and receive full craft recognition. It would also reduce the cost of testing by eliminating the need to test skills which the individual had provided evidence that he already owned. Thus, if this system was promoted a large proportion of craftsmen could be accredited full craft recognition and given the opportunity for further development either at advanced craft level or craft supervision.

The full impact of 'craft recognition' has not yet been fully experienced because of the limitations placed on access to assessment and the relatively short period the system has been in operation. It would appear that the process of craft

recognition could strengthen the formal training of trainees of whatever age at craft level, but could undermine the stability of advanced craft training due to the importance given to achieving craft status. The development of craft recognition has suffered from the efforts to introduce a firm structure into a flexible training system, where both formal and informal training had taken place but the informal training was not recognised for craft recognition status.

The pressure to formulate a sound basic training programme backed with competence based skill assessment resulted in the gulf between craft and advanced craft levels. The effect that a shorter training period had on craft training was much greater at advanced craft. The revision that took place in the craft syllabus did not happen with the advanced course. It was placed at the end of a short craft programme and because of its position the content was only sampled in the one or two years part-time programme. Whereas in the past the apprentice would be approaching his twentieth year before starting advanced training, under the present system the trainee could be as young as eighteen years of age. The lack of maturity was an important factor when dealing with a course which required an high level of responsibility and motivation to cope with the demands of the training. The advanced craft has been the course which has selected out the more able student craftsmen and has served as both a preparation for specialist tasks within the craft and a bridge to supervisory and technical occupations and qualifications within the industry. What was a

natural progression for some was currently made more difficult by the gap between the two levels of craft and advanced craft.

This is a missed opportunity to provide a true career structure within the crafts. The advanced craft could become the stage beyond craft competence to a level of specialism and responsibility which would mirror the German Meister status. The current system often means that craftsmen with ability must seek career progression outside craft work. Many of the best craftsmen go into teaching, supervision or technical occupations. There is little opportunity for those people to stay within the crafts but progress to positions of responsibility. The introduction of a grading system through the implementation of the NVQ framework provides an opportunity for the best craftsmen to be trained at a high level of competence including specialist skills within his own craft or other associated crafts and to undertake training in supervision and site training.

If this system was adopted then craftsmen would exist in Construction who were highly trained in specialist skills for, say, renovation work. These craftsmen would also be able to supervise contracts and undertake responsibilty for craft training within their company. This new role for craftsmen would enhance the image of the industry and the craftsman to a level recognised in Germany. It would also provide a career structure within the Construction craft field which would

attract the more able young people who were seeking a career with a preference for manual and creative skills. If there were Master craftsmen supervising training on-site it would help to reduce the skill wastage that occurs when competent trainees are not given the chance to practise and expand their skills. In the long-term the extra cost in creating this grade of craftsman would be recovered by the improved efficiency and image of the industry.

The Development of Technician Courses

The major changes to technician education and training have also been in terms of organisational change, particularly with regards to the change whereby National Certificate and City and Guilds Technician courses became part of the TEC and then the BTEC system. The Business and Technician Education Council's unit based courses provided greater flexibility for entry and qualification achievement for a wider ability range, whereas the previous system was more rigid on entry and more students failed to achieve the goals set them.

The long duration of the part-time courses was also a major cause of the high drop-out rate from technician courses. The technician courses based on day release attendance required the student to study for up to four or six years. Today the BTEC schemes attract more full-time students who are able to obtain a National Diploma in two years of study. The BTEC courses are also available to a wider range of ability thus making entry to BTEC courses much easier than to the previous National Certificate courses. The modular arrangement of courses enables students to pursue study using various modes of attendance over various periods of study.

Access to Higher Education has also changed over this twenty year period. Many students are now using the BTEC awards as entry qualifications for Polytechnic or University instead of the academic route of 2-3 "A" level grades. With good BTEC

grades at National Diploma, they can find entry just as possible as with academic entry qualifications.

The changes that have occurred within the technician field have been more apparent than those at craft level. The dual system of National Certificate and City and Guilds Technician was set at two distinct levels. The National Certificate level was aimed at the young people leaving Grammar and Technical School, with the necessary entrance examinations in the core subjects of English, Mathematics and Science. The standard of the National courses was quite high and the failure and drop-out rate were high. The courses were more academic than the practical based City and Guilds Technician courses and the Higher National Certificate carried more status than its present day equivalent.

Access to Higher and Further Education was made easier with the introduction of the comprehensive system of schooling, and more young people were continuing their studies after leaving school. Although the greater access to further and higher education was a positive development it also had it's more negative consequences in that the greater numbers obtaining higher qualifications had resulted in the Higher Technician Certificate becoming less powerful as a means of obtaining career entry particularly at professional level. Many Professional Bodies required a degree or degree equivalent for entry into professional membership, whereas in the past the

Higher National would have served the same entry requirement. This trend in qualifications was apparent in many professional occupations where entry was set at degree level; two examples of this are social work and teaching. Whereas twenty years ago only a minority of entrants would have degrees, today most entrants have them.

The dual secondary education system provided the type of clients that the technician courses were designed for. The City and Guilds course provided a programme of study which was less academically demanding and provided the opportunity for the brighter Secondary Modern School children to enter technician education. The courses were more practical and catered for young persons who had obtained a junior post with a building company and were pursuing their qualifications part-time. Although these courses were not as academic as National courses, there was pressure on the City and Guilds course to maintain a high standard so that the gulf between the courses was not too wide. Therefore, we can conclude that the City and Guilds Technician courses were set to a high standard even though they were of a different nature to the National Certificate. Evidence from the response to the proposed change over to TEC indicates that the CGLI Technician course had wide recognition within the industry and that many people would have preferred the City and Guilds course to have remained. It was more traditional in structure with externally set syllabuses and examinations, thus ensuring that standards were Nationally set and assessed.

The development of the TEC system tended to be more student centred with greater flexibility in the mode of attendance and entry requirements. The removal of the two tier education system and its replacement by a more "liberal" comprehensive system of secondary education better suited the TEC model of technician education. Under the old system the City and Guilds Technician qualification had a second class image when compared with the prestigious National Certificate.

As more young people were receiving further education, the opportunities were made for easier access and a levelling off of standards to allow larger numbers of entries to technician courses. The introduction of continuous assessment, with internally set examination papers, ensured that the high proportion of drop-outs and examination failures were greatly reduced. Therefore, the introduction of the TEC system was in many ways a "progressive" educational change when compared with the previous system which was more formal and meritocratic. Both types of systems mirrored the current trend in secondary education.

However, the progressive developments introduced into TEC were never fully implemented and in many ways the TEC system was mirrored on the character of the previous dual system. For example, TEC had intended to introduce into their programmes the concept of mastery learning so that students were able to study at their own pace and on the mastery of a unit of study would be accredited that unit towards their final

qualification. The system of stage "progress tests" was intended both as an indicator of progress and a control mechanism for this system of individualised learning. The accumulation of marks over a series of short tests, coursework and assignments removed emphasis from the final end test. It was possible for a student to study at his own pace, to receive regular feedback on his progress and to accumulate marks for assessed work undertaken during the period of study. However the group option was still made available, whereby the students would undertake a group of units to achieve the required qualification. This option proved too much of a temptation for most colleges to treat TEC courses the same as previous courses, except for the continuous assessment. The new system of individualised learning also required the acceptance and understanding of behavioural objectives and the use of criterion referenced assessment rather than the norm referenced method. And the new system required that the students would be told the assessment criteria, to enable them to manage their own learning.

The behavioural objectives provided the students with the aims and objectives of their unit of study. From these objectives it was possible for students to monitor their own progress and assess the scope of the work they must cover to successfully achieve the aims of the unit. Each unit was divided into a series of sections, each section having its own objectives associated with achieving the required aims. This was an ideal

system for a method of study which was individualised and self-pacing. However, the objectives method of teaching and learning was never properly grasped by many teachers and there was insufficient support given to develop the skills required to write educational objectives and then to teach them. Many teachers used the standard schemes provided by TEC and used the learning objectives as a syllabus. The extra demands placed on teachers by the use of behavioural objectives and the greater teacher accountability associated with this method of teaching also acted as a disincentive for teachers to adopt whole heartedly this system of teaching.

Added to this problem was the requirement for assessment criteria to be provided for students so that they were aware of the criteria they were being assessed by. This change in assessment procedure also entailed additional work for teachers involved in TEC courses. The previous system of assessment was externally set and assessed, therefore the teachers' main role was to prepare and advise students for their external examinations. Under the new system the teacher's role had changed dramatically; now he or she was also responsible for setting the examination and then marking the individual pieces of work. These assessment tasks went on throughout the course under the system of continuous assessment. The new system created more work for the teacher and also changed the relationship between the teacher and student, because under the new system the teacher was also the examiner. With all the

extra work it was not surprising that most teachers preferred the norm-referenced method of assessing students to the new criterion-referenced method. Using the norm-referenced system the teacher would set the examination questions, presumably on areas of the syllabus that had been taught and then when marking the completed scripts would mark each paper based on a comparison between one student and another. What would normally occur was a spread of marks that would form a normal distribution curve, whereby a small percentage of students would obtain very high marks and an equally small number would receive very low marks, with the majority of students receiving marks between the middle of these two extremes. This method of assessment although representing a considerable amount of additional work was nevertheless far less time-consuming than the criterion-referenced method which was required by TEC.

Under the criterion-referenced system, in addition to the teacher writing the examination and assessment questions, they also had to write the assessment criteria for each question set. These criteria were generally based on a minimum pass standard and acted as a guide for students, other teachers in the team, and moderators as to what standards and criteria was being used for the assessment of the examination. It was by these criteria that teachers would assess the students rather than comparing the relative results of each student withn the group. With a set criterion the assessment was more objective and the grades the students received were not influenced by the

relative strength or weakness of the particular group. The setting of criteria for assessment made the teacher more accountable to the students and the moderator, because both could compare the marking with the critera. In general, the whole TEC system represented much more work particularly with regards to assessment and the additional work involved in adopting a criterion-referenced system of assessment. There was also the skill involved in writing criteria to match the objectives and the questions set for the examination. To fully implement these fundamental changes on such a large scale it would have been necessary to invest in a massive staff development programme, accompanied by advisory support from TEC Officers.

The Technician Education Council tried to introduce too much curriculum change too quickly with the result that many of the new ideas were never introduced. As the Perkins Report (201) indicated there was a gross lack of staff development at the level required to implement such a major curriculum change. In practice the amount of staff development was inadequate partly because there was not enough funding to undertake the work and, more importantly, the time scale for implementing the changes was such that there was insufficient time to properly

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201 FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT. (1981) Curriculum Change: An Evaluation of TEC Programme Development in College London: F.E.U.

prepare staff before the TEC system was in place. The result was that the level of staff development across the country was very patchy.

The main responsibility for satisfactory implementation of this major innovation fell to the TEC Moderator. Some of the moderators were full-time but many were only part-time and usually taken from senior lecturing staff of FE colleges. Their job was to monitor standards of the students work, standards of the examination paper and the way in which the Centre was implementing the TEC system. This represented a large burden of responsibility laid on the shoulders of Moderators, who could spend only a short time at each Centre, generally making only two visits each year. As the number of Centres increased the Moderators main task was to moderate the complex marking system to ensure that national standards were being maintained. The size of the moderation task undertaken by a relatively small number of Moderators meant that there was little time available to offer advice or to monitor implementation of the full TEC system. The result was that some of the progressive ideas which formed part of the TEC development never fully became implemented nationally. Here again, a rational, centrally devised policy broke down partly because of lack of resources and organisational support.

The rapid expansion of numbers of students undertaking TEC courses made monitoring standards more difficult. The fact that each Centre set its own examination papers and then

marked them, placed doubts on the setting of national standards and the validity of the programmes, particularly when it was TEC's stated aim that all students who took an active part in their studies should expect to pass the programme and receive the qualification. This led many critics to say that students automatically qualified on attendance only. This was seen as a lowering of standards to meet popular demand and to overcome the dual problem of technician shortage in industry and the high number of student drop-outs and examination failures.

Technician training also changed in the mode of attendance. In the 1970's the most common mode of attendance was the part-time day release course. The technicians who attended these courses were generally employed in industry as trainee technicians or as craftsmen who intended to advance to craft supervision and required a broader knowledge of the industry than was provided by craft training. Therefore, the practical experience and knowledge gained by these student technicians would integrate with the knowledge based content of their formal training at college. However, as the mode of attendance changed with more programmes being offered as full-time courses, the balance of training became more theory based with little if any industrial experience. For example, under the TEC Technician Diploma Studies course, a student could undertake two or three years of training without having any industrial experience. It was therefore important that some practical element was introduced into TEC studies for full-time courses.

Many students were using TEC courses as a "stepping stone" to Higher Education for either degrees or professional status. Courses which were intended for trainee technicians became more like bridging courses for higher qualifications. Therefore during the recession of the late seventies to middle eighties, the downturn in training did not affect technician input into courses to the same extent as it did at craft level. Craft training was structured with careful integration of theory and practice. The part played by companies was crucial, not only for recruitment of trainees but also for the completion of the site training, and when employers stopped recruiting trainees because of the fall-off in work orders and the relatively high cost of training young people, craft training went into crisis until the Government stepped in to fund training through the Youth Training Scheme.

However, for technician training the structure of training was more academic with less emphasis on company involvement. During the height of the economic recession when the numbers of employed technicians under training declined rapidly, the number of full-time students continued to grow. The effect of high unemployment among young people was to encourage them to continue their studies and to stay in education for a further two or three years and even then to continue on to Higher Education if the opportunity arose. The more academically able young people either went on to Sixth Form or employment, those with fewer '0' level passes could choose the Further Education option and many of these took the vocational route of TEC

Diploma course. This route gave them the eventual option of applying for a job with a construction firm, having obtained the TEC Diploma or alternatively to continue at Polytechnic or University.

The FE route was also available for those young people who had failed to achieve any '0' level grades but who wished to follow a non-manual route beyond Secondary School. These students were able to enter pre-diploma courses and take a combination of TEC Units and '0' level subjects. This course added an extra year of study onto the TEC Diploma course. The TEC courses proved popular for young people who could not find employment and did not wish to enter the Youth Training Scheme. Even with the introduction of the CITB Technician Training Scheme, with it's YTS status and BTEC qualification, very few student technicians took this route in preference to the college BTEC route. Surprisingly enough, even though the CITB Scheme had the direct backing of industry and the attraction of the training allowance, students still generally preferred the college route with little or no industrial input and no training allowance.

It would seem that there are two possible reasons for this. The first was the low status of the Youth Training Scheme. The YTS schemes quickly followed on from the unpopular Youth Opportunities Programme, and this carried the label of cheap labour, and "dead end" jobs. Many students and more importantly parents doubted the value of the Youth Training

Scheme. It was seen as a programme for the less able unemployed school leaver with no valuable qualification or training obtained at the end of it. Therefore, within the culture of the school, career teachers, pupils and form teachers associated the YTS with a particular group of pupils. At craft level the main route into the industry was through YTS Building Foundation Training, but for technician streams it was possible to enter technician training and by-pass the Youth Training Scheme. Therefore, craft students had little option but to enter the YTS programme, whereas the technician students could opt for college based training.

The second reason why technician students preferred the college route to the CITB option was the fact that a large proportion of students did not intend to become technicians and enter industry after technician training. Rather they saw the BTEC course as a means of a second chance at entry into Higher Education through a vocational route. The higher pay and status offered to professional personnel within the industry far out-weighed the advantages of starting paid employment at an early stage in their career. Further to this was the fact that most professional bodies had closed their entry opportunities to technicians and now required degree qualifications or equivalent entries. In order to attract more trainee technicians into the building sector, the building employers organisation, the Building Employers Confederation, along with the Chartered Institute of Builders and the

Construction Industry Training Board, developed the work-based training scheme called the Building Industry Technician Training Scheme. This scheme operated as a systematic training programme based in the workplace. The advantage of this type of scheme was that it took the emphasis away from college based study and also got the new entrants into builders offices with a more direct lead into industry. The main problem for builders was that most of the trainee technicians opted for more "attractive" options at professional level such as Estate Management, Quantity Surveying and Architecture, with the Building option coming low down the list of preference. The builders hoped to attract through this practical based scheme people who wished to make a career in building as technicians rather than having their sights on a professional career.

The main weakness of the BTEC course was the over academic nature of its full-time programmes. This weakness had been recognised by BTEC and the two new developments of common skills, and the greater emphasis on applying knowledge has resulted in the introduction of the Vocational Assignment which is intended to make that link between full-time study and industrial practice. Ideally the assignments should have been written in consultation with local employers and if possible be undertaken in employers workplace or alternatively in simulated working conditions. The common skill element also went some way towards preparing the trainee technicians for employment with their emphasis on personal development skills such as

communication skills, working as a team and problem solving. It was intended that by developing these skills during their full-time training they would be better prepared when they eventually entered industry.

The introduction of Integrated and Vocational Assignments placed some strain on the heavy academic demands of BTEC courses, with the growing realisation that time spent doing Common Skills and Vocational Assignments greatly reduced the time available for the Unit content of courses. This shift in emphasis towards work preparation could move the ethos of the full-time BTEC courses away from the academic/higher Education route and more towards the industrial/technician direction, with more involvement for employers.

The Elements of Control

The control over provision of Construction education and training rested with the four main groups of organisations active within the industry. The first of these was the employers, represented by national bodies, the main one being the Building Employers Confederation (BEC), which was the single most powerful employer organisation in the industry. The BEC represented most of the major employers in the industry and through its affiliation system was the umbrella organisation for many of the smaller employer groupings which represent the specialist firms and trades. The other main employer organisation was the Federation of Master Builders, which tended to attract smaller firms and did not have the power that its main rival held. The second main grouping was the employee representatives. There were two main trade unions within Construction, these were the Union of Construction and Allied Trades and Technicians (UCATT), and the Transport and General Workers Union. Although the latter was the largest union, the UCATT was the most important because it was the main specific Construction union. The third grouping was the educational organisations of which for this study the Further Education Colleges have had the most direct influence along with the various examination and validating bodies concerned with Construction education and training. The fourth major organisation was the Construction Industry Training Board (CITB), which has direct concern for the training of personnel

within the industry. The CITB was the main provider of YTS training within the industry and had a national training agreement with the Training Commission. It was also the main policy maker on matters concerning Construction education and training which it formulated in consultation with other bodies and in particular the National Joint Council for the Building Industry (NJCBI). The NJCBI consisted of both employer and employee representatives, and was responsible for formulating employment and training agreements within the industry.

The CITB's influence on training was probably stronger in the 1980's than it had ever been in the past. It was the sole provider of YTS Construction craft training within the industry and only in areas where the CITB did not offer specific craft training were private agencies permitted to offer YTS craft training. This control of craft training was encouraged by the main employee organisations on the grounds that the Construction Industry recognised only the CITB scheme as the preferred method of training. Therefore private YTS agencies found it difficult to get union approval if their schemes were in direct competition with the CITB schemes. The CITB offered a high quality training system which boasted a high percentage employment rate, much higher than other national or local schemes. Their provision of training was much longer than was usually offered under the YTS schemes, 34 weeks of off-the-job training in the two years leading to full craft recognition. The strong links with employers nationally through the levy

system meant that the schemes received a high level of industrial support.

In many ways this was a model YTS scheme which illustrated the positive side to this kind of training. The strength of the scheme had resulted in the Training Commission recognising the CITB schemes as the "standard setter" for other training agencies to model their schemes against. The relationship between the CITB and the BEC was close. The BEC left its training matters in the hands of the CITB, particularly at craft and below craft level. At technician level and above, the influence of the CITB/BEC was less apparent, but there were plans to involve these two organisations in both technician and degree provision to a greater extent in the future. For example the BEC formulated their Building Industry Technical Training Scheme (BITTS), which was a work-based scheme designed to meet the individual needs of each company. The CITB also had their own Technician training scheme which was funded under the YTS programme. This scheme did not prove as popular as the craft schemes but this could have been more to do with the status of YTS above craft level than a reflection on the quality of the scheme. Whereas at craft level, training had become more employer-led through the influence of CITB/BEC, at technician level and above, training remained education-led through the control of this provision by the educational establishments and validating bodies such as the Business and Technician Education Council and the professional bodies, such as the Chartered Institute of Building.

The power accumulated by the CITB in recent years as a result of YTS funding and provision, and enhanced by the development of a quality training system which offered the modern requirements for industrial training, resulted in the CITB gaining some control from other interested bodies, such as the BEC. Under the old apprenticeship system which operated prior to 1983, the CITB was dependent on employers to offer trainees employment before being given a place on the CITB New Entrant Training Scheme. Therefore, the Scheme relied on the support of the employer to make the training possible; for example if insufficient numbers of employers offered training then the training provision had to be reduced. Although the CITB provided grants for training, firms had to employ and pay wages to trainees whilst under training. Eventually, this need for employers' financial commitment to training was removed with the advent of YTS training allowances and the Government's funding of Construction training. Therefore employers were no longer required to make an employment commitment to their trainees until the start or even the end of the second year of training. Although the CITB tried to encourage employers to employ the trainees at the end of the first year, firms could not be forced to do this; it was simple preferred practice.

Another change which had taken place as a result of the new training arrangements had been the increase in smaller firms becoming involved with training, many of which had not supported the New Entrant Training Scheme because its grant

system tended to favour the larger companies. These smaller firms were less likely to be members of the BEC and therefore the influence of BEC was "watered down" in this way. Many of the larger companies had operated their own YTS schemes for building operatives on a commercial basis and therefore had been in direct competition with the industry's preferred method of training. Therefore, in recent years the influence of the BEC over the CITB changed, certainly since the late 1970's when the CITB was under the threat of the axe from Government and was saved by the support given to it by the building employers. The Board was in a much stronger position to influence the content of training. Many of the CITB's training problems were employer related, such as poor site supervision of trainees and the growth of sub-contract labour which had reduced the training base of the industry. The difficulty of finding suitable training providers on-site was particularly a problem in the prosperous South East, where because of skill shortages and the high cost of buildings and land, many employers would not train in the conventional way but preferred to take on partially trained young people and offer them self-employment and high earnings.

The problem of site training had reached such a degree that the Federation of Master Builders proposed as a solution that all trainees should be registered with the CITB for the duration of their training and that firms would simply offer industrial experience. These proposals were turned down by BEC because it

placed too much control of training in the hands of the CITB. The BEC prefered instead the idea of large firms acting as agents for groups of trainees, who would be placed with various firms during the period of training thus ensuring a broad range of site experience and proper monitoring of on-site training.

One area where there was strong agreement between BEC and CITB was the trend towards more employer-led training, and in this matter they had the complete support of Government through the Training Commission. Under the New Entrant Training Scheme the CITB had direct control over training for the trainees who attended their schemes, others received training through the City and Guilds courses, attending on block or day release. After the introduction of the two year YTS the CITB took control of both the first and second years of craft training and also had an indirect say in the third and final year through the introduction of Skill testing and criteria for craft recognition. As a result of these changes the trainees followed the CITB craft programme instead of the City and Guilds syllabus. Formal training was more training orientated with less emphasis on the educational aspects of the scheme. The revised scheme was narrower in content with more emphasis on basic skills and less time given to the theoretical aspects of the course. The CGLI courses had assumed that many of the basic skills were practiced on-site and therefore the technical content of both the practice and the theory was much broader, with equal time given for theory and practice.

The CITB scheme produced a trainee with a high standard of skill at a basic and narrow level. The technical content of craft courses had also been narrowed and the importance given to the craft recognition and its associated job knowledge test has reduced the recognition of the CGLI Craft Certificate within the industry. It was argued that Craft Recognition Status was sufficient qualification and therefore superseded the CGLI Craft Certificate. If this were to happen then the role of further education colleges and the examination body in the area of craft training would be greatly reduced. Colleges could be asked to provide the initial off-the-job training and possibly coaching prior to undertaking the skill test. Therefore the increasing power placed in the CITB to control Construction education and training at craft level was reinforced by the active support from the employers organisations and the trade unions associated with the industry. The influence of the City and Guilds as the main examination body was reduced because of the change towards a training based programme from what had been a education-led course. The move towards a training based scheme also took some of the control away from the colleges and their role was more supportive of the system rather than as a key member.

Curriculum Planning and Control.

The control and planning of the curriculum during the period under study manifested several general trends which help us to understand the different developments that took place within Construction education and training, and to relate them to the four questions originally posed in Chapter 3.

At what level was provision controlled, from the 'top down' or 'bottom up'? The control of curriculum planning has largely been a 'top down' process. The very nature of the industry required some central planning process to overcome the unstable and casual state of construction. The task of planning and controlling the manpower needs of the industry were entrusted to the Construction Industry Training Board. The Board was effective in planning the long-term requirements of the industry's training needs but has often failed to gain support to implement these changes. The involvement of Construction employers in the development of the education and training provision within the industry was not met by a commitment to implement these changes at site level. The result was that the training systems developed for the industry were often modified at lower levels of the system. For example, at craft level, the integration of formal training and site practice proved difficult, and the trainees often failed to maintain progress because of the quality of site training which was generally unstructured and poorly supervised.

At technician level, we observed a similar situation with the modification of the T.E.C. programmes by Colleges in order to fit the courses into the College structure; thus the flexibility and progressive nature of the programmes were lost at the implementation phase. It would seem that any 'top down' development must involve people at the lower levels if the intended outcomes are to be achieved. It is apparent from this study that the imposing of change from the 'top down' fails to gain support from the people who are involved in the process if they are not consulted or advised about the changes as they are developed.

Was the process of planning the curriculum rational or political ? The curriculum developments that took place within Construction education and training were strongly shaped or influenced by political factors. The role of Central Government was dominant in this respect. We saw the intervention of Government in Construction education and training in response to the weak support given to the system by Construction employers. During the early period of this study there was growing concern about the lack of training and the growing skill shortages experienced in some parts of the country. The setting up of the Industry Training Board ensured that more direct control was placed over the planning and funding of training. This resulted in the development of an initial training programme for all the major Construction crafts and the introduction of a training grant system funded

by an employer levy. Unfortunately this industry based approach proved unsuccessful in the long-term because the problems of skill shortages and insufficient training persisted.

The second main phase of central intervention was through the Manpower Services Commission. Its approach was different from that of the C.I.T.B. because the developments were targeted across industries rather than being industry specific. The same two key areas were targeted: initial or foundation training and funding provision. The strength of this political influence was greater because it was set against the major social problem of high youth unemployment. The impact that the M.S.C. had on Construction education and training was buffered by the C.I.T.B., which still retained its industry specific role. Unlike most other industries, Construction was able to retain its Training Board because of the weak training infrastructure within the Construction industry. The C.I.T.B.'s role became that of 'broker' between the needs of the employers and the demands of the M.S.C. The situation was made more complicated by the fact that Construction employers were still contributing levy towards the training and therefore retained some voice over the type of provision required by the industry. Therefore the C.I.T.B. had the balancing act of fulfilling the M.S.C. contractual requirements for the Building Foundation Y.T.S. Scheme, whilst still retaining the industry-specific initial training programme.

In recent years there was a shift away from central to local control of training. The power of the Training Agency (formerly the M.S.C.) diminished to make way for the Training and Enterprise Council which consist mainly of local employers. Although funding is still from central Government, the level of government funding has been reduced to allow for and encourage greater contributions by the employer.

Within the technician field the education and training control was somewhat different. The major development within this provision was based on a more rational approach, led by educational rather than political needs. The rationalisation of technician provision was a national development which was designed to modify the system to take account of the 'progressive' changes that were taking place within the educational system at the compulsory phase. The former dual provision for Construction technicians mirrored the dual compulsory education system. The introduction of T.E.C. programmes resulted in a levelling of standards and a change to a more flexibile and progressive form of technician education and training with the inclusion of continuous assessment, flexible modes of attendance and credit accumulation.

This 'rational' approach to curriculum planning helped to protect technician provision from the kind of political upheaval that has influenced craft provision. Technician provision was not directly affected by the influence of M.S.C.

and Y.T.S. developments. However, in recent years there have been changes to technician courses which have reflected external pressures to include within the provision an element of work preparation. This has taken the form of application of knowledge, the integration of theory and practice and the introduction of affective education through personal development and common skills element within all B.T.E.C. programmes. The major change yet to be fully implemented, will be when technician provision will need to adapt to meet the 'employment-led' emphasis of the N.V.Q. framework. This development could result in more direct influence by employers over the education and training of technicians.

Was the process of planning the curriculum proactive or reactive ? During the 1970's there was a period of <u>proactive</u> planning undertaken to meet the perceived future needs of the Construction industry. The former system of training had evolved in a laissez-faire fashion and had failed to provide the industry with an effective skilled workforce. During the period of recession, the industry failed to recruit and train for the future, and when the industry's workload improved there was a skill shortage. The role of the C.I.T.B. was to regulate this situation by planning the long-term requirements for the industry. One of the first tasks of the C.I.T.B. was to commission the Building Research Station to investigate the manpower needs of the industry. The report formed the basis of a systematic planning process. The programme required the

funding to implement the changes, and the introduction of a levy system was used to meet the training costs.

A proactive approach was crucial to the Construction industry because of its fluctuating demands for manpower. The levels of production were affected by economic factors and seasonal influences. The industry's manpower needs declined each winter because of the shorter daylight hours and inclement weather. The intention of the C.I.T.B. was to level off these peaks and troughs of employment demands by introducing a long-term planning strategy. The targeting of initial training was particularly important because of the high wastage of skilled workers during each recession and winter period.

This period of proactive planning was replaced in the 1980's by a more reactive approach to planning. The failure of the C.I.T.B. to overcome the industry's training problems became apparent in the late 1970's, and the situation was made worse by the economic recession which resulted in massive unemployment particularly among school leavers. The collapse of the apprenticeship system was caused by a combination of factors including the high cost of training, the economic recession, and the shrinking training base within the industry caused by the growth in self-employment.

This led to the question, was the process of planning the curriculum systematic or incremental ? The situation required a national response and this resulted in a series of

incremental developments to respond to the situation. The target group for this incremental and reactive process was school leavers, and resulted in the introduction of 'trainee' status and the placement of young people within industry for work experience. Critics of this system pointed out the danger of employment substitution of these trainees for employed people, and the use of trainees as unpaid labour. The negative response to the Youth Opportunity Programme led to the introduction of the Youth Training Scheme. This scheme placed greater emphasis on training and qualifications and set up a system of controlling the quality of provision by the introduction of an Approved Training Organisation status for Y.T.S. providers, which included the monitoring of work placements. The further development of the Y.T.S. programme into a two year scheme leading to a recognised qualification was seen by some as a response to criticism that the Y.T.S. had only been developed to deal with youth unemployment. The current scheme demands greater commitment from employers to contribute towards funding training, and offering employed status to the trainee.

The systematic planning of the provision of Construction craft and technician education and training is apparent from the development of the New Pattern of Training, and the introduction of the Technician Education Council programmes of study. Both attempts represented major changes in provision,

and called for a committed response from the practitioners who were expected to implement the changes.

The New Pattern of Training formed the basis of a model of training at craft level which has evolved to the present N.V.Q. framework. At the time of implementing the N.P.T. it was however too radical a change and the development was modified to become a more incremental one, involving the development of the New Entrant Training Scheme, the Building Foundation Y.T.S. Scheme and finally the N.V.Q. framework. It has taken some twenty years for the N.P.T., with its modular approach to training and the opportunity for multi-skilled training, to become fully implemented.

The T.E.C. programmes began as a systematic planning process which took a number of years to develop. Again the planning of the curriculum was modified at the implementation stage of the development, and many of the 'progressive' elements of the programme were never introduced into the college system. The two main weaknesses of this development were the lack of staff development and the failure to effectively monitor college provision. After the forming of B.T.E.C. there were further developments but the flexibility and student-centred approach that was first envisaged by T.E.C. were not, in general, implemented. In both the N.P.T. and T.E.C. curriculum the

systematic process of change was thus modified at the implementation phase, and the eventual change became more incremental in nature.

Whereas, in the past curriculum planning models tended to treat the curriculum in isolation, this study suggests that the vocational curriculum should be planned with due regard given to its contextual influences.

6.2 THE WAY FORWARD.

The CITB Building Foundation Scheme was generally recognised as well suited to the industry's needs. The two year YTS has been trimmed to concentrate on the basic skill range whilst still being sufficiently broad to form a good skill basis. The system of dual funding from Central Government via the Youth Training Scheme training allowance and the money from industry as a result of the levy has ensured sufficient provision for craft training and even enabled an expansion both in the numbers of trainees undertaking established craft options and also an increase in the scope of training on offer. Therefore, in recent years the training provision for the industry has been at its peak and the demand for trainees into the industry has increased at an equal rate of progress. However, just when the system seemed to be stabilizing a new wave of factors appeared on the horizon, which could radically reverse present trends. The two major factors which could threaten the present system are the demographic decline of the 16-18 year olds and the introduction of the NCVQ system.

The reduction in numbers of 16-18 year olds over the next ten years will affect the viability of the present YTS provision, particularly in view of the fact that the decline is more marked amongst the manual working class groups from whom the majority of craft trainees are recruited. The CITB has responded by increasing its recruitment campaign to include not

only the usual school careers open evening but also "Road Show" type public events. The pressure will also grow on offering employed status for CITB trainees from recruitment, a factor which could undermine the involvement in training of smaller firms within the industry. Smaller firms operating on small profit margins are less likely to train if they have to make an immediate employment commitment involving not only a formal contract of employment but also a financial commitment to the trainees. Prior to the introduction of YTS many smaller firms avoided the option to train in preference to sub-contracting work to self-employed workers who were offered work on a temporary basis. If this situation does develop then it could have quite serious consequences for the volume of site training because a large proportion of the industry's firms are small in size.

Without the active involvement of these small firms insufficient trainees can be properly trained. The situation prior to the CITB becoming a Managing Agent for YTS was that usually only the large and medium-sized firms were training, with the result that insufficient numbers of craftsmen were available even for the relatively small demand in 1983. The alternative is to recruit adults in place of school leavers. This option is being developed on a pilot basis in Skill Centres. The adults undertake a training scheme similar to that undertaken by CITB YTS Foundation trainees. During the first year of 24 weeks off-the-job intensive training, the

trainees receive their State benefit plus travel expenses, under the Employment Training arrangements. In the second year of training the formal training continues with up to 10 weeks off-the-job, depending on the craft option, and at this stage the trainee should be employed by his sponsoring firm.

There are many advantages in training adults when compared with school leavers. Their experience of work and the motivation to learn make them much easier to train. However, the Construction Industry is rather conservative in its recruiting. Adult trainees find it difficult to become accepted in the industry. Employers feel uncertain about their level of ability and the possibility of these adults becoming self-employed can be a source of threat to an employer business. Fellow craftsmen also show suspicion of the adult trainees' ability and the fact that they have not served their 'time' undermines the traditional craftsmen's skills. Under the present system whereby the adult trainees are undergoing a full training programme like the young trainees, some of these fears could be allayed. However, the present link between adult craft trainees and the Employment Training programme for the long term unemployed narrows the type of people wishing to enter the industry as adult trainees to those who have had either unskilled jobs or who have had unsuccessful working careers. The incentives available to adults to join the Employment Training programme are so small that there could be problems in motivating the trainees during their first year of

training. The small expenses allowance offered to Employment Training trainees could mean that they would be financially worse off by taking training than they were when staying at home. Therefore, under the present arrangements the individual who wishes to learn a craft skill must accept quite a sacrifice to obtain craft recognition. He must work hard at obtaining these skills and practicing them on site with little or no financial reward. He then has to become accepted by his employer and fellow workmates both during training and afterwards. If adults are not given enough encouragement to undertake training then the few who complete the programme will make the scheme non-viable, and the industry will in the long-term suffer from skill shortages. Furthermore, if a substantial number of partly trained adults enter the job market there is a danger of sub-standard work being imposed upon the general public. What is required is a system which enables adults who are employed to train in a building craft and to receive financial support during that period. A realistic training allowance would be required which would support an adult during his training.

There is already evidence that the planned recruitment of adults into the industry through the Employment Training Scheme, targeted at 6000 adults for the first year under schemes approved by the CITB will only reach half that number. The National Economic Development Organisation has been put forward as a co-ordinator of trainee recruitment. By 1989 the construction industry required 80,000 trainees and in fact only

30,000 completed the second year of training.(202) The National Economic Development Organisation will bring together the CITB and the Training Agency to discuss ways of improving recruitment to the industry. Some of the key issues include recruitment of older workers, and additional training for those in the industry. The latter idea is an approach where through training the productivity of the industry could be further improved. Certainly many of the older construction workers have received no formal training and most of the industry's workforce receives only basic initial training, with no provision for further skill training or skill up-dating.

If the industry is to attract the right type of people, it must take a hard look at its career structure and the conditions of employment currently available. The industry must improve its public image, from being a casual seasonal industry to an industry with a long-term future. The recognition given to building craftsmen has been undermined by the often short-term investment in the industry's workforce. The result is that much of the labour force consists of people with short-term goals for the industry. This situation is seen in the casual self-employment prevelent in the industry. Individuals who seek long term careers with opportunities for advancement through a formal career structure tend to avoid construction

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202 BUILDING TODAY (1989) 'Adults will not end skills famine'. London: Building Today Publications. p. 4.

because the industry does not appear to offer these opportunities. The industry is desi'gned for the people who are prepared to accept short-term gains with an insecure future. The nation's investment in construction is such that it should be possible to offer an industry with long-term opportunities and a career structure which recognises the importance of the manual skills that are still dominant in the construction industry. Until this task is undertaken the industry will fail to attract the type of people which will take the industry forward into the next century.

For this type of radical change to take place a swing away from the domination of construction employers to a more balanced relationship between employer and employee may be necessary. The industry is a clear example of a workforce with a weak trade union that has failed to carry forward the industry in the twentieth century. The gains won in other industries such as good conditions of service and secure careers, which are taken for granted by engineering and some service industries are almost totally absent from the Construction Industry.

The second major influence is the future introduction of National Council for Vocational Qualifications. The NCVQ will affect the structure and validation of vocational qualifications and could radically alter the nature of FE provision. The main emphasis will be on employment-led training which will ideally be undertaken in the workplace.

Thus much of the craft training which is now provided by the colleges could be lost to private industry. Companies will also be able to validate their employee's qualification on a credit accumulation system, whereby competences credited in the workplace by trained company assessors, will accumulate towards on NCVQ recognised certificate. With much importance being given to the accreditation of prior learning, many employees will be able to obtain vocational qualifications without formal off-the-job training. The assessment of previous experience and workbased competences will enable employees to obtain recognised qualifications.

Following the publication of the White Paper "Employment for the 1990s", the future of the Construction Industry Training Board seems uncertain. The Government wants to abolish the seven boards with the statutory power to raise a levy. It wants them replaced by independent non-statutory bodies.(203) However the Secretary for Employment has recognised that special considerations apply to the CITB because of the nature of the industry. The mobile workforce and the proliferation of small sub-contracting firms make the industry a special case, when considering the organisation of training. He did not rule out the possibility of retaining the CITB as a board with a statutory right to raise a levy if that is what the industry's

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203 BUILDING TODAY (1989) 'Fight is on for the Training Board'. London: Building Today Publications. p. 4.

employers want. The main trade unions have come out in favour of retaining the CITB and the smaller employers' organisation the Federation of Master Builders, also seems content with retaining the status quo. However the Building Employers Confederation have not been so keen to show support to the CITB. It would seem that the power gained by the CITB through its control of Government funding as the main YTS Managing Agent has made the Building Employers wish to regain more say over the nature of training in the industry, before it gives continued approval of the CITB's role. This internal power struggle has become public in the deliberations of the House Builders Federation over the nature of training for their members trainees. The HBF argues that trainees are having to spend too long in training and that competent craftsmen could be trained to work in house building in a shorter time than is taken to train someone with allround construction skills. The HBF president Brian Hewitt, argues that if statutory levies to the CITB are abolished as a result of the Government's White Paper on Training, house builders will be willing to pay an equivalent sum to a new employer-led body.(204) If the HBF gets it's wish then the trainees will receive only limited skills appropriate to house construction, which tend to be more basic than the skills required for industrial or commercial

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204 BUILDING TODAY (1989) 'Federation in talks on Training'. London: Building Today Publications. p. 6.

contracts. The CITB chief executive Dennis Maiden believes he can settle the problem by offering a modular training system which will give the house builders the flexibility they want. The current NVQ Accredited Units are set at two levels. Level II is at a basic level which is comparable to the present two years NTI Programme. This level could well form the first grade of craftsmen who would fit into the House Builder Federation requirements for basic skill training. The level III Units are at present Provisional awaiting the final draft, it seems that this level will include the present content of advanced craft training.

It would seem that if the Building Employers could take control of training without the need for CITB they would be free to design training to suit local employer needs. This emphasis on localised training seems to be the main emphasis of present government policy. With the introduction of Local Employer Networks and now the Training and Enterprise Councils, both controlled by private employers, the national system of training developed as a result of the Youth Training Scheme may be replaced by short, cost effective, modular training which meets local employers needs.

If the decline in recruitment continues among the 16-18 year olds and the unemployed adults are not attracted to Employment Training, the emphasis could move to retraining people already in the industry. This approach would certainly be cost effective in that the trainees experience and skills could be credited and the training could be undertaken on a specific

modular basis, over a relatively short space of time. Under this system operatives who are semi-skilled or unskilled could be trained into skilled jobs and individuals with narrow specialist skills could be trained into a second skill area. Therefore, a company with a team of plumbers whose work load was low, could with training undertake electrical instalation work; the roof tiler could also train as a bricklayer. Under this system of training the efficiency of the industry could be improved two-fold. Firstly, individual's skills and knowledge could be improved and up-dated by training; therefore, the middle-aged bricklayer who never received formal training could select from a modular course the training he needs to improve his skill ownership. Secondly, the specialist craftsman could learn a second associate skill so that when his first line of work begins to run low he can then revert to his secondary skills and thus make his usefulness to the company two-fold. With a modular method of training it would be possible to use this system of up-dating and retraining to suit employers needs at a relatively economic cost. This could become the new pattern of training, along with a smaller number of new entrants from both the school leavers and adult groups. The NCVQ emphasis on performance criteria as proof of competence means that the assessment of skills will become as important as training because training, could be done informally on-site then assessed formally in a Test Centre. The future of Construction education and training seems less certain now than in the past.

APPENDIX A

The following list of questions were used for the interviews:

Craft Training in the Construction Industry

Key Organisations

What do you consider were the main features of the apprentice training system during the early 1970's?

What do you consider were the main reasons why the C.I.T.B. "New Pattern of Training", failed to receive support from the Construction Industry?

What do you consider to be the major changes that have taken place in apprentice training during the period 1974-90?

What do you consider are the main strengths and weaknesses of the present apprenticeship system?

Do you think that sufficient consideration is given to the image of craft training?

Do you expect any major changes in the apprenticeship system in the near future?

The Development of Construction Technician Education and Training

Key Organisations

What do you consider to be the major changes that have taken place in technician education and training during the period 1970-90?

What do you consider was the reason for the long lead-in time before the Technician Education Council was formally operational?

What do you consider are the main strengths and weaknesses of the present technician education system?

Do you expect any major changes in the technician education system in the near future?

The following letters were sent to practitioners prior to interview.

Development of Craft Education & Training: 1970-1990

I would be most grateful for your views on the development of craft education and training within the Construction Industry during the period 1970-1990.
As you will recall this period included the provision of the C.I.T.B. "New Pattern of Training" which preceded the "New Entrant Training" (N.E.T.) courses. Then the Building Foundation Scheme which was devised from the "New Training Initiative". Consistently through all this change has been the City and Guilds qualifications, at craft and advanced craft.

Development of Technician Education: 1970-1990

I would be most grateful for your views on the development of technician education within the Construction Industry during the period 1970-1990. As you will recall this period includes the final years of the dual provision of National Certificate and City and Guilds Technician courses. Following on from this was the introduction of T.E.C. programmes and finally B.T.E.C.. I would also be interested in the way you view the C.I.T.B. Technician Scheme in the context of B.T.E.C. provision.

APPENDIX B

LIST OF INTERVIEWS

Key Organisations:

Mr Peter C Stevens
Assistant Secretary
City and Guilds of London Institute
76 Portland Place
London
W1N 4AA — 7th July 1987
2 hours duration

Mr Len G Bill
Assistant Director
Education and Training Services
City and Guilds of London Institute
76 Portland Place
London
W1N 4AA — 7th July 1987
1 hour duration

Mr D P Phillips
Director of Training Policy
Building Employers Confederation
82 New Cavendish Street
London
W1M 8AD — 13th July 1987
2 hours duration

Mr J A Reynolds
Secretary to the Board
Construction Industry Training Board
Dewhurst House
24 West Smithfield
London
EC1A 9JA — 13th July 1987
1 hour duration

Mr D Leiper
Assistant Manager
Manpower Services Commission
Employment and Enterprise Group
Wigford House
Brayford Wharf East
Lincoln — 15th July 1987
1 hour duration

Mr G L Hall
Head of Training Resources & Information Centre
Construction Industry Training Board
Head Office
Bircham Newton
Kings Lynn
Norfolk
PE31 GRH 27th July 1987

1½ hours duration

Mr J Young
Room E708
Manpower Services Commission Head Office
Moorcroft
Sheffield
S1 4PQ 21st October 1987

1 hour duration

Ms Jan Druker
Research Officer
Union of Construction, Allied Trades and Technicians
UCATT House
177 Abbeville Road
Clapham
London
SW4 9RL 9th December 1987

1 hour duration

Mr R A Wood MBE
Director
J W Falkner & Son Ltd
24 Ossory Road
London
SE1 5 AP 16th December 1987

2 hours duration

Mr A Fulcher
Director of Training Policy and Development
Construction Industry Training Board
Bircham Newton
Kings Lynn
Norfolk
PE31 GRH 9th March 1988

1½ hours duration

Mr Paul Ellis
Research & Development Division
National Council for Vocational Qualifications
222 Euston Road
London
NW1 1st June 1990

30 minutes duration

Mr B Boughton
Business and Technician Education Council
Central House
Upper Woburn Place
London
WC1 QHH 27th June 1990
1½ hours duration

Practitioners:

Mr A C Byng
Head of Resources
North Lincolnshire College
Cathedral Street
Lincoln
(BTEC Moderator)
(Previously Cheltenham College) 4th December 1990
1 hour duration

Mr R Neslem
BTEC Co-ordinator
North Lincolnshire College
Lincoln
(Previously Bradford College) 7th December 1990
1 hour duration

Mr P Miller
Wood Trades
North Lincolnshire College
Lincoln
(Previously Luton College) 7th December 1990
1 hour duration

Mr P Roberts
Head of School
Construction Craft Studies
North Lincolnshire College
Lincoln
(Previously Bedford College) 18th January 1991
2 hours duration

Mr A Pearce
Head of School
Building and Civil Engineering
North Lincolnshire College
Lincoln

8th February 1991

1 hour duration

Mr G Pearce
Senior Lecturer
Construction Crafts
North Lincolnshire College
Lincoln
(Previously Doncaster College)

22nd February 1991

30 minutes duration

LIST OF ABBREVIATIONS

A.P.L.	Accreditation of Prior Learning.
B.E.C.	Business Education Council.
B.E.C.	Building Employers Confederation.
B.T.E.C.	Business/Technician Education Council.
B.F.T.S.	Building Foundation Training Scheme.
B.I.T.T.S.	Building Industry Technician Training Scheme.
B.R.S.	Building Reseach Station.
B.T.J.	Building Trades Journal.
C.B.I.	Confederation of British Industry.
C.G.L.I.	City and Guilds of London Institute.
C.G.	
C.I.R.F.	Centre International d'Information et de Recherche sur la Formation Professionnelle.
C.I.T.B.	Construction Industry Training Board.
C.N.C.	Computer Numerically Controlled.
C.P.V.E.	Certificate of Pre-Vocational Education.
D.E.S.	Department of Education and Science.
F.E.	Further Education.
F.E.S.C.	Further Education Staff College.
F.E.U.	Further Education Unit.
F.M.B.	Federation of Master Builders.
F.R.G.	Federal Republic of Germany.
G.C.E.	General Certificate of Education.
G.C.S.E.	General Certificate of Secondary Education.
H.B.F.	House Builders Federation.
H.M.I.	Her Majesty's Inspectorate.
H.M.	
H.M.S.O.	Her Majesty's Stationery Office.
H.N.C/D.	Higher National Certificate/Diploma.
I.M.S.	Institute of Manpower Studies.
I.T.B.	Industrial Training Board.
I.T.	Information Technology.
L.A.P.	Low Attaining Pupils.
L.E.A.	Local Education Authority.

L.I.B.	Lead Industry Body.
M.S.C.	Manpower Services Commission.
N.C.V.Q.	National Council Vocational Qualifications.
N.V.Q.	
N.E.T.	New Entrant Training.
N.J.C.B.I.	National Joint Council for the Building Industry.
N.P.T.	New Pattern of Training.
N.T.I.	New Training Initiative.
O.E.C.D.	Organisation for Economic Co-operation and Development.
O.N.C/D	Ordinary National Certificate/Diploma.
O.T.F.	Occupational Training Families.
O.U.	Open University.
S.S.T.	Standard Scheme Training.
T.A.	Training Agency.
T.E.C.	Technician Education Council.
T.G.W.U.	Transport and General Workers Union.
T.O.P.	Training Opportunities Programme.
T.U.C.	Trade Union Congress.
T.V.E.I.	Technical and Vocational Education Initiative.
U.C.A.T.T.	Union of Construction Allied Trades and Technicians.
U.K.	United Kingdom.
U.N.E.S.C.O.	United Nations Educational, Scientific, and Cultural Organisation.
V.D.U.	Visual Display Unit.
Y.T.S.	Youth Training Scheme.
Y.T.	

BIBLIOGRAPHY

AINLEY, P. (1988) From School to YTS: Education and Training in England and Wales 1944-1987, Milton Keynes: Open University Press.

ALDCROFT, D.H. (1982) Britain's Economic Decline 1870-1980, in RODERICK, G. & STEPHENS, M. (Eds) The British Malaise, Lewes: The Falmer Press.

ASHTON, D.N. & FIELD, D. (1976) Young Worker, London: Hutchinson.

ATKINSON, G.B.J. (1983) The Economics of Education, London: Hodder and Stoughton.

BAILEY, C. (1984) Beyond the Present and the Particular: A theory of Liberal Education, London: Routledge & Kegan Paul.

BEAVIS, S. & HARPER, K. (1990) July 17th No Protests as Aid, Research and Training are cut, London: Guardian Newspaper.

BECHER, T. (1981) Towards a Definition of Disciplinary Cultures, Studies in Higher Education, 6(2), 109-22.

BECHER, T. & KOGAN, M. (1980) Process and Structure in Higher Education, London: Helnmann.

BECHER, T. & MACLURE, S. (1978) The Politics of Curriculum Change, London: Hutchinson.

BERGER, P. and LUCKMANN, T. (1971) The Social Construction of Reality, Harmondsworth: Penguin.

BLAUG, M. (1968) Economics of Education, Harmondsworth: Penguin Books Limited.

BLOCK, J.H. (ed) (1971) Mastery Learning: Theory and Practice, New York: Holt Rinehart and Winston.

BLOCK, J.H. (ed) (1974) Schools Society and Mastery Learning, New York: Holt Rinehart and Winston.

BLOOM, B., et al. (1956) Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain, London: Longman.

BLOOM, B.S. (ed) (1956) new impression (1979) Taxonomy of Educational Objectives: The Classification of Educational Goals, London: Longman Group Limited.

BOWLES, S., & GINTIS, H. (1976) Schooling in Capitalist America, London: Routledge & Kegan Paul.

BRIAULT, E.W.H. (1976) A distributed system of educational administration: an international viewpoint, in GLATTER, R., et al. (1979) E222 The Control of Education in Britain: Unit 1, Milton Keynes: Open University Press.

BRITISH ASSOCIATION COMMERCIAL AND INDUSTRIAL EDUCATION (1972) Vocational Training in the European Economic Community with particular reference to it's likely impact on British Training Policy and Practice, London: British Association for Commercial and Industrial Education.

BUILDING EMPLOYERS CONFEDERATION/CHARTERED INSTITUTE OF BUILDING (1985) The Building Industry Technician Training Scheme, London: B.E.C.

BUILDING RESEARCH STATION (1966) Building Operative Work, London: H.M.S.O.

BUILDING TODAY (1989) 'Federation in talks on training', London: Building Today Publications 19.1.89.

BUILDING TODAY (1989) 'Fight is on for training board', London: Building Today Publications 8.12.89.

BUILDING TODAY (1989) 'Adults will not end skills famine', London: Building Today Publications 19.1.89.

BUILDING TRADES JOURNAL (July 4th 1984) Vol. 190.

BUILDING TRADES JOURNAL (January 10th 1985) Vol. 189.

BURKE, J.W. (ed) (1990) Competence Based Education and Training, Lewes: Falmer Press.

BUSINESS/TECHNICIAN EDUCATION COUNCIL (1984) Discussion Document on Educational Policy, London: B.T.E.C.

BUSINESS/TECHNICIAN EDUCATION COUNCIL (1984) Policies and Priorities in the 1990's, London: B.T.E.C.

CANTOR, L. (1989) Vocational Education and Training in the Developed World: A Comparative Study, London: Routledge.

CANTOR, L.M. & ROBERTS, I.F. (1983) Further Education Today: a critical review, London: Routledge & Kegan Paul.

CANTOR, L.M. & ROBERTS, I.F. (1986) Further Education Today: A Critical Review, (3rd edn). London: Routledge & Kegan Paul.

CENTRAL STATISICAL OFFICE (1984) Annual Abstract of Statistics: 1984 Edition, London: H.M.S.O.

CITY AND GUILDS OF LONDON INSTITUTE (1964) Further Education for Craftsmen, London: C.G.L.I.

CITY AND GUILDS OF LONDON INSTITUTE (1964) Further Education for Technicians, London: C.G.L.I.

CITY AND GUILDS OF LONDON INSTITUTE (1986) 590 Plastering Syllabus Pamphlet, London: C.G.L.I.

COHEN, L. & MANION, L. (1980) Research Methods in Education, London: Croom Helm.

COMMONWEALTH EDUCATION LIASON COMMITTEE (1967) Education and Training of Technicians, London: H.M.S.O.

COMPARATIVE PAPERS IN FURTHER EDUCATION (1983) Vocational Education and Training in the Federal Republic of Germany, No. 10. Bristol: Further Education Staff College.

COMPARATIVE PAPERS IN FURTHER EDUCATION (1983) Vocational Education and Training in the German Democratic Republic, No. 11. Bristol: Further Education Staff College.

CONFEDERATION OF BRITISH INDUSTRY/COOMBE LODGE (1981) T.E.C. Towards the Next Decade, Bristol: Further Education Staff College.

CONSTRUCTION INDUSTRY TRAINING BOARD (1969) A Plan of Training for Operative Skills in the Construction Industry, London: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1969) Building Technician Training Recommendations, Bircham Newton: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1985) Training Specification: Bricklayer, N.T.I. 032A Bircham Newton: C.I.T.B. section 1.2.

CONSTRUCTION INDUSTRY TRAINING BOARD (1986) The Building Foundation Training Scheme: Notes for Guidance, Bircham Newton: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1986) C.I.T.B. Annual Report 1985/86, Bircham Newton: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1987) Training Record Technician, Bircham Newton: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1988) Construction Technician Scheme Outlined, Bircham Newton: C.I.T.B.

CONSTRUCTION INDUSTRY TRAINING BOARD (1989) Competences and Performance Criteria for Technical Staff in the Building Industry, Bircham Newton: C.I.T.B.

COOMBE LODGE REPORT (1982) Craft Level Education and Training in the Construction Industry, Vol. 15. No.2. Bristol: F.E. Staff College.

COOMBE LODGE REPORT (1984) Initial Skills Training in the Construction Industry, Bristol: F.E. Staff College.

COOMBE LODGE REPORT (1985) Training for Jobs: Comments and Views on the White Paper, Bristol: F.E. Staff College.

COOMBE LODGE REPORT (1987) Action on Assessment in B.T.E.C., Bristol: F.E. Staff College.

COUNCIL OF EUROPE (1977) Some Significant Experiments in Vocational Training, Strasbourg: Council for Cultural Co-operation.

COUNCIL OF EUROPE (1979) Occupational Basic Training: Preliminary Definition of a Polyvalent and Cultural Occupational Basic Training, Strasbourg: Council for Cultural Co-operation.

CRATTY, B.J. (1967) Movement Behaviour and Motor Learning, (2nd edn). Philadelphia: Lea & Febiger.

CROSS, K.P. (1976) Accent on Learning, London: Jossey-Bass.

DALE, R. (ed.) (1985) Education, Training and Employment, Oxford: Pergamon.

DAVEY, N. (1964) Building in Britain, London: Evans Brothers.

DAVIES, I.K. (1976) Objectives in Curriculum Design, London: McGraw-Hill Book Company (U.K.) Limited.

DEPARTMENT OF EDUCATION & SCIENCE (1964) Day Release: The Report of a Committee set up by the Minister of Education, London: H.M.S.O.

DEPARTMENT OF EDUCATION & SCIENCE (1969) Report of the Committee on Technician Courses and Examinations, London: H.M.S.O.

DEPARTMENT OF EDUCATION & SCIENCE (1984) The Youth Training Scheme in Further Education 1983-84: An H.M.I. Survey, London: H.M.S.O.

DEPARTMENT OF EDUCATION & SCIENCE (1984) Education for Employees: An H.M.I. Survey of Part-time Release for 16-19 year olds, London: H.M.S.O.

DEPARTMENT OF EDUCATION & SCIENCE (1988) Education Reform Act, London: H.M.S.O.

DEPARTMENT OF EDUCATION & SCIENCE (1990) A Survey of Construction Craft Courses 1987-1989; H.M.I. Report, London: D.E.S.

DEPARTMENT OF EMPLOYMENT (1981) A New Training Initiative: A Programme for Action, London: H.M.S.O.

DEPARTMENT OF EMPLOYMENT (1984) Training for Jobs, London: H.M.S.O.

DEPARTMENT OF EMPLOYMENT (1986) Working Together - Education and Training, London: H.M.S.O.

EASTON, D.A. (1965) A Framework for Political Analysis, Chicago: University of Chicago Press.

ENTWISTLE, H. (1970) Education, Work and Leisure, London: Routledge & Kegan Paul.

EVANS, R.N. (1971) Foundation of Vocational Education, Ohio U.S.A.: Charles E. Merrill.

FIDDY, R. (ed) (1983) In Place of Work: Policy and Provision for the Young Unemployed, Lewes Sussex: The Falmer Press.

FINN, D. (1986) Y.T.S. The Jewel in the M.S.C. Crown, in BENN, C. & FAIRLEY, J. (eds) Challenging the M.S.C. on Jobs Education and Training: enquiry into a national disaster, London: Pluto Press.

FINN, D. (1987) Training Without Jobs: New Deals and Broken Promises, London: Macmillan Education Limited.

FITTS, P.M. & POSNER, M.I. (1967) Human Performance, California: Brooks & Cole.

FLEISHMAN, E.A. (1972) Structure and Measurement of Psychomotor Abilities, pp 78-104 in SINGER, R. (ed) The Psychomotor Domain: Movement Behaviour, Philadelphia: Lea & Febiger.

FLOWER, F. & RUSSELL, R. (ed) (1982) The Industrial Tutor in the Federal Republic of Germany, Bristol: F.E. Staff College.

FORSTER, G. (1978) Building Organisation and Procedures, London: Longman Group Limited.

FULCHER, A. C.I.T.B. Director of Training Policy. Lecture given at the H.M.I. Construction Craft Teachers Conference, Wolverhampton Polytechnic. July 3-5th 1990.

FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT (1980) Developing Social and Life Skills: Strategies for tutors, London: F.E.U.

FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT (1980) Signposts: A Review of Courses 16-19, London: F.E.U.

FURTHER EDUCATION CURRICULUM REVIEW AND DEVELOPMENT UNIT (1981) Curriculum Change: An Evaluation of T.E.C. Programme Development in College, London: F.E.U.

FURTHER EDUCATION UNIT (1982) A Basis for Choice, London: F.E.U.

FURTHER EDUCATION UNIT (1983) Supporting Y.T.S., London: F.E.U.

FURTHER EDUCATION UNIT (1984) Common Core Teaching and Learning, London: F.E.U.

FURTHER EDUCATION UNIT (1985) Supporting Y.T.S.: Third Edition, London: F.E.U.

FURTHER EDUCATION UNIT REPORT (1989) Implications of Competence Based Curricula, London: F.E.U.

GAGNE, R.M. & BRIGGS, L.J. (1974) Principles of Instructional Design, New York: Holt Rinehart & Winston.

GLATTER, R., et. al. (1979) E22 The Control of Education in Britain: Unit 1, Milton Keynes: Open University Press.

GLEESON, D. (ed) (1983) Youth Training and the Search for Work, London: Routledge & Kegan Paul.

GLEESON, D. & MARDLE, G. (1980) Further Education or Training, London: Routledge & Kegan Paul.

GOVERNMENT STATISTICAL SERVICE (1984) Housing and Construction Statistics Great Britain, September Quarter Part 2 No 19, London: H.M.S.O.

GRIFFIN, C. (1983) Curriculum Theory in Adult and Lifelong Education, London: Croom Helm.

HARGREAVES, D. (1982) The Challenge for the Comprehensive School, London: Routledge & Kegan Paul.

HARVEY, J. (1973) Man the Builder, Norwich: Priory Press Limited.

HAYES, C. et. al. (1983) Training for Skill Ownership, Brighton: Institute of Manpower Studies.

HERMANN, G.D. & KENYON, R.J. (1987) Competence-Based Vocational Education, London: F.E.U.

HEYWOOD, J. (ed) (1980) The New Technician Education, Guildford: The Society for Research into Higher Education, University of Surrey.

HIRST, P.H. (1969) The Logic of the Curriculum, Journal of Curriculum Studies, 1 (2).

HOLT, M. & REID, W.A. (1988) Instrumentalism and Education: 14-18 Rhetoric and the 11-16 Curriculum, in POLLARD, A. et. al. (ed) Education Training and the New Vocationalism, Milton Keynes: Open University Press.

HOWELL, D.A. & BROWN, R. (1983) Educational Policy Making: An Analysis, London: Heinemann.

INTERNATIONAL LABOUR OFFICE (1966) European Apprenticeship: Effects of Educational, Social and Technological Development on Apprenticeship Training Practice in Eight Countries, Geneve: C.I.R.F. Publications.

JAHODA, M. (1963) The Education of Technologists: an exploratory case study at Brunel College, London: Tavistock Publications.

JAMIESON, I. (ed) (1985) Industry in Education, Developments and Case Studies, Harlow: Longman Group Ltd.

JOHNSON, R. (1984) Occupational Training Families: Their implications for F.E., London: F.E.U.

KAPFER, M.B. (ed) (1978) Behavioural Objectives: the position of the pendulum, New Jersey: Educational Technology Publications.

KELLER, F.J. (1984) Principles of Vocational Education: the Primacy of the Person, Boston: D.C. Heath & Co.

KOGAN, M. (1975) Educational Policy-making A Study of Interest Groups and Parliament, London: George Allen & Unwin Ltd.

KOGAN, M. (1978) The Politics of Educational Change, Manchester: Manchester University Press.

KRATHWOHL, D.R., BLOOM, B.S. & MASIA, B. (1964) Taxonomy of Educational Objectives: The classification of educational goals, Handbook II: Affective Domain, London: Longman.

LANCASTER, M. (1982) The New Training Initiative (N.T.I.) in COOMBE LODGE REPORT Vol 15 No 2 Craft Level Education and Training in the Construction Industry, Bristol: F.E. Staff College.

LAWTON, D. (1983) Culture and Curriculum, (Unit 3, E204, Purpose and Planning in the Curriculum), Milton Keynes: Open University Press.

LIEPMANN, K. (1960) Apprenticeship: An enquiry into it's Adequacy under modern conditions, London: Routledge and Kegan Paul.

LINDBLOM, C. (1959) The Science of Muddling Through, Public Administration Review, 19.

MACLENNAN, A. (1975) Education and Training Technicians, London: Commonwealth Secretariat.

MACLURE, S. (1989) Second Edition Education Reformed: A guide to the Education Reform Act, London: Hodder & Stoughton.

MANPOWER SERVICES COMMISSION (1982) Youth Task Group Report, London: M.S.C.

MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: The Characteristics of Units of Competence, Sheffield: M.S.C.

MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: A Code of Practice and a Development Mode, Sheffield: M.S.C.

MANPOWER SERVICES COMMISSION (1988) Development of Assessable Standards for National Certification: The Definition of Competence and Performance Criteria, Sheffield: M.S.C.

MEIGHAN, R., et. al. (1981) A Sociology of Educating, London: Holt, Rinehart and Winston.

MILLS, H.R. (1967) "Teaching and Training Techniques for Instructors", London: Macmillan incorporating Cleaver-Hume Press.

MITTER, W. (1984) 'Education for All' International Yearbook of Education, 36, Paris: UNESCO.

MOOR, C. & ANDREWS, S. & DEAN, A. (1981) T.E.C. Programmes Evaluated: Student progress and employers perceptions, Windsor: National Foundation for Educational Research - Nelson.

MORRISH, I. (1973) sec impression The Sociology of Education: An Introduction, London: George Allen and Unwin Limited.

MORRISON, J. (1984) Youth Training Principles and Practice, London: Hutchinson & Co Ltd.

McNAY, Ian & OZGA Jenny, Editors (1985) Policy-Making in Education. The Breakdown of Consensus, Oxford: Pergamon Press: In association with the Open University.

NATIONAL ADVISORY COUNCIL ON EDUCATION FOR INDUSTRY AND COMMERCE (1969) Report of the Committee on Technician Courses and Examinations, London: H.M.S.O.

NATIONAL COUNCIL FOR VOCATIONAL QUALIFICATIONS (1989) National Vocational Qualifications: Criteria and Procedures, London: N.C.V.Q.

NATIONAL COUNCIL FOR VOCATIONAL QUALIFICATIONS (1989) N.V.Q. Information Notes 5: Assessment in N.V.Q's: Use of Evidence from Prior Achievement, London: N.C.V.Q.

NUTTALL, D.L., et. al. (1987) Action on Assessment in B.T.E.C., Bristol: F.E. Staff College.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (1979) Policies for Apprenticeship, Paris: O.E.C.D.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (1983) The Future of Vocational Education and Training, Paris: O.E.C.D.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (1985) Education and Training after Basic Schooling, Paris: O.E.C.D.

PAGE, G.T. (1967) The Industrial Training Act and After, London: Andrea Deutsch.

PARKES, D. (1979) Craft Apprenticeship in Europe, Comparative Papers in Further Education, Number 5. Bristol: F.E. Staff College.

PARKES, D.L. (1985) Competition....Competence?: education, training and the roles of D.E.S. and M.S.C., pp159-171 in McNAY, I. & OZGA, J. (ed) Policy-Making in Education; The Breakdown of Consensus, Oxford: Pergamon Press.

PHENIX, P.H. (1964) Realmns of Meaning, New York: McGraw-Hill.

POLLARD, A. PURVIS, J. & WALFORD, G. (ed) (1988) Education, Training and the New Vocationalism, Milton Keynes: O.U. Press.

PRATLEY, B. (1985) Signposts '85: a review of 16-19 education, London: Further Education Unit.

PRICE, R. (1980) Masters, Unions and Men, London: Cambridge University Press.

RAFFE, D. (1983) Education and Unemployment: Does Y.O.P. make a Difference (and will the Youth Training Scheme)? in GLEESON, D. (ed) Youth Training and the Search for Work, London: Routledge & Kegan Paul.

RAFFE, D. (1983) The End of the Alternative Route: The Changing Relation of Part-Time Education to Work-Life Mobility Among Young Male Workers, in GLEESON, D. (ed) Youth Training and the Search for Work, London: Routledge, Kegan Paul.

RAFFE, D. & COURTNEY, G. (1988) 16-18 on Both Sides of the Border, in RAFFE, D. (ed) (1988) Education and the Youth Labour Market, London: The Falmer Press.

RAFFE, D. (ed) (1988) Education and the Youth Labour Market, Lewes: The Falmer Press.

RODERICK, G. & STEPHENS, M. (eds) (1981) Where Did We Go Wrong? Industry, Education and Economy of Victorian England, Lewes: The Falmer Press.

RODERICK, G. & STEPHENS, M. (eds) (1982) The British Malaise: Industrial Performance, Education and Training in Britain Today, Lewes: The Falmer Press.

ROWNTREE, D. (1977) Assessing Students: How shall we know them? Harper & Row Limited.

RUSSELL, R. (1983) Vocational Education and Training in the Federal Republic of Germany, Bristol: F.E. Staff College.

RUSSELL, R. & NEALE, M. (eds) (1983) Experiments with the First Year of Apprenticeship in the Federal Republic of Germany: The Report of the Visiting Party, Bristol: F.E. Staff College.

RYRIE, A.C. & WEIR, A.D. (1978) Getting a Trade, London: Hodder and Stoughton.

SHINE, J. (1980) A Review of the Current Apprenticeship Problem, London: Building Trades Journal.

SIMPSON, E. (1966) The Classification of Educational Objectives: Psychomotor Domain, Illinois: University of Illinios Press.

SINGER, E.J. AND MACDONALD, D. (1970) Is Apprenticeship Outdated? London: Institute of Personnel Management.

SQUIRES, G. (1982) Learning to Learn, Hull: University of Hull Department of Adult Education.

SQUIRES, G. (1987) The Curriculum Beyond School, London: Hodder and Stoughton.

SQUIRES, G. (1989) Pathways for Learning: Education and Training from 16-19, Paris: O.E.C.D.

STACEY, R.W. (1985) Industrial Studies: For Building Craft Students, London: Collins.

STUDIES IN VOCATIONAL EDUCATION AND TRAINING IN THE FEDERAL REPUBLIC OF GERMANY (1982) The Industrial Tutor in the Federal Republic of Germany, Bristol: The F.E. Staff College.

TAYLOR, M.E. (1981) Education and Work in the Federal Republic of Germany, London: Anglo-German Foundation.

THEODOSSIN, E. (1988) The Modular Market, Bristol: F.E. Staff College.

TYLER, R. (1949) Basic Principles of Curriculum and Instruction, Chicago: University of Chicago Press.

VENERABLES, E. (1974) Apprenticeship Out of Their Time: A Follow-up Study, London: Faber and Faber.

WALFORD, G. PURVIS, J. & POLLARD, A. (1988) Ethnography, Policy and the Emergence of the New Vocationalism, in WALFORD, G., et. al. (ed) Education, Training and the New Vocationalism, Milton Keynes: Open University Press.

WARD, A.P. (1979) Organisation and Procedures in the Construction Industry, Plymouth: Macdonald and Evans Limited.

WARWICK, DAVID. (1987) The Modular Curriculum, Oxford: Basil Blackwell Limited.

WATTS, A.G. (1983) Education, Unemployment and the Future of Work, Milton Keynes: Open University Press.

WELFORD, A.T. (1976) Skilled Performance, Perceptual and Motorskills, Brighton: Scott, Foresman and Company.

WELLENS, J. (1963) Thr Training Revolution from Shop-floor to Board-room, London: Evans Brothers Limited.

WHEELER, D.K. (1983) thirteenth impression, Curriculum Processes, London: Hodder and Stoughton.

WILLIAMS, G. (1957) Recruitment to Skilled Trades, London: Routledge and Kegan Paul.

WILLIAMS, G. (1963) Apprenticeship in Europe: The Lesson for Britain, London: Chapman and Hall.

WILLIS, P. (1976) The Class Significance of School Counter-Culture, in HAMMERSLEY, M. & WOODS, P. (ed) The Process of Schooling, London: Open University Press.

YARWOOD, D. (1974) The Architecture of Europe, London: B.T. Batsford.