

University of Leicester

**A Socio -Technical Analysis of the Standards Based
Apprenticeship in Ireland: a case study of the
construction industry**




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**A Thesis in Partial Fulfilment of the Requirements of the Degree of Doctorate of
Education**

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I hereby declare that this thesis is my own work and has not previously been submitted as an exercise for a degree or other qualification.

Signed.....
Leonard A. O'Connor

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Abstract

Apprenticeship is one of the oldest forms of training and is one of the cornerstones on which a skills bank is built. It has been developed from a system of master and indentured apprentice, which existed in the period of the medieval guilds, to a dual system of education and training with both on-the-job and off-the-job periods of training and education.

A number of unsuccessful attempts were made in the last century to re-structure apprenticeship in Ireland, including three Acts of the Oireachtas (Parliament). Despite this legislation, the only requirement to qualify as a craftsperson was to serve the appropriate length of time and to be a member of the craft union. There were no mandatory levels of competence to be reached by the apprentice before being recognised as a craftsperson.

In 1991, the social partners agreed the need for an overhaul of the apprenticeship system and set in motion the process to develop an apprenticeship system that would ensure that all apprentices in the designated trades would have to reach predetermined standards on competence before they could be awarded the National Craft Certificate.

The new system is modular in structure and known as the Standards Based Apprenticeship.

This thesis examined the effectiveness of the Standards Based Apprenticeship system in meeting the present and future needs of the construction industry and in preparing apprentices to adapt to inevitable change in the industry. It concludes that the new system is superior to the time-served system it replaced in many respects but has identified some problems. The thesis concludes by making some recommendations for change to the system, based on the analysis of the responses from the stakeholders and which, if implemented, would in the opinion of the author, ensure that the Irish crafts persons are trained to the highest international standards.

CHAPTER ONE

Introductory Brief and Nature of Study

Introduction

Ireland has had, traditionally, a strong system of apprenticeship both in terms of the quality of training and of producing an adequate supply of crafts persons to meet the needs of industry. The system shares its ancestry with the British model and was essentially based on time served. It was deeply embedded in the trade union system. A person entered into an apprenticeship, typically with the patronage of a family member already in that trade, and served a period of training. Qualification came upon completion of the time requirement. This brought automatic membership of the appropriate trade union without which a tradesman would have had difficulty obtaining suitable employment.

The apprenticeship system was not without its faults. Essentially based on the time served by a person in training with an employer—the norm was about five years—the system had little to do with competence or ability to perform a job to industry standards. Moreover, changing times, and the advent of computerised technology, made for a training system that was out of sync with the modern demands of industry. This was particularly so in terms of an increased need for quality and greater technological sophistication. Most criticism however was directed towards the uncertainty of the standards achieved. It may well be argued that the system had too strong a link with labour unions in a time of declining membership and interest in trade unions. Fuller & Unwin (1998, p.149) state that given the rapidly changing nature of work and workplaces,

increasing globalisation of industry and commerce, and the impact of new technologies, many countries are examining the nature and effectiveness of their vocational education and training (VET) systems.

It was therefore in the 1990s, after some deliberation and discussion among the social partners, that Ireland changed its system of apprentice education and training away from the time-served system to a standards based model. Today, an apprentice need not be a union member. Qualification as a craftsperson comes, not automatically after serving a set period of time as an apprentice, but after demonstrating certain pre-determined competences.

Finally, the new Standards Based Apprenticeship (SBA) system is a very structured paradigm of apprenticeship that guarantees all apprentices both on and off-the-job periods of education and training. Rees et al (1988, p.38) stated that despite criticism of 'traditional' apprenticeship for being based on time-served, apprenticeship as an institution has changed considerably over the years. This is also true of the Irish system of apprenticeship.

Objective of the Thesis

This thesis is a socio-technical analysis of the SBA system in Ireland focusing on the construction industry. The present system was introduced in 1993 and is paradigmatically different from the time-served system it replaced. Not only was the change in the system immense, but it was also introduced at a time when Ireland's economy was in the early period of a huge boom. Indeed one outcome of the latter was to increase the general

demand for labour—the labour force grew from 1.2 million to 1.7 million in the 1990s—and thus the demand for labour, skilled and unskilled, increased dramatically. Consequently, the providers of the off-the-job elements of the SBA came under immense pressure from the employer organisations to increase their capacity to cope with the dramatic increase in apprentice numbers.

This thesis is a study of apprenticeship training in the construction industry. The primary objective is to understand how well the new system is serving the needs of the different stakeholders. The latter includes employers, employees, state agencies and institutions of education and training.

The research is a qualitative study of the SBA. The focus is on the construction industry firstly because of its immense contribution to the economy and secondly because of the importance of apprenticeship training to the sector. By examining the important role that education and training plays in the modernisation of the sector this research can make an important contribution to the debate about competitiveness and training. A more complete account of the contribution of the construction industry to the economy is given in Chapter Two.

Historical Context

This section provides a brief summary of the historical development of the apprenticeship system in Ireland. A more detailed and comprehensive analysis is given in Chapter Two.

The SBA replaced the time-served system of apprentice education and training that was inherited from Great Britain when 26 of the 32 counties of Ireland became independent in

1922. Many attempts were made to replace this system, including the Apprenticeship Act (1931), the Apprenticeship Act (1959) and the Industrial Training Act (1967). Each of these Acts failed to change the apprenticeship system primarily because the trade unions did not co-operate. O'Connor (2001, p.2) posited that entry into apprenticeship was largely controlled by the trade unions and only sons (rarely daughters) of craftsmen could enter apprenticeships. The only requirement to qualify as a crafts person was to serve the appropriate period of apprenticeship and to be a member of the relevant craft union. Apprentices were not required to provide any evidence of having attained appropriate levels of hand skill or technical knowledge. Effectively, one was a trained crafts person after five years training regardless of skill or competence.

The time-served system was underpinned by a system of evening classes. Subsequently, a day-release and block release system of education and training evolved. Attendance at these classes was not mandatory and essentially depended on the goodwill of employers to release apprentices from work to attend classes. Many employers made it a condition of employment that apprentices had to attend classes. Some, however, were less enthusiastic. Apprentices who had the opportunity of attending were prepared for the Junior and Senior Trade examinations of the Department of Education and Science. The courses leading up to these examinations, and the examinations themselves, were of a very high standard. Some apprentices also did the City & Guilds of London Institute examinations as well as the Junior and Senior Trade examinations. Many apprentices progressed from trade classes to technician classes after completing the trade examinations. The system was inequitable in that some apprentices attended all stages of the educational system whilst others either did not get the opportunity or simply did not want to attend. Despite such

divergence, an apprentice was an apprentice and became a qualified tradesperson by virtue of years served.

The Standards Based Apprenticeship System

The SBA is essentially a competence-based model with the emphasis on outcomes to meet minimum standards of industry. The structure of the SBA is that it is divided into seven Phases with both on and off-the-job components of education and training. Apprentices are assessed at each phase of their apprenticeship. The operation of the SBA is as follows:

Phase1

Apprentices are recruited by the employer and registered with an Foras Áiseanna (FÁS), the Training and Employment Authority in Ireland. The apprentices spend a minimum of 13 weeks with the employer on site at Phase1. She/he has employee status and is paid the appropriate wage commensurate with her/his year of apprenticeship. Unusually, for a competence-based system, the wage rate for apprentices is based on the year of apprenticeship rather than on the Phase of apprenticeship.

Phase 2

Apprentices spend this Phase in a FÁS training centre for a period of 20 weeks learning the basic skills of the trade.

Phase 3

Apprentices return to their employers. This Phase must be of at least 26 weeks duration.

Phase 4

Apprentices are sent to an institute of technology for a period of either 10 or 11 weeks, depending on the trade.

Phase 5

This Phase is again spent with the employer and should be of at least 26 weeks duration.

Phase 6

Apprentices return to an institute of technology for another period of either 10 or 11 weeks.

Phase 7

This is the last Phases and it is spent with the employer.

In the above system apprenticeship is still time-referenced and four years is still the minimum time in which the SBA can be completed. Apprentices are paid a training allowance by FÁS whilst on the off-the-job phases and it is equivalent to the appropriate rate of apprentice pay. Apprentices are assessed at all Phases and cannot proceed to the next Phase until all assessments have been passed. Apprentices who successfully complete the seven Phases are awarded the National Craft Certificate by the Further Education and Training Awards Council (FETAC).

Research Questions

The thesis endeavours to answer a number of important research questions about the SBA in terms of its suitability as a paradigm of apprentice training. For example, is the structure of the SBA an appropriate model of apprentice training for the construction industry in Ireland and has it the capacity to produce craft workers of the calibre to meet

the needs of industry and the economy? Is a competence system with the emphasis on outcomes to meet *minimum* standards the most appropriate method of training for young craft workers? Does the method of assessment of practical work value the cognitive functions underlying task performance? This of course raises the issue of defining what competence is and how might occupational competence be measured. Ashworth and Saxton (1990, p.6) contend that the defining of competence is not an exact or static science, and standard setting is almost by definition an arbitrary – not to say political – process. Ryan, P. (1994, p.292) contends that the greater difficulty is that competence-oriented assessment faces drastic measurement problems in its own right. This important issue is explored in the thesis.

Apprentices, in common with other groups, have a statutory right to progress to higher courses if they so wish. The research also examined the SBA in terms of its suitability to prepare apprentices for progression, both horizontal and vertical, to such higher courses. On the issue of progression to other courses and the capacity to cope with changing technology, Fuller et al (1998, p.298) contend that under conditions of rapid economic and technological change, which call for continuous improvement and innovation, it is appropriate to conceptualise qualifications as platforms for transfer to further learning and attainment rather than as a point where learning terminates. Is the National Craft Certificate, which is awarded to apprentices who successfully complete their apprenticeship, a cul-de-sac award or does it provide a platform for progression?

This research project sought to establish answers to the following four questions:

1. Is the structure of the SBA, with seven Phases (four on-the-job and three off-the-job) an appropriate system for apprenticeship education and training?
2. Is the SBA producing craftspeople of the calibre required by industry: i.e. the perceptions of the stakeholders?
3. Does the SBA prepare apprentices adequately in terms of preparation for progression to higher qualifications as required by the Qualifications (Education and Training) Act, 1999?
4. Is the present system of assessment and examination of apprentices an appropriate method for assessing both the cognitive skills and the hand skill of apprentices in the execution of practical work?

Each of the questions addresses very serious issues regarding the effectiveness of the SBA. The research was a qualitative study that focused on the construction-industry trades as approximately three-quarters of all registered apprentices (including electricians) are in this sector. The main form of data collection was semi-structured interviews as they allowed greater flexibility in developing opinions and beliefs among the stakeholders. In addition to the semi-structured interviews, questionnaires and observation were also used. The stakeholders have been identified as the instructors in the FÁS training centre, training advisors in FÁS, employers in the construction industry, employer organisation, lecturers in the Cork Institute of Technology who are engaged in the delivery of apprenticeship courses, trade union officials who represent workers in the construction industry, and former apprentices who have completed the SBA.

Research Methodology

This is a qualitative research project. Leading practitioners in the field of apprentice education and training were consulted and three different types of research instrument were used.

The study focused on apprenticeship training in construction firms in the Cork region of the Republic of Ireland. The employer body representing the majority of construction firms in the Republic of Ireland is the Construction Industry Federation (CIF) and it was through the Cork regional office of the CIF that firms were selected for interview in connection with this research. The firms were stratified by size and sector to ensure, within the resources available for this thesis, that the data generated would be representative of the industry in Cork. The number of firms interviewed was 4 and ranged from a firm with 2000 employees to one with just 8 employed.

The research in each firm followed a standard pattern: the approach involved talking to owners or managers. A semi-structured interview schedule was used as the research instrument. Each interview was recorded and transcribed. Trainers of the off-the-job phases in both FÁS and in the Cork Institutes of Technology were also interviewed. These interviews followed a similar pattern to the employer interviews.

Observation was used as a research instrument in seeking to generate data on the appropriateness of the current method of assessment of the practical work of apprentices in the institutes of technology.

The views of recently qualified 'apprentices' were also sought. This was done by sending questionnaires by mail to 165 former apprentices in the construction industry who recently qualified for the award of the National Craft Certificate (NCC) in the South West region of FÁS. 104 responded and the data was analysed. This aspect of the research is dealt with more fully in Chapter Three.

In addition to the primary data, the thesis is supported by a substantial body of contextual data relating to apprenticeship as a paradigm of learning. It also investigates the concepts surrounding apprenticeship as a form of vocational training, which can promote and stimulate life-long learning.

Need for Research

The change from a time-served system of apprenticeship to a system based on standards achieved has been a major one in Ireland. Very little research has been conducted to evaluate the effectiveness of the SBA as a system for training craft workers and preparing them for their chosen career. The SBA is a very structured system in contrast to the time-served method. Many questions remain unanswered regarding the suitability of the SBA, as it is now structured, for educating and training crafts persons and it has been a very controversial issue since its introduction in 1993, particularly among some stakeholders. A number of crucial questions regarding the effectiveness of the SBA need to be addressed, including the suitability of the SBA as a paradigm for producing craft workers of the calibre required by industry and who are capable of adapting to new technology. This new technology is manifesting itself in both the type of equipment being used in production by crafts persons and in the introduction of computerised technology in the design and operation of control systems such as in the automobile industry and the

mechanical services element of buildings. This is an important aspect of the research considering the changing nature of industry and technology. Fulcher (1982, p.26) opined that we need to have a recognised minimum level of ability before a person is called a 'craftsman', and this must be a measured achievement, not just attendance on a course or simply time-served. This, of course, raises the issue of measurement and how standards of skill may be measured.

A feature of the SBA is the system of assessment/examination, particularly at Phases 4 and 6. The current system was devised by FÁS in their capacity as administrators of the SBA. It is a quite different system from that which obtains in the institutes of technology for the assessment/examination of other courses and from that used by the Department of Education, and Science for examining the Junior and Senior examinations. The current system of assessment does not recognise *levels* of competence nor does it appear to measure the cognitive functions underlying task performance. For example, results of the Phases 4 and 6 components of the training may be at either pass or merit grade, depending on the results of the assessments/examinations. However, to be awarded a merit, apprentices must pass *additional* elements in the tests, the system does not recognise *higher* levels of performance.

The tests are marked objectively. Full marks are awarded for a correct element and no marks are awarded for an incorrect element. There is no allowance for partially correct answers. The written tests are mainly of the short answer type with little opportunity for candidates to develop these to a deeper level. Typically, apprentices must get 70% of the answers correct to achieve a pass in a module and up to 90% of the answers correct to be awarded a merit. Practical tests are marked in the same manner as theoretical tests.

Components of the work must be constructed within certain tolerances and if they are outside these specified tolerances then no marks are awarded. To be awarded a credit for a practical test, the components must meet *additional criteria, not higher levels of skill* in various aspects of the test. Once the work of apprentices conforms to minimum standards they are deemed to be competent. This approach to the assessment of apprentice craft workers does not appear to recognise superior levels of performance of skilled work nor do the marking schemes appear to take cognisance of the mental functions underlying task performance. The emphasis in the current system of assessment/examination is on outcomes. This research endeavoured to answer this important question by using observation as an instrument to investigate the application of marking schemes by the lecturers in the institutes of technology when assessing practical work.

It should be noted that the Department of Education and Science (DES) commissioned the Education Research Centre in Dublin in 2001 to examine the sole use of short-answer tests in written apprentice examinations. The study team was headed by Dr. T. Kellaghan and the report was presented to the DES in 2002 and entitled; *An Evaluation of the Sole Use of Short-Answer Tests in Apprentice Examinations*.

Employers are also required to carry out an assessment of apprentices during the on-the-job elements of the SBA. Huddleston (1999, p.185) argued that traditionally, learning within classrooms and learning within workplaces have been seen as two rather different things. The former relies heavily upon transmission pedagogy and is concerned essentially with the transfer of knowledge with little reference to context. The latter is heavily context-dependent and involves 'learning by doing' and 'learning by watching', with a 'master' acting as both role model and mentor. Employers are required to assess the competence of apprentices in the performance of a specific number of tasks from a

prescribed list. The problem with this approach is how this may be done if employers are not engaged in the type of work in which they are required to test the apprentices. Do employers set up special tasks to test apprentices or do employers simply *assume* apprentices are competent? The research sought to measure the effectiveness of the employers' attitude to this requirement. Ashworth and Saxton (1990, p.3) stated that the idea of competence as currently used is open to complaints that it is atomistic, individualistic, and unable to cover all types of relevant behaviour or mental activity.

Craft workers must be capable of applying their theoretical knowledge and skill in new situations. Winning (1993, p.19) argued that the transfer of skill to new situations is an interpretative problem requiring among other things deep conceptual understanding of the domain. The issue of transferability of education and training is of crucial importance in the context of skilled craft workers. This of course raises the question of whether a competence-based system is an appropriate system of education and training for craft workers and if the competence paradigm can be used to measure the underlying cognitive functions required by them in the performance of their work. Brundrett (2000, p.88) develops one very fundamental point in favour of the competence movement when he states:

they afford their sponsors, whether they be companies, educational institutions or government organisations, the comforting belief that candidates who complete such courses will be fully conversant with the technical aspects of any job.

This is a very relevant point, particularly for the training of craft workers who will be required to perform job-related tasks associated with their craft to industry standards of performance and safety. This requires both theoretical and task-based assessment. The focus therefore, is *what individuals can do* rather than that on what individuals *know*.

Development of the SBA

Since 1991 FÁS and the Department of Education and Science, in conjunction with the social partners, has been engaged in the development of the SBA for the 26 trades which have been designated by FÁS (see appendix 1). It was decided that the new system would be divided into seven phases and that apprentices should be recruited directly by the employers who would then register them with FÁS (under the time-served system, most apprentices spent the first year of their apprenticeship in a FÁS Training Centre). Apprentice would spend Phases 1,3,5 and 7 with the employer on the job. The Phase 2 element, consisting of twenty weeks of basic training, would be done in a FÁS Training Centre, whilst the Phases 4 and 6 would be done at an institute of technology where apprentices would learn the craft technology underlying their trade and develop more advanced practical techniques. The Phases 4 and 6 programmes would be of either ten or eleven-week duration, depending on the trade

It was further agreed that the length of time served should remain an element of the new system and therefore the minimum time in which an apprentice can qualify is four years. This was to ensure that apprentices gained sufficient experience and could not be “fast-tracked” through the system. It was also decided that apprentices would be tested at every phase, both on and off-the-job, to ensure that pre-determined standards of competence were being reached. Apprentices who do not reach the required minimum standard in the assessments are allowed a total of three attempts at the assessments/examinations and if they do not pass after three attempts then their apprenticeship can be terminated. Apprentices do, however, have the right to appeal, and in practice this effectively means that they are allowed a fourth attempt.

An essential difference between the SBA and the system it replaced is that employers recruit the apprentices directly and apprentices spend Phase 1 at work with the employer. One of the strengths of this system is that employers control the intake of apprentices and apprentices experience the nature of the work and the culture of the industry in which they will be engaged, both during their apprenticeship and after qualification, at the beginning of their apprenticeship.

Groups of specialists in each trade, known as Subject Matter Experts (SMEs) that were representative of the institutes of technology, craft unions, employers and FÁS, were appointed to develop the new curricula and the mandatory assessments/examinations. The SMEs drafted the syllabi and assessment/examination schedule in accordance within the criteria laid down by FÁS. The SBA was introduced in 1993 on a gradual basis and is now fully operational throughout all the designated trades.

The SBA has many advantages over the old time-served system. Every apprentice has a statutory entitlement to the off-the-job training and educational programmes and is paid a training allowance, equivalent to the appropriate rate of apprentice pay, by FÁS when attending these courses. This allowance is partially funded through a levy imposed on employers in the construction, mechanical engineering, motor and electrical industries. The whole apprenticeship system is now very structured in terms of both the curriculum content and the assessments/examinations. It ensures that every apprentice attains a pre-determined level of competence.

Focus on the Construction Industry

The research focused on apprenticeship in the construction industry as almost 50% of all apprentices in the designated trades are employed in this sector (See Appendix 2).

This introductory chapter outlines the background to the change from time-served to a competence-based system of apprenticeship in the Ireland and outlines the research questions that inform the thesis.

The Importance of Apprenticeship to the Construction Industry

The reason for selecting the construction industry as the basis for this research is the importance of the construction industry to the Irish economy and the changing nature of the construction industry itself. According to the Construction Industry Review 2002 – Outlook 2002 -2004, published Department of the Environment and Local Government, the value of construction output in Ireland in 2001 was estimated at €20 billion and the number of people employed directly in the industry was estimated at 178,000. It was also estimated in the Report that there were in the region of 40,00 people employed indirectly in the industry. This represents 14 % of the workforce in the Republic of Ireland.

The Third Annual Report (2002, p. 53), published by the Expert Group on Future Skills Needs of Forfás (Ireland's National Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation) estimated that in the year 2000, output of the construction industry reached €18.03 billion and that there were 178,000 people employed in the industry. Clearly, this is a very important industry in Ireland.

The Importance of Apprenticeship to the Irish Economy

The performance of the Irish economy is dependent on the availability of a well-educated and well-trained workforce and one of the methods of developing a skills bank is the apprenticeship system. In the foreword to the document Apprenticeship - A New Approach (1989), the then Minister for Labour stated:

As the Irish economy shapes up to this profound change [the establishment of the Single European Market], new training initiatives will be necessary. Our decisions must be governed not merely by a passive desire to “remain competitive” in the new Europe, but to rank among the best in our performance; to earn a reputation which will help to gain for us an enhanced share of European, and indeed of world, markets.

The achievement of such aims will depend on the quality of our workforce and one of the cornerstones upon which that workforce must ultimately rest is our apprenticeship system.

A high quality apprenticeship system ensures an adequate future supply of skilled craft workers to produce high quality goods and services at competitive costs to enable Irish companies to compete with the best in Europe. Crafts persons must be able to cope with changing technology and techniques. On this issue of adapting to new technology, Rees, *et al* (1988, p.7) posited that training workers specifically for jobs which rooted in current production technology and work organisation, is not in the country's best strategic interests since the present rate of change in the economy will lead to many of these jobs being transformed or replaced in the not too distant future. This comment obviously applies to the concept of apprenticeship as one route among others leading to a career.

There is no shortcut to the training and education of suitably qualified crafts persons. This is no ideological aspiration; it is a fact of economic life. The German Federal Minister of

Education, Science, Research and Technology Dr. Jurgen Ruttgers (1997, p. 3) stated that the dual system of (apprenticeship) training must be safeguarded for the future and developed further, so that the aspirations of young people to a good education and the demands of the economy for trained and competent staff can always be matched.

Increase in the Number of Registered Apprentices

The introduction of the SBA in the Republic of Ireland coincided with a huge increase in the number of registered apprentices. This was due to increased activity in all sectors of the Irish economy, but particularly in the construction industry.

Chart 1

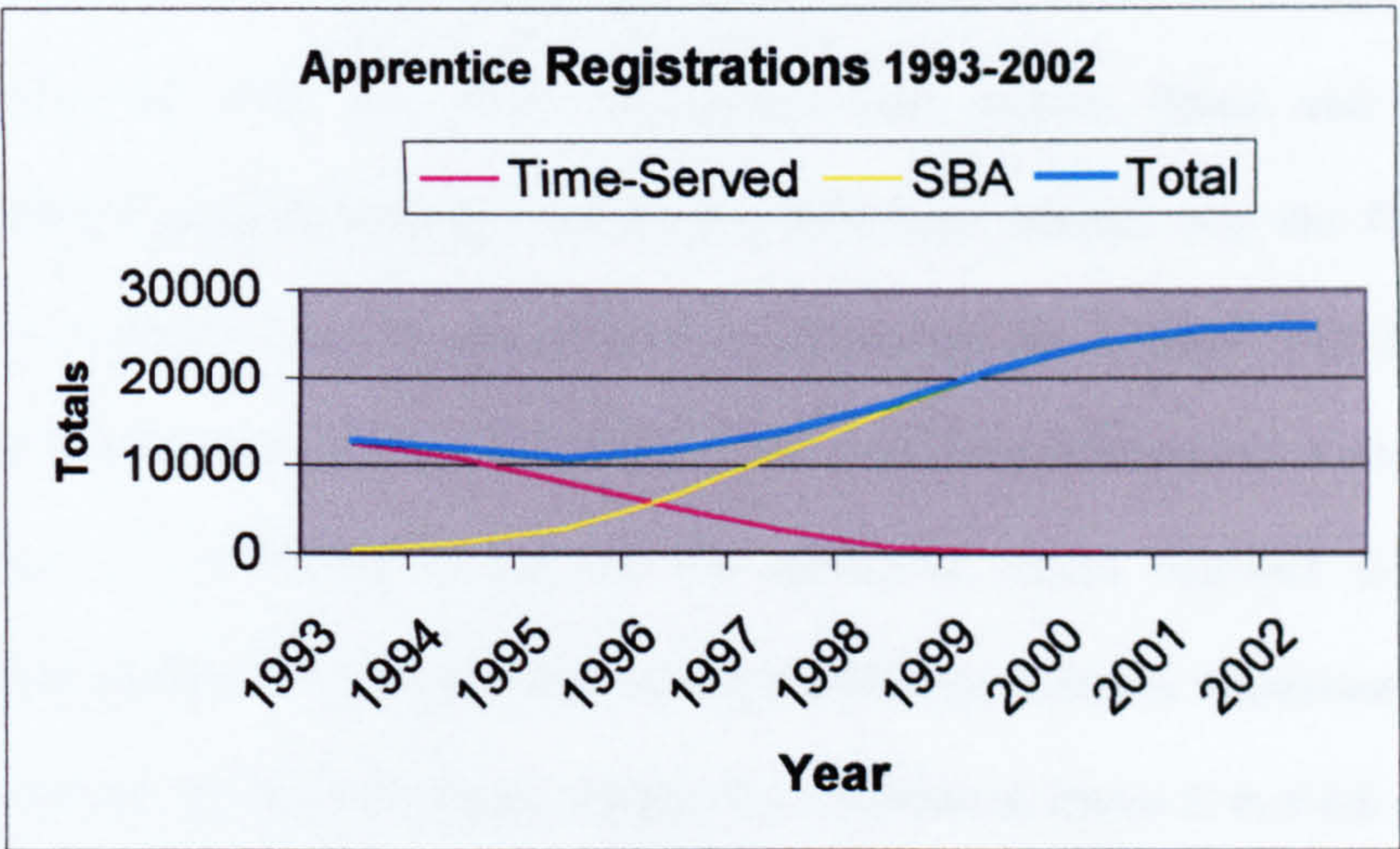


Chart 1 shows the trend in apprentice registrations from 1993 to 2002.

This rapid increase created enormous problems for both FÁS and the Department of Education & Science because once a person is registered by her/his employer as an apprentice in one of the designated trades, then she/he has a statutory entitlement to the off-the-job phases of the apprenticeship. This means in practice that although FÁS and

the Department of Education & Science must provide the additional places at Phases 2, 4 and 6, they have no control over the numbers registering as apprentices. This is clearly quite a different situation from that which obtains in the provision of places on courses for full-time students. In Ireland, the Central Applications Office (CAO) manages entry to full-time courses strictly on a points basis, based on Leaving Certificate results. The Leaving Certificate examination is held at the end of the Senior Cycle in post-primary schools. It is the terminal examination of post-primary education (Department of Education & Science, n.d. p.5). The colleges set the points level, in consultation with the CAO, thereby limiting the number of students gaining entry to a course.

The structure of the SBA is that apprentices cannot proceed to the next Phase of their apprenticeship until they have completed their current Phase and passed all the assessments/examinations and the results have been entered into the FÁS database. A specific problem for the Department of Education & Science was that whilst it is responsible for the provision of Phases 4 and 6 off-the-job elements, it could not force the institutes of technology to provide the additional places required to cope with the increased numbers of people entering apprenticeship. Another important factor was that places on the off-the-job Phases should be available at Phase 2 in FÁS and at Phases 4 and 6 in an institute at the appropriate time. Apprenticeship should be completed in four years if all the assessments/ examinations have been passed. However, if apprentices cannot get a place then they are essentially held up in the system and cannot complete it in the minimum time of four years.

The institutes of technology are autonomous institutions as determined by the Regional Colleges Act 1992. Regional colleges, under this act, were reconstituted as institutes of

technology. However, as the Department of Education & Science is the primary source of funding for the institutes of technology, it encouraged expansion of the apprentice provision in the institutes by making substantial funding available for new buildings, capital equipment and class materials and also by sanctioning the recruitment of additional staff for apprentice classes. Some institutes of technology did expand to meet the national need to provide additional apprentice places. For example, Cork Institute of Technology (CIT) has increased its apprentice provision from 52 classes in the academic year 1997/98 to 178 classes in the academic year 2001/2002 and is now the largest provider of apprentice education and training in the State. The expansion had to take place very quickly to cope with the backlog of apprentices waiting to gain a place on the Phases 4 and 6 components of the apprenticeship programme. Some institutes were reluctant, particularly in the early stages of the expansion, to increase the number of apprentice places. The main reason for this reluctance was because of a fear that if the provision of apprentice places was increased in the institute and there was a downturn in the economy, then there might not be enough apprentices in the system to fill the available places.

It should be noted that FÁS, as the statutory body with responsibility for apprenticeship in the Republic of Ireland, administers the system during the seven Phases. This means that the recruitment of apprentices to undertake Phases 4 and 6 in the institutes of technology is done by FÁS. The process is that the Department of Education and Science receives a request from FÁS to arrange with institutes of technology that a specific number of apprentice classes would be run in the following academic year. The Department of Education and Science in turn submit this request to the institutes of technology. After confirmation of arrangements between the institutes of technology and Department of

Education and Science regarding the provision of apprentice classes, FÁS undertakes the task of identifying apprentices who are due (or overdue) to be called to attend Phases 4 or 6 in an institute of technology. Both apprentices and their employers are written to and advised that a place has been reserved for them on the appropriate Phase. The relevant regional FÁS office subsequently advises each institute of technology of the names of apprentices who have indicated they will attend.

Summary

The above is the background to the initiative that began the process of overhauling the apprenticeship system in Ireland. This was outlined in the Government White Paper in 1986 on apprenticeship training and in the Programme for Economic and Social Policy 1991. The SBA replaced the traditional apprenticeship system, which essentially was a time-served system and depended on the goodwill of employers to release apprentices for educational block release courses. The new paradigm of apprenticeship education and training is highly regulated and is standards-based. Every apprentice in the designated trades is required to reach pre-determined standards of competence in a wide range of skills and related knowledge associated with his/her trade. The introduction of the SBA has been a watershed in the history of Irish apprentice education and training.

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CHAPTER TWO

Literature Review

Introduction

Apprenticeship, as a paradigm of learning and training, has been the subject of many studies. It is perhaps the oldest model of training and yet, it has survived over the centuries as a vehicle for training craft workers in highly skilled areas of industry throughout the world. In the past the status of being an apprentice, or the training for a 'trade' or craft, was an achievement envied by many (Construction Industry Training Board, 1995, p.2)

This chapter gives a brief outline of apprenticeship in Ireland from the formation of the Irish Free State in 1922 to the development of the SBA. It examines the institution of apprenticeship and outlines some definitions of the concept of apprenticeship. It also endeavours to define such concepts as 'skill', 'mastery', 'craftsmanship', 'competence' and 'assessment', concepts regularly used in the context of the education and training of craft workers and relevant to this research project.

Development of Standards Based Apprenticeship Education and Training in the Republic of Ireland

The Context

Ireland, a very small open economy, is a semi-peripheral, late-industrializing member of the EU. Up to 1922, Ireland was a peripheral region of the UK which, with the exception of a small area around Belfast, did not participate in Britain's "Industrial Golden Age" (O'Donnell et al, 2000, p.427).

When the Irish Free State was established in 1922, technical education in Ireland was essentially a mirror image of its counterpart in the United Kingdom as both countries shared a common Parliament and consequently, legislative measures were often commonly applied. Field and Dubhchair (2001, p.248) averred that up to the formation of the Free State in 1922, training agreements for apprentices were regulated in similar ways to their counterparts in Britain. Byrne, (1982, p.2) opined that parallel developments (in education) may be detected and this is especially true of technical education. With the establishment of the new State, the Irish education system inherited the UK model of education and training, including its system of apprenticeship. This model of apprenticeship training was based on time-served rather than any mandatory requirement on apprentices to achieve pre-determined standards of competence in their chosen trade.

In 1926, the Irish Government established a body, the Commission on Technical Education (known as the Ingram Commission), to assess the existing vocational education and training system against the assumed needs of agriculture and industry and to issue recommendations in relation to its development. The Commission's report identified a number of problem areas in the system that had been operating since the 19th century. Among the problems identified was the lack of a structured system of vocational education and a need for technical education for apprentices. O'Connor and Harvey (2001, p.333) posited that the Ingram Commission recommended that both employers and trade unions should restrict recognition as a tradesperson to those with some defined hallmark of efficiency. This was an interesting recommendation from the Commission, which in effect was promoting the concept of the requirement to hold a licence in order to practise a trade.

Vocational Education Act (1930)

Arising out of these identified areas was the implementation of the Vocational Education Act (1930), which promoted the development of full-time and part-time vocational education and training. Ryan, J. (1993, p.90) stated that the Bill made provision for Vocational educational Committees (VECs) with chief executive officers, responsible for the provision of continuation education and technical education, including higher technical education, to be financed by contributions from the local rates and from exchequer funds. This was achieved with the setting up of a countrywide network of Vocational Education Committees (VECs). As a result of this initiative Technical Schools (subsequently renamed Vocational Schools) were established throughout the country, providing full-time day and evening courses in a range of technical and commercial subjects as well as general education. O'Donnell et al (2000, p.431) argued that these schools were separate from the established system of secondary education, which was purely academic in nature and effectively controlled by the Catholic Church, and had a perceived lower status in Irish society. A range of evening classes for apprentices was eventually developed in the Technical Schools in response to local demand, particularly in the large urban centres. Murphy (1974, p.127) opined that the Vocational Educational Committees became almost exclusively responsible for apprenticeship training for many years.

Apprenticeship Acts of 1931 and 1959

This legislation was followed in 1931 by another Act of the Oireachtas (Parliament), namely, The Apprenticeship Act (1931). This Act provided for the designation of a trade by the Minister for Industry and Commerce. Following the designation order, the Minister was then required to establish an apprenticeship district in which an Apprenticeship

Committee would be set up for each designated trade. Each Committee had the authority to make rules governing apprenticeship matters in respect of its own trade and district (Ryan, J. 1993, p.211). The rules dealt with matters such as those regarded as apprentices, the period of apprenticeship, minimum rates of pay, etc. The committees could also make representations to the Minister for Education to have the appropriate Vocational Education Committee provide suitable courses of technical instruction. Ryan, J. (1993, p.212) posited that a register of apprentices was to be kept by each Committee and employers were required to give details to the Committee of apprentices employed by them.

This Act was the first attempt by Irish Government to regulate the training of apprentices. It was introduced at a time of severe economic depression and at a time when co-operation between employer and trade unions was in its infancy. Ryan, J. (1994, p.13) argued that there had been very little consultation between the employers and the trade unions on the operation of the Act and the trade unions in particular were very suspicious of it as it was very bureaucratic with provision for penalties for non-compliance with the rules. The Department of Industry and Commerce, whilst being responsible for the education and training of apprentices, had no control over the facilities required to provide these. O'Connor (2000, p.3) contends that the Act achieved very little, possibly because it was passed on the assumption that its provisions would be widely availed of on a voluntary basis.

Various Government Commissions subsequently assessed the apprenticeship system and in 1959 a new apprenticeship act was passed, the Apprenticeship Act 1959, to bring about a more systematic and effective training system. The main purpose of the Act was to

make better provision for the recruitment and training of apprentices and for that purpose to establish a new body, An Chéard Chomhairle, (the Trade Board) the duty of which was to promote and regulate satisfactory schemes of apprenticeship.

O'Connor (2000, p.54) posited that the new Act did not propose any radical reform of apprenticeship; rather it set out to correct the deficiencies that had become apparent in the 1931 Act.

However, despite the enactment of the Apprenticeship Act of 1931 and the Apprenticeship Act of 1959, apprenticeship was essentially unchanged, time served and membership of the relevant craft union were the only criteria necessary to practice as a craft worker.

Whilst the time-served system was underpinned by a system of evening classes initially and, subsequently, a day-release and block release system of education, attendance at these classes was not mandatory and essentially depended on the goodwill of employers to release apprentices from work to attend classes. Many employers made it a condition of employment that apprentices had to attend classes but others were less enthusiastic about attendance. Apprentices who had the opportunity of attending were prepared for the Junior and Senior Trade examinations of the Department of Education & Science. The courses leading up to these examinations, and the examinations themselves, were of a very high standard. Field and Dubhchair (2001, p.249) posited that these examinations consisted of a six-hour unseen practical test and a three-hour written paper, and were held in colleges under external supervision. Marking was carried out externally and all

assessed work was marked blind, providing a basis for assuring standards across employers and regions.

Some apprentices also did the City & Guilds of London Institute examinations as well as the Junior and Senior Trade examinations. Many apprentices progressed from trade classes to technician classes after completing the trade examinations.

Industrial Training Act (1967)

As a result of the reappraisal of vocational training by An Chéard Chomhairle, a new organisation, An Chomairle Oiliuna (AnCO), the Industrial Training Authority, was established in 1967 under the Industrial Training Act (1967) to organise training on a systematic basis, for apprentices, the unemployed and those already working in industry.

One of the first initiatives undertaken by AnCO was the setting up of industrial-type training centres at strategic locations around the country. It was intended that all apprentices in the designated trades would spend the first year of their apprenticeship in one of these centres learning the basic skills of their craft before entering industry. However, not all employers availed of the opportunity to send apprentices to the one-year off-the-job course, preferring instead to recruit apprentices directly into industry. No sanctions were imposed on employers who did not allow apprentices to attend the first year off-the-job course.

An Foras Áiseanna Saothair (FÁS)

In 1988, An Foras Áiseanna Saothair (FÁS), the training and employment authority, was established. It was formed from three previously separate bodies: AnCO, the Youth Employment Agency and the National Manpower Service. The new organisation provides

a more comprehensive and integrated labour market service for unemployed persons while also promoting training within industry. The Board of FÁS is representative of employers, trade unions, Department of Education & Science, Department of Finance, Department of Trade, Industry and Employment, and the staff of FÁS.

The Role of FÁS

FÁS has statutory responsibility for the organisation and administration of designated apprenticeships in Ireland by the powers conferred on it by the Industrial Training Act, 1987. The Board of FÁS is advised on matters pertaining to apprenticeship by the National Apprenticeship Advisory Committee (NAAC) which is representative of the Board of FÁS, the Department of Education and Science, Department of Finance, Department of Trade, Industry and Employment, institutes of technology, employers' organisations and trade unions. The author of this thesis represents the institutes of technology on this committee.

It should be noted that in Ireland all State-sponsored industrial training is the responsibility of FÁS, which reports to the Department of Trade, Enterprise and Employment, whilst education is in the remit of the Department of Education and Science.

The Institutes of Technology and Apprenticeship

There are fourteen institutes of technology in Ireland, which evolved mainly from the technical schools system, and they offer full-time courses in a range of disciplines including engineering, science, business, humanities and arts at sub-degree, graduate and postgraduate level. Eleven of the institutes are also engaged in the provision of apprenticeship courses. These courses are delivered on block release basis, of either 10 or

11 weeks' duration, (depending on the trade) for Phases 4 and 6 of the SBA. The institutes have a long association with apprentice education and training, going back in some cases over a hundred years.

Reform of the Apprenticeship System

Government White Paper

In 1986 the Government published a White Paper on Manpower Policy which described the statutory apprenticeship system as “costly, inefficient and inflexible”, and set the objective of developing an apprenticeship system which would: (a) be based on standards achieved rather than on time served. (b) Ensure a satisfactory balance between supply and demand for apprentices. (c) Reduce the financial cost to the State whilst maintaining quality. In 1991 the Social Partners, consisting of the Irish Business and Employers Confederation (IBEC), the Irish Congress of Trade Unions (ICTU) and the Government, agreed, as part of the Programme for Prosperity and Fairness (PESP), that a new standards based system of apprentice education and training should be introduced. It was agreed that the new system would be standards based.

The Need for Change

Subsequent to the publication of the White Paper in 1986, FÁS invited submissions from interested parties, including employers and trade unions, on proposals for change to the apprenticeship system and in 1989 published a discussion document, Apprenticeship, A New Approach. It is stated in this document that thirty submissions were received and drawing on these submissions and on its own experience, FÁS identified four fundamental weaknesses in the system.

- 1) The absence of compulsory standards.
- 2) Inadequate provision for evolving technology.

3) Inequity at entry.

4) Direct intake. (Some apprentices recruited directly by employers without ever attending the one-year off-the-job course in FÁS).

The need for change stemmed from:

- ◆ Government concern as expressed in the White Paper on Manpower Policy, 1986.
- ◆ The need to address the fundamental weaknesses in the system of apprentice training as identified by FÁS
- ◆ European trends, including emphasis on competence-related qualifications, and increased competition in the single market. (In most European countries, there have been reforms in recent years, if not new legislation, which totally revamped the system. Denmark and Greece in 1989, Luxembourg 1990, Portugal 1991-92, France 1987 and 1992-93, Ireland and the Netherlands 1993, Spain and the United Kingdom 1993-94, Norway 1994).

The time-served system of education and training served some apprentices quite well. When AnCO was established in 1967, all apprentices in the designated trades were theoretically entitled to spend the first year of the apprenticeship in a FÁS Training Centre learning the basic skills of their craft. All apprentices should also have had the opportunity to attend an educational institution in the second, third and fourth years of their apprenticeship for an eight-week block release course or on a day-release basis. Many apprentices either did not want to attend these courses or were not facilitated by their employers to do so. It is difficult to establish exactly the number or percentage of apprentices who did not attend either the one-year off-the-job course in FÁS or the block or day release courses in the institutes of technology because some apprentices were never registered with AnCO.

Field and Dubhchair (2001, p.249) quoting Hastings (1977, p.23) reported that one survey had discovered in the 1970s that between a fifth and an eighth of all apprentices did not attend day/block release.

The consequence of this was that there was a great inequity in the system in so far as some apprentices received all the education and training, others got some elements of the programme whilst a proportion got none at all. Another factor was that under the system that operated at the time, employers were supposed to pay the apprentices' wages whilst they were either in a FÁS Training Centre undergoing the initial training or on educational release in an institute of technology. Employers could subsequently reclaim these monies from the Department of Trade, Enterprise and Employment, provided the employer had contributed to a special training levy scheme set-up for this purpose. Many employers cooperated fully in the operation of the off-the-job system but others were less enthusiastic. The result of this was that some apprentices either could not afford to attend the educational release element of the apprenticeship or did so at their own cost. The result of this laissez-faire attitude by some employers (and occasionally by apprentices) was that a tri-partite system of education and training of apprentices obtained. Some apprentices benefited from all the off-the-job elements of the apprenticeship, others from some parts of it, while some did not attend at all.

Introduction of the SBA

The SBA was introduced in Ireland in 1993 and replaced the model of apprenticeship training known as the time-served system, although length of time served is still an element of apprenticeship and is set at four years. The essential difference between the

SBA is that the old system was simply based on the length of time served whilst the SBA is a competence-based system.

The SBA is divided into seven phases, four of which are spent on-the-job with an employer. Of the other three, the second is spent in a FÁS training centre for a period of twenty weeks and the remaining two (Phases 4 and 6) are spent in an Institute of Technology for a period of 10/11 weeks (depending on the trade). Attendance on the off-the-job Phases is mandatory and apprentices must meet pre-determined standards of competence in a range of disciplines associated with their trade. Apprentices learn the basic skills of their trade in Phase 2 with FÁS. The FÁS course is mainly of a practical nature with the emphasis on learning the basic craft skills.

Curricula for each of the 26 designated trades in the SBA were developed by Subject Matter Experts (SMEs). FÁS, the institutes of technology, the employers and the relevant trade union each appointed one SME to each trade group. The trade groups then devised the syllabi, which are modular in structure, according to the criteria set out by FÁS. The new course was then piloted in each trade and the SBA was introduced on a gradual basis.

The SBA is an 'outcomes' based system and apprentices must reach pre-determined standards of competence in each module of training in both practical and theoretical subjects. The method of assessment is a very controversial issue in the institutes of technology. FÁS has a different perspective than the institutes of technology on assessment. Apprenticeship in the institutes of technology is seen as part education and part training. FÁS see apprenticeship as training and the method of assessment tends to reflect this ethos. Another factor is that the institutes of technology come under the

Department of Education and Science whilst FÁS comes under the Department of Trade, Enterprise and Employment. This difference in ethos can sometimes lead to tensions in the manner in which apprenticeship is structured.

Apprentices who attend an Institute of Technology to undertake either Phase 4 or Phase 6 of the SBA are assessed in both theoretical and practical elements of the curriculum. The percentage of time spent on practical work varies from 20% to 58% depending on the trade. The remainder of the time is spent on craft technology, computing/laboratory work and other relevant subjects such as mathematics, science and drawing. An apprentice may be awarded a Pass, a Credit or Referred, in the case of standard not reached, for each module in Phases 4 or 6. The tests are marked objectively, full marks are awarded for a correct element and no marks are given for an incorrect element. To be awarded a Pass an apprentice must reach the required standard in a specified number of elements. To be awarded a Credit apprentices must pass additional elements. There is no allowance for partially correct answers and there is no recognition of levels of competence. The final results are graded and apprentices may be awarded a Merit, a Pass or Referred in the case of apprentices who have not reached the required standard in one or more modules. To be awarded a Merit an apprentice must attain a specified minimum number of credits in the modules.

Employers are also required to assess apprentices in a range of tasks during each on-the-job Phase. They are obliged, under the terms of the SBA, to assess apprentices' ability to perform satisfactorily a number of tasks from a list supplied by FÁS. Typically, employers may select 7 tasks from a list of 10. The evidence emanating from this research

project suggests that some employers are not implementing the assessment procedure as rigorously as they should. (see Chapter Four)

Advantages of the SBA

The SBA has many advantages over the old time-served system. Every apprentice has a statutory entitlement to the off-the-job training and educational programmes and is paid a training allowance by FAS when attending these courses. The whole apprenticeship system is now very structured in terms of both the curriculum content and the assessments. It ensures that every apprentice attains a pre-determined level of competence.

Concept of Apprenticeship

Definitions of Apprenticeship

The traditional history of ‘apprenticeship’ is in its root meaning of the Latin *apprehendere* – to seize, or lay hold of – by which the novice was bound to a master for a fixed term of instruction in order to learn a craft or trade. The same root, however, provides us with two essential verbs of learning itself: to apprehend and to apprise. To apprehend (‘seize’ with the mind) is to understand, to perceive or construct meaning. To apprise is to inform (‘give form to’; that is, ‘to shape’) (Webb, 1999, p.101).

Apprenticeship is one of the oldest forms of training and is one of the cornerstones on which a skills bank is built. It has evolved from a system of master and indentured apprentice, which existed in the period of the medieval guilds, to the modern dual system of education and training with both on-the-job and off-the-job components of training. Fuller and Unwin (1998, p.149) stated that for some countries, notably the United States

of America, the United Kingdom, Australia and Germany, the traditional concept of apprenticeship is still deemed to be an appropriate model for educating and training people for the world of work. However, Snel (1996, p.320) cautions that the word 'apprenticeship' has been used to describe occupational training in an abundance of jobs that are hardly skilled in the conventional sense.

Definitions of apprenticeship abound. In regard to this matter, the OECD (1979) has commented:

Official definitions of apprenticeship vary, but overall, they refer to formal arrangements for initial skill training of a systematic long-term character in a recognised occupation. The training must be transferable and all-round. The training is centred in an enterprise but has a component of instruction in an institution. It involves a contract of indenture between, on the one hand, the trainee and his/her legal representative and, on the other, a private or public employer, a joint training committee of management or labour, a trade union, a public or quasi-public training organisation, or some other recognised training body.

The OECD definition of apprenticeship implies training to become a skilled craft worker in a recognised occupation and the skills learned should be transferable to other companies and in different situations. It infers that apprentices eventually acquire 'mastery' of the particular craft or trade, and that the skills learned are not just company-specific but can be deployed under different conditions. This transferability of skills is what distinguishes apprenticeship from occupational training for work of a repetitive nature.

Gelderblom et al (1999, p.15) defined apprenticeship as follows:

Apprenticeship is a kind of alternating learning, meaning a training model that takes place at two intrinsically different environments and that, due to the didactic-pedagogical integration of these two learning environments, provides a surplus value.

The 'surplus value' alluded to in Gelderblom et al's definition refers to the residual or developed skill and knowledge which a craft worker possesses after serving an apprenticeship. This knowledge and skill is a currency, it is a marketable commodity and it bestows on the holder the opportunity to exploit her/his expertise for financial gain. This definition also recognises the importance of the duality of the context of learning with the reference to two learning environments associated with modern apprenticeship. Harris et al (2001, p.275) argued that both types of environment make valuable but different contributions to apprentice learning.

Singer and MacDonald (1970, p.10) stated that:

In its fullest sense, apprenticeship can be defined as an exclusive method of training or of preparing young persons for a craft, a skill, an employment or a profession, which involves the attachment of the trainees for an agreed period of time to a specific member of that profession, or to a company specialising in that field. Apprenticeship is for the young, the word passed into the English language as implying youth. The attachment element is the basic characteristic of apprenticeship and the time element has always been strong.

Singer and MacDonalds' definition stresses the vocational element of apprenticeship, i.e. preparation and training for a career and a job in a particular trade or profession, this is what Gelderblom refers to as the 'surplus value'. This aspect of apprenticeship is one of its major strengths; people who successfully complete an apprenticeship are prepared for the world of work and the training has a tangible value. Singer and MacDonalds' definition raises two other issues usually associated with apprenticeship: that of attachment and time. Traditionally, the element of attachment is in either a formal or informal contract between the 'master' or employer and the apprentice. Formal contracts or indentures set out the obligations and duties of both the apprentice and the 'master', including the duration of the apprenticeship. Informal contracts usually imply these obligations and the time element is normally the standard for the particular trade or profession. Significantly, such contracts and indentures never actually specified the learning content of the apprenticeship other than in the most general terms, it simply set out the rights and duties of each of the stakeholders. Donnelly, (1994, p.18) opined that traditionally, the concept of apprenticeship was characterised by the signing of a legally binding tripartite (employer, employee and parent) indenture agreement which stipulated the period of training (from five to seven years according to the trade) in a uni-craft area, without detailing either the knowledge or skills to be attained.

Parkes (1979, p.10) used yet another definition:

Apprenticeship is here defined as a method of employment and on-the-job training which involves a set of reciprocal rights and duties between an employer and a trainee (usually a young person): the employer agrees to teach or cause to be taught a range of skills, usually of a broad, occupational nature; in return the apprentice agrees to work for an

extended period of time at a training wage which is relatively low compared to the skilled worker rate, but which normally rises on an annual basis until the period of the apprenticeship is completed.

Significantly, both Singer & MacDonald and Parkes refer to apprenticeship as being for the young, though what ‘young’ means in terms of apprenticeship is not defined. However, traditionally apprenticeship was entered into and continues to be entered into principally by teenagers, mainly males. In the Republic of Ireland less than 1% of apprentices in the twenty-six designated trades are female (Kellaghan 2002, p.8).

Drawing upon an analysis of the common characteristics of the above group of definitions of apprenticeship, one can argue that modern apprenticeship is primarily associated with:

- Young people
- Occupational training for a craft or trade
- As a path to a career
- Systematic training with both on and off-the-job components of learning
- An employer-employee contract
- Of fixed duration
- Transferability of skills learned
- The provision of adequate numbers of skilled craft persons to meet the future needs of the economy.

Institution of Apprenticeship

Apprenticeship is one of the oldest forms of structured learning and it has been the subject of both praise and criticism as a paradigm of training over time. Yet, as Fuller and Unwin (1998, p.154) opined history also shows that, through the centuries, apprenticeship has survived as a meaningful vehicle for the development and transference of occupational skills, knowledge and understanding. Aldrich (1999, p.21) posited that apprenticeship, as it existed as an ideal (though not always as a reality) from the 12th to the 17th centuries, was a most substantial phenomenon indeed, encompassing social, occupational, educational, religious, familial, group and legal dimensions.

Originating in the medieval guilds, apprenticeship has a long tradition as a method of occupational training in Europe with careers in the crafts being a three-stage model: apprentice, journeyman and eventually a master. A very close relationship developed between the live-in apprentice and his master because the master was not only responsible for teaching his apprentice the craft skills associated with his trade but was also responsible for his general education of the apprentice as well as his moral, religious and civic duties. Lane (1996, p.101) opined that in the original concept of apprenticeship the master provided the technical training in exchange for labour; money, as a premium or wages, had no part in the transaction though the payment of premia became an important part of apprenticeship eventually. Theoretically, the apprentice had no need of money for the master provided all the necessities of life and in practice long hours left little time in which to spend it. Smith (1992, p.85) commented that in all the best stories he (the apprentice) even had a good chance of marrying the master's daughter. Forrester (1999, p.86) opines that presupposed in the idea of apprenticeship rest the concepts of instruction

and learning. Fuller et al (1998, p.153) opined that the concept of apprenticeship was synonymous in many people's mind with high standards of workplace training.

Apprenticeship as a Paradigm of Learning

Apprenticeship as a Social Theory of Learning

From a pedagogical viewpoint, apprenticeship education and training is an extremely effective method of teaching and learning as it combines practice with theory. The apprenticeship paradigm has also been studied as a conceptual basis for a social theory of learning. Bunn, (1999, p.74) opined that apprenticeship as a metaphor for understanding learning, and learning as it takes place in apprentice-type situations has significant significance for anthropology.

Bunn's assertion is predicated on the assumption that all elements of apprenticeship are designed in such a manner as to be part of a cohesive and comprehensive package. As most modern apprenticeship systems are structured in such a manner as to provide the apprentice with the opportunity to avail of both on-the-job and off-the-job training it can provide optimum conditions for learning. Gospel (1994, p.19) stated that:

Apprenticeship training has much to commend it. It is a work-based system of skill formation which makes possible employer investment in employees who are potentially mobile. This statement of course assumes that the whole system is homogenised, that it is an integrated system and that each unit of education and training forms the foundation for the next, be it on-the-job or off-the-job. The learner is exposed to expert demonstration coupled with the theoretical background. It offers the learner the opportunity to apply the theoretical concepts underlying all craftwork to practical projects.

The on-the-job component of the training takes place in the “real world” of work where apprentices are exposed to the discipline and culture of the industry and at the same time receive tuition and practice, albeit sometimes in an informal manner, in the various skills of the trade. Gray (2002, p.316) averred that most learning that arises (on-the-job) is not planned and is non-formal, resulting from the challenge of the work itself and from the interactions with people in the workplace. However, Harris et al (1993, p.274) caution that the role of the workplace mentor as the most critical factor in worksite learning; the quality of that learning is dependent upon the mentor’s enthusiasm, standards, values, knowledge and mentoring skills. Malcomson et al (2003, p.197) argued that certain transferable skills are most efficiently learned in the workplace.

This integrated system has to bridge the different cultures of the world of work and the classroom. This type of learning, acquired in two completely different environments, which must complement each other, is deemed by many educationalists to be the ideal paradigm, provided the system is properly structured and monitored. Smith (1992, p.46) stated that:

Apprenticeship conforms with many current ideas about optimum conditions for effective learning. In its modern forms, it offers a balance between learning by doing, skilled demonstration and formal exposition. It places early responsibility for the management of learning on the shoulders of the learner.

The off-the-job components takes place in a much more formal learning environment where apprentices receive tuition in the appropriate craft technology and with the opportunity to practice the hand skills associated with the trade in a learning environment without the constraints of commercial production which obtain in his or her place of work. The off-the-job component also provides an opportunity for apprentices to be

exposed to aspects of the trade which they may not get in their employment simply because the employer may not be engaged in that particular type of work. Cohen (1999, p.132) argues that apprentices learn the practical skills in off-the-job situations by practising through mimesis. Mimesis is a practice of simulation and/or emulation which claims to master or comprehend external reality through a model or instrument which reproduces its essential features in a scaled-down, and hence manipulable version.

Fuller and Unwin (1998, p.162) stated that apprenticeship moves in a direction from dependence to autonomy. Apprentices benefit from the supervision of the practitioner on site and from the theoretician in a training or educational institution, one perhaps arguing 'how it should be done' the other 'how it is done'. The lecturer or instructor in the training institution enthuses his/her students to aspire to the highest levels of craft and technology, whilst the 'master' on site has to factor-in the issues of productivity and cost. Butler & Brooker (1998, p.81) offers the perspective that the apprentice learner is placed in two contexts and stands in a different relation to the knowledge that is learned in each context. Learning in the work context is an outcome of the situation, the relationship between the apprentice and the supervisor, the nature of the work and the social and physical environment. It is imprinted with the world of paid work and the imperatives of productivity and profit.

This dichotomy, if it arises, should be viewed as a strength of the system we know as apprenticeship rather than a weakness. Apprenticeship, with its on and off-the-job components of learning, introduces the apprentice to the economic realities of industry at an early stage of the training. Huddleston (1999, p.185) argued that this implies that knowledge must be contextualised and that learners must be encouraged to draw out

learning from their work-based experience in the same way in which they need to apply knowledge learned in classrooms to workplace contexts and, most importantly, to see the relationship between the two. Unwin and Wellington (2001, p.85) stated that the debate over the transfer of learning from one context to another has been prominent for over a century. The concept of the duality of learning sites is a fundamental part of apprenticeship training.

Throughout the apprenticeship, apprentices are exposed to a wide range of experience and expertise that help to mould her/him into a crafts person worthy of the name. Apprenticeship puts the ultimate responsibility for learning on the shoulders of the learner and the quality of the craftwork produced by the apprentice, even in the early days of the apprenticeship, will serve as a barometer of the keenness and dedication of the apprentice. Modern systems of apprenticeship have much to recommend them as a method of training and education for many careers. Apprenticeship contains elements of both education and training and the boundaries between the two sometimes become blurred.

Theories concerning what constitutes education and what constitutes training abound. Murphy (1974) argued that a person trained in an activity employs a rote set of rules in carrying out that activity and should that activity become redundant or require radical alteration, the practitioner must undergo additional training. He further argues that a person educated in an area of activity is generally equipped to adapt to whatever developments occur by virtue of the fact that he or she understands the underlying principles of the activities in which he or she is *engaged*.

Zone of Proximal Development

Commenting on the gradual acquisition of skills by apprentices, Bunn (1999, p.75) opined that this is where novice apprentices begin to learn at the edge of the work, as their mentor, or master, structures or scaffolds simple activities for them to do which slowly enable them to learn, and then discriminates and structures more complex skills at levels they can manage until, through time and experience, they are ultimately drawn right into the centre of action as they become fully skilled workers themselves.

Forrester (1999, p.87) argues that learning takes place in the zone of proximal development, defined as the distance between a learner's existing level of knowledge as determined by their attempts to solve a problem independently, and the level of potential development as determined through problem solving under adult assistance/guidance, or in collaboration with more experienced peers. Guile and Young (1998, p.116) posited that among other matters, it has become apparent that the transmission model of learning traditionally associated with apprenticeship, i.e., involving learning by doing and the master as a role model, always implicitly involving a zone of proximal development, albeit an informal zone, since apprentices were being moved beyond the stage of 'mastery' they were capable of on their own.

Apprentices also learn in an unstructured way, simply by being in the presence of the 'master' and observing. Polanyi (1958, p.53) commenting on this aspect of unstructured learning observed that by watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself. These rules, commented Polanyi,

can be assimilated only by a person who surrenders himself to that extent uncritically to the imitation of another.

In regard to the relationship between the master and the apprentice, Winning (1993, p. 19) has noted:

There is a relational quality to the apprenticeship system. Although there are several important dimensions to apprenticeship as an approach to vocational development, its most distinguishing feature is the relationship which emerges between expert and apprentice. It is a special commitment of one to the other in the shared purpose of individual growth. As an educational approach, apprenticeship represents a kind of relationship which is probably impossible to nurture in a typical classroom setting where the instructor's attention is divided among many students.

One of the strengths of apprenticeship training is the continuous mentoring and instruction of apprentices both on- and off-the-job. The development of the hand skills and the theory underpinning the craft are learned in a sequenced and structured manner, beginning with relatively easily performed tasks and gradually advancing to more tedious and challenging processes.

Concept of Skill

The Oxford dictionary defines skill as 'expertness, practised ability, facility in doing something, dexterity', the emphasis being on practice, repetition and dexterity. This definition is, however, a very narrowly focused conceptualisation of skill. Skill, in terms of craftwork, is much more complex. The Department of Education & Skills (2001, p.20)

commented that despite the enormous interest in how skills in Britain have changed over time, how they are distributed, and how these trends and patterns compare with competing nations, there is surprisingly little agreement on what 'skills' actually refer to.

In relation to the concept of skill as applicable to craft workers, arguably, there are two broad divisions, namely, cognitive skill and practical skill. Obviously, the completion or execution of a piece of work is tangible evidence of the practical skill possessed by a craft worker. The cognitive skill that resulted in the successful execution of the work may not be evident unless the observer is her/himself knowledgeable in the same discipline. Jessup (1991, p.121) stated that:

Skills can only be demonstrated through their application in performance (doing something), while knowledge can be elicited through the more abstract means of conversation, questioning and writing. The distinction becomes less clear when we consider cognitive skills (e.g. problem solving skills, perceptual skills) but skills refer to a process which leads to an outcome.

Ashton et al (1991, p.233) argued that in order to move beyond a narrow and restrictive conceptualisation of skill they distinguish three different ways in which the concept of skill has been used.

- 1. Skill as a manual dexterity or practised ability which they refer to as routinised skill.*
- 2. Skill as the application of expertise or a body of theoretical knowledge, which they refer to as applied skills.*
- 3. The ability to solve abstract conceptual problems, which they refer to as conceptual skills.*

Ashton et al develop their concept of the division of skill into three categories further by positing that in the first case, skill as manual dexterity or practised ability, this type of skill is performed in the same manner and under the same conditions time and time again, consequently, they describe it as routinised.

In the second category, skill as the application of expertise or a body of theoretical knowledge, they argue that in this context, skills may also rely on manual dexterity but their application relies on the internalisation of a body of theoretical knowledge and its usage in varying contexts. They refer to these skills as applied skills and are transferable across a range of jobs. They also argue that they are constantly evolving with developments in theoretical understanding and in the techniques utilised in the practise of skills.

In the third category, skill as the ability to solve problems at a conceptual level, they conceive this category of skill as the facility to focus on the manipulation of abstract symbols, requiring the marshalling of evidence and the ability to think through a problem and to work out solutions to problems created by new situations and combinations of events.

Finally, Ashton et al stated that although the three different types of skill outlined are associated with different occupational groupings, they are conceptually distinct in that they can be combined in variable proportions in any one occupation.

Ashton et als' hypothesis of the division of skills as routinised, applied and conceptual and the acknowledgement that they may be combined in variable proportions is an

interesting observation in relation to defining the skills required by craft workers and particularly, the skills that need to be developed through apprenticeship if an effective apprenticeship system is to produce craft workers of the calibre required by industry. Arguably, craft workers perform routinised tasks by applying the core skills of the trade. They also employ applied skills, task performance based on a body of theoretical knowledge. Finally, they also apply problem-solving skills in the performance of their duties.

Some practical skills may not demand high cognitive functioning such as the core skills of a trade. Core skills may be defined as the basic skills of a trade or the generic skills applicable across a range of trades. Craft workers exercise an array of skills in the general execution of their work ranging from the mundane to higher order skills. Merson (1996, p.19) stated that such tasks may require the employee to have a hierarchy of skills moving from simple craft operations, to machine design, to statistical monitoring of quality.

Welford (1970, p.21) argued that:

The term 'skill' is used somewhat differently in industry and in psychology. In the former a man is regarded as skilled when he is qualified to carry out trade or craft work involving knowledge, judgement, accuracy and manual deftness usually acquired as a result of long training, whereas an unskilled man is not expected to do anything which cannot be learnt in a relatively short time. Semi-skilled jobs are regarded as intermediate, involving the characteristics of skilled work but to an extent which demands a training extending over weeks or months rather than years.

Welford (1970, p.22) posited that from the psychological standpoint, the distinction between manual and mental skill is difficult to maintain in any absolute sense. All skilled performance is mental in the sense that knowledge and judgement are required, and all skills involve some kind of co-ordinated overt activity by hands, organs of speech or other effectors. In manual skills the overt action clearly forms an essential part of the activity and without them the purpose of the skill as a whole would disappear.

Welford further argued that all skills have three common characteristics:

- 1. They consist essentially of the building of an organised and co-ordinated activity in relation to an object or a situation and thus involve the whole chain of sensory, central and motor mechanisms which underlie performance.*
- 2. They are learned in that the understanding of the object or situation and the form of the action are built up gradually in the course of repeated experiences.*
- 3. They are serial in the sense that within the overall pattern of the skill many different processes or actions are ordered and co-ordinated in a temporal sequence.*

Drawing on the above definitions and observations on the concept of skill, the skills required by craft workers could be summarised as being (a) mental in the form of the craft technology underpinning the trade, (b) cognitive in the sense of diagnostic and planning skills and (c) manual facility which as More (1980, p.15) stated:

Anyone one who has attempted a task usually carried out by a craftsman will know that manual work demands certain qualities which we do not all possess. One of these qualities is manual facility, which can be defined in psychological

terms as the ability to perform quickly and effectively complex actions which necessitate the co-ordination of perceptual and motor activity.

Commenting on the transferability of skills to new situations and the application of higher-order procedural knowledge, Winning (1993, p.19) posited:

The application of skills in different situations is often dependent upon higher-order procedural knowledge which is more holistic in nature than independent skills which can be demonstrated. For example, higher order procedural knowledge which is required for problem solving in new situations include conceptual and analytical skills which may not be observable.

Singer and MacDonald (1970, p.24) describe the skills of a craftsman as follows:

Basic skills; diagnostic skills; planning skills. A distinguishing feature of a craftsman is that he can draw on a reservoir of basic skills and knowledge to deal with a whole variety of problems and situations, many of which cannot be forecast at the training stage. He/she needs to learn how to diagnose situations and to plan his/her work in such a way that he can utilise effectively his basic skills and knowledge. The approach to effective diagnosis and work planning can be taught, but it also requires an element of structured, supervised, on-the-job experience.

Craft skills are unique in so much as they require both an understanding of the theoretical knowledge underpinning the trade and the application of this knowledge in the execution of the hand skill requirements of the craft. The theoretical knowledge can be learned in a formal learning environment, such as a college, or sometimes even directly from books. Hand skills, however, cannot be learned from books; hand skills must be practised and developed under the supervision of a tutor or mentor. Bunn, (1999, p.75) commented that

apprentices learn from their masters, people who know how to do the job well themselves, they learn through physically engaging, integrating skill and knowledge. The development of the necessary hand skills appropriate to a particular trade varies in terms of range and complexity of the work depending on the trade. Some trades demand very high levels of hand skill whilst others may be more knowledge-based with lower level hand skill requirements. Guile and Young (1998, p.176) argued that the idea of apprenticeship creates the over riding impression that expertise is developed through the gradual accumulation of experience under the guidance of an established master. Apprentices learn by beginning with relatively simple tasks and gradually progress to the execution of more complex aspects of the work until they eventually reach the stage of mastery.

Concept of Mastery

In any discussion on apprenticeship and crafts persons, the word 'mastery' is invariably raised in the context of competence and the ability of the apprenticeship paradigm to produce craft workers of the calibre required by industry. 'Mastery' in the context of craft work infers that the artisan has reached a state of perfection in her/his chosen discipline. Apprentices aspire to 'mastery' but what is meant by this concept and is it attainable at all? Rikowski (1999, p.62) suggested that apprenticeship, viewed as a 'new learning paradigm', demands that the concept of the fully developed apprentice – one who has become a 'master' – be clarified. 'Mastery' is, arguably, the end state of apprenticeship, one who has successfully completed an apprenticeship is deemed to be a 'master' of her/his craft. In the era of medieval craft apprenticeship, 'mastery', was clearly attainable. When an apprentice had been taught all the 'secrets' and 'mysteries' of the craft then clearly he had attained 'mastery'. There was a visible continuum from apprentice to

improver (in some trades) to journeyman to master. The achievement of the status of 'master' implied that the craftsman knew everything there was to know about his trade and it even bestowed upon him certain rights and privileges not available to those who were not 'masters'. In this concept of 'mastery' knowledge and skill were bounded, there was a specific amount of knowledge and a range of techniques to be learned and a level of hand skill to be acquired. After that there was no need for further learning.

The attainment of 'mastery' in the modern concept of apprenticeship is quite another matter. Is 'mastery' attainable at all? Reaching the stage of 'mastery' implies that there is no need for further learning that all that has to be learned has been learned. Nietzsche (1982, p.212) argued when one has attained 'mastery' one neither goes wrong nor hesitates in the performance. Nietzsche's definition implies that there is nothing further to be learned once a person has reached the state of 'mastery'. Can this be possible in the modern world of industry? When apprentices complete their apprenticeship and come out of their 'time' have they achieved 'mastery'? In the era of ever-changing technology, it is arguable that the modern craftsperson can never reach 'mastery', that there is always more to be learned. This implies that apprenticeship is never terminated, that there is no end point to the learning and that in order to meet the needs of industry apprenticeship must foster the concept of life-long learning. Rikowski (1999, p.67) posits that the horizon of the (post) modern apprentice dissolves into infinity; there are no defined boundaries, no absolute limits to the demands of capital as exerted through the world-and-beyond. If the term 'mastery' can be applied at all in the context of modern paradigms of apprenticeship then it is in the sense of having mastered the concepts of flexibility and adaptability. If crafts persons do not engage in continuous learning, either formally or informally, then they will not be able to fulfil the needs of industry as industry develops

and changes. Mastery in the modern concept of apprenticeship should be viewed as the ability to cope with new technology and techniques. The goal that is 'mastery' is constantly moving.

Technology and techniques should be viewed as evolving all the time and it is the capacity of the craftsperson to keep abreast of change that implies 'mastery'. However, increasingly, the word 'competent' is used in modern apprenticeship instead of 'mastery' to describe a person with the necessary skills and knowledge to function satisfactorily as a craftsperson.

Competence

The Concept of Competence

The transfer of skills to new situations is an interpretive problem requiring among other things deep conceptual understanding of the domain (Winning, 1993, p.19). This issue of transferability of education and training is of crucial importance in the context of skilled craft workers.

This of course raises the question of whether a competence-based system is an appropriate system of education and training for apprentices and if the competence paradigm can be used to measure the underlying cognitive functions required by them in the performance of their work.

An effective system of apprenticeship must be one in which employers are satisfied that the craft workers produced by such a system are deemed to be competent to meet the needs of industry. The system of apprentice education and training in Ireland is a

competence model, with apprentices having to reach minimum levels of competence in a range of activities associated with the particular trade.

This of course raises the issue of defining competence in the relation to craft workers. What is competence and how can it be measured? Are there different levels of competence or are people deemed to be simply competent or not competent? This section of the thesis will endeavour to examine these issues. Craft workers who meet these criteria are generally referred to as 'competent'. On the issue of the concept of 'competence', Jessup (1991, p.26) offers the perspective that a person who is described as competent in an occupation or profession is considered to have a repertoire of skills, knowledge and understanding which he or she can apply in a range of contexts and organisations.

The concept of competence is not new. Brundrett, (2000a, p.57) opines that the development of the competence model, and associated assessment centre, can be traced back to the 1920s and he further argues that it was developed for technical and managerial systems. Tarrant, (2000, p.77) stated that the controversy centred on the notion of competence involves epistemological, ethical and political considerations.

Brundrett (2000, p.58) differentiates between the concept of 'competence' and 'competency'. He distinguishes between the British model of competence and the American concept of competency. To support his argument, Brundrett quotes Boyatzis (1982). Boyatzis defined competency as 'an underlying characteristic of an individual which is crucially related to effective or superior performance'. In this paradigm 'competency' is a characteristic of an individual that leads to superior performance; in

other words it promotes excellence in task performance. This is in sharp contrast to the British model, and the model of competence used in the SBA, which fosters occupational standards to minimum levels of performance. Fletcher (1997, p.7) posits that the competency model is often referred to as a system that promotes the 'soft skills' or 'soft competencies'. Competency in this mode is something that the 'owner' brings to her/his occupational role. It enables the holder of the competencies to deliver higher order performance in her/his occupational duties.

Jessup (1991, p.25) stated that being competent means performing to professional or occupational standards. Ashworth & Saxton (1990, p.3) stated that they consider the meaning of competence as an aspect of the description of human activity, and find that it is not coherently specified. In particular, it is not clear whether a competence is a personal attribute, an act, or an outcome of an action; moreover, the idea of competence, as currently used, is open to complaints that it is atomistic, individualistic, and unable to cover all types of relevant behaviour or mental activity.

The Further Education Unit, (1984) in its publication Towards a Competence-Based System defines competence as:

the possession and development of sufficient skills, knowledge and experience for successful performance in life roles. Such a definition includes employment and other forms of work; it implies maturity and responsibility in a variety of roles; and it includes experience as an essential element of competence.

It is important to note the use of the word 'sufficient' in this definition as it implies a minimalist approach to the acquisition of skill as opposed to high standards of performance in the application of the skill.

The FUE further argued that the definition of a competence should include not only the skills and attitudes necessary for its mastering but also an understanding of the various contexts to which that competence could relate. This is an important point in that it implies a transferability to the skill being defined as a competence. Jessup (1991, p.49) referred to the issue of transferability of skills when he states that it is important to recognise that competence often depends on being able to cope with a range of factors which go beyond the task in hand.

Debling (1989, p.80) posits that:

Competence pertains to the ability to perform the activities within a function or an occupational area to the levels of performance expected in employment.

It is a broad concept which embodies the ability to transfer skills and knowledge to new situations within an occupational area.

It encompasses organisation and planning of work, innovation and coping with non-routine activities.

It includes those qualities of personal effectiveness that are required in the workplace to deal with co-workers, managers and customers.

Debling's definition gives a broader meaning to the concept of competence. It includes the performance of tasks in the course of employment to industrial standards, it alludes to the transferability of skills and knowledge to new situations, it also refers to cognitive skills such as organisation and planning and finally, it refers to the 'soft' skills, which are

often a very necessary aspect of the world of work, namely, communication and co-operation.

Wolf (1989, p.40) states that when we discuss the concept of competence we are talking about the ability to perform: to perform to the standards expected by employers. This view of competence is in the narrower mode; that is that competence is about task performance to minimum standards of expectation. Wolfe also argues that competency is a construct and not something that we can observe directly.

Hyland (1993, p.63) argues that the competence paradigm is rationalistic and promotes a reductivist attitude to knowledge and that it attempts to separate the mental and physical components of performance by endeavouring to appraise them separately. Taxworth (1989, p.22) states that:

The notion of 'minimum competence levels' is useful for certification purposes but carries some risks if these are the only standards available. Many organisations depend on high-level performers for their success. We should be looking for ways of cultivating excellence in occupational competence and the recognition of enhanced performance.

Clearly, there are different views on what competence means; for some it is focused on a narrow range of skills of a repetitive nature, for others it is a much broader concept encompassing the cognitive functions underlying task performance as well as task performance to industrial standards. In the wider concept, it also includes transferability of skill to new situations. Taxworth's definition of the concept of competence embraces

elements of what Brundrett (2000) defines and describes as the UK model of competence and the American concept of competency.

Ashworth and Saxton (1990, p.6) assertion that the defining of competence is not an exact science, and that standard setting is almost by definition an arbitrary – not to say political – process has some considerable merit. They argued:

Another issue regarding the concept of competence relates to levels of performance. Obviously some craft workers are better than others, although all may perform tasks to meet minimum industrial standards. In terms of industrial output, 'better' may mean higher levels of skill or/and higher output. Freeman (1994, p.15) addresses this question when he posits that there is a dilemma with the competence approach that a student is either competent or not competent, which allows no room for levels of competence.

Characteristics of a Competence-Based System

The Further Education Unit (1984, p.4) states that the essential characteristics of many competence-based systems are:

- 1. A careful definition of the competence to be mastered*
- 2. An understanding of the definition by the learner*
- 3. An appropriate 'delivery' of the means by which learners can acquire competence*
- 4. Valid assessment and accreditation.*

These characteristics do not aver to the transferability of a competence to new situations and circumstances and consequently, it could be argued, that the focus is too narrow and

restrictive for apprenticeship education and training as it operates in Ireland. It also seems to infer that knowledge is highly contextualised and that it does not transfer easily.

If this model is applied to apprenticeship then it suggests that the learning of a trade is simply the learning by rote of a series of disjointed competences with no regard for the integration of those competences in the performance of tasks that require an amalgam of skills. Mansfield (1989, p.34) argues that work roles are not a bundle of tasks or routine procedures. Ashworth and Saxton (1990, p.13) concur with this view when they state that: the idea of specifying elements of competence which are understood to sum to produce an overall competence is fraught with difficulty. And even in those cases where it is actually true that several distinct acts are required in fulfilling a task, the notion of competence does not tell us how to weigh the acts in relative importance.

The above characteristics do not appear to value the cognitive functions underlying task performance in execution of craftwork. It takes no account of the tacit knowledge that trades people develop and deploy in the exercise of diagnostic skills and problem-solving skills. It is this critical understanding or tacit knowledge that distinguishes skilled craft persons from people who perform skilled work of a repetitive nature and always under the same conditions and circumstances.

Advantages of a Competence Model of Apprenticeship

There are many advantages to applying the competence-model to the education and training of craft workers. Sims (1991, p.141) argued that in its pure 'form' a competence-based system offers assessment based on an analysis of the role and assessment is measurement of the candidates work against set performance criteria.

Bates (1995, p.5) concurs with this view of a competence system arguing that each element of significant activity is supported by a set of 'performance criteria'. Competence-based education and training is outcomes based with the emphasis on the completed task rather than on the person. There are clear advantages in such a system from the employers' perspective. Brundrett (2000, p.88) develops one very fundamental point in favour of the competence movement when he states that:

they afford their sponsors, whether they be companies, educational institutions or governmental organisations, the comforting belief that candidates who complete such courses will be fully conversant with the technical aspects of any given job.

This is a very relevant point, particularly for the training of young craft workers who will be required to perform job-related tasks associated with their craft to industry standards of performance and safety. This requires both theoretical and task-based assessment. Fletcher (1997, p.19) argued that in competence-based assessment, our key concern is actual performance. The focus is therefore, on what individuals can do rather than on what individuals know.

Assessment of Standards of Competence

Competence is about setting standards to which individuals are expected to perform in their work roles. This concept of competence and standards implies that there must be a system of measurement to ascertain if individuals meet these standards or not. Mitchell (1990, p.55) posits that standards are external reference points to individuals as they are descriptors of what any individual would have to do in order to demonstrate competence in meeting a particular outcome. In this concept of competence, it is an expectation of work role, it is not a characteristic or trait of any individual.

Before the process of assessment can begin a statement of competence must be constructed from a task analysis of functions. This task analysis should scrutinize the skills required by the job-holder and design a number of discreet competences that individuals must acquire to be deemed proficient to perform the role to which they aspire. Prior to the issue of reliability and validity of an assessment instrument is the issue of the human and social process of assessment. Asworth and Saxton (1990, p.23) argue that assessing involves the perception of evidence about performance by an assessor and the arrival at a decision concerning the level of performance of the person being assessed. Debling (1989, p.80) states that to differentiate between satisfactory and unsatisfactory performance, what is required are performance criteria. Thus, standards are competence based, criterion referenced, explicit and transparent statements which define the expected achievement or learning outcome. Debling (1989, p.88) further argues that all assessment is subjective at the margins. The issues are:

- How precisely are the standards defined?
- How well can assessors interpret the standards with adequate consistency?

Competence and Performance

Eynon and Wall (2002, p.321) averred that competence is not the same as performance. Ashworth and Saxton (1990, p10) endeavour to clarify the difference between them when they state:

Competence is a quality possessed by an individual as a result of learning. A performance is an expression or demonstration of that competence in some particular circumstance. Competence may be inferred from a succession or variety of performances. Conversely, someone may predict from knowing that

someone is competent that they will perform successfully in certain circumstances...

This is an important distinction; competence may be implied from satisfactory performance.

The assessment of candidates' work must endeavour to serve two purposes:

1. to judge the standard of work of candidates
2. to infer future performance based on the evidence available, i.e. to make a call on the issue of transferability of the skill acquired by the candidate.

Mitchell (1990, p. 61) posits that evidence can be of two forms – performance and knowledge. She also argues that as competence is the ability to perform to the standards expected in employment, performance evidence must be the prime candidate for consideration, with assessment in the ongoing course of work the one that is most likely to offer highest validity. It is unlikely, however, that in apprentice courses, that there will be sufficient occasions of test of the practical aspects of work to base judgement on that alone. This would be particularly true in the case of the training of apprentices. This assessment deficit can be compensated for by testing the candidates' knowledge on the principles underlying task performance. The assessment of knowledge may be made from answers to written questions, from assignments or from oral questioning.

Modern Apprenticeship

Apprenticeship in the 21st Century

Apprenticeship implies instruction and learning, instruction being provided by the 'master' and learning by the apprentice. Apprentices learn by 'doing', by endeavouring to integrate theory and practice. Apprenticeship infers a duality of responsibility, that of the

apprentice and that of the 'master'. In the modern concept of apprenticeship learning takes place both on and off-the-job. The theoretical concepts underpinning a trade are usually developed in an educational-type institution whilst the theory is put into practice in an industrial setting. Huddleston (1998, p.288) stated that where young people are employed it is essential that what they are learning off-the-job should relate to and integrate with what they are doing on-the-job. A criticism made of the old apprenticeship system was that sometimes the college element of the training was out of step with current work-place practices. Senker et al, (1999, p.198) argued that motivation for the development of a high-quality work-based route derives from recognising that the workplace can be a creative and motivating site for learning; and this requires an integrated and holistic approach to enabling young people to combine on and off-the-job experiences. Senker raises another important issue regarding the duality of sites of learning; that is that there must be co-ordination between the theoretical knowledge learned in educational institutions and application of that knowledge in the workplace.

Requirements of Industry

The education and training of apprentices is concerned with producing craft workers of the calibre required by industry and who have the acquired both the theoretical knowledge and requisite hand skills to enable them to transfer that knowledge and skill to new situations as demanded by an ever-changing industrial environment. Jessup (1991, p.131) opines that the whole process of education and training makes implicit assumptions about the transfer or generalisability of skills and knowledge from the context in which learning takes place to other contexts where it might subsequently be applied or required.

Arguably, the hallmark of a good craftsperson is tacit knowledge. O'Connor (2000, p.24) posited that;

Tacit knowledge develops from a combination of technical knowledge, practical skill and experience. It involves the use of diagnostic skills and problem-solving skills. The craftsperson exercises discretion. This discretion may be concerned with the preference of one solution over another or with the type of material to be used, or with the long-term benefits of the use of one technique over another. It is the hallmark of a skilled craftsperson.

Commenting on the concepts of tacit and codified knowledge, Harvey (1997, p.47) argued that the latter refers to knowledge which:

Is factual and expressible. Tacit knowledge on the other hand is that which is known yet not capable of being expressed (or at least difficult to express). It is the sort of knowledge which is gained through experience, such as the knowledge a skilled worker has of his or her craft. It is argued now that tacit skills are becoming increasingly important in the management of business today.

Arguably, apprenticeship promotes two parts of the three elements that are the hallmark of a good craftsperson:

1. The technical knowledge requirement of a craft or trade
2. The development of the appropriate hand skills
3. Experience.

Clearly, a properly structured apprenticeship can develop both the technical knowledge and hand skill elements demanded of competent craft persons. It can also foster the development of diagnostic and planning skills. Experience, however, only comes with practice and only limited experience can be gained in simulated industrial environments such as a training centre. Experience hones skills such as the ability to diagnose problems

integration of those competences in the performance of tasks that require an amalgam of skills. Mansfield (1989, p.34) argues that work roles are not a bundle of tasks or routine procedures. Ashworth and Saxton (1990, p.13) concur with this view when they state that: the idea of specifying elements of competence which are understood to sum to produce an overall competence is fraught with difficulty. And even in those cases where it is actually true that several distinct acts are required in fulfilling a task, the notion of competence does not tell us how to weigh the acts in relative importance.

The above characteristics do not appear to value the cognitive functions underlying task performance in execution of craftwork. It takes no account of the tacit knowledge that trades people develop and deploy in the exercise of diagnostic skills and problem-solving skills. It is this critical understanding or tacit knowledge that distinguishes skilled craft persons from people who perform skilled work of a repetitive nature and always under the same conditions and circumstances.

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Bates (1995, p.5) concurs with this view of a competence system arguing that each element of significant activity is supported by a set of 'performance criteria'.

Competence-based education and training is outcomes based with the emphasis on the

Seven years was the minimum length of apprenticeship under the terms of the Statute of Artificers Act, 1563. Lane (1996, p.6) stated that in the Statute of Artificers penalties were specific against those who practised a trade without having served their 7 year term, and quarter sessions proceedings illustrate the degree of contemporary concern over this. Aldrich (1999, p.15) stated that The Statute of Artificers prescribed that written indentures were to be drawn up for each apprentice, and that no person should exercise a craft or trade until at least a seven-year apprenticeship had been served and the age of 24 attained. Obviously, the length of time served was considered to be a very important aspect of apprenticeship during this period. Lane (1996, p.16) posited that:

The value of the term to the master was considerable. It controlled recruitment to an occupation, with the numbers of new journeymen qualifying at predictable intervals. Thus, wages were kept up and unemployment from overstocking was avoided. The master was also sure of the apprentice's service for a number of years. The term's greatest advantage was that, if extra qualified workmen were needed quickly, for a local or national crisis, they could only be produced by shortening the term as an emergency measure or allowing masters to indenture more apprentices than their craft quota allowed.

When apprenticeship was based simply on the length of time served it took no account of the range of experience gained by the apprentice during the term, or the ability of the apprentice to learn the skills of the trade. It presumed that all apprentices required the same length of time without any recognition of the aptitude of the apprentice. During the period of the craft guilds, masters sometimes required apprentices to produce a 'masterpiece' or 'proof piece' at the end of the term in order to demonstrate their competence. This piece of work was essentially a test. If the master and the guild deemed

the test piece to be up to standard then the apprenticeship was ended and the apprentice became a journeyman. If the master decided that the test piece was sub-standard then the apprenticeship was extended until the master decided that the apprentice was ready to undertake the test again.

Lane (1996, p.75) stated;

The guilds, of course, finally judged the success or failure of the apprentice's training by inspecting his 'proof piece' before he was free of the company. Until the coming of technical institutes in Britain in the later nineteenth century, training for any occupation was based on the traditional method of "watching Nellie", with apprentices beginning the term carrying out the most menial, progressing to unimportant and then major skills during the course of seven years.

In terms of modern-day apprenticeships the length of time served is usually a factor. In Ireland the length is still set at four years, which is the same as it was before the introduction of the Standards Based Apprenticeship. When the SBA was being developed in the early 1990s it was envisaged that the length of time served would not be a factor: that apprenticeship would be completed when an apprentice had reached the standard in all of the phases. Casey (2000, p.6) averred that under a standards based system it was considered that able apprentices, particularly in the wet construction trades, ought to be able/allowed to finish their apprenticeship in less than four years. This, however, did not happen. The Irish Business and Employers Confederation (IBEC) were of the view that not all trades require a four-year apprenticeship. The Construction Industry Federation (CIF) also expressed its concern at fixing the duration at four years for all trades. In its Evaluation Report, Apprenticeship and Traineeship (1999), published by the European

Social Fund Evaluation Unit, concern was expressed at the setting of the four-year duration for all apprenticeships in the designated trades. Page 42 states:

The Department of Trade, Enterprise and Employment believes that the continuing duration of four years apprenticeship for each designated trade is inappropriate. Each trade should justify its training time and a review of the designated trades is needed immediately. This rigidity is also acting as a deterrent for other trades to seek designation through the standards-based system.

The Report also quotes the CIF as stating that not all apprenticeships need be of four years duration. The CIF also argued that some of the designated trades in which there are narrower specialisms and smaller numbers of apprentices participating (e.g. bricklaying and plastering) are particularly suited to a reduced duration. In contrast to this view, the report quotes the Irish Congress of Trade Unions (ICTU) as stating:

The duration of four years for each of the designated trades under the standards-based system is proving to work very well and it does not feel that there is any need to alter the harmony achieved on this aspect of apprenticeship.

As can be seen from the above quotations, the issue of duration of apprenticeship in Ireland is a cause for concern. On the one hand, the trade unions want all apprenticeships in the designated trades to continue to serve the same length of time, whilst the employer bodies are arguing for different durations for different trades. It is worth noting that employers are not promoting the concept of pay related to the successful completion of Phases in the SBA in this report. This concept of tying the pay of apprentices to successful Phase completion would seem to be the logical method of rewarding apprentices who reach the required standard in each Phase and be of benefit to both the employers and the trade unions. Neither the employer bodies nor trade unions are

promoting this concept and there are a number of reasons for this, particularly related to the off-the-job phases.

If the pay of apprentices was directly related to successful Phase completion then it would mean that a place in a FÁS training centre (for Phase 2) or a place in an institute of technology (for Phase 4 or 6) should be available at exactly the right time for apprentices who had passed the previous phase, otherwise apprentices would be disadvantaged with regard to pay. It would also mean that employers would have to release apprentices immediately they are offered a place in an institute of technology for phase 4 or 6. Occasionally employers will not release apprentices for these phases at the first calling if they are very busy. Trade unions are not promoting this concept either and they are satisfied that although the apprenticeship system in Ireland is standards-based, rates of pay for apprentices are still based on the length of time served.

Clarke and Wall (1998, p.73) opined that [in relation to apprenticeship in the UK] it is often considered that achievement of fully competent craft standards requires much more than three years, except for exceptionally talented people. Typically, it takes three to five years experience after apprenticeship to become a 'competent' craftsman, as 'competence' requires physical maturity and experience. The argument developed by Clarke and Wall is essentially promoting the old concept of improvership whereby after completing the apprenticeship, newly qualified craft persons were required to serve a term as improvers in order to gain additional experience and at a rate of pay below the standards craft persons' rate.

In regard to the issue of time served as an integral part of apprenticeship Singer and Mac Donald (1970, p.14) argued that;

Elapsed time has been considered in some circles as the only, or at least the principal factor, in acquiring 'experience'. We realise today that what is acquired through experience can often be telescoped into a much shorter time with adequate analysis of the skill or knowledge which is acquired.

This concept of a standard length of apprenticeship was promoted by the trade unions as part of their control of apprenticeship. More (1980, p.137) posited that apprenticeship was an institution that was kept by the unions in order to limit entry, a policy which led to the sharp delimitation of skilled occupations from unskilled.

Socio-Economic Advantages of an Effective System of Apprenticeship

Commenting on the advantages apprenticeship bestows on apprentices, Huxby (1979, p.105) commented;

A very good thing about apprenticeship is that it has always been quality oriented in terms of product. It has been aimed at the traditionally skilled sections of British Industry. Its other great strength is that it has always been career oriented, that is, career as opposed to job. The feeling has always been that a young man who succeeds in getting an apprenticeship has a career for life. Apprenticeship has also provided clever young men with a spring-board to technical or administrative careers. It was never thought that an apprenticeship confined a successful apprentice to the shop floor. It was seen as an opportunity for advancement.

Huxby's comment raises another important issue regarding apprenticeship: that of progression. Traditionally, the construction industry provided opportunities for qualified craftsmen to avail of promotional opportunities, such as forepersons, supervisors, project managers etc. In addition to increased salary, these positions usually offered permanency of employment in an industry usually associated with transitory-type employment.

Socialisation and Enculturation of Apprentices in Industry

Advantages of Phase 1 of the SBA

As well as being able to avail of the opportunity to apply the theoretical knowledge underpinning a trade on site, apprentices experience the real world of work at a very early stage of their career, thereby engaging in a socialisation and enculturation process. Apprentices also gain employee status with the legal protection that this implies (Field and Dubhchair, 2001, p.253). Under the terms of the SBA, apprentices experience the culture of the industry and the nature of the work they will be engaged in, if they qualify as a crafts person, at the very beginning of their apprenticeship. Fuller & Unwin (1999, p.151) averred that a central feature of apprenticeship is the placing of the apprentice in a community of more experienced workers (community of practice) with whom the apprentice interacts and learns from in a variety of ways. The apprentice's motivation to learn is stimulated by recognition of the gap between themselves and their more knowledgeable and skilful colleagues and through awareness that increased learning brings benefits in terms of development of adult identity associated with occupational status.

Fuller and Unwin (1998, p.154) posited that they conceive apprenticeship as having three broad and inter-related dimensions. These are first, the contractual framework within

which apprenticeship operates and which concerns the “reciprocal rights and obligations between an employer and trainee” that are specified in a formal agreement (Gospel & Fuller, 1998). Second, it includes the cultural and social aspects of going to, and being at work which help socialise apprentices into workplace (adult) roles. Third, it encompasses the formal and informal on and off-the-job learning experiences which are characteristic of apprenticeship in post-war British industry (Gospel, 1995). This is a very important aspect of the SBA in the Republic of Ireland as apprentices spend Phase 1 of their apprenticeship with their employer on site.

Summary

This chapter explored the concept of apprenticeship as a paradigm of vocational training for craft workers. It examined concepts associated with apprenticeship education and training and outlined the background to the development of the Standards Based apprenticeship system in Ireland, as well as the operation of the system. It informed the research for this thesis.

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CHAPTER THREE

Research Methodology

Introduction

This chapter begins by outlining the conceptual framework that directed the research, informed the methodology for the study, and summarizes the design which emanated from the conceptual framework. It addresses concerns of validity, reliability and generalisability. It gives a brief account of the rationale of the thesis subject and of the importance of the topic to apprenticeship in Ireland. It summarizes the methods used in the identification and selection of both the respondents and the research instruments. It also refers to the issue of ethics in research and outlines the steps taken in this study to ensure that the identity of the respondents was protected.

The chapter concludes by defining the nature of research and the positivist and interpretive approaches to research methodology and considers the appropriateness of each from an epistemological and ontological viewpoint for this thesis. It also outlines various research paradigms that may be used in educational research and accepts that a number of different paradigms may be used on a particular project to ensure validity and reliability. In order to consider the appropriateness of the methodology for the thesis it is necessary to examine the nature of research and to distinguish between research in the natural sciences and the social sciences. Robson (1993, p.18) argued that these differences fall within two main traditions, which continue to engage in sporadic warfare. One is variously labelled as positivistic, natural-science based, hypothetico-deductive, quantitative or even simply 'scientific'; the other is interpretive science and, as Marlow

(1998, p.9) posited, there are several branches of interpretative science, including hermeneutics, ethnomethodology, constructivism, phenomenology, naturalistic inquiry, and qualitative methods.

Conceptual Framework

In order to develop a conceptual framework upon which to base this study the phenomenon to be investigated, the SBA, was identified and the nature of the research questions defined. As outlined in Chapter One, the research questions focused on the structure of the SBA, the perceptions of the stakeholders on the ability of the system to produce crafts people of the calibre required by industry, the issue of preparation of apprentices for progression to higher courses, and the controversial issue of assessment of practical work at Phases 4 and 6.

The framework directed the research and informed the methodology for the study. Robson (1993, p.150) argued that:

Developing a conceptual framework forces you to be explicit about what you think you are doing. It also helps you to be selective; to decide which are the important features; which relationships are likely to be of importance or meaning; what data you are going to collect and analyse.

From within this framework, the actors were identified, the research instruments deemed to be most appropriate selected and the size of the population decided. The framework demonstrated a rational link between the elements of the research from the vision to the methods used to generate the data to the analysis of the data in an ordered manner. It was from this conceptual framework that the design of the study was constructed.

Design of Study

Yin (1994, p.18) opined that a research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study.

Design is concerned with turning research questions into projects (Robson, 1993, p.38).

The design of this research project has been influenced by the literature on educational research and by the nature of the subject of the research. It has been informed by the works of Miles and Huberman (1994), Frankfort-Nachmias and Nachmias (1992) and Robson (1993), among other authors who will be cited later, to enrich the design. Both qualitative and quantitative paradigms have been used in order to build a research design that will be considered comprehensive and defensible. Issues of validity, reliability and generalisability have been addressed and the methods by which these were sought for this thesis are outlined below.

Validity, Reliability and Generalisability

Serious consideration has been given to the problems of validity, reliability and generalizability in the design of this thesis in order that the findings may be considered trustworthy.

Maxwell (2002, p.37) posited that validity has long been a key issue in debates over the legitimacy of qualitative research; if qualitative studies cannot consistently produce valid results, then policies, programmes, or predictions based on these studies cannot be relied upon. Dane (1990, p.34) defined general validity as the extent to which a claim or conclusion is based on sound logic. Kinchloe and McLaren (1998, p.287) stated that:

To a critical researcher, validity means much more than the traditional definitions of internal and external validity usually associated with the concept. Traditional

research has defined internal validity as the extent to which a researcher's observations and measurements are true descriptions of a particular reality; external validity has been defined as the degree to which such descriptions can be accurately compared with other groups. Trustworthiness, many have argued, is a more appropriate word to use in the context of critical research. It is helpful because it signifies a different set of assumptions about research purposes than does validity.

Robson (1993, p.68) posited that validity should be considered under three separate headings: *construct validity*-does it measure what it is supposed to measure; *internal validity* – can a causal relationship be demonstrated between treatment and outcome, and *external validity* – do the conclusions have a generalisability. Maxwell (2002, p.52) argued that generalisability refers to the extent to which one can extend the account of a particular situation or population to other persons, times, or settings than those directly studied.

Scholfield (1998, p. 173) opined that practically speaking, no matter what one's philosophical stance on the importance of generalisability, it is clear that numerous characteristics that typify the qualitative approach are not consistent with achieving external validity as it has been generally conceptualised. Scholfield (1998, p.198) also argued that much of the attention given to the issue of generalisability in recent years on the part of qualitative researchers has focused on redefining the concept in a way that is useful and meaningful for those engaged in qualitative work.

Reliability is the extent to which the findings can be replicated, or reproduced, by another inquirer (Denzin and Lincoln, 1998, p.186). This concern of reliability in qualitative research is diminished by careful construction of the design of the study and by maintaining objectivity in the reporting of the findings.

Kinchloe and McLaren (1998, p. 288) averred that many critical researchers have argued that this traditional concept of external validity is far too simplistic and assert that if generalizations are to be made - that is if researchers are able to apply findings in context A to context B – then we must make sure that the context being compared are similar.

Rationale of Research

The Standards Based Apprenticeship is a competence-based system. This approach to apprentice education and training in Ireland is a reflection of modern thinking on the requirements of the labour market with apprentices having to demonstrate skill and knowledge to minimum industrial standards. There is no universal definition for competence or competencies. In its most simplistic form, competence is the ability to perform to acceptable standards under variable conditions. Others see competence as the integration of skill, knowledge and performance with implied quality. Brundrett (2000, p.355) argues that in the UK model of competence the ‘job’ is central to the definition whilst in the American model it is the ‘person’ that is at the heart of the competency movement. Brundrett develops this distinction further when he posits that in the UK paradigm the concept of competence is constructed around task performance to minimum standards whilst the American concept espouses the characteristics of the individual that lead to superior performance.

This research will make a positive and important contribution to apprentice training in Ireland and the importance of this training to the future of the Irish economy cannot be overstated. Apprentice training in Ireland is at a watershed at present, and very little independent research has been done to assess the success of the new system and this situation needs to be redressed. The *raison d'être* for selecting these questions for research is that if the SBA is not fulfilling its role under each of these questions then such deficiencies as identified must be addressed as a matter of urgency.

The Actors

Apprenticeship in Ireland is a complex phenomenon and in order to produce data that was reliable and would reflect the perspectives of the industry rather than just one stakeholder, it was considered appropriate to have a multiple of sources. Consequently, seven different sets of stakeholders were identified as targets for investigation to ensure that the study would have validity, reliability and generalisation within the context of a qualitative case study. The issue of legitimisation in such research is the subject of much debate and Lincoln and Denzin (2002, p.413) averred that it is clear that postmodern and poststructural arguments are moving further and further away from postpositivist models of validity and textual authority. This, argue Lincoln and Denzin, is the crisis of legitimisation.

Specifically, the measures taken in this research project to effect such considerations involved the selection of a representative population, careful selection, construction and piloting of the research instruments and detailed analysis of the data. A multi-method approach was used to effect triangulation to the data. In relation to the analysis of data in qualitative research, Gherardi and Turner (2002, p.97) stated that the data collected have

to be assessed for relevance according to criteria of relevance generated by the researcher.

The stakeholders were identified as FÁS, who have statutory responsibility for apprenticeship, the institutes of technology who deliver Phases 4 and 6 of the SBA, employers who deliver the on-the-job Phases and trade unions as part of the social partnership. Consequently, actors for this research have been identified as follows:

- The instructors in FÁS, who deliver Phase 2 of the SBA.
- The lecturers in the institutes of technology who deliver Phases 4 and 6.
- Training advisors in the Services-to-Business division of FÁS who administer the SBA. They also interface with employers and apprentices regarding all matters pertaining to the administration of the apprenticeship system.
- Trade union officials who represent craft workers in the construction industry.
- The Construction Industry Federation (CIF) which represents companies engaged in the construction industry in the Ireland.
- Contractors in the construction industry who employ apprentices.
- Recently qualified crafts persons.

Defining the Population and Selection of Research Instruments

Selecting the Population

Before the research was undertaken a number of key decisions regarding the selection of the population had to be taken, commensurate with the importance of the study and within the resources available.

FÁS, as an organisation, is divided into 10 geographical regions, each with its own Regional Director and training centre(s). Each region has both a training centre manager(s) and a Services-to-Industry manager. Two training centres are located within the South West region of FÁS, one in Cork and the other in Tralee, Co. Kerry. The initial decision taken in relation to the geographic location of the research was to confine it to the South West Region of FÁS and to select the population of all the respondents from within this area.

There are institutes of technology in Tralee and in Cork, which are both within the South West Region of FÁS. The researcher took the decision to limit the selection of respondents in the institutes of technology to Cork Institute of Technology (CIT) as it is the biggest provider of apprentice education and training in Ireland.

The Construction Industry Federation (CIF) has divided Ireland into 3 regions for administrative purposes, each with its own Director. The office of the Director of the Southern region is located in Cork and there are in excess of 1000 companies affiliated to the CIF in this region. It was from this geographical region that the employers were selected as part of this research project.

The Bricklayers and Allied Trade Union (BATU) has a regional office in Cork and has a full-time official and consequently, this was the union chosen for this research project to seek the trade union perspective on the SBA.

Finally, the cohort of recently qualified crafts persons was selected from all those who were eligible for the award of the National Craft Certificate (NCC) in the South West

region of FÁS in 2002 in the six construction trades chosen for this study, namely, carpentry & joinery, plumbing, painting & decorating, cabinetmaking, plastering and brick/stone laying. FÁS delivers the Phase 2 element of these trades in the Cork training centre and Phases 4 and 6 of these trades are also done in Cork Institute of Technology. This of course does not necessarily mean that all those crafts persons eligible for the award of the NCC at the autumn conferring actually did their off-the-job phases in Cork, as apprentices are obliged to undertake these Phases wherever there is a place available for them. This aspect of the research is dealt with more fully in Chapter four.

Selection of Respondents

In the case of the selection of instructors in FÁS a letter was written by the researcher to the manager of the Cork training centre outlining the nature of the research and requesting that he select one instructor from each of the 6 designated construction trades who would agree to be interviewed. This was agreed to and the names of the selected instructors were conveyed to the researcher. Similarly, the services-to-business manager of the South West region of FÁS was written to asking that two training advisors who have long experience of apprenticeship be made available for interview. At the time of the research there were a total of six training advisors in this section who deal with apprenticeship but because of recent promotions and retirements, only two members of staff have experience of both the SBA and of the time-served system that preceded it. One of these training advisors agreed to be interviewed whilst the other declined.

There are 37 permanent lecturers in CIT who are engaged in the delivery of Phases 4 and 6 of the SBA in the 6 construction trades selected for the research. Of these, 16 have experience of delivering both the time-served apprenticeship programme and the SBA

and 21 have experience of teaching the SBA only. These 21 lecturers have joined the staff of CIT from industry during the last five years and whilst they have no experience of teaching the time-served apprenticeship system that preceded the SBA, they have very recent industrial experience. This combination of recent industrial experience coupled with experience of teaching on the Phases 4 and 6 of the SBA was deemed by the researcher to add a different perspective to the research from the institutes' point of view. Consequently, it was decided to interview half the lecturers with experience of both programmes (8 in all) and one third of those in CIT who had joined the staff in the last five years (7) giving a total of 15 staff in CIT who were interviewed. The names of those to be interviewed were drawn randomly from each cohort and nobody declined the request for an interview.

The Regional Director of the Southern Region of the CIF was written to and the nature of the research project explained to him. He pledged his full co-operation, including his willingness to take part in an interview with the researcher to represent the views of the CIF on the SBA.

The regional organiser of BATU was asked for his cooperation in this research project by making himself available for interview and he agreed.

In the case of the selection of employers for the purpose of the research it was decided to engage stratified sampling techniques rather than statistical techniques in selecting the population. It was decided to stratify the selection of employers based on geographical location, the nature of the work they are engaged in and the size of the company. For reasons associated with limitations on resources it was decided to select the employers

from those whose offices are based in Cork City. Secondly, it was decided to limit the selection to 3 companies who are engaged into general contracting and 1 employer who is engaged in work of a specialist nature. It was hoped that the researcher could use the CIF database to randomly select employers based on either the number of employees or annual turnover, whichever was available. However, this strategy of selection proved to be unworkable because, under the terms of the Data Protection Act (1988), this information could not be made available to the researcher without the express agreement of all the employers in these categories. The compromise was that the Director of the CIF recommended 3 companies that he suggested would fall into the categories selected. One was a very large company, the second was medium sized company and the third was a small company, based on the Director's perception of 'large', 'medium' and 'small' within his own region. He also identified a specialist company who had a history of engagement with apprenticeship. Each company was contacted and all agreed to assist the research by making a senior person in the company available for interview.

At the beginning of each interview the respondents were advised of the nature of the research and an undertaken of confidentiality was given by the researcher and an assurance given that no quote would be traceable to the source. All the interviews were recorded and transcribed and contemporaneous notes made by the researcher to record nuances or nonverbal behaviour during the interview.

345 people were eligible for the award of the National Craft Certificate as a result of completing successfully the 7 Phases of the SBA at the conferring ceremony organised by the Further Education and Training Awards Council (FETAC) for the South West region of FÁS in the autumn of 2002. FETAC is the validating body for further education and

training in the Ireland, including apprenticeship, under the terms of the Qualifications (Education and Training) Act 1999. The researcher sought the details of all of these recipients, including name, address and trade, from the manager of the services-to-business division of FÁS. 165 were identified as having served an apprenticeship in the 6 construction trades selected for this research project.

Each of these 165 recipients was sent a questionnaire by post with a personal letter and a self-addressed and stamped envelope for the return of the completed questionnaire to the researcher. After two weeks had elapsed from the date of posting of the questionnaires, a reminder letter was sent to those who had not responded. Of these 165 people, 163 were male and 2 were female. Of the 165 questionnaires posted, 104 were returned completed, 1 was returned without being filled in, the researcher was notified by parents that 8 had emigrated and therefore could not respond and 2 questionnaires were returned by the postal service because the addressees were unknown at that address. This meant that the population was effectively reduced to 154 and therefore the response rate was 67.53%.

The researcher observed the marking of 2 Phase 4 practical projects selected randomly from the 6 construction trades in CIT. The dates of the marking of Phase 4 projects was sought from lecturers engaged in marking projects during the 2nd term of the academic year 2002/2003 and 2 dates were randomly selected.

Selection and Piloting of Research Instruments.

In the case of the lecturers from CIT, instructors from FÁS, the training advisor from FÁS, the Director of the Southern region of the CIF, the regional organiser of BATU and the employers it was deemed that a semi-structured interview would be the most suitable

research instrument because the nature of the data being sought was qualitative. It was considered more appropriate because it has the potential to investigate the deeper issues concerning the nature of social reality in research practice (Hall & Hall 1996, p.13). Kvale (1996, p.5) described a semi-structured interview as an interview whose purpose is to obtain descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena. The semi-structured interview is a conversation with an agenda and a construction site for exploration and knowledge. The researcher endeavours to interpret the meanings of the actions or behaviour of the life of the interviewee and unbundles the meaning of what is said as well as how it is said. The use of 'body language' by the interviewee often adds weight to the responses given to the researcher. Driver (1995, p.1) stated that semi-structured interviews may yield a variety of kinds of information and that even within one interview you could:

- *Gather factual information about people's circumstances.*
- *Collect statements of their preferences and opinions*
- *Explore in some depth their experiences, motivations and reasoning.*

There were other issues that influenced the use of the semi-structured interview. One very important one is that apprentice education and training in Ireland takes place in three different settings, on-the-job with the employer for Phases 1, 3, 5 and 7, off-the-job in a FÁS training centre for Phase 2 and in an institute of technology for Phases 4 and 6. Each of the organisations has a different culture and ethos and each has a different perspective on apprenticeship. Lecturers in the institutes of technology, for example, have a more holistic view of apprenticeship. They are more concerned about the educational aspect of the system and with issues such as lifelong learning, the ability to adapt to new technology and systems of progression to more advanced courses. FÁS on the other hand

are concerned with the training element of apprenticeship to meet the needs of industry. Employers, as profit-making organisations, have another perspective that stems from cost, productivity and quality. All of these considerations influenced the choice of research instrument. It was considered that it was better to obtain a smaller number of data-rich semi-structured interviews with some of the stakeholders than a (possibly) larger number of questionnaires with rigid responses and lacking in the potential to probe interesting responses further.

Three draft semi-structured interview schedules for this cohort of respondents were constructed and each was piloted. After an appraisal of the data generated and the time taken to interview the respondents a final schedule was devised. This formed the basis of the schedule used for all categories of respondents with minor amendments tailored for each group (See appendix 3).

Observation was selected as part of the strategy to triangulate the data generated on the issue of the appropriateness of the current method of assessment and examination of the practical work of apprentices.

Observation

Observation was used in this research project to observe lecturers in CIT marking practical examinations in order to provide further evidence in relation to the research question on the appropriateness of the assessment schedule for assessing both the cognitive skills and the hand skills of apprentices in the execution of practical work.

Observation is a practical activity guided by a rationale to some form of purpose (Sanger 1996, p.105). Social researchers study their surroundings regularly and repeatedly, with a curiosity spurred by theoretical questions about the nature of human action, interaction and, according to Adler & Adler (1998, p.80);

They are likely to shift to more focused observations directing their attention to a deeper and narrower portion of the people, behaviours, times, spaces, feelings, structures, and/or processes. Research questions or problems may emerge that shape future observations and begin the formation of typologies. This stage of observation generates clearer research questions and concepts that then require “selected observations”

Qualitative observation is fundamentally naturalistic in essence; it occurs in the natural context of the occurrence, among the actors who would normally be participating in the interaction, and follows the natural stream of everyday life (Adler & Adler 1998, p.81).

When observations have been made they must be interpreted and conclusions drawn from them (Davies 1990, p.29). The observer must interpret the meaning of the particular actions and behaviours from a range of perspectives and standpoints within the context of the research question. Observation is purposive behaviour, directed towards ends that lie beyond the act of observation itself: the aim is to secure materials that will play a part in other phases of enquiry, like formulation of validation and hypotheses (Wragg 1994, p.19).

Questionnaire

In the case of recently qualified crafts persons the researcher decided that in order to seek the views of as many people as possible a postal questionnaire was the most appropriate method due to the size of the population and the geographic location of them. It was decided to elicit data of both a quantitative and qualitative nature through this research instrument. Two versions of the questionnaire were drafted, both seeking the same data but constructed in a different manner. Questionnaire A, for example, sought details of educational attainment prior to apprenticeship on the first page of the questionnaire and asked for grades in any second-level examinations taken. Questionnaire B asked a similar question at the end of the questionnaire, but framed differently. The minimum educational requirement for entry to a trade in Ireland is five passes in the Junior Certificate examination, which is normally taken after three years of secondary school, or equivalent. It is worth noting that the educational attainment of apprentices prior to the commencement of apprenticeship varies greatly. Most entrants, however, have obtained the Leaving Certificate (see chapter four). People who do not have the requisite qualification may, however, complete a pre-apprenticeship course with FÁS and qualify for entry in that way.

Both questionnaires were piloted in CIT on two Phase 6 classes of apprentices. A colleague undertook the piloting. Each class of sixteen apprentices was divided into two and half were given questionnaire A whilst the other half was given questionnaire B. Upon completion of the first questionnaire each group was given the other questionnaire and requested to fill it in. A second class was requested to do the same. This process of piloting generated a total 64 responses, 32 from each questionnaire. The lecturer who undertook the piloting observed the apprentices whilst they were filling in the

questionnaires and also recorded the time taken to fill them in and any other reactions he deemed appropriate to note. The time taken by the apprentices to fill in the questionnaires varied from 4 minutes to 11 minutes. He also indicated that some apprentices expressed concern about being asked for examination grades. This aspect of the research will be dealt with more fully in Chapter Four. Resulting from the responses given to draft questionnaires A and B, a revised version of the questionnaire was constructed (see appendix 5).

Analysis of Data

Investigators do not have access to another's experience (Riesmann, 2002, p.227). Consequently, every effort must be made by researchers to unpack the meaning of not only what was said, but how it was said during the interview. To this end, the author of this thesis transcribed all interviews in their entirety before the task of analysis began. Each respondent was assigned a unique code which identified both the organisation the respondent represented and also, in the case of the lecturers in CIT and the instructors in FÁS, their trade.

The process of analysing the data began with reading and re-reading of the transcripts. From this preliminary analysis a system of open coding evolved, based on the primary questions in the interview schedule. Robson (1993, p.385) opined that a code is a symbol applied to a group of words to classify or categorize them. As each topic of investigation developed from deeper analysis of the primary questions, and encouraged by the prompts and probes of the researcher during the interview, sub-topics and concepts emerged from the analysis. Thus the system of open coding was developed into a system of axial coding. Thus the coding system developed into a number identifying the primary question,

followed by a second number assigned to the sub-topic or concept and, in a number of cases, followed by a third number to identify related concepts (see Appendix 4). Each response was therefore categorised according to the coding system. After completion of the coding of all the responses, a master analysis document was created and all responses were either summarised or complete quotations used, based on the researcher's perception of the importance of the response, relative to the research questions. The unique code assigned to each respondent preceded all quotations or comments so that each was traceable back to the transcript, the tape recording and the researcher's notes. The master document synthesised the data into concepts and topics which made analysis possible.

The analysis of the questionnaires was facilitated with the use of the computer package, SPSS. All the responses were coded in accordance with the requirements of the computer package and analysis carried out accordingly.

When both the interview schedules and the questionnaires had been analysed, a further analysis was undertaken on common topics and concepts. This analysis informed the construction of conclusions and theories regarding the topic under investigation, namely, the SBA.

In the case of the two observations carried out as part of the investigation into the suitability of the marking scheme for practical work, the researcher's notes on the observation of the marking of the projects were compared with the responses from the two lecturers concerned during the subsequent interviews. Conclusions were drawn from an analysis of both of these sources.

Ethical Considerations

Social scientists have an obligation to uphold the dignity of the participants and to ensure that confidentiality is upheld and that no quotation is attributable to the respondent. Cavan (1970) quoted in Cohen and Manion (1994, p.359) commenting on the issue of ethics in research averred:

A matter of principled sensitivity to the rights of others. Being ethical limits the choices we can make in the pursuit of truth. Ethics say that while truth is good, respect for human dignity is better, even if, in the extreme case, the respect of human nature leaves one ignorant of human nature.

All respondents who were interviewed for this thesis were informed of the nature of the research and of the range of stakeholders taking part in the project. An undertaking of confidentiality was given to each respondent before the interview began and the purpose of the recording of the interview explained. None of the respondents declined to have the interview recorded.

Each of the recipients of the questionnaire received an accompanying letter outlining the research project and an assurance of confidentiality. They were also advised that it was not necessary for them to sign the questionnaire and no space was specifically allocated on the questionnaire for a signature. Each questionnaire had a unique number to facilitate a follow-up letter to those who had not responded within 2 weeks of the sending of the questionnaire.

The Nature of Research

Research, as noted by Johnson (1994, p.3), is a focused and systematic enquiry that goes beyond generally available knowledge to acquire specialised and detailed information, providing a basis for analysis and elucidatory comment on the topic of enquiry. Dane (1990, p.4) defined research rather simply when he stated that research is a critical process for asking and attempting to answer questions about the world. Keppel & Zedeck (1989, p.2) stated that the primary objective of a research project is to answer questions in such a way that the results, conclusions, and inferences drawn from the study can be offered with confidence and integrity. Kerlinger (1970), quoted in Cohen and Manion (1994, p.4) defined research as the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena.

Research is a systematic search for truth and any investigation must have as its central aim the discovery of the truth. To accomplish this objective, one needs to be successful in asking (posing) the questions, designing procedures by which information (data) can be collected and gathered, analysing the data, and interpreting the results. Performing these tasks in a systematic way allows researchers to pursue the fundamental goals of any science: to understand, explain, and predict phenomena.

Research in the social sciences is often less structured. Hall & Hall (1996, p.30) opined that research in social science is concerned not just with a 'fact-gathering' exercise but understanding the social situation in which the researcher is involved. May (1997, p.8) opined that the role of social science in society is to understand and explain social

phenomena, to focus attention on particular issues and to challenge conventionally held beliefs.

Quantitative and Qualitative Research.

According to Tashakkori and Teddlie (1998, p.3) these two models, quantitative and qualitative, are known alternatively as the 'positivist/ empirical' approach or the 'constructivist/phenomenological' orientation. The positivist paradigm underlies what are called 'quantitative methods' whilst the 'constructivist paradigm underlies qualitative methods.

Qualitative research, according to Denzin & Lincon (1998, p.6), is an interdisciplinary, transdisciplinary, and sometimes counter disciplinary field. It crosscuts the humanities and the social and physical sciences. It is multiparadigmatic in focus. Qualitative ethnographic research, then, entails an attitude of detachment towards society that permits the sociologist to observe the conduct of self and others, to understand the mechanisms of social processes, and to comprehend and explain why actors and processes are as they are (Denzin & Loncoln 1998b, p.42).

Miles and Huberman (1994, p.6) noted that in qualitative research, the researcher attempts to capture data on the perceptions of local actors "from the inside", through a process of deep attentiveness, of emphatic understanding, and of suspending or "bracketing" preconceptions about the topics under discussion. Punch (1994, p.84) opined that qualitative research covers a spectrum of techniques – but central are observations, interviewing, and documentary analysis – and these may be used in a broad range of disciplines. Frankfort-Nachmias & Nachmias (1992, p.271) stated that in the qualitative

paradigm the scientists must gain an empathic understanding of societal phenomena, and they must recognise both the historical dimension of human behaviour and the subjective aspects of the human experience.

It should be noted, however, that most research includes an element of both the qualitative and quantitative models. Tashakkori and Teddlie (1998, p.25) averred that researchers might be both objective and subjective in epistemological orientation over the course of studying a research question. The researcher should not, however, endeavour to separate the study into subjective/objective sections; the entire should be seen as a continuum or as a multi-method approach. Johnson (1994, p.7) stated that it is recognised that no piece of research can be entirely objective, since no researcher is value free. No matter how qualitative the study is decisions have to be taken by the researchers with regard to, for example, the geographical areas to be surveyed, or the number of people to be surveyed.

The Positivist or Interpretive Approaches to Research in Social Science

The application of the methodology of research paradigms of the pure sciences raises some interesting questions with regard to their effectiveness when applied to the social sciences, particularly education. Cohen and Manion (1994, p.5) opined that in recent years educational research has absorbed two competing views of the social sciences – the established, traditional view and a more recently emerging radical view. The former espouses the view that social sciences are essentially the same as the natural sciences and are therefore concerned with establishing natural and universal laws regulating and determining individual and social behaviour. The other view, while subscribing to the same standards as the natural sciences and the same concern of traditional social science

to describe and explain human behaviour, emphasises how people differ from inanimate natural phenomena and from each other. These two very different perspectives of social reality can be categorised by designating the former as the positivist approach and the latter by the interpretive approach. This raises the issue of epistemological assumptions on whether we consider knowledge hard and tangible on the one hand or subjective and unique on the other. If we subscribe to the former view then we are in the positivist mode and if in the latter then we are in the interpretivist mode.

Babbie (1996, p.25) referred to this paradigm as logico-empirical, that it is built on the two pillars of science, logic and understanding. This approach is primarily concerned with internal and external validity and with replicability. For the positivist researcher social phenomena must be studied in the same manner as the natural sciences and human behaviour can be explained in terms of cause and effect. In this mode of social research, the paradigm of deductive reasoning is used in arguing from the general to the specific. Hall and Hall (1996, p.39) argued that when the paradigm of deductive reasoning is used in the social sciences the abstract and the unobservable are investigated through variables, which are observable and measurable, and again interrelated through causal models. May (1997, p.10) opined that if the aim of positivism is to collect and assemble data on the social world from which we can generalise and explain human behaviour through the use of our theories, then it shares with empiricism the belief that there are 'facts' which we can gather on the social world, independently of how people interpret them. Sanger (1996, p.12) stated that in positivist paradigm of social research peoples' behaviours, feelings and attitudes are subjected to scrutiny under laboratory conditions, where exacting lengths are undergone to achieve the same conditions for each individual under investigation.

Brodeck (1963, p.44), commenting on the scientific model of research, stated that the philosophy of science is concerned with certain fundamental issues common to all sciences and he listed these as the principles of concept formation, the nature of scientific laws, of causality, explanation, and theories. This paradigm is characterised by procedures and methods, by adopting a systematic and epistemological approach to the investigation. Schwandt (1998, p.228) argues that in this mode of inquiry, method is predicated on the elimination of personal subjective judgement and that the only criterion in applying the method is correctness of application. The philosophical tenet underpinning this approach to research is that everything is measurable on a scientific/mathematical scale and that all experiments have a replicability factor. Cuff and Payne (1979), quoted in Cohen & Manion, (1994, p.19) opined that a scientific approach to research necessarily involves standards and procedures for demonstrating the 'empirical warrant' of its findings, showing the match or fit between its statements and what is happening or has happened in the world.

In the interpretative paradigm, theory is emergent, it is grounded on the data generated by the research methods. For the interpretativist researcher, reality is based on people's definition of it, rather than being something externally present (Marlow, 1998, p. 9). When studying educational phenomena it is the subjective experience that needs to be studied, rather than the objective one. Quoting Mouly (1978) on the role of research in education, Cohen and Manion (1994, p. 40) stated:

Research is best conceived as the process of arriving at dependable solutions to problems through planned and systematic collection, analysis, and interpretation of data. It is a most important tool for advancing knowledge, for promoting

progress, and for enabling man to relate more effectively to his environment, to accomplish his purposes, and to resolve conflicts.

Research in social science is the study of human behaviour and in the context of education it is usually focused on the concepts of teaching and learning within the formal framework in schools and colleges. The particular value of scientific research in education is that it will enable educators to develop the kind of sound knowledge base that characterizes other professions and disciplines; and one that will ensure education develops a maturity and sense of progression that it at present lacks (ibid)

Summary

This chapter outlined the conceptual framework, the study design and the rationale of the research that informed this thesis. It explained the selection of the population and the type of research instruments used in addition to the manner in which considerations of validity, reliability and generalisability were addressed. It referred to ethical considerations and data analysis. It concluded by discussing some theoretical issues relating to the qualitative paradigm of research in social science.

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CHAPTER FOUR

Analysis of Data

Introduction

This chapter reports on the analysis of the data generated by the interviews with the 15 lecturers in Cork Institute of Technology (CIT), the 6 instructors in FÁS, the training advisor in the Services-to-Business (STB) division of FÁS, the 4 employers, the Construction Industry Federation (CIF) representative, the trade union official and the 104 questionnaires returned by the newly qualified crafts persons. The background of the respondents who took part in the interviews is outlined briefly at the outset.

The first section reports on the findings of the survey of those stakeholders directly and indirectly involved in the training and education of apprentices, and the second section focuses on the responses to the questionnaires from the newly qualified crafts persons. The third section summarises the responses from the all categories.

For the purpose of data analysis, the lecturers in CIT and the instructors in FÁS have been divided into two categories; those with experience of teaching both the time-served (TS) system and the standards based apprenticeship (SBA) and those who have joined the staff of CIT within the last four years and hence, have experience of teaching the SBA only. These newly appointed lecturers and instructors, who were recruited to cope with the very rapid expansion in the number of registered apprentices, do not have experience of teaching under the time-served system but they do have recent industrial experience and

this recent industrial experience, coupled with their teaching experience brings, in the opinion of the researcher, a different perspective to the enquiry.

Each interview was recorded and the interviewer took contemporaneous notes to record non-verbal language and nuances. Each of the interviews was subsequently transcribed. All the interviewees were male because there were no female stakeholders in the population from which the sample was taken, hence the use of the terms 'he' and 'his'.

Profile of Stakeholders

Lecturers in Cork Institute of Technology

15 lecturers in the Department of Building and Civil Engineering at CIT, who are engaged in the delivery of the Phases 4 and 6 of the SBA, were interviewed. They had a total of 215 years teaching experience between them, with a mean of 14.3 years, ranging from the longest with 30 years experience to the shortest with 2 years experience. 8 of them have experience of delivering both the standards based system and the time-served system with a total of 7 of them having experience of delivering the standards based system only. A more accurate reflection of teaching experience is obtained by calculating the total teaching experience of each category of lecturer separately, i.e. those who have experience of teaching both systems of apprenticeship and those who have experience of the SBA only. The total experience of the 8 lecturers in the former category is 167 years with a mean of 20.87 years whilst the 7 lecturers in the latter category have a total of 22 years teaching experience with a mean of 3.14 years. This wide diversity of teaching experience is indicative of the necessity of creating two separate categories of respondent within CIT.

2 of the lecturers specialise in cabinetmaking, 3 in plumbing, 2 in carpentry & joinery, 3 in brick/stone laying, 3 in plasterwork and 2 in painting & decorating, representing the 6 construction trades selected for this research project.

All the lecturers have served a recognised apprenticeship in their own discipline and have passed the Junior and Senior trades examinations of the Department of Education and Science. The majority of the lecturers have additional craft and technical qualifications such as City and Guild of London Institute examinations.

It should be noted that the minimum qualification for craft lecturers in institutes of technology is either a pass in the Senior Trades examination or hold the National Craft Certificate and to have served a recognised apprenticeship. In practice, appointees would have additional qualifications. There is no requirement in institutes of technology for applicants for any teaching post to have any teacher training qualification.

One of the lecturers is a trained second-level teacher with an M.Ed degree and who has spent 13 years teaching in a secondary school before joining CIT. Another lecturer has taught for 26 years in a college of further education in the UK before joining CIT. Three of the lecturers have obtained Bachelor of Technology degrees whilst 6 others are currently studying for a Bachelor of Science in Technology degree.

2 of the lecturers who were interviewed represented Ireland at the World Skills Competition (formerly known as the International Apprentice Competition) when they were apprentices and 1 of those has since acted as an international expert in his discipline at the competition. 6 of the lecturers have acted as judges at the National Apprentice

Competitions in Ireland on various occasions and 3 of them have acted as Subject Matter Experts on national syllabus committees for their trade.

Instructors in FÁS

The teaching experience of the 6 instructors from the Cork FÁS training centre who took part in the interviews is similar to that in CIT in that there are essentially 2 categories, those with very long experience and those members of staff who were appointed as instructors in the last six years. The combined teaching experience of the 6 instructors is 102.5 years with a mean of 17.08. However, as in the case of staff in CIT, if the experience of both categories is calculated separately it gives a more accurate reflection of experience. 3 of the instructors have experience ranging from 25 years to 35 years with a mean of 30 years. The experience of the other three more recently appointed instructors ranges from 2.5 years to 6 years with a total of 12.5 years and a mean of 4.2 years. 4 of the instructors have experience of teaching both the TS system and the SBA, whilst 2 instructors have teaching experience of the SBA only.

All the instructors have served a recognised apprenticeship and obtained the relevant Junior and Senior trades examinations of the Department of Educational and Science. 2 of the more experienced instructors had teaching experience before joining FÁS, 1 in a company training centre and the other as a part-time teacher in a technical school. The instructors who were interviewed were representative of the 6 construction trades selected for this research project.

Employers

3 of the employers surveyed are general building contractors and the other company manufactures specialist joinery. The companies have been established for various lengths of time; 15 years, 143 years, 73 years and 30 years respectively. 1 of the companies employs 2000 crafts persons, 2 of the companies, including the specialist company, employ 8 eight crafts persons each, and the other company employs 140. The largest company has 15 apprentices employed in the Cork region and the other 3 companies have a total of 11 apprentices employed between them.

Senior people were interviewed in each company. These included a managing director, a production manager, a secretary/financial controller and a training/safety manager. All the companies have employed apprentices under the TS system of apprenticeship as well as the SBA.

Construction Industry Federation

The respondent from the Construction Industry Federation (CIF) has been associated with the industry for the past 30 years, 20 of which have been as a representative of employers. There is in excess of 1000 construction and allied trades companies affiliated to the CIF in his region and his perception of the SBA have been informed mainly by feedback from the employers he represents.

Services-to-Business Division of FÁS

The role of training advisers in FÁS is to interface with employers and apprentices on issues such as the registration of apprentices, adjudicating on qualifications necessary for entry to apprenticeship and enrolling apprentices for the off-the-job Phases, including

Phases 4 and 6 in the institutes of technology. They are also responsible for recording the Phase results, including those from employers, and the identification of those eligible for the award of the National Craft Certificate (NCC). Their role covers all the designated trades within the FÁS region.

The respondent representative of the STB division of FÁS has 20 years experience as a training advisor in FÁS and spent one year as an instructor in FÁS prior to his present appointment.

Trade Union Official

The trade union official interviewed for this research project served a recognised apprenticeship in one of the construction trades under the TS system. He has obtained the Junior and Senior trade examinations of the Department of Education and Science, in addition to other relevant trade/technical qualifications. He spent 5 years working in the construction industry and has been a full-time trade union official for the past 3 years. His trade union represents 2 of the 6 designated trades under investigation in this research project, in addition to other categories of worker in the construction industry.

Data Analysis

SBA as a Paradigm of Apprenticeship

All the employers surveyed were in agreement that the SBA is a good model of apprenticeship education and training, although each of them suggested some change in the operation of it. As a paradigm of learning they all agreed that a structured system of on and off-the-job learning was the best way to learn a trade as it gave apprentices a balance between site experience and classroom theory. Another averred that structured

training is very good if the apprentice has a good teacher on site to complement the off-the-job Phases. Casey 1993, (quoted in Harris et al, 2001, p.263) concludes that both on-job and off-job partners need to 'clarify their respective roles in the provision of a supportive learning environment'.

One employer opined that it (the SBA) is the best system in the world and supported this opinion by citing the achievements of the Irish team in the World Skills Competition that is held on a bi-annual basis in which approximately 35 countries compete, including the UK.

Another of the employer respondents suggested that the Phase 2 should be split into 2 periods of 10 weeks each as he considered 20 weeks too long for apprentices to be away from the site work and the initial 10 weeks training should be undertaken before the apprentice goes to work for the employer. The reason for this proposal is that, in the opinion of the employer, apprentices would have acquired some basic skills before he/she went to work for the employer and they would become productive at an earlier stage in the apprenticeship. In addition to this he suggested that apprentices should have to undergo a short induction course at the very beginning of their apprenticeship to explain the operation of the SBA and to outline their duties and responsibilities during their apprenticeship. Another employer stated that Phase 2 is too long, that apprentices are away much too long from site. He elaborated further on this point of view by stating that apprentices take a considerable length of time to focus on work after completing the Phase 2 off-the-job element.

5 of the instructors in FÁS were also of the opinion that the SBA is a good system of apprentice education and training, although as was the case with the employers, they identified what they perceived as some weaknesses in the system. In particular, one instructor cited the lack of monitoring of the on-the-job Phases as an inherent weakness in the system. The essence of this reservation of the on-the-job element of the SBA is that apprentices are not monitored on site by FÁS and, in his opinion, some employers may not be giving the apprentices proper training. One instructor stated that in his view the SBA is a very good system but it really depends on the experience and training given to the apprentice on site. In other words, if the Phases are homogenous, that is that the on-the-job training complements the off-the-job Phases then the system becomes seamless and the apprentices grow in terms of knowledge, skills and confidence. Harris et al (2001, p.274) arguing that if the structure of the on- and off-the-job training is properly coordinated then the embeddedness of learning in working, and the resultant shaping of each other, makes for a potentially fruitful learning experience.

Another instructor was of the opinion that the TS system produced a better all round apprentice. However when this respondent was pressed on his reasons for this view he cited the lack of monitoring on site as the main reason. This perception of the lack of monitoring on site was in accord with that of another instructor as outlined above.

The lecturers in CIT were generally in agreement that the SBA is a good system, although 2 of the lecturers, who are in the same trade as the instructor in FÁS who preferred the TS, did express serious reservations about the SBA. One of them was adamant that the TS was better whilst the other lecturer opined that his reservations were concerned with the quality of on-the-job experience. Another lecturer, in a different trade, also expressed

some doubts that the on-the-job elements were being delivered as they should be and this was his major reservation with the SBA. Among the reasons stated to reinforce their opinion of the SBA as a good model of apprentice education and training were; 'All apprentices have statutory entitlement to the off-the-job phases', 'there's a good mix between college and site', 'college makes up for lack of experience on site', 'it's very structured and apprentices are maturing all the time, there's a good mix of work and college'.

The construction industry respondent expressed the opinion that the SBA is a good system of apprenticeship, is much better than the system it replaced (TS), and it sets out minimum standards for everyone rather than just being time dependent. He qualified these remarks by stating that there were teething problems initially, mainly caused by a backlog in the system due to a shortage of off-the-job places in the FÁS training centres for Phase 2 and in the institutes of technology for Phases 4 and 6, but acknowledged that this problem has now been almost alleviated. He also recognised that this backlog was the result of a huge increase in the number of registered apprentices as a result of a boom in the construction industry. He also expressed a number of reservations regarding the SBA. The first one was that not all trades required the same length of apprenticeship. In particular he was of the opinion that the trades of plasterwork and brick/stone laying should be of shorter duration. When questioned by the interviewer on the length of term he thought would be more appropriate he suggested that these trades should be 10%-20% shorter. This view raises two issues; that of the breadth of training and that of a mandatory term of apprenticeship in a standards based system. On the issue of compulsory length of apprenticeship, Malcomson et al (2003, p.198) opined that common features of many apprenticeships are that they last for a duration specified at the start, not

just until the apprentice has demonstrated satisfactory acquisition of the appropriate skills. Jessup (1991, p.26) commenting on the concept of 'breadth' of training in apprenticeship, argued that those who take a national perspective stress the need for breadth in both general education and training whilst many employers train for more specific and immediate needs. He further argued that 'breadth' is implicit in the concept of national standards.

Another issue raised by the respondent was the lack of commitment and motivation of some apprentices and he offered the opinion that the cause of this phenomenon was that some young people went into a trade simply to get out of school without displaying any preference for a career as a crafts person. This opinion is in accord with that proffered by one of the lecturers in CIT.

Other issues raised by the respondent were that of cross-skilling and demarcation between trades. In particular he cited the mechanical and electrical trades as those between which there should be an element of cross-skilling, although these trades are not within the ambit of this research project. He also stated that there should be less demarcation between the trades.

The respondent from the STB division of FÁS commented that, in his opinion, the SBA is a good system of apprenticeship but he did have some reservations about it. One of these was that he is of the view that the SBA does serve the needs of apprentices but does not always serve the needs of individual employers. He elaborated on this point by stating:

We serve the needs of industry globally but may not serve the needs of individual employers. We give apprentices a broad training, not necessarily a company-specific training.

He explained further his position on this aspect of the SBA by stating that occasionally an employer would request that he/she required the apprentice to get training in specific aspects of the trade on a particular off-the-job Phase to take account of the training that the apprentice had already done with the employer and directly relevant to the nature of the work that the employer was engaged in. Again this point raises the issue of broad based education and training versus company-specific training.

He also stated that when the SBA was developed it addressed 4 important issues of concern to employers as follows:

- 1. The one-year off-the-job [1st year] was too long under the TS system*
- 2. The burden of employers paying wages to apprentices whilst they were attending the off-the-job Phases was discontinued under the terms of the SBA as this aspect of the TS was causing considerable financial strain to smaller companies.*
- 3. Occasionally people were awarded the National Craft Certificate without having fully served an apprenticeship.*
- 4. Employers are now involved in the assessment of apprentices.*

The trade union official's initial response to the question on the structure of the SBA was 'I do not have a strong opinion one way or the other as long as apprentices get their educational release'. However when pressed further on the matter he opined;

Nobody seems to have considered the point that maybe the blocks are too long. Apprentices may miss some pivotal points on site when they are on the off-the-job phase, I think they are off the job too much, 20 weeks is a lot [for Phase 2], on and off-the-job [Phases] need to intertwine, I think the day release system was better, they were not missing out on the site work as they would only be away for a day at a time, the key aspect of the apprenticeship is the attitude of the employer.

In this case the respondent identified the on-the-job element of the SBA as the key learning site but also recognised the importance of the necessity of the off-the-job Phases complementing the site experience. Fuller et al (1998, p.157) caution on the use of the workplace for all apprenticeship training when they stated:

The pressures inherent in any workplace which, naturally, require greater attention be paid to production rather than employee development are a factor here. However, changes in the modern workplace including, for example, the introduction of new technologies, and the increasing shift towards a global marketplace require a more integrated approach to vocational development.

The trade unionist's reference to a day-release system was based on his own experience as an apprentice.

Advantages of SBA

When questioned on the perceived advantages of the SBA over the TS system of apprenticeship one employer averred that it is the quality of the instruction apprentices receive both on- and off-the-job is the main advantage of the SBA. He also argued that very high standards should be set for apprentices. Another respondent in this category of stakeholder opined that the structured education and training in the SBA was its main

advantage. Presupposed in the idea of apprenticeship rest the concepts of instruction and learning (Forrester, 1999, p.86).

One employer cited the main advantage of Phase 1 from his perspective is that he got an opportunity to evaluate the suitability of the apprentice before he/she did any of the off-the-job Phases and at a very early stage in the apprenticeship. He further argued that it [Phase 1] allowed him to assess the attitude of the apprentice towards work and discipline as well as his/her aptitude for the trade. He opined that this was to the advantage of the apprentice as well as to the employer.

The instructors in FÁS cited a number of advantages of the SBA over the system it replaced such as: more comprehensive training, beginning apprenticeship with the employer and experiencing work before going to a training centre for Phase 2, breadth of training on the off-the-job Phases, a good balance between on and off the job experience, apprentices get experience of aspects of trade on- the off-the-job Phases that they may not get with their employer. Commenting on the benefits of the off-the-job component of apprenticeship, Harris et al (2001, p.275) opined that the institutional learning environment offered apprentices the opportunity to develop a richer and more transferable skills base. One instructor averred that the SBA produces versatile crafts persons. These positive comments were shared between the more experienced instructors and the more recent appointments.

The lecturers in CIT, both those with extensive experience and those with less experience, listed many advantages of the SBA including;

- Statutory entitlement to the off-the-job Phases as a major advantage
- Curricula are very comprehensive
- All apprentices must reach minimum standards
- Modularisation gives weak apprentices a better chance of reaching the standards
- The availability of the most modern technology on off-the-job courses
- The regulation, operation and certification of SBA is better than the TS
- It is easier to teach

All the lecturers were positive in their response to the issue of the advantages of the SBA over the TS system but some argued that there were some disadvantages which will be enunciated later in this section.

The STB representative stated that one of the main advantages of the SBA is Phase 1. He argued that Phase 1 is very important both for the apprentice and for the employer, as it can be a screening process for the employer and valuable experience for the apprentice. He elaborated on these points by stating that Phase 1 gave the employer an opportunity to assess the suitability of the apprentice for the trade and gave the apprentice an opportunity to experience the industry and the nature of the work he/she would be engaged in during his/her career. This process of enculturation and socialisation into industry is, according to this respondent, a most important function of Phase 1 of the SBA.

The construction industry employers' representative opined that, from his perspective, the setting of minimum standards for apprentices rather than just being time-dependent was its main advantage. On the matter of standards, Field and Dubhchair (2001, p.251) averred that in developing the new system [the SBA], the key was the specification of stated standards.

The trade union official did not identify any special advantages of the SBA over the TS system it replaced.

Disadvantages of SBA

Each group of stakeholders articulated some perceived weaknesses in the SBA. For example, employers articulated a number of problems such as; lack of an induction course for people entering apprenticeship and no follow-up by FÁS (on site) to monitor apprentices' progress. Another complained that the off-the-job Phases were too long and as a consequence of this the attitude of apprentices changed when they returned to the employer. He qualified this by stating that in his opinion apprentices should not be away from site longer than 4 weeks as this was about the maximum interest level away from site. He also commented that 'you are dealing with a different type of angel when they come back'.

The more recently appointed instructors in FÁS did not see any weaknesses in the SBA, other than that of the employers. They were of the view that employers were not properly assessing apprentices for the on-the-job Phases and also that sometimes they kept apprentices doing the same type of work without any variation and, consequently, apprentices got very limited experience on site. The more experienced instructors, whilst

agreeing with the views of their less experienced colleagues, also raised other issues such as; 'allowing apprentices who failed tests to repeat the test twice', 'there is no bonus for the good apprentice', 'there should be some penalty for those who fail'. One instructor argued that the educational standard of some apprentices is too low and stated that some of them have literacy and numeracy problems. Another instructor suggested that the length of Phase 2 should be reduced, as apprentices needed as much site experience as possible. He stated that the course could be shortened from 20 weeks to 16-18 weeks without any problem.

The lecturers in CIT raised a number of serious issues regarding the SBA such as:

- The system (off-the-job Phases) is very inflexible to the extent that the apprentice must fit the system rather than the system fitting the apprentice
- Examination system needs to be revisited because of problems such as re-issuing the same examination papers and the nature of the questions (this aspect of the SBA has been addressed in the Kellaghan Report, see Chapter Two)
- The lack of assessment on site by many employers
- No monitoring on site by FÁS
- Standard of reading and writing of some apprentices is very poor
- Apprentices not taught to learn independently
- Lack of clear paths of progression

On the question of perceived lack of assessment on site by employers, one lecturer averred that he had heard of instances where employers gave the apprentices the assessment result sheet to fill in themselves.

The industry representative considered the concept of on-the-job assessment good but argued that it is not working on site. He further argued that:

A lot of employers are not complying with the assessment requirements either through ignorance or through lack of time, that is the feedback I get from my members. Maybe there should be more involvement by FÁS to make sure it happens, maybe put some pressure on the apprentice to make sure it happens as well although it may put him in an awkward position with his employer. I think the employers need more push from FÁS, There should be some sort of supervisory system, and employers are simply ticking boxes. Apprentices should be given a schedule of the off-the-job phases they will be required to attend when they register [with FÁS] and changes to the schedule should not be permitted by either the employers or FÁS after. There is a lack of continuity in the system.

The trade union official cited the length of time apprentices are away from site on the off-the-job Phases as the main disadvantage of the SBA.

The STB respondent argued that although some employers were not carrying out the assessment as laid out in the employers assessment manual, but they were giving a fair perception of the competence of the apprentice when they filled in the assessment results sheet.

The Importance of the On-the-Job Phases

All the respondents who were interviewed agreed that the quality of the on-the-job experience is most important if the SBA is to meet the needs of both industry and the apprentices and that it must be structured to reflect this. Fuller et al (1998, p. 156) opined

that in terms of learning, a key criticism of post-war apprenticeship has been the increasing separation of on- and off-the-job training and thus the separation of theory and practice. There is also a consensus that the concept of on-the-job assessment is good but as noted earlier, some of the respondents expressed serious reservations regarding the implementation of the assessment requirements on site, including the lecturers in CIT, the instructors in FÁS, the STI respondent and the employers' representative. The trade union representative did not comment on the issue of the importance of the on-the-job Phases.

Phase 1 as a Process of Enculturation and Socialisation

Apprentices in the SBA system begin their apprenticeship with the employer as opposed to the TS system in which apprentices spent the first year of apprenticeship in a FÁS training centre. The respondents from all categories of stakeholder were almost unanimous in their view that Phase 1 of the SBA was most important in that it acted as an enculturation and socialisation process for apprentices. Apprentices experience the nature of the work in which they will be engaged during their career and also the nature of the industry. One lecturer opined:

The truth of building is in the trench, an apprentice goes into a trench and he works for a couple of weeks or a couple of months and he knows whether he wants it or not at that stage. If he doesn't like it then he goes on to something else and no one is at a loss.

Another lecturer averred that:

Phase 1 is crucial; they can make a decision at a very early stage whether they want to stay in the trade or not. Some go to a trade because they want money straight away.

Another lecturer argued;

Phase 1 is very important because they experience the nature of the work. Under the TS system they went to FÁS for a year at the very beginning of their apprenticeship without ever experiencing site work and then got a shock when they went to work on site after. Phase 1 is an eye-opener for them.

An instructor in FÁS commented that apprentices have developed a work ethic by the time they go to FÁS for Phase 2 but again raised the issue of apprentices having developed bad habits that they bring to Phase 2.

The employers and the CIF respondent shared the view of the other stakeholders that Phase 1 is an important element of the SBA for both employers and apprentices. 2 of them did, however, state that there should be some form of induction course for apprentices at the very beginning of apprenticeship.

The trade union official did not offer an opinion on whether he considered Phase 1 to be a good or bad thing.

Mandatory Length of Apprenticeship

The respondents interviewed for this research project did not generally perceive the mandatory length of apprenticeship (4 years) as a major issue in the SBA. They cited the importance of experience as a critical aspect of any apprenticeship system. However, More (1980, p. 78) disagreed with this notion of mandatory duration of apprenticeship when he averred that the important thing about apprenticeship was not length of service but what was learned during it. One lecturer in CIT echoed More's sentiments when he

stated that it was not necessarily the length of experience that was important but the quality of such experience.

Whilst everybody interviewed agreed that the rate of pay for apprentices should be related to successful Phase completion rather than length of time served, there was a consensus that such a system would be almost impossible to implement, particularly by the employers. Employers also agreed that pay related to Phase completion, instead of length of time served, would act as a powerful incentive to apprentices to pass all assessments, but it would create so many administrative problems as to make it unworkable.

An instructor in FÁS argued that there should be some derogation for exceptionally good apprentices in terms of the mandatory length of time. This respondent elaborated on this issue by stating that it should be seen as a reward for those who displayed exceptionally high standards during the Phases. The instructor did not, however, articulate how this would work in practice or on which Phase or Phases the reduction in time should occur.

Preference for Teaching SBA or TS

Both the lecturers in CIT and the instructors in FÁS were asked by the researcher for their preference for teaching either the TS or SBA systems of apprenticeship. The purpose of this question was to elicit their perception of both systems from their role as off-the-job trainers and from an operational point of view as the SBA is a very structured system, much more so than the system it replaced.

All the respondents in the category of the least experience preferred the SBA but it should be noted that their experience of the TS system was confined to their experience as

student apprentices themselves except in the case of the lecturer who came from the UK and he could not compare with the TS because he had no experience or knowledge of it but he did compare it the UK system and preferred the SBA.

The responses from the more experienced lecturers was more mixed with 4 stating an unqualified preference for the SBA, 1 suggesting a qualified preference and 3 preferring the TS system.

Among the reasons cited by those who expressed either an unqualified preference or a qualified preference for the SBA included: 'better equipment', 'it is a more comprehensive training [than TS]', 'more variety for apprentices [in terms of materials and technology]', 'it is more clearly defined [syllabus]', 'better organised' [structure], 'apprentices get all the off-the-job phases [statutory entitlement]'. Some lecturers did acknowledge that aspects of the SBA required revisiting such as examinations but none-the-less were very enthusiastic about the SBA.

Those who expressed opposition to the SBA gave reasons for doing so such as; 'too much cramming', 'not enough time to give some topics the depth of coverage needed', 'examination system was better in TS system', 'generally not enough time'. One lecturer opined that the SBA 'should be dropped immediately'. One of the reasons he gave was that, in his experience, the syllabus should be flexible enough to accommodate tailoring to suit individual apprentices depending on the nature of the work in which they were engaged in their company and, in his view, the SBA was very inflexible. This comment of course raises the issue of broad-based education and training versus company-specific training but the comment was made out of genuine concern for the apprentices.

Commenting on the question of broad-based training as opposed to company-specific training, Stern and Sommerlad (1999, p.33) quoted in Unwin and Wellington (2001, p.77) opined that workers within a post-Fordist industrial structure require a set of core skills or competences which do not become outdated and which underpin flexibility, adaptability and transferability.

A lecturer with many years of teaching experience opined that the syllabi are so structured that he feels he doesn't have to think any more, that he just has to follow the course as laid out in the FÁS manual for Phases 4 and 6.

Another lecturer averred that the Phases 4 and 6 programmes do not challenge the majority of apprentices. He elaborated on this comment by adding that there should be a problem-solving approach to teaching and that taking down notes is only learning by rote. He cited the lack of any training in pedagogy for the majority of lecturing staff in institutes of technology as the main cause of this. (It should be noted that there are a small number of exceptions to this in the case of staff that have taught in second-level schools before joining an institute of technology, as in the case of the author of this thesis). However, teaching is done in private and in the institutes no controls exist to ensure that the teaching is of an acceptable standard. There is no inspection system. Clearly, there are lecturers who have a natural talent for teaching but not everybody is so imbued. On this important issue Biggs (1999, p. 80) argued that:

Lecturing is the standard tertiary method. The subject matter expert tells the students about the major topics that make up the discipline's professional area, and what the latest thinking is. The assumption is that the flow of information is

one-way, student contribution usually being limited to questions and requests for clarification.

Another comment made on the Phases done in the institutes is that there is no monitoring of standards nationally among the institutes of technology and the need for such a system was stressed. Field and Dubhchair (2001, p.255) commented that in contrast with the external scrutiny of trade examinations conducted under the time-served system, there is no form of third party moderation of assessments in phases four and six of the standards based apprenticeship.

4 of the instructors in FÁS expressed the opinion that they preferred teaching the SBA and of these 4, 2 were instructors with long experience whilst the other 2 were from the other category, although one of these offered a qualified preference citing the backlog of apprentices waiting to be called for their off-the-job phase as a downside. These instructors offered comments such as; 'standard to be reached is clear', 'it is more structured', 'it has a lot of pluses to it (statutory entitlement, structure, modern technology)'.

One of the more experienced instructors, who is more ambivalent about the SBA, argued that taking the best from the TS system and the SBA and developing a new 'hybrid' system would be the best system of apprenticeship. He argued that apprentices should begin the first phase in a FÁS training centre rather than with the employer. The reason for this suggestion is that he believed some apprentices develop 'bad habits' on site before they are called for Phase 2 in FÁS. He developed this line of argument further by stating that apprentices should be exposed to the highest standards of craftsmanship from

the beginning. He maintained that the present system whereby apprentices begin their apprenticeship with their employer for Phase 1 made his task of training at Phase 2 more difficult.

The instructor who expressed outright opposition to the SBA cited a number of reasons for this; 'the TS system was more thorough', 'it gave slower apprentices a better chance', it produced better crafts persons'. He also raised another interesting point: that modern entrants to apprenticeship are not prepared for apprenticeship as was the case in the past. The main reason he gave for this was that when he served his time it was common practice for any person aspiring to become a crafts person to attend a vocational school after primary school instead of a secondary school. Clearly, there were other socio/economic reasons at the time that dictated that some students attended vocational schools instead of secondary schools. Students attending a vocational school followed a more trade-oriented curriculum over a two-year period and, in the opinion of the instructor, were better prepared for apprenticeship than the modern apprentice. He also made the point that, in his view, modern apprentices see apprenticeship as just another job rather than a career. A similar comment was also made by one of the lecturers in CIT who stated that:

A trade seems one of the lower careers, they think it is easy and that they will pass the exams quite easily and they will have very little study to do. They get money straight away whilst if they were full-time students they would have to study for 3 or 4 years. They use the excuse "I was never good at books".

In summary, of the 6 instructors interviewed, only 1 of the more experienced instructors gave an unqualified preference for the SBA, 1 instructor was ambivalent about it and the

third in this category would prefer to return to the TS system. Of the less experienced instructors, 2 gave unqualified preference whilst 1 gave qualified preference for the SBA. This response from the instructors in FÁS with regard to their preference for teaching either the SBA or the TS system was clearly more in favour of the SBA and is in accord with the response from the lecturers in CIT.

Flexibility within the Syllabi for Off-the-Job Trainers

When questioned about the issue of flexibility within the syllabus to enable lecturers on the Phases 4 and 6 elements of the SBA to respond to special requirements within classes, such as the issue of apprentices who may be experiencing difficulty with the pace of the course or with apprentices who have the potential to acquire a higher level of skill than the minimum standard, the response was split almost evenly. This was also true across both categories of lecturer, those with long experience and those with less experience. However, analysis of the data on this aspect of the research indicates that it really depends on the trade. For example, the majority of lecturers on the carpentry & joinery and plasterwork courses opined that there was less flexibility on those courses. Some of the comments made by these lecturers regarding the issue of flexibility were; ‘good apprentices get very disillusioned because there is no challenge’, ‘syllabus is very bounded’, ‘modular testing means there is constant preparation for examinations’, ‘some apprentices are remedial and need special attention’, ‘apprentices are lost within the system, there is no incentive’. With regard to the plumbing course, 1 very experienced lecturer commented that the syllabus is much less flexible but 2 others lecturers, with limited experience in the same section, argued that there was some flexibility. It should be noted that these newer lecturers had no experience of teaching the TS syllabus but did experience the system themselves as apprentices. Lecturers in the trade of

brick/stonelaying were satisfied that there was more flexibility in the SBA syllabus than there was in the TS curriculum.

The instructors in FÁS were much stronger in their views on the issue of flexibility within the Phase 2 syllabus than their counterparts at Phases 4 and 6. They were almost unanimous in their opinion that there is far less flexibility. Comments made by the instructors include; 'there is no flexibility in it', 'you cannot introduce elements of higher skill (for apprentices are capable of achieving a higher standard) because you are restricted by time and the syllabus', 'I have difficulty keeping the good apprentices busy'. The only instructor who opined that there was sufficient flexibility has very limited experience of teaching.

It should also be noted that the issue of flexibility is of greater importance in practical classes than in theory classes and the Phase 2 syllabus done in FÁS comprises approximately 80% practical work with balance being related theory. The situation at Phases 4 and 6 (within the 6 construction trades selected for this research project) is quite different with the practical content varying from 45% to 58%, depending on the trade. The balance of the syllabi comprises of theory, computing, science, drawing and mathematics. This difference in the content of the syllabus may explain the difference in emphasis between the lecturers in CIT and the instructors in FÁS on the issue of flexibility within the syllabus.

Calibre of Crafts Persons Produced by SBA

The Requirements of Industry (competence)

The majority of stakeholders were confident that the SBA has the capacity to produce high quality crafts persons with the competence to meet the needs of industry. Wolek, (1999, p.395) argued that apprenticeship has a long history of success in developing skills. The respondent representative of the employers opined that he gets very good reports from employers of the quality of the people in all the construction trades, except in the trade of plasterwork. This, he said, was the only exception. He could not explain why this was so.

The instructors in FÁS were of the opinion that the SBA can produce crafts persons of high calibre provided the standard of person entering apprenticeship is sufficiently high. One instructor stated that they get an awful lot of very poor apprentices. Another instructor with many years experience of teaching argued that the whole industry was driven by money and that the standard of workmanship in industry was low anyway. An instructor who is less enthusiastic about the SBA opined that there was less pride in craftwork than there used to be. As long as pay is output -, price- or job-based, as with SC60 and 714 employment, what counts is only the availability of workers to fulfil a particular task as quickly as possible, not the range of skills they may possess, their qualifications, their skill potential or the quality of their work (Clarke and Wall, 1998, p.12).

The majority of the lecturers in CIT were confident that the SBA does produce high quality crafts people. One lecturer averred that:

The SBA produces a rounded person with a good range of skills and knowledge. If he/she is with a good employer it is a very good system.

Another comment was that the system is very good but would only remain so as long as the curricula were kept up to date to reflect changes in technology and materials. Huddleston, (1998, p.288) cautioned on the need for off-the-job trainers to keep abreast of developing technology when she commented that a criticism made of the old apprenticeship system was that sometimes the college element of the training was out of step with current work-place practices.

One lecturer stated that the standard of examinations set by FÁS was too low and if they were set higher then a lot of apprentices would fail.

The trade union respondent was adamant that the SBA was producing high calibre people to meet the needs of industry and the FÁS STB respondent was in agreement with this view. The STB representative argued that the quality of our apprenticeship system is evidenced by the fact that employers do not have to bring in crafts people from abroad, that no matter what type of skill is required, there are crafts people in Ireland competent to carry out the task.

Adaptability and Transferability of Skills

There is a consensus among the stakeholders that the SBA produces crafts people with skills that are adaptable and transferable, people with the skills to cope with new technology and techniques as the requirements of industry change. Both the instructors in

FÁS and the lecturers in CIT offered some qualifications to their opinion in so far as they averred that some crafts people would be able to cope with change better than others. One stakeholder stated that there is a cohort of weaker apprentices who do not want to be challenged and they think they are 'paid only from the neck down'. Another stakeholder argued that transferability and adaptability comes with experience anyway. Another comment on the issue of transferability and adaptability was that a properly structured system of education and training developed these qualities in apprentices. Clarke and Wall (1998, p.103), supporting the debate that crafts persons need skills that are transferable and adaptable, noted that far from becoming deskilled, the construction labour process as a whole has become increasingly skilled, necessitating broad-based education and training covering all those on site.

The majority of stakeholders agreed that the SBA was no different from the TS system in preparing apprentices for transferability and adaptability of skills. Fuller et al, (1998, p.153) stated that history also shows that, through the centuries, apprenticeship has survived as a meaningful vehicle for the development and transference of occupational skills, knowledge and understanding.

Educational Standard of Apprentices

Each of the 6 instructors in FÁS commented on the educational standard of apprentices, without prompting from the interviewer. They were almost unanimous in the view that many of the apprentices have difficulty with reading, writing and mathematics. One instructor commented that of the 14 apprentices who were enrolled for his next class, 6 of those had only done the Junior Certificate and he was adamant that they would have

difficulty with the course because of poor literacy and numeracy skills. One instructor opined:

Very often apprentices are people who don't want to be at school anymore, many do but others are very glad to get away from the school thing. I would spend on average 25% of the time in a classroom with them

Another instructor quoted the following incident to highlight the problem:

*I think it goes back to career guidance, their expectation of apprenticeship and what its about, to me is very vague....We had a particularly difficult group, and one fellow, while I was doing maths on the board, complained saying he got out of school to get out of this kind of ** (expletive), so I said if you want to be an apprentice you've picked the wrong trade, I said its part of the trade and there's no escaping from it, you get a resistance to this. We have problems with some guys coming in who can't read or write, a lot of them don't know what they are getting themselves into.*

Yet another comment was:

They have left the school environment and have gone into a trade, they don't see the academic side of it, and they dislike it. Theory can be a problem for apprentices who wouldn't have done the Leaving Certificate.

There was general consensus among the instructors that most apprentices knew very little about the construction industry or about the SBA itself. This again raises the issue of the lack of an induction course for newly-registered apprentices. The instructors also expressed the view that many apprentices who had not done the Leaving Certificate experienced problems with theory, drawing and mathematics.

The lecturers in CIT made some unsolicited comments on the educational standard of apprentices but did not appear to be as concerned as the instructors in FÁS were on the issue. There was an acknowledgement that some apprentices were weak academically but their primary concern was that it would limit opportunities for those who may aspire to progress to higher course rather than being unable to cope with Phases 4 and 6 of the SBA.

Comments that were made by lecturers regarding the academic limitations of some apprentices include:

Some apprentices are very weak. They entered the trade to avoid school.

Another comment was:

The reason they go into a trade in the first place is because it's their last option.

One employer, commenting on apprentices in the trade of brick/stonelaying, stated that in his opinion FÁS should introduce aptitude tests for those aspiring to a trade. He continued that people who are barely qualified are not an asset to the trade. He also suggested that 70% to 80% of people are fine but others have not got the academic ability to read drawings or to set out buildings. However, another employer stated that they (his firm) get great apprentices and he is quite satisfied with the standard.

The respondent representative of the STB division of FÁS, commenting on the standards of apprentices argued:

I think we should regret the demise of the Group Certificate, students did drawing, woodwork, metalwork and science [as well as academic subjects] during the 2-year course. It prepared them for a trade. Nowadays, people coming into the system have no exposure to it prior to apprenticeship, very often they go to a trade

as a last option because they did not get sufficient points [in the Leaving Certificate examinations] to do their preference [a full-time course at a university or institute of technology]. Very often they go into a particular trade because they just happened to find a vacancy, not because it was their first choice of trade, but they eventually cultivate an interest in it. If the standard of people coming into a trade is low then the standard of people coming out is low.

Neither the employers' representative or the trade union official commented on the standard of apprentices.

Assessment of Practical Work on the Off-the-Job Phases

The marking scheme for the practical projects done by apprentices during the off-the-job Phases of the SBA has been the subject of much criticism since its introduction. The basis of the marking schemes is that a number of essential elements of the project are identified and apprentices must reach the required standard in all of these to achieve a pass. These essential elements might include, for example, primary and secondary dimensions, which must be accurate within certain specified tolerances. Other essential elements might include, for example, correct use of jointing techniques or, in the case of plumbing, water-tightness etc. If an apprentice's project fails to reach the required standard in any of these desirable elements then s/he fails that module, no matter how good the remainder of the work is. Typically, there would be 7 essential elements in the marking scheme with another 3 elements deemed to be desirable. If an apprentice passes *one* of these three desirable elements, in addition to the essential elements, then s/he will be awarded a credit. It is usual practice for the instructor or lecturer who taught this module of the Phase to mark the projects. It must be noted that once an element meets the minimum

standard no further credit is awarded for this element. Eraut (1989, p.181) describes this approach to assessment as the binary model – either you can do it or you cannot.

This type of marking scheme is quite different from the manner in which the Junior and Senior trades of the Department of Education and Science were marked. In the case of these examinations, each element of the practical examination piece was allotted a percentage mark and if apprentices achieved an aggregate mark of 50% or more they passed. Very often each element was divided into sub-elements for the purpose of marking. In addition to marking the piece of work itself, marks were also allocated for ‘setting-out’ the piece, if setting-out was an important part of the test. In the case of the wood trades this setting-out is usually done on an A2 or A1 size drawing sheet with the aid of mechanical drawing instruments. Very often concepts of plane and solid geometry have to be applied to determine the length and bevel(s) of some of the components. This is often a complex process. These calculations were included as part of the marking scheme and marks were awarded accordingly. In other trades, such as plumbing and plasterwork, the setting-out would be done on a wall or other suitable surface. The Department of Education and Science appointed examiners to set these papers for each trade. The person appointed to set the tests also marked the finished pieces. Field and Dubhchair (2001, P.249) opined that marking was carried out externally and all assessed work was marked blind, providing a basis for assuring standards across employers and regions.

All of the lecturers with long experience in the institutes argued that this system valued different *levels* of skill and, most importantly from their point of view, the cognitive work underlying task performance whereas the SBA marking schemes did not. Some of the

comments made by these lecturers include: 'the marking scheme is crazy', 'there's no recognition of the planning or thought that goes into the work', 'it's still not measuring the good student'. A number of lecturers admitted that they applied some subjectivity to the marking and did not adhere strictly to the official marking scheme because they did not consider it fair to the students. Another member of staff admitted that in his trade they operated a system of continuous assessment rather than use the official marking scheme when he stated; 'it's very black and white, what we do now is operate a form of continuous assessment'. Others expressed the view that every project during the course should be assessed and, they argued, this process of continuous assessment would motivate apprentices. An additional criticism of the examination system was that the tests were too easy and should be more demanding.

The majority of the less experienced lecturers in CIT expressed some reservations about the FÁS marking scheme but were not as vociferous in their criticisms of it as the more experienced lecturers. One of them opined that the marking scheme was all right at Phase 4 but not at all suitable for Phase 6 examinations because of the complexity of the Phase 6 tests. Another lecturer offered the view that the same lecturer should mark all the practical projects so that the marking would be consistent. Virtually all the respondents in CIT agreed that the FÁS marking scheme does not recognise different levels of hand skill.

The instructors in FÁS were evenly divided on the suitability of the marking scheme for the Phase 2 practical projects. 3 were of the opinion that the marking scheme was suitable whilst the remainder argued that there should be some changes to it. For example, one instructor who expressed some reservations regarding the marking scheme averred that it lacks subjectivity and it is very vague in some areas of marking. When encouraged by the

researcher to elaborate on this issue he stated that occasionally an apprentice whose work he personally considers to be below standard passes and others that he considers a pass are failed by the marking system. Another instructor opined that there should be a system of external moderation as there was before the introduction of the SBA. On the issue of external moderation, Field and Dubhchair (2001, p.248) argue that the partnership approach to developing the SBA has meant ducking some key issues, particularly those concerning quality assurance. None of the instructors in FÁS admitted to applying any element of subjectivity to the marking scheme.

However, all the instructors were unanimous in the view that the Phase 2 marking scheme does not recognize different levels of hand skill. In the words of one instructor, 'it either passes or it fails'. Another opined:

it absolutely does not recognise different levels of hand skill, one lad who might be outstanding fails because of one [mandatory] point whilst another fellow just scrapes through and he gets a pass. In the marking scheme there are 'must haves' [essentials] and 'should haves' [desirables], the marking schemes should be based on percentages.

The researcher observed the marking of a Phase 4 carpentry & joinery project and a Phase 6 plumbing project. The researcher had the FÁS marking schemes for these Phases explained to him by the lecturers engaged in the marking before the marking began.

In the case of the carpentry & joinery project, there was clear evidence from the observation of the marking that the lecturer was deploying a more subjective system of marking than that which is recommended in the FÁS manual. Instead of identifying

separate elements of the project as 'essential' and 'desirable', as indicated in the FÁS manual, the lecturer, whilst checking the essential components of the project for accuracy and construction etc, nevertheless conducted a very thorough but more holistic assessment of the work. The system deployed by the lecturer was similar in design to that used by Department of Education & Science examiners for the marking of the practical components of the Junior and Senior Trades examinations and was essentially based on percentages rather than 'essential' and 'desirable' elements.

The lecturer who assessed the Phase 6 plumbing project observed more closely, but not completely, the FÁS marking scheme when assessing the practical work. He noted the essential points as outlined in the marking scheme but did use a strong element of subjectivity in the marking. Rather than decide initially whether individual elements were 'right' or 'wrong', he examined the complete project first to form an overall assessment of the standard of the work, and whether or not it met minimum standards, and consequently formed an opinion of the level of work. He then marked each element as outlined in FÁS manual. Each candidate was then awarded a Pass, a Credit or Referred based on the marking scheme.

After observing both lecturers marking the projects the researcher interviewed both of them in relation to the system they used. In the case of the carpentry & joinery lecturer, he argued that the current marking scheme was totally unsuitable and consequently unfair to the apprentices. He stated that he essentially ignored the FÁS marking scheme and used a system that was based on percentages rather than on 'essentials' and 'desirables'. He averred that the FÁS system was easier for the assessor but could be unfair to apprentices, particularly, to apprentices who may have not reached the required standard in one of the

elements defined in the FÁS manual as ‘essential’ but otherwise produced work of a high standard. He also stated that the FÁS scheme did not give sufficient recognition to the setting-out and planning of the work.

In the case of the plumbing lecturer he stated that whilst he did take account of the ‘essential’ and ‘desirable’ elements of the work as identified in the FÁS manual, he always applied his own form of assessment initially to ensure the marking scheme was fair to all the apprentices. When pressed by the researcher regarding the possibility of an apprentice being referred because she/he did not reach the required standard in an ‘essential’ element but whose overall work he considered sufficiently high to at least obtain a pass he said he employed a element of subjectivity to be fair to the apprentice. The researcher understood this to mean that he would award a pass in such circumstances.

Both of the lecturers argued that the current system of marking needs to be reviewed as a matter of urgency and also that there needs to be a national system of monitoring of standards. This was necessary they said to ensure that everyone throughout the off-the-job Phases in the various locations was applying the same standards.

Preparation for Progression to Higher Courses

As previously alluded to, apprentices in common with other groups, must have available to them under the terms of the 1999 Qualifications Act clear paths of progression to other courses. Progression may be horizontal to higher-level craft-type courses or vertical to technician and degree courses. The purpose of this aspect of the research was to seek the opinion of the stakeholders in the education and training sector as to the suitability of the SBA as a preparation for progression.

The consensus among the lecturers in CIT was that the SBA did prepare apprentices for horizontal progression but not for vertical progression. They argued, however, that some apprentices would benefit from participation in higher courses provided they had the educational background to do so, meaning that apprentices would need to have the Leaving Certificate. They averred that the SBA prepares people for a trade and is not geared towards progression to higher courses. They also argued that many of the apprentices would not be capable of progressing to higher course or would not want to participate in either higher craft courses or in technician courses. One lecturer was of the view that they (the apprentices) were not taught to be independent learners and that in order to participate successfully in higher course they would need to do so. Other lecturers opined that there was of yet no detailed map of possible routes of progression available to apprentices.

Only one of the instructors in FÁS believed that the SBA prepares apprentices for progression and his reason for this was that he believes that the attainment of the National Craft Certificate engenders confidence and this confidence can inspire newly qualified crafts persons to participate successfully in higher courses. The remainder of the instructors were of the view that the SBA does not prepare apprentices for progression and also stated that the lack of clear progression routes was a distinct lack of motivation for those apprentices who may aspire to higher courses.

The above comments from the lecturers in CIT and from the instructors in FÁS raises the issue of whether an element of general education should be included in the curricula. All of the curricula for Phases 4 and 6 in the SBA include 2 hours of complementary studies. However, different institutes of technology and indeed different courses within the same

institute interpret this aspect of the curricula differently. Some include an element of general studies, such as written communication, whereas others use the available time to include an introduction to computing and some devote the time to technical subjects. There was agreement between the staff in CIT and the instructors in FÁS regarding the desirability of including some element of general education in the curricula. The only reservations expressed by some of the respondents in CIT were that it would necessitate reducing the class time for technical subjects; otherwise they would be in favour of it.

On the question of the type of subject that might be included under the element of general education the responses obtained reflected the fact that many crafts persons in Ireland are effectively self-employed. The subjects suggested for inclusion were mainly business oriented such as; management, communication, computing, accounting, business studies, law, start-your-own business etc.

The employers all agreed that progression of apprentices was desirable and should be encouraged, particularly progression to higher technical courses relevant to the nature of the business in which they were engaged.

Other Comments

Other comments made at the end of the interviews include: operation of the SBA needs to be tightened up, apprentices should get dates and venues for off-the-job phases when registered and no changes allowed, there is a lack of continuity, exam system is wide open, there should be external moderation, variation in standards between institutes and that FÁS should be involved in the selection process of apprentices.

Analysis of Questionnaires

Response Rate

The 104 questionnaires returned to the researcher represented a response rate of 67.53% and the analysis was carried out with the aid of SPSS computer package.

The response rate by trade is as indicated in Table 1.

Table 1

Trade	Target Population	Completed & Returned	Response Rate %
Brick/Stone Laying	18	15	83.33
Cabinetmaking	9	2	22.22
Carpentry & Joinery	83	56	66.26
Painting & Decorating	9	5	55.55
Plasterwork	9	7	77.77
Plumbing	37	20	54.05
Totals	165	104	Average 67.53%

Response Rate by Trade

The age of the respondents ranged from 20 years to 30 years with a mean of 23.23, a median of 23 and a mode of 22. The questionnaires were returned to the researcher during the months of February and March 2003 and as they had qualified for the award of the National Craft Certificate between 2nd December 2001 and 18th September 2002, the respondents would have been approximately 1 year younger when they qualified. Table 2 gives the mean and standard deviation of age by trade.

Table 2

Trade	Mean	N	Std. Deviation
Cabinetmaking	27.50	2	3.54
Painting & Decorating	24.25	4	2.99
Brick/Stone Laying	23.50	14	1.51
Plumbing	23.45	20	1.57
Plasterwork	22.86	7	0.90
Carpentry & Joinery	27.5	57	3.54
Total	23.23	104	1.67

Age by Trade

Gender of Respondents

The gender of the respondents was predominantly male with only 2 of the population female. The response rate by gender was 102 males and 2 females. This figure reflects approximately the percentage of female apprentices registered with FÁS.

Educational Attainment

The educational attainment of the respondents includes Traditional Leaving Certificate, Vocational Leaving Certificate, Leaving Certificate Applied and the Junior Certificate, with the majority having attained the Traditional Leaving Certificate. Chart 1 gives the frequency of each award and Table 3 gives educational attainment by trade.

Chart 2 Educational Attainment by Trade

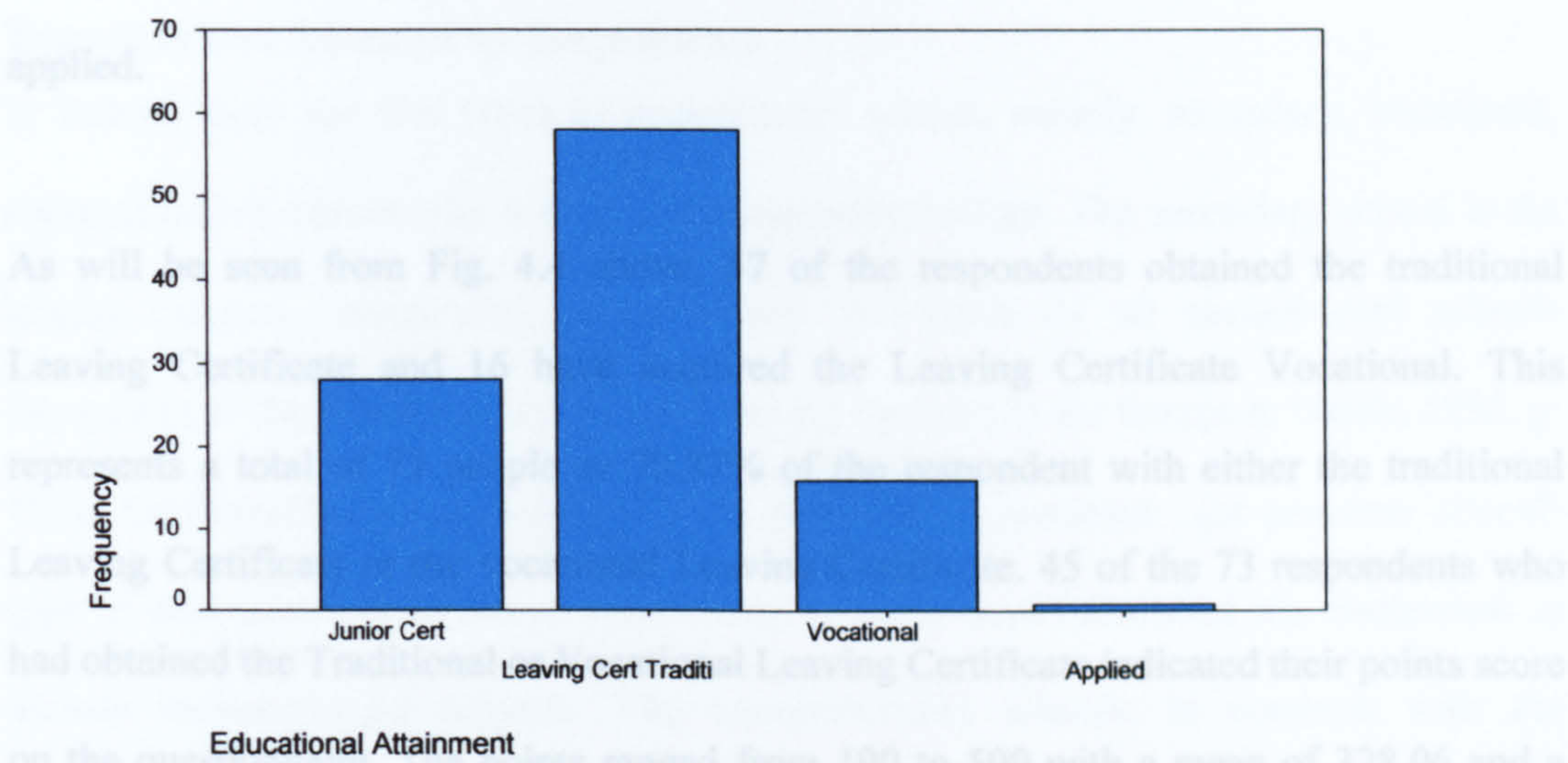


Table 3

Award	BRK	CAB	C&J	P&D	PLS	PLB	Totals
Junior Cert	2	1	16	1	2	7	29
Trad LC	7	1	32	3	3	11	57
Voc LC	4		9		1	2	16
App LC					1		1
Not stated	1						1
Total	14	2	57	4	7	20	104
% L.C.	79	50	74	75	71	65	Average 72.81

Educational Attainment by Trade

As alluded to earlier in this chapter, entry to full-time courses in institutes of technology and universities in Ireland is regulated by a points system. Points are awarded for each subject taken in the Leaving Certificate examination and up to six subjects may be counted. The maximum score any candidate can get is 600 points. All subjects may be taken at either Ordinary or Higher level. The maximum score that can be obtained for one subject at Higher level is 100 points for a grade A1 and the maximum score for one

subject at Ordinary level is 60 points. No points are awarded for the Leaving Certificate applied.

As will be seen from Fig. 4.4 above, 57 of the respondents obtained the traditional Leaving Certificate and 16 have acquired the Leaving Certificate Vocational. This represents a total of 73 people or 70.87% of the respondent with either the traditional Leaving Certificate or the vocational Leaving Certificate. 45 of the 73 respondents who had obtained the Traditional or Vocational Leaving Certificate indicated their points score on the questionnaire. The points ranged from 190 to 500 with a mean of 328.06 and a standard deviation of 76.27. The mean points score by trade is outlined in Table 4.

Table 4

Painting & Decorating	Mean	320.00
	N	1
	Std. Deviation	
Brickwork	Mean	290.00
	N	6
	Std. Deviation	86.20
Plumbing	Mean	337.78
	N	9
	Std. Deviation	70.63
Plastering	Mean	246.67
	N	3
	Std. Deviation	51.32
Carpentry & Joinery	Mean	312.88
	N	26
	Std. Deviation	75.00
Total	Mean	310.56
	N	45
	Std. Deviation	74.56

Mean Points Score by Trade

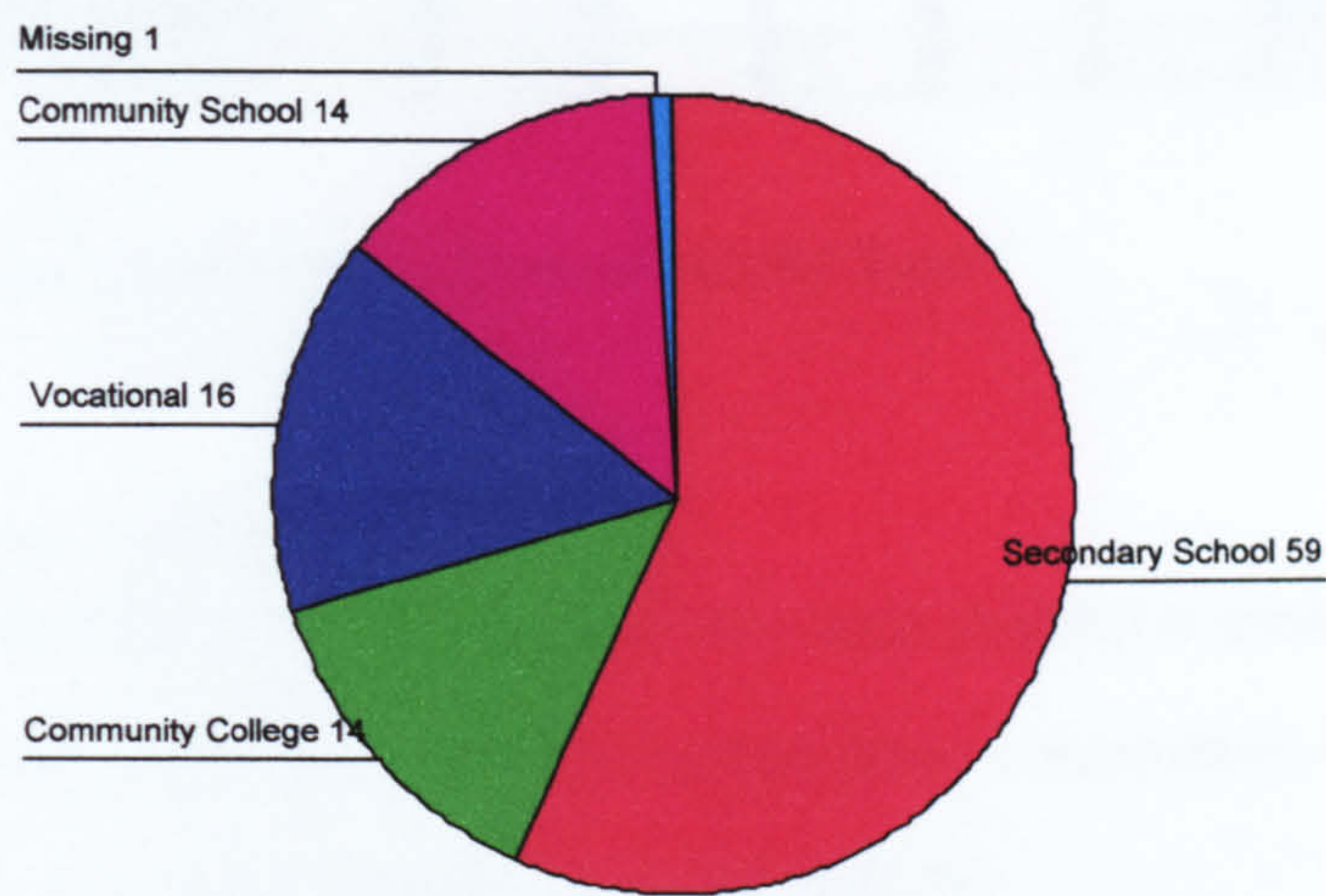
Type of School Attended by Respondents

In Ireland there are five types of post-primary school, namely, secondary, vocational, comprehensive, community school and community college. The secondary school is the largest category, comprising approximately two-thirds of all second-level schools (Structures of the Education and Initial Training Systems in the European Union, 1995, p. 193). Traditionally the secondary schools provided an academic (or grammar school) type of education but in recent years many of them have broadened the curriculum to include technical-type subjects. The comprehensive schools, in common with the community schools, the community colleges and the vocational schools, provide a broad curriculum with a balance between academic and vocational subjects. The essential difference between these schools is in the manner in which they are managed. Initially, the main thrust of the vocational schools was the development of manual skills and the preparation of young people for a trade.

18.28% of the respondents were self-employed within approximately one year of 60% of pupils in Ireland attend secondary schools, 30% attend vocational schools, 2% attend comprehensive schools and 6% attend Community schools (Structures of the Education and Initial training Systems in the European Union, 1995, p. 193).

The actual number of respondents who attended each type of school is shown in Chart 3 (see next page).

Chart 3 Type of School Attended by Respondents



Employment Status of Respondents

78 of the respondents indicated that they work for either a contractor or a specialist sub-contractor, 19 others indicated that they are self-employed, 3 work abroad, 2 stated that they were unemployed and 2 work in jobs unrelated to their trade. This means that 18.26% of the respondents were self-employed within approximately one year of qualifying as a crafts person.

Of the 19 respondents who stated that they are self-employed, 13 indicated that they employ a total of 23 other people between them. The majority of respondents in this category are in the trade of brick/stonelaying. The number of respondents in this category for each trade and the number of people they employ is shown in Table 5 (see next page).

Table 5

Trade	BRK	CAB	C&J	P&D	PLS	PLB	Totals
Employers	8	0	3	0	0	2	13
Number Employed	17	0	4	0	0	2	23

Number of People Employed by Respondents by Trade

Results of Phase 2 Assessments

Of the 104 respondents, 39 indicated that they were awarded a grade of Pass and 66 indicated that they obtained a grade Merit in their Phase 2 assessments. This represents a Pass grade rate of 37.5% and a Merit grade rate of 62.5%.

Of the 39 respondents who stated that they were awarded a Pass at Phase 2, the highest educational attainment of 15 of them was at Junior Certificate level, 22 of them at Traditional or Vocational Leaving Certificate level and 1 at Applied Leaving Certificate level. This implies that although 28.15% of respondents had the lowest post-primary educational achievement when they entered apprenticeship, almost half of them, 48.27%, achieved a Merit in their Phase 2 assessment. At the Phases 4 and 6 levels the percentage of respondents who achieved the grade of Merit increases to 58.62% and 65.51% respectively. See Table 6 on the next page. It should be noted that Phase results include all assessments, both practical and theory.

Table 6

Award	Ph. 2 Pass	Ph. 2 Merit	N	Ph. 4 Pass	Ph. 4 Merit	N	Ph. 6 Pass	Ph. 6 Merit	N
Junior Cert	15	14	29	12	17	29	10	19	29
L.C. Trad	19	38	57	9	48	57	13	44	57
L.C. Voc.	3	13	16	1	15	16	1	15	16
L.C. Applied	1	0	1	1	0	1	1	0	1
Not Stated	1	0	1	0	1	1	0	1	1
Total	39	65	104	23	81	104	25	79	104
Percentage	37.50%	62.50%		22.11%	77.89%		24.03%	75.97	

Phase Results – 3 Passes or 3 Merits

Phase Result by Educational Attainment

It will be noted from Fig. 4.9 that 31% of respondents with the Junior Certificate obtained Merits in all 3 Phases but the percentage of those who obtained all Merits increases sharply for those with either the Traditional or Vocational Leaving Certificate. In the case of the Traditional Leaving Certificate 56.1% were awarded the grade of Merit in all 3 off-the-job Phases whilst 81.25% of those with the Vocational Leaving Certificate obtained Merits in all 3 Phases.

In the case of respondents who had obtained the Vocational Leaving Certificate, the percentage of those who were awarded the grade of Merit in their assessments is much higher. 81.25% obtained a Merit at Phase 2, whilst 93.75% obtained a Merit at Phases 4 and 6.

The 1 respondent with the Leaving Certificate Applied obtained a pass at Phases 2, 4 and 6.

Table 7 gives the breakdown of the stakeholders who achieved either all passes or all Merits at Phases 2, 4 and 6.

Table 7

Award	N	Obtained 3 Passes	% N	Obtained 3 Merits	% N
Junior Cert	29	6	20.68	9	31
L.C. Trad	57	3	5.26	32	56.1
L.C. Voc.	16	1	6.25	13	81.3
L.C. Applied	1	1	100	0	0
Not Stated	1	0	0	1	100
Total	104	11	10.57	55	52.9

Phase Results – 3 Passes or 3 Merits

It will be noted from Fig. 4.9 that 31% of respondents with the Junior Certificate obtained Merits in all 3 Phases but the percentage of those who obtained all Merits increases sharply for those with either the Traditional or Vocational Leaving Certificate. In the case of the Traditional Leaving Certificate 56.1% were awarded the grade of Merit in all 3 off-the-job Phases whilst 81.3% of those with the Vocational Leaving Certificate obtained Merits in all 3 Phases.

Level of Difficulty with Phase Assessments

The majority of the respondents stated that they considered the Phase assessments to be either ‘fair’ or ‘easy’. The number who considered the tests to be difficult increases progressively with advancement through the Phases. Table 8 gives a breakdown of the level of satisfaction with the Phase assessments in tabulated form and Charts 4, 5 and 6 give a graphical illustration of the level of satisfaction for each Phase.

Table 8

Level of Difficulty	Phase 2	Phase 4	Phase 6	Totals
Very Difficulty	1	2	2	5
Difficult	5	15	40	60
Fair	52	58	50	160
Easy	29	22	9	60
Very Easy	17	7	3	27

Level of Difficulty – Phases 2, 4 and 6

Phase 2 Assessments- Level of Difficulty

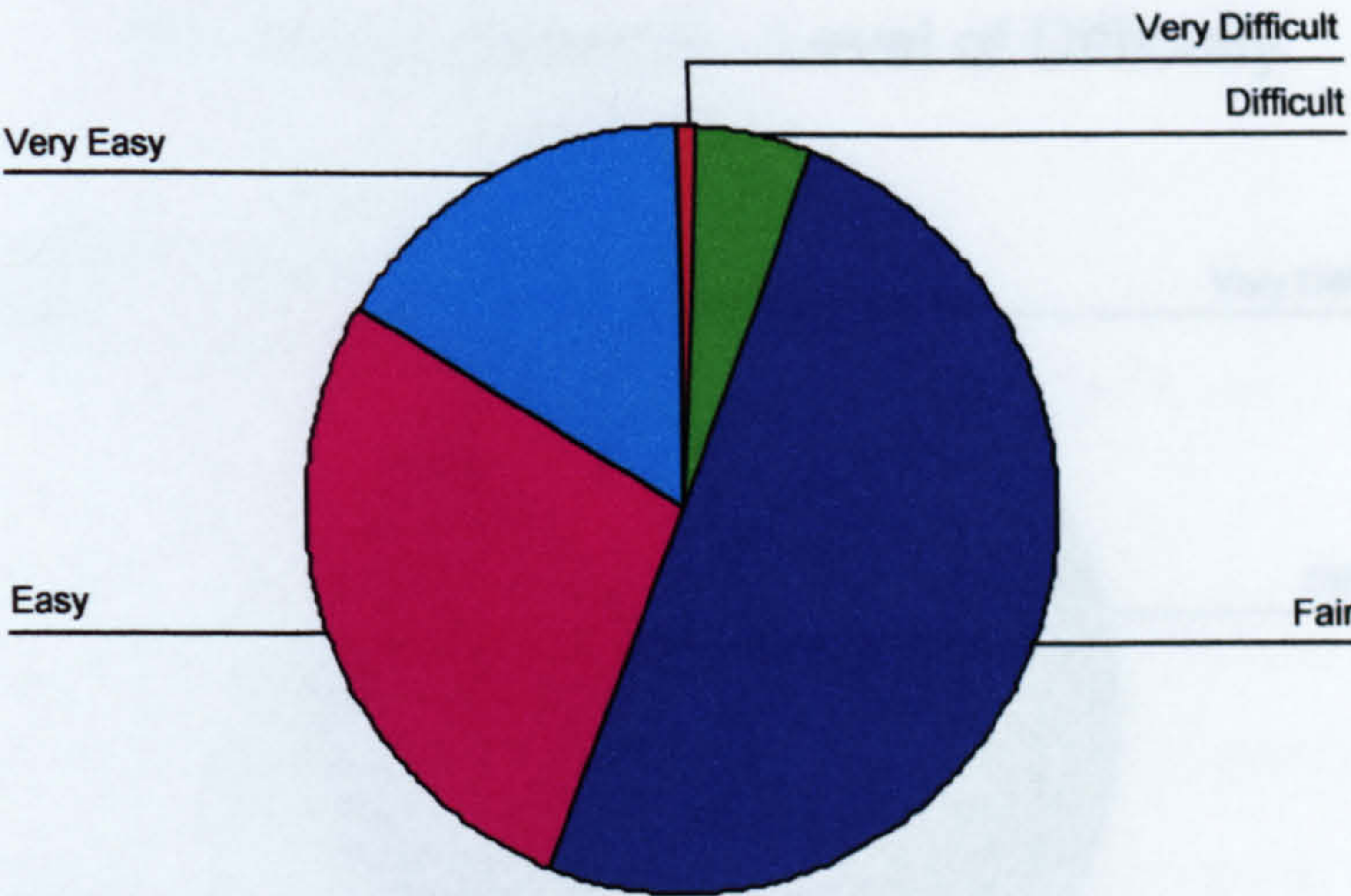


Chart 4

Ph. 4 Assessments - Level of Difficulty

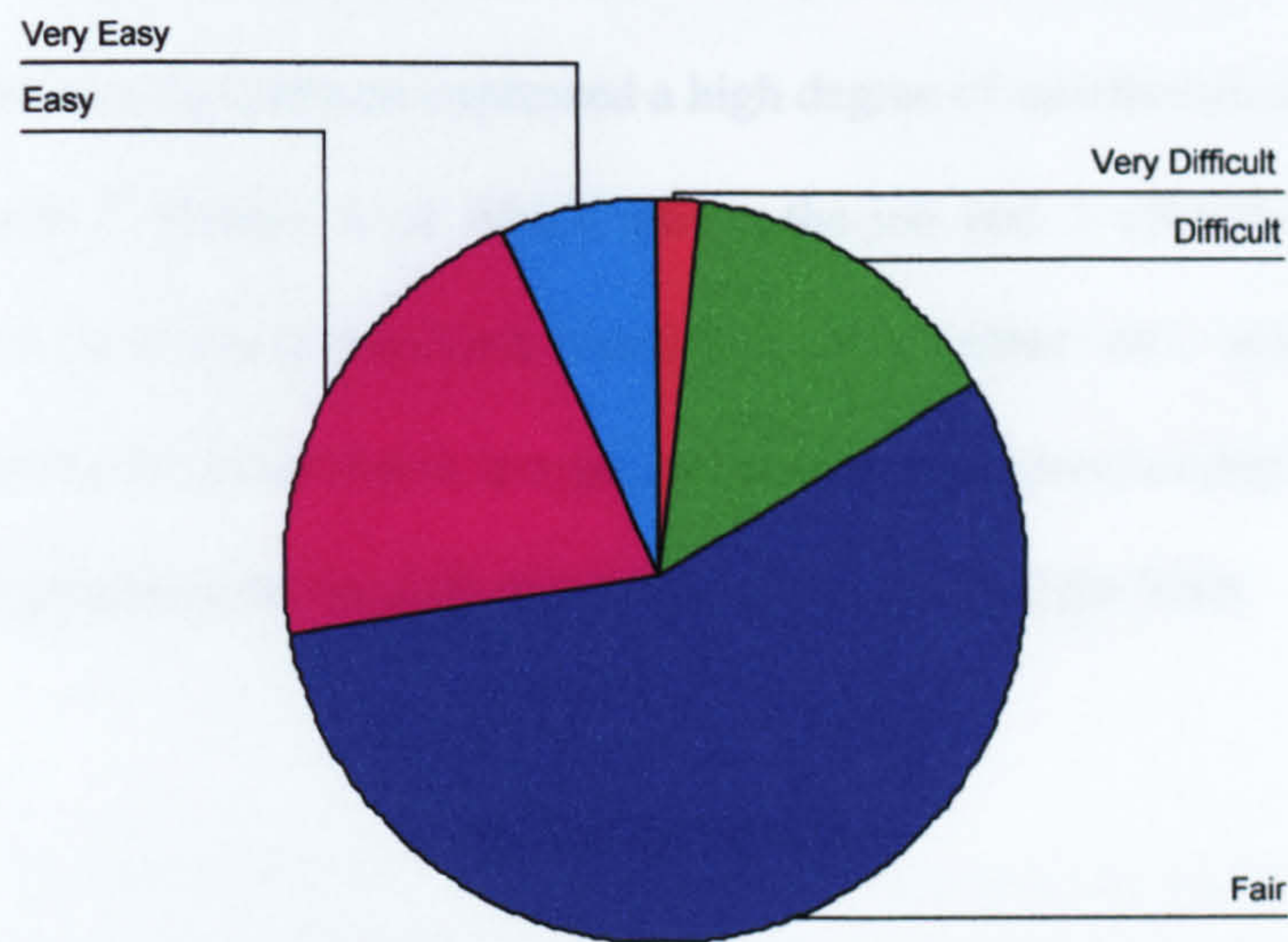


Chart 5

Ph. 6 Assessments - Level of Difficulty

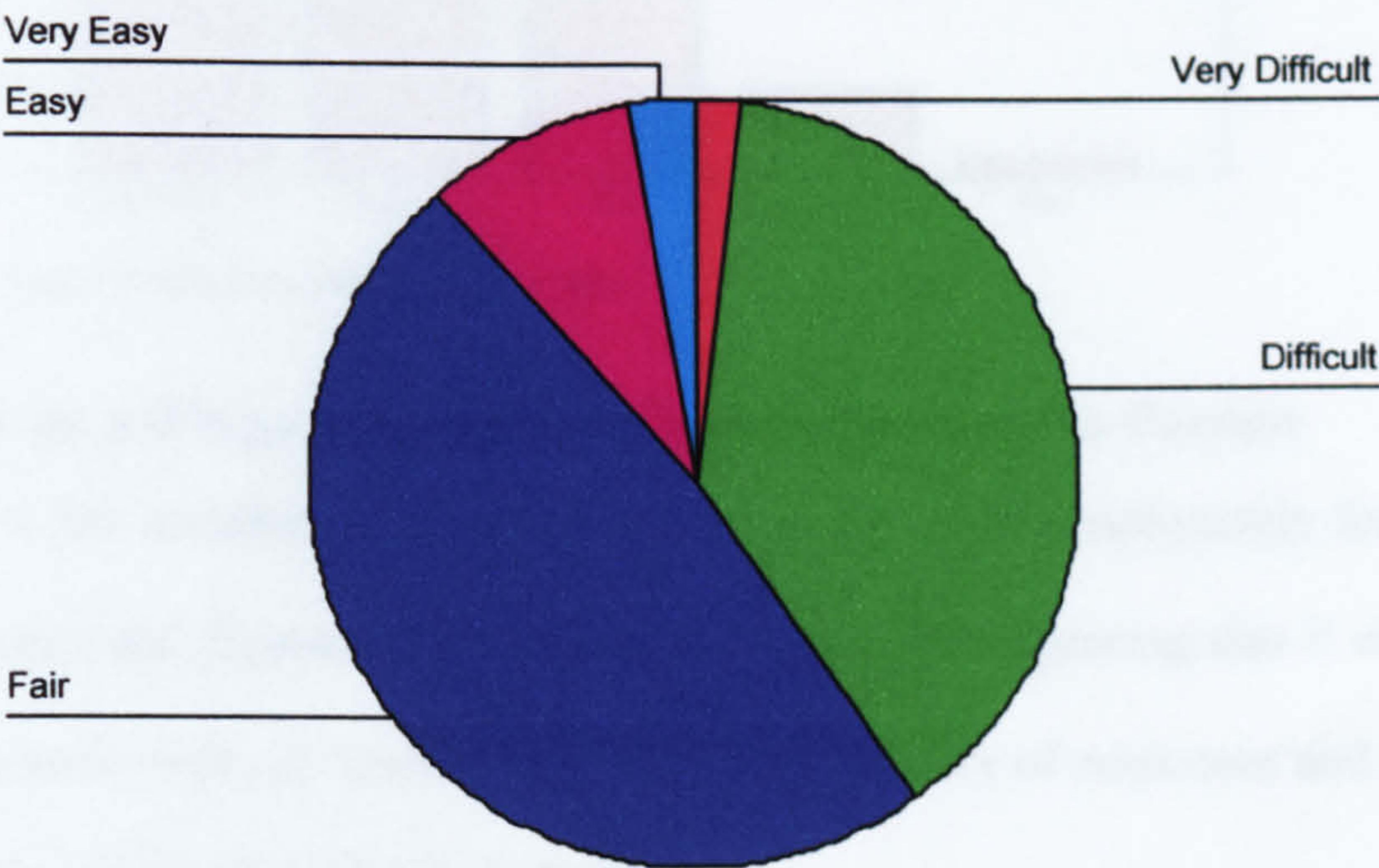
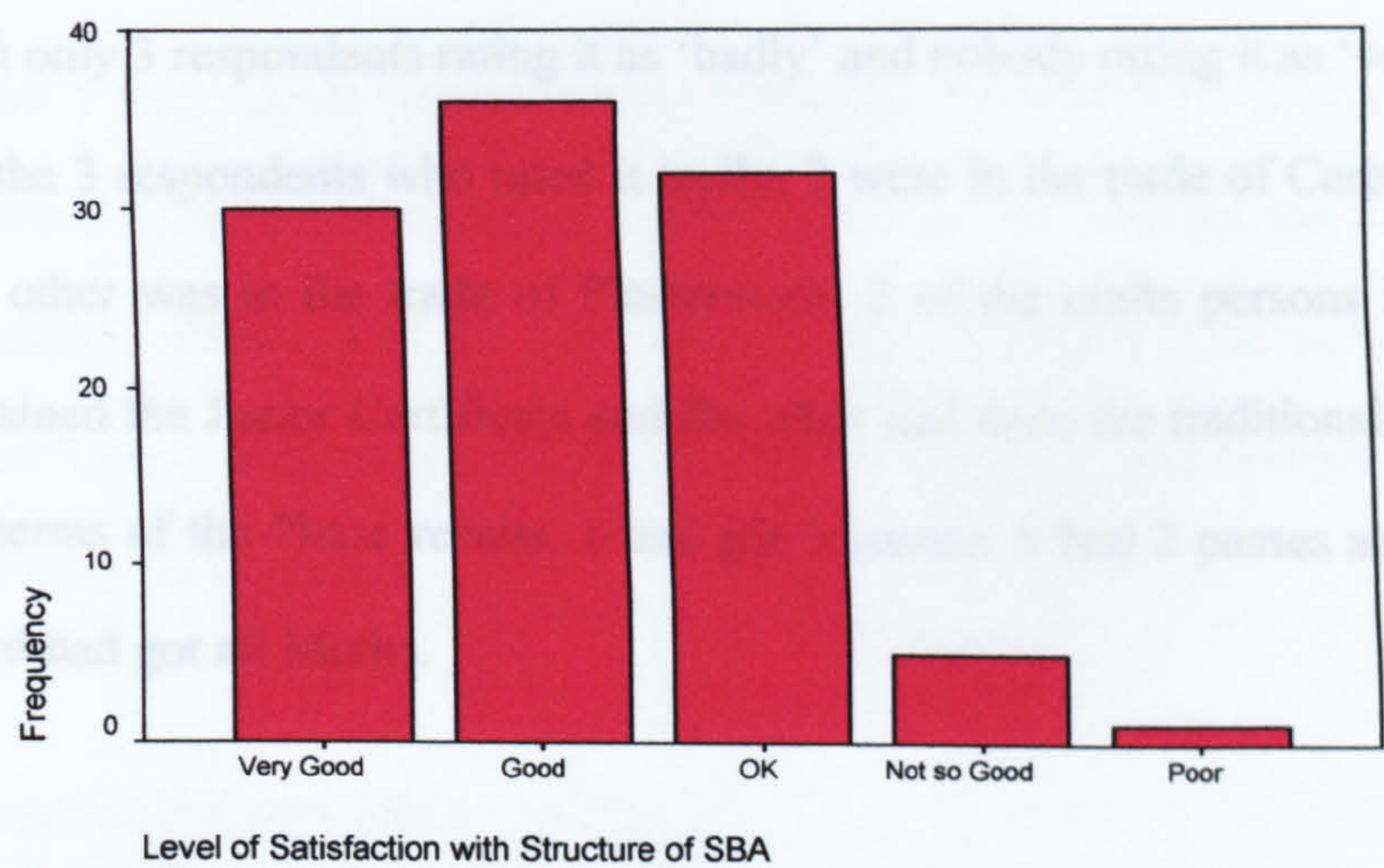


Chart
6

Structure of SBA

In common with the other stakeholders who participated in this research project, the newly qualified crafts persons expressed a high degree of satisfaction with the structure of the SBA with 7 Phases, 4 of which are on-the-job and 3 off-the-job on educational release. 94.2 % of the respondents stated that it was either ‘ok’, ‘good’ or ‘very good’. Only 1 respondent stated that it is a poor paradigm of apprenticeship. Chart 7 illustrates the level of satisfaction/dissatisfaction with the structure of the SBA.

Chart 7



The SBA as a Preparation for a Career as a Crafts Person

In answer to the question ‘Does the SBA prepare apprentices adequately for a career as a crafts person?’ the response was very positive with 76% agreeing that it either prepared them ‘extremely well, or ‘reasonably well’. The category of responses and the frequency and percentage of each is shown in Table 9.

Table 9

Satisfaction Rating	Frequency	%	Cumulative %
Extremely Well	35	33.7	33.7
Reasonably Well	44	42.3	76
OK	21	20.2	96.2
Badly	3	2.9	99
Very Badly	0	0	
Not Stated	1	1	1
Total	104	100	100

Satisfaction with SBA as a Paradigm of Learning

This is a very high endorsement of the SBA as a preparation for a career as a crafts person with only 3 respondents rating it as ‘badly’ and nobody rating it as ‘very badly’.

Of the 3 respondents who rated it badly, 2 were in the trade of Carpentry & Joinery and the other was in the trade of Plasterwork. 2 of the crafts persons in this category had obtained the Junior Certificate and the other had done the traditional Leaving Certificate.

In terms of the Phase results, 1 had got 3 passes, 1 had 2 passes and a Merit whilst the third had got all Merits.

Choice of Career

96 of the respondents expressed satisfaction with their choice of career, 5 were unhappy and 3 did not state if they were satisfied or not. Chart 8 illustrates graphically the level of satisfaction with choice of career.

Satisfaction with Career Choice

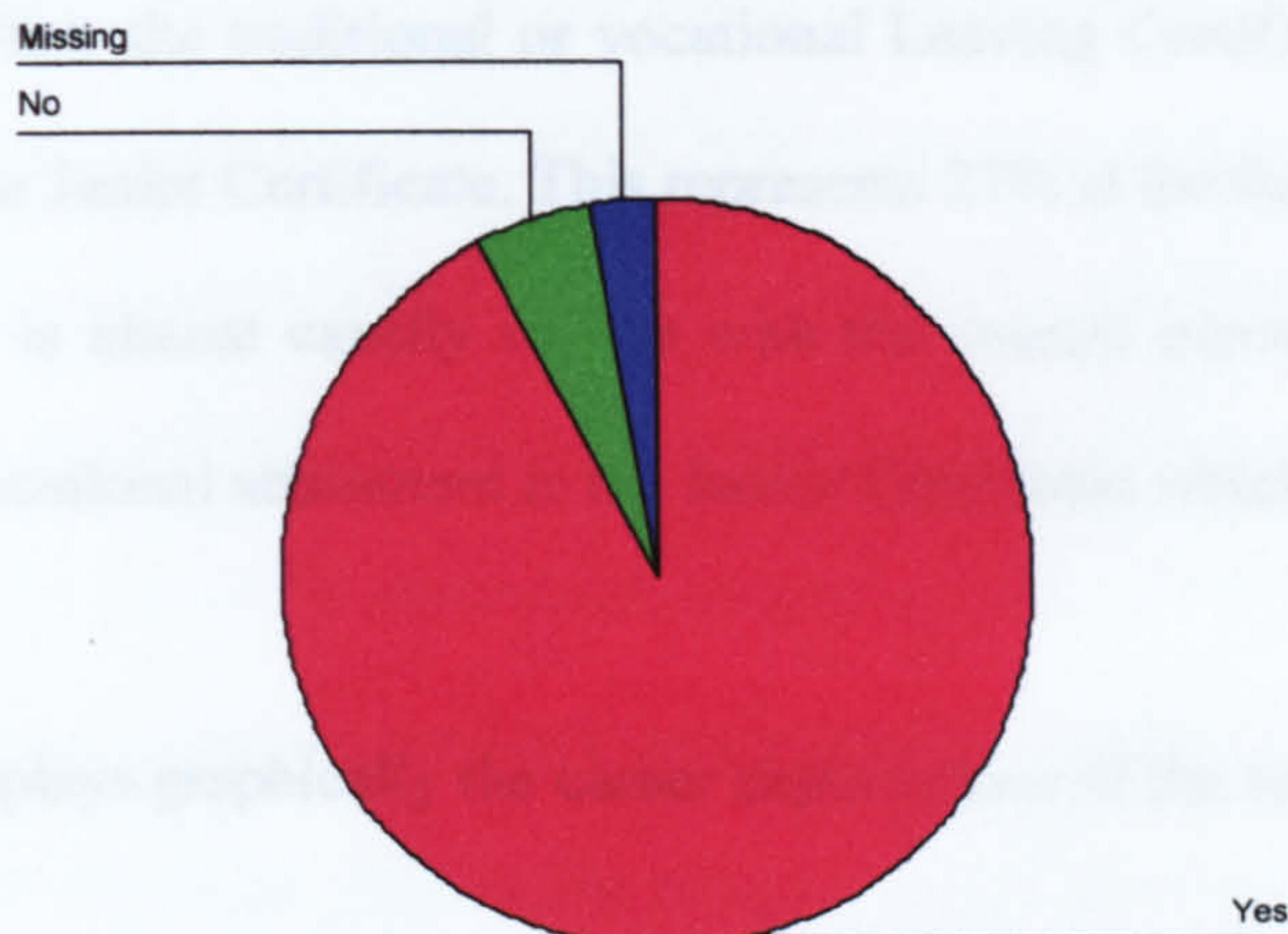


Chart 8

Of the 5 respondents who expressed dissatisfaction with their choice of career, 2 of them obtained 3 Merits in their Phase results, 2 of them got 2 Merits and 1 Pass whilst the third obtained 3 Passes. 4 of the 5 respondents did not expect to be working in the trade in 5 years time. 4 of them worked in the trade of Carpentry and Joinery and the fifth worked as Painter & Decorator.

Career in 5 Years Time

97 of the people who filled-in the questionnaire responded to the question ‘do you expect to be working at your trade in 5 years time’? 87.1% indicated that they expect to be, with 9.2% expecting that they will not be engaged in their current role by that time. Each of the 11 respondents in this category expressed satisfaction with their choice of career. 7 of them expect to be still engaged in the construction industry in 5 years time but in a different capacity, mainly either self-employed or in a supervisory capacity.

In 5 Years Time?

Missing

NO	



Yes

Proposed Changes to Structure of SBA

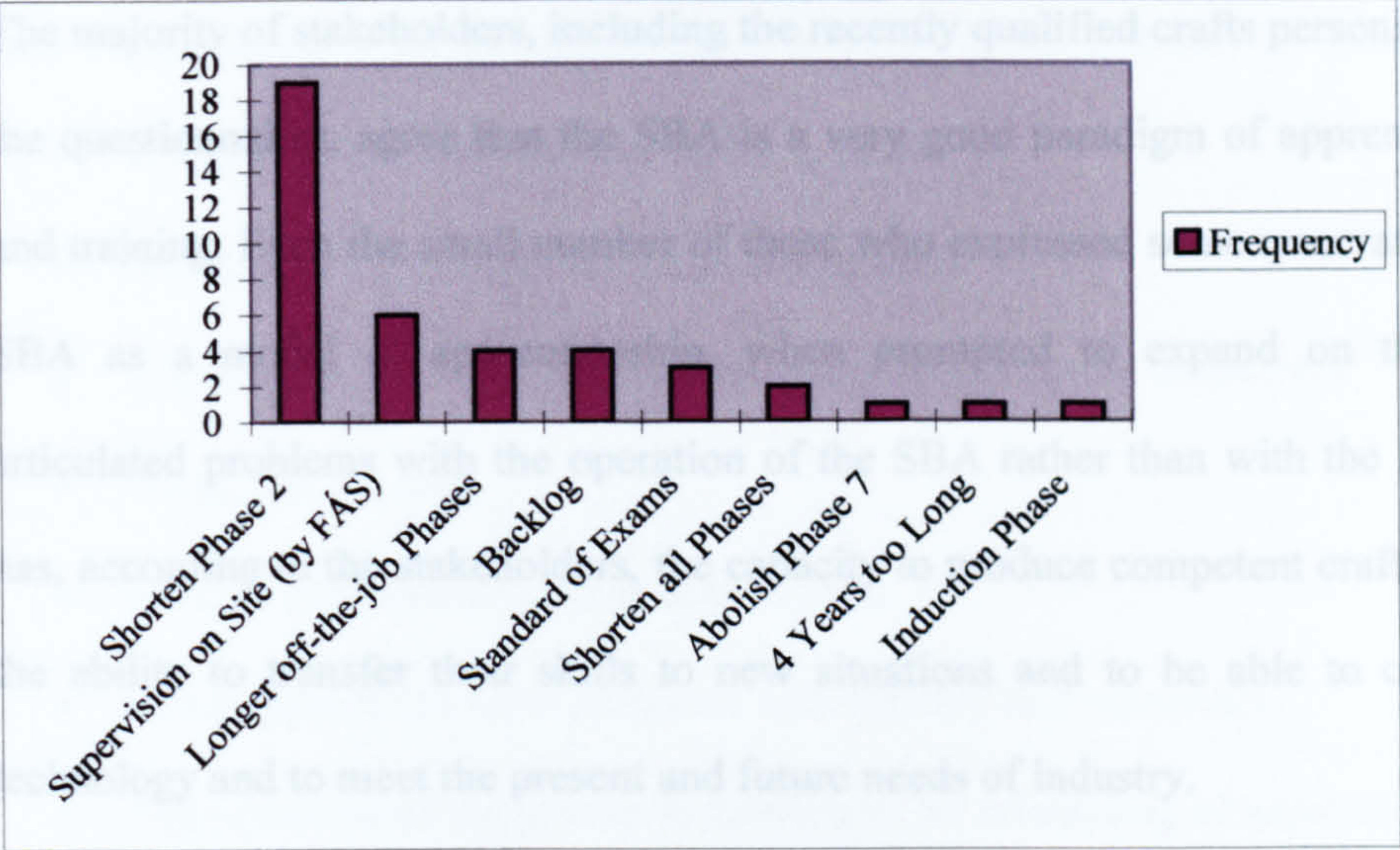
As indicated earlier, 94.2% of the newly qualified crafts persons were positive in their opinion of the structure of the SBA, with 4 on-the-job Phases and 3 off-the-job Phases. However, 57 out of the 104 respondents made some suggestions for change. The changes suggested ranged from shortening the duration of Phase 2, and this was the most common proposal, to the need for supervision on site by FÁS. Of those who suggested that Phase 2 is too long, 2 of the respondents recommended that it be reduced to 15 weeks whilst another said 10 weeks. Among the reasons cited for reducing the duration of Phase was; ‘too much hanging around with not enough to do’ and ‘too long and too boring’. Two of the respondents suggested that all off-the-job phases should be shortened. Many of the respondents recommended changes to the curricula. However, the data emanating from the suggested changes to the curricula is that apprentices do not understand why there is need for broad curricula to foster transferability of training and to prepare apprentices for change in the future resulting from evolving technology. Table 10 gives both the type of suggestion and the frequency of the suggestions made and the accompanying table. Chart 10 illustrates the frequency of the suggestions graphically from the recommendations made by the respondents.

Table 10

Recommendations	Frequency
Shorten Phase 2	19
Supervision on Site (by FÁS)	6
Longer off-the-job Phases	4
Backlog	4
Standard of Exams too Low	3
Shorten all Phases	2
Abolish Phase 7	1
4 Years too Long	1
Induction Phase	1

Recommendations for Change to Structure of SBA

Chart 10



Graphical Illustration of Recommendations for Change to SBA

Preparation for Further Courses

The former apprentices were asked if they believed that the SBA prepared them to pursue other courses, should they wish to do so, at a later stage in their career. The question was general in nature and no type of post-apprenticeship course was specified. The purpose of the question was to endeavour to establish if the perception of the respondents was that the successful completion of the SBA instilled a confidence to follow other courses if they so wished.

Of the 68 respondents who answered this question, 59 believed that the SBA prepared them to pursue other courses whilst 9 believed that it did not. 4 of the respondents in the latter category indicated that the Junior Certificate was their highest educational attainment prior to apprenticeship whilst the remainder indicated that they had achieved the Leaving Certificate, either Traditional or Vocational.

Summary

The majority of stakeholders, including the recently qualified crafts persons who returned the questionnaires, agree that the SBA is a very good paradigm of apprentice education and training. Even the small number of those who expressed some reservations about the SBA as a model of apprenticeship, when prompted to expand on their concerns, articulated problems with the operation of the SBA rather than with the SBA itself. It has, according to the stakeholders, the capacity to produce competent crafts persons with the ability to transfer their skills to new situations and to be able to cope with new technology and to meet the present and future needs of industry.

The majority of the former apprentices are satisfied with their choice of career and expect to be still employed as crafts persons in 5 years time.

There is agreement among the trainers that it sets high standards for the apprentices to achieve and that it is a very structured system. There is also a consensus that Phase 1 is a very important Phase as it acts as a process of socialisation and enculturation for apprentices and allows employers to assess the potential of newly-registered apprentices before they participate in the off-the-job Phases.

The mandatory period of a minimum of 4 years duration for apprentices is not seen as being problematic though employers expressed some reservations about all trades requiring the same duration, in particular the trades of brick/stone laying and plasterwork.

The SBA is perceived as a good platform for those crafts persons who aspire to higher courses and qualifications.

Notwithstanding the general perception that the SBA is a good model of apprenticeship, there are according to all the stakeholders, some problems that need to be addressed:

- The lack of an induction course for apprentices
- No monitoring of apprentices on site by FÁS
- Apprentices not being properly assessed on site by the employers
- Phase 2 is too long
- Lack of motivation by some apprentices.
- Some apprentices have problems with literacy and numeracy.
- The operation of the system in relation to the scheduling of apprentices for the off-the-job Phases
- Curricula for the off-the-job Phases are inflexible.
- The system of assessment of the practical work of apprentices on the off-the-job Phases needs to be reviewed.
- There is a lack of coordination between the off-the-job trainers at Phases 2, 4 and 6 and between the off-the-job trainers and employers.
- There is no national monitoring of standards for the off-the-job Phases
- The backlog created by the shortage of places on the off-the-job Phases
- Lack of business-type subjects in curricula

This chapter analysed the data produced by the research, drawing attention to the strengths and weaknesses in the SBA as perceived by the stakeholders. The final chapter draws conclusions from the analysis from and makes recommendations to transform what is seen by the consumers of the phenomenon known as the standards based apprenticeship as good system of apprenticeship into a more efficient one.

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CHAPTER FIVE

Conclusions

Introduction

The SBA was introduced on a phased basis in Ireland in 1993 to replace the time-served system. There were many failed attempts throughout the last century to change the apprenticeship system but the catalyst for development of the SBA came when, according to Field and Dubhchair (2001, p.251), at the prompting of the trade union movement, apprenticeship policy was identified as a key issue in the 1991 Programme for Economic and Social Progress (PESP).

The SBA has been in operation now for 10 years and very little independent research has taken place to examine the suitability of the SBA as a paradigm of apprenticeship and this thesis endeavours to address that. This chapter summarises the findings of the research and makes recommendations for change to its operation to improve what is already a good system into one that could be seen to be the gold standard of apprenticeship in Europe.

From Time-Served to Standards Based

The paradigm shift from a system of apprenticeship which was essentially time-served and steeped in a history of nepotism and sectional interest to a system which is competency based and with the potential to adapt to changing technology has been immense.

The time-served system, at its finest, has served this country well in the past, particularly since day-release and block-release classes were developed. However, as espoused by Donnelly (1994, p.18), it would be unrealistic to assume that the traditional craft apprenticeship was without its weaknesses. It was inequitable in so far as that not all apprentices either got the opportunity or did not avail of the opportunity to develop their skills and related knowledge particular to their trade in a structured and ordered manner. The main requirement of the time-served system of apprenticeship was time, regardless of the level of competency attained during the apprenticeship. It was not possible with the TS system to ensure that all apprentices would reach measurable levels of skill and related knowledge to meet the needs of modern industry and to be equipped to cope with modern technology, new materials and processes.

The Standards Based System has both strengths and weaknesses. The strengths must be built upon by addressing the weaknesses and certain aspects of it require revisiting and refinement to ensure that it is serving the best needs of both industry and apprentices.

SBA as a Paradigm of Apprenticeship

In an era when other countries have abandoned the apprenticeship tradition and are now calling for its return, Irish policy makers had the foresight to continue supporting apprenticeship training and education (European Social Fund Evaluation Unit, 1995, p.175). Whilst the change from time-served to a standards system has not been easy, the perception of all the stakeholders who took part in this research project is that it is a good system of apprenticeship with the capacity to produce high quality crafts persons to meet the needs of industry. This is a strong endorsement of the apprenticeship education and training system in Ireland.

Among the advantages of the SBA, as perceived by those directly or indirectly engaged in the training of apprentices, are:

- It is a well regulated model of apprenticeship
- All apprentices have a statutory entitlement to the 7 Phases.
- Phase 1 is perceived by the trainers to be very important because it is effectively a screening process for employers and an enculturation and socialisation process for apprentices.
- It gives a good balance of structured training between the on- and off-the-job Phases
- It sets minimum standards of competence for all apprentices
- The off-the-job Phases provide a supportive learning environment for apprentices and complements the experience of apprentices on site.
- The curricula are very comprehensive.
- Apprentices experience the most modern technology in their field during training.
- It has the capability to produce crafts persons of the calibre required by industry
- The SBA provides participants with a good range of skills and knowledge, skills that are transferable and adaptable.
- The SBA prepares apprentices well for a career in the construction industry
- Crafts persons who successfully completed the SBA have the ability to progress to higher courses.

Clearly, the SBA has many advantages over the TS system it replaced and is a well-regulated and structured system of apprenticeship training. It prepares participants well for a career and offers employers the comfort that crafts persons who qualified through the SBA have met minimum standards of competence.

As will be observed from the data analysis, there are, according to the stakeholders, some inherent weaknesses in the system. Among those identified by the research are:

- Lack of assessment of the on-the-job Phases by many employers
- Lack of monitoring of the on-the-job Phases by FÁS
- There is no formal induction process for people registering as apprentices.
- The duration of Phase 2 is too long
- Educational standard of people entering apprenticeship is perceived by the some of the off-the-job trainers, particularly the instructors in FÁS, as being too low in some cases.
- The marking schemes for the assessment of off-the-job practical work are deemed by the many of the instructors in FÁS and by the lecturers in CIT to be inappropriate. They also consider that they do not measure the cognitive functions underlying task performance.
- There is a clear lack of robust quality assurance procedures throughout the SBA, including the off-the-job Phases.
- There is a lack of communication between the trainers
- The curricula for the Phases 4 and 6 off-the-job Phases do not promote self-learning.
- Curricula are inflexible.
- There are no clearly defined paths of progression for apprentices.

On-the-Job Assessment

The strongest criticism of the SBA from all the stakeholders, including the newly qualified crafts persons, was that of the lack of proper assessment procedures by many employers for the on-the-job Phases. This finding was in accord with the findings of Field and Dubhchair (2001), O'Connor (2000) and European Social Fund Evaluation Unit (1999). Certainly, we believe that there are grounds for doubts concerning assessment of on-the-job training in a survey of electrical and construction firms and apprentices in the North East of the Republic in 1997-98 (Field and Dubhchair, 2001, p.253). On the matter of on-the-job assessment O'Connor (2000, p.115) opined:

A high proportion of the employers interviewed did not actually carry out the assessments at all but simply returned a result on the basis that they presumed the apprentice was capable of completing the tasks to be assessed. This presumption was based on their knowledge of the apprentices' skills in the workplace. Many of the employers expressed the opinion that they should receive more assistance from FÁS in assessing the apprentices for the on-the-job Phases.

The problem with on-the-job assessment was identified as early as 1995, two years after the introduction of the SBA, by the European Social Fund Evaluation Unit's preliminary report on the SBA. The report specifically referred to the difficulty that small companies may have with assessment and it noted most firms in the construction sector in Ireland are in the micro or small category. Ryan (1999, p.52) argued in any case the quality of work-based training is intrinsically difficult to measure.

This serious criticism of one of the cornerstones of the SBA, that of the measure of competence of apprentices in the workplace, raises concern regarding the ability of the

on-site assessors to competently assess apprentices without appropriate training in assessment techniques. Field and Dubhchair (2001, p.253) expressed concern regarding the ability of the on-site assessors to carry out the assessments without any training when they averred:

Significantly, and unlike the British system, assessors were not required to possess any qualifications themselves, other than those directly relating to their trade.

There is a third issue with regard to the assessment of apprentices on site; that is if the employer is not engaged in the type of work in which the apprentice is required to be assessed how does the employer overcome this problem? These are serious matters if the SBA is to be seen to have rigorous quality assurance procedures in place.

Monitoring of Apprentices at Work

The lack of monitoring of apprentices on site by FÁS is another concern to many of the stakeholders. Analysis of the data indicates that both employers and apprentices perceive the absence of a monitoring system for the on-the-job Phases to be a defect in the structure of the SBA. Many employers ensure that apprentices get as wide an experience as possible on site. However, a number of apprentices indicated on the questionnaires that their experience on site was less than satisfactory from their point of view. Their complaints included that they were constantly engaged in work of repetitive nature and also being required to do work which was unconnected to their trade.

Induction Procedure

Another issue emanating from the analysis of the data was the absence of an induction course for newly registered apprentices. The instructors in FÁS in particular were adamant that such a course should be introduced to explain to apprentices the structure

and the operation of the SBA at the very beginning and, in particular, to explain the subject content of the course and the system and importance of the assessments. Such a course, they argued, may help to motivate apprentices at Phase 2.

Duration of Phases

The duration of Phase 2 was a concern raised by apprentices in the returned questionnaires. It is worth observing that the issue of the duration of the off-the-job Phases was not referred to in the questionnaires by the researcher but almost 20% of the respondents identified the length of Phase 2 as being too long. Other stakeholders were also critical of the length of this Phase. Employers cited two reasons for shortening this Phase: a change in attitude and a diminished work ethic when apprentices returned to work after completing Phase 2.

Educational Standard of Apprentices

Each of the instructors in FÁS contended that the educational standard of some of those entering apprenticeship was too low. In particular they argued that aspirants to apprenticeship should be of Leaving Certificate standard and have taken subjects such as technical drawing during the Leaving Certificate course to prepare them for apprenticeship. They opined that apprentices whose highest educational attainment was Junior Certificate almost always had difficulty in successfully completing Phase 2. It should be noted that the instructors are essentially setting out two separate requirements for aspirants to apprenticeship with this proposal: firstly that to enter apprenticeship a person should be required to hold the Leaving Certificate, and secondly, that specific subjects should be mandatory. It will be seen from the analysis of the data generated by

this research that just over 70% of the respondents have achieved the Leaving Certificate, vocational or traditional.

This contention that those apprentices who are of Junior Certificate standard struggle with the Phase 2 programme is not borne out by an examination of the results of the Phase assessments. Almost 50% of the respondents who had only obtained Junior Certificate got a Merit at Phase 2, almost 60% got a Merit at Phase 4 and 66% achieved the grade of Merit at Phase 6. The corresponding rates of Pass and Merit for those respondents who had obtained either the traditional or vocational Leaving Certificate is 30% and 70% at Phase 2, 14% and 86% at Phase 4, and 19% and 81% at Phase 6. Also, 31% of the respondents with Junior Certificate obtained 3 Merits in their off-the-job Phases whilst the comparable figure for those with the traditional Leaving Certificate is 62%.

What the results do indicate is that it appears more likely that apprentices with either the traditional or vocational Leaving Certificate will achieve the grade of Merit in the Phase results. Nevertheless, those whose highest educational attainment is Junior Certificate appear to be well capable of successfully completing the SBA. The research also indicates that the majority of the newly qualified crafts persons found the Phase assessments either 'fair', 'easy', or 'very easy', particularly at Phase 2. The percentage of respondents who considered the Phase assessments difficult increased with Phase progression, but significantly, the percentage of those who obtained a grade of Merit also increased at the higher Phase levels.

This is not to dispute the opinion of the instructors in FÁS who contended that those with Junior Certificate struggle with the Phase 2 course. Some of the lecturers in CIT also

alluded to the low educational standard of some apprentices. What these statistics do indicate is that the Phase assessments in their present form may not be an appropriate measure of the ability of apprentices. The criticisms voiced by some of the off-the-job trainers regarding the marking scheme for the practical elements of the assessments reinforce this argument. Whilst the Phase assessment results include both the theory and practical elements of the tests, and the marking scheme for the written papers has also been the subject of criticism by the lecturers in the institutes and the subject of the Kelleghan Report (2002), nevertheless, serious questions must be asked regarding the assessment of the practical work for the off-the-job Phases. In particular, it brings into question the application of an assessment model based on the competence paradigm. Eraut, (1989, p.181) opined that the term competence is often used to set minimum targets which limit expectation. Ashworth and Saxton (1990, p.23) argued that assessing involves the perception of evidence about performance by an assessor and the arrival at a decision concerning the level of performance of the person being assessed.

This dichotomy between the perceived low standard of some apprentices entering apprenticeship and quite high achievement in the Phase assessments of those same people brings into question the suitability of a competence based system of education and training for craft workers. Ashworth and Saxton (1990, p.18) agree with this notion when they opined that assessment of students in the competence model makes it [the assessment] a poor guide for teachers.

Linked to this dilemma is the criticism that curricula for the SBA do not promote the concept of self-learning and are not sufficiently challenging for the apprentices, particularly those capable of aspiring to higher than the minimum standards. This is

because the curricula have been designed on the basis of a functional analysis of the requirements of the occupational role of the crafts persons and not to specifically promote independence in learning and, as Eraut (1989, p.181) averred, either you can do it or you cannot (in a competence based system).

Progression to Higher Courses

There was also criticism from the off-the-job trainers, particularly the instructors in FÁS that the SBA does not prepare apprentices for progression. The lecturers in CIT were of the opinion that it did prepare them for horizontal progression but not for vertical progression. The majority of the former apprentices agreed that it did prepare them for progression but the specific question in the questionnaire did not differentiate between horizontal and vertical progression. However, when the statistics regarding the respondents' educational attainment and phase results are examined, and taking into account their expressed opinion in the questionnaire, the conclusion must be that the majority of the respondents would be capable of following successfully further courses if they so wished.

Quality Assurance

The research indicates that the SBA is perceived as a good model of apprenticeship education and training but there is a distinct lack of quality assurance procedures throughout the system. This is obvious even when there are multiple Phases in the same institution on the off-the-job elements of the SBA. It is true that the standards to be achieved are laid down in the FÁS documentation for each element of the Phases. Standards are, by their very nature, subjective and are liable to varying interpretations by the assessors. This may mean that, for example, different interpretations of standards

may apply with an institute or a FÁS training centre for different classes in the same trade and Phase simply because the lecturers or the instructors involved may exegete the standards differently. This is not to criticise the professionalism of the assessors, it is simply to draw attention to the lack of quality assurance procedures at all levels of the SBA.

Similarly, there is no monitoring of the on-the-job elements of the training and this is again indicative of the lack of a comprehensive set of procedures to underpin the credibility of the SBA as standards based model of apprenticeship education and training. Everett (1998, p.1) opined that the opportunity to learn real skills in the workplace appeals most to young people. However, if this element of the SBA is not monitored to ensure that apprentices are given every opportunity to benefit from this learning site then the credibility of the SBA is brought into question.

Lack of Continuity Between Phases

Emanating from this research is the sense that the 7 Phases are disjointed, that there is a distinct lack of continuity between the Phases and between the stakeholders and that the whole system needs 'joining up'. The trainers, both on- and off-the-job, are not in contact with each other to ensure that the whole training and education package that is the SBA is delivered in a cohesive manner for the good of the apprentices and the industry. This lack of communication manifests itself in many ways including the isolation of the partners from each other in terms of relaying information and results to each other to ensure the highest degree of support for the apprentices.

An example of this is that the results of the Phase 2 assessments are not forwarded to the institute in which an apprentice does the Phase 4 programme. Consequently, when apprentices arrive in an institute to undertake the Phase 4 programme, information regarding the achievement and standards of the individual apprentices, although recorded in the FÁS training centre where they underwent the Phase 2, are not available to the lecturers delivering the Phase 4 programme. Similarly, the results of the Phase 4 assessments are not available to the lecturers who deliver the Phase 6, if that Phase is being done in a different institute to that where the Phase 4 was undertaken. More importantly, apprentices who may have special needs are not identified. For example, if an apprentice requests special assistance or is identified by her/his instructor as having specific problems, such as literacy or numeracy problems, or is dyslexic, this crucial information is not relayed to the off-the-job trainers of the next Phase. There are good support services in the institutes of technology for students who are experiencing problems with study or indeed problems of a personal nature. However, in the case of apprentices who only spend either 10 or 11 weeks in an institute of technology on either the Phase 4 or 6 block release, by the time such problems are identified then it may be too late to give as much assistance to the apprentice as would be possible if such problems were alerted prior to the start of the course.

The following section recommends changes to the structure and operation of the SBA to remedy weaknesses in the system which have been highlighted by the analysis of the data.

Recommendations

Induction Programme for Apprentices

Among the deficiencies emanating from this research is the lack of an induction course for apprentices when they begin their training. Therefore, the first recommendation is the introduction of an induction course at which the structure and operation of the SBA, the duties of apprentices, employers and off-the-job providers would be explained. It should also outline career opportunities for holders of the National Craft Certificate in terms of progression. It should also emphasise the importance of the NCC as a nationally recognised qualification with the national framework of qualifications and the benefits it bestows on the holder. The opportunity should also be taken during this induction course to issue a schedule of dates and location for the off-the-job Phases. This induction programme may also help to motivate those apprentices whom the instructors in FÁS referred to as having entered apprenticeship because it was seen as an easy career option. In particular, it should be highlighted at these induction programmes that the study of such subjects as mathematics, science and drawing is a necessary part of the SBA, and specifically, why they are included. This induction course should be mandatory and registration as an apprentice in the designated trades should begin from the day of the induction course. It is proposed in this thesis that the induction course should be completed in one day and it should be common to all trades.

The ‘Joining Up’ of the Phases

The second issue to be addressed in this section is the apparent lack of cohesiveness in the structure of the SBA in terms of ‘joining up’ the 7 phases. It also proposes an extension of the role of the FÁS instructors who deliver Phase 2 element.

The present structure of the SBA is illustrated graphically in Chart 10. This drawing demonstrates the discontinuity between the Phases.

connectedness between the Phases. In making proposals to address this deficiency, other problems, as identified

The Present Structure of the SBA

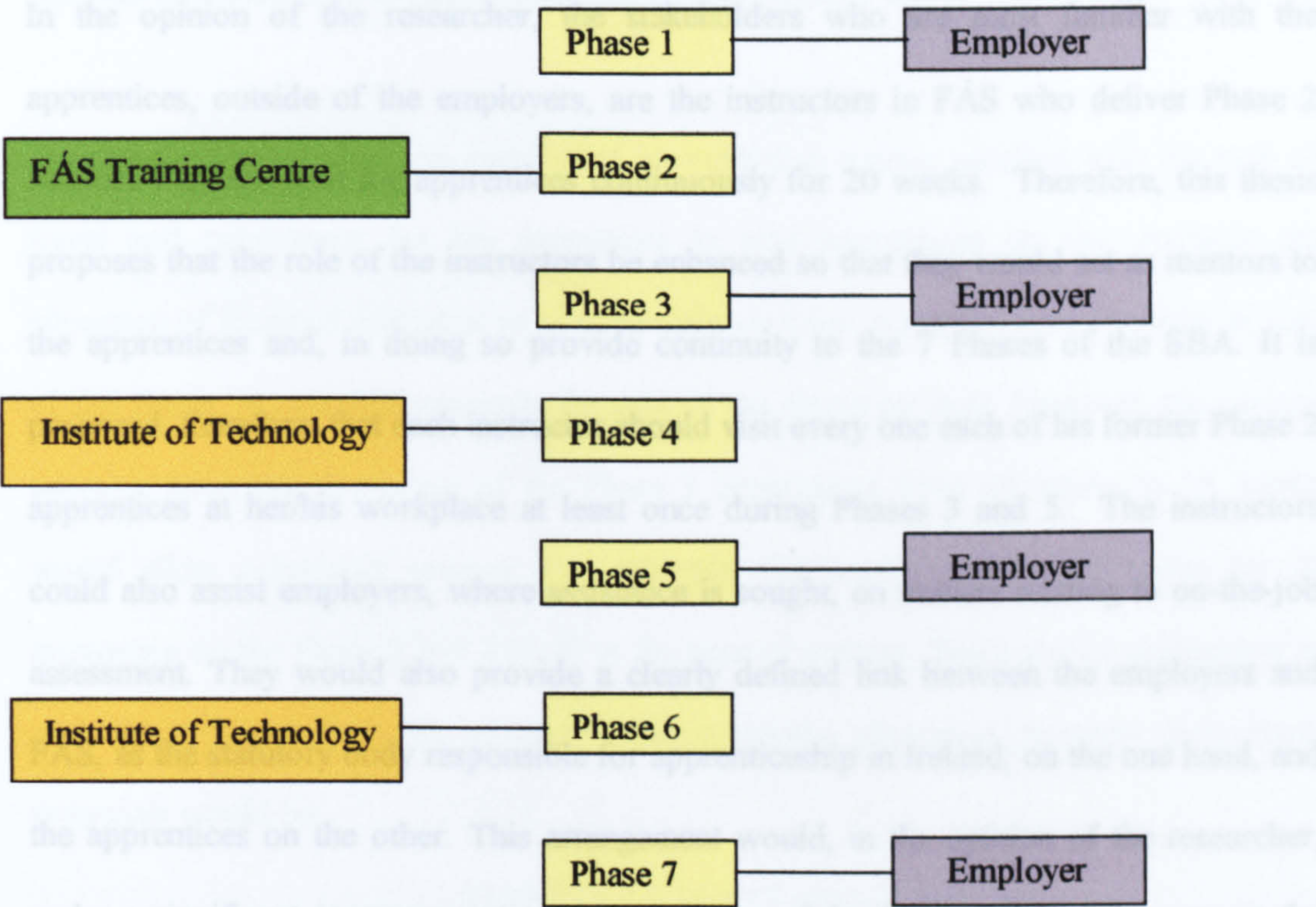


Chart 11

National Craft Certificate

Formal communication between the trainers amounts to relaying results from the institutes of technology and from the employers to the FÁS STB section that collate the Phase results.

As is obvious from this graphic, apprentices attend 3 different locations for their training during their apprenticeship, but as outlined earlier, there is a distinct lack of connectedness between the Phases. In making proposals to address this deficiency, other problems, as identified by the respondents, are also the subject of proposals for change.

In the opinion of the researcher, the stakeholders who are most familiar with the apprentices, outside of the employers, are the instructors in FÁS who deliver Phase 2 because they are with the apprentices continuously for 20 weeks. Therefore, this thesis proposes that the role of the instructors be enhanced so that they would act as mentors to the apprentices and, in doing so provide continuity to the 7 Phases of the SBA. It is proposed, therefore, that each instructor should visit every one each of his former Phase 2 apprentices at her/his workplace at least once during Phases 3 and 5. The instructors could also assist employers, where assistance is sought, on matters relating to on-the-job assessment. They would also provide a clearly defined link between the employers and FÁS, as the statutory body responsible for apprenticeship in Ireland, on the one hand, and the apprentices on the other. This arrangement would, in the opinion of the researcher, make a significant improvement to the operation of the SBA and provide support for apprentices who may be experiencing some difficulty with their apprenticeship. In extreme cases, where apprentices are engaged continuously in work of a repetitive nature, the instructor may be able to arrange alternative work experience for a limited time with another employer. This arrangement may involve the swapping of apprentices between employers for a limited period.

Reduction in the Duration of Phase 2

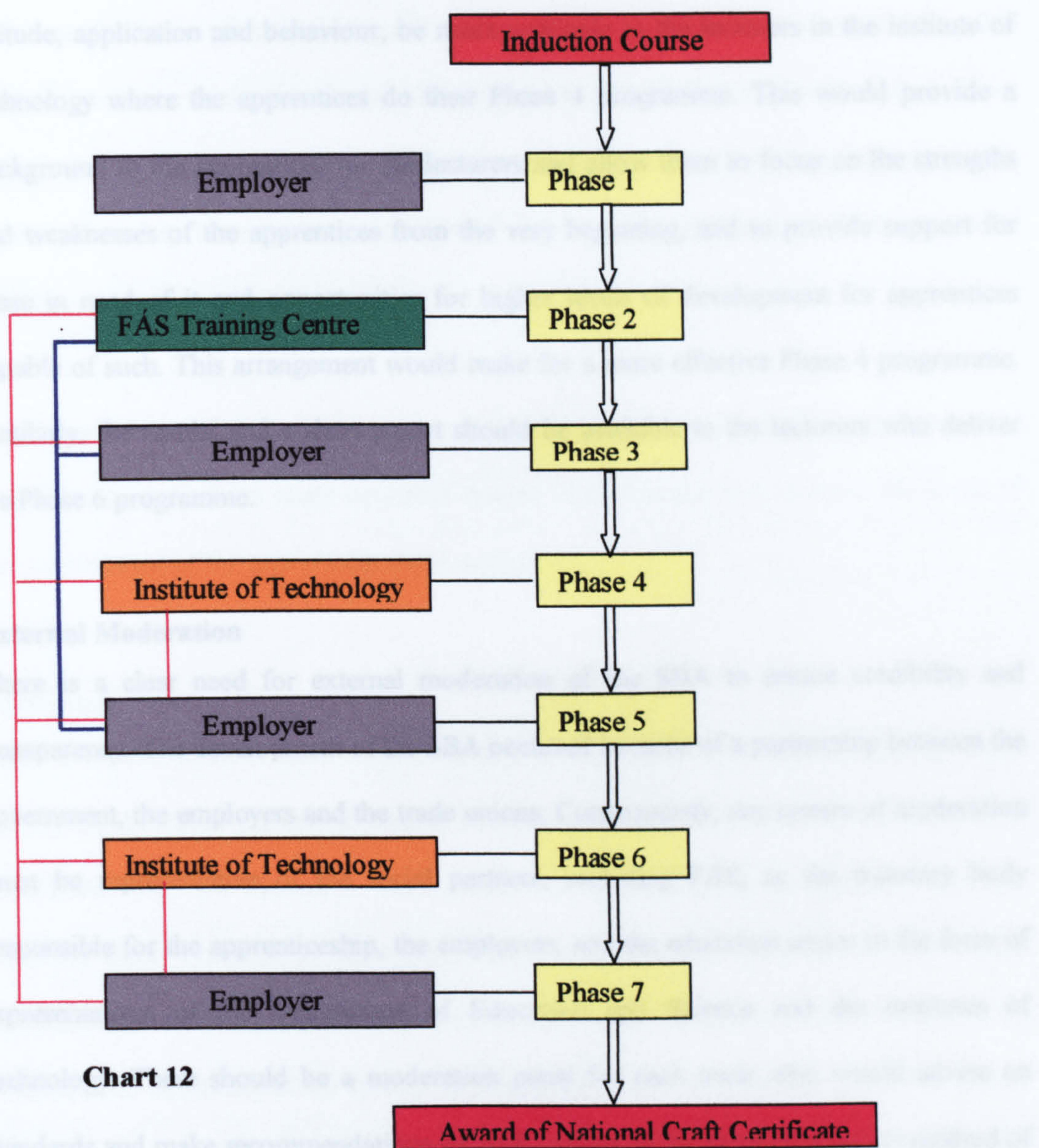
The most common complaint made by the former apprentices who took part in this research project was that Phase 2 is too long. Consequently, in order to provide sufficient time for instructors to visit apprentices at their place of work, it is proposed that Phase 2 be shortened from 20 weeks to 16 weeks. The remainder of the time, i.e. 4 weeks, would facilitate the instructors to visit apprentices during Phases 3 and 5.

Clearly, the organisation and running of an induction course, coupled with the cost of travel and subsistence for the instructors to visit apprentices on site, requires the allocation of financial resources to operate these services. It has not been possible, as part of this thesis, to calculate precisely the cost of the above services. However, the savings accruing from the shortening of the Phase 2 programme from 20 weeks to 16 weeks would allow substantial savings. For example, the weekly training allowance for an apprentice on the Phase 2 is € 199.29 at the time of writing. There are 14 apprentices in each class, consequently, the savings made on training allowance payments under these proposals would be:

$$€199.29 \times 4 \times 14 = €11160.24 \text{ per class.}$$

In addition, substantial savings would accrue from a reduction in the use of class materials, utilities such as gas and electricity, and administration. Some apprentices are also paid a travelling allowance or an accommodation allowance if their home base is more than a specified distance from the FÁS training centre. These would provide additional savings on the cost of Phase 2. It is the opinion of the researcher that such savings would more than compensate for the additional cost of providing an induction course, the cost of travel of the instructors and administration of these new measures. Chart 11 illustrates graphically the proposed structure as outlined above.

The Proposed Revised Structure of the SBA



In this graphical illustration of the proposed changes to the operation of the SBA, the red lines indicate transfer of information between FÁS, institutes of technology and employers, whilst the blue lines indicate personal contact between the FÁS instructor and the apprentice on the Phase 2 programme and on site.

In addition to enhancing the role of the FÁS instructors, the proposed model also recommends that the Phase 2 results, in addition to a short report on matters such as attitude, application and behaviour, be made available to the lecturers in the institute of technology where the apprentices do their Phase 4 programme. This would provide a background to the apprentices for the lecturers and allow them to focus on the strengths and weaknesses of the apprentices from the very beginning, and to provide support for those in need of it and opportunities for higher levels of development for apprentices capable of such. This arrangement would make for a more effective Phase 4 programme. Similarly, the results and a short report should be available to the lecturers who deliver the Phase 6 programme.

External Moderation

There is a clear need for external moderation of the SBA to ensure credibility and transparency. The development of the SBA occurred because of a partnership between the government, the employers and the trade unions. Consequently, any system of moderation must be representative of the social partners, including FÁS, as the statutory body responsible for the apprenticeship, the employers, and the education sector in the form of representatives of the Department of Education and Science and the institutes of technology. There should be a moderation panel for each trade who would advise on standards and make recommendations on such matters as the most appropriate method of applying those standards to the assessments.

Marking Schemes for Off-the-Job Phase Assessments

Both the instructors in FÁS and some of the lecturers in CIT alluded to the inappropriateness of the marking scheme for the practical tests. This aspect of the SBA

should be examined and a more comprehensive marking scheme devised which would value the cognitive functions underlying task performance and be based on percentages rather on the basis of 'essentials' and 'desirable'. Ashworth and Saxton, (1990, p.23) averred in relation to the assessment of competences that the fact that comparatively clear statements of outcome are laid down as assessment criteria has beguiled some into thinking that they are now in possession of a thoroughly reliable and valid assessment scheme.

The introduction of a more comprehensive marking scheme, would, according to the respondents, make for a more equitable system of assessment and measure the levels of accomplishment of the apprentices more accurately.

Summary

These recommendations have been informed by the research undertaken for this thesis and by the literature on apprenticeship education and training. There is a high level of satisfaction with the Standards Based model of apprenticeship in Ireland. There are, however, clear weaknesses in the system and, if implemented, the proposals for change recommended in this thesis have the potential to make significant improvements to the structure and operation of the system. In particular, the development of verifiable quality assurance procedures, the introduction of a mentoring system for apprentices whilst in the workplace, coupled with a reduction in the duration of the Phase 2 programme, and improved communication and transfer of data between the stakeholders and a revised marking scheme for the off-the-job assessments would make a big improvement in the system.

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Appendix 1

Designated Trades in Ireland

Agricultural Mechanic	Instrumentation
Aircraft Mechanic	Metal fabricator
Bookbinder	Motor Mechanic
Brickl/Stonelayer	Originator
Cabinetmaker	Painter & Decorator
Carpenter/Joiner	Plasterwork
Carton Maker	Plumber
Construction Plant Fitter	Printer
Electrician	Refrigeration Craftsperson
Fitter	Sheet Metal Worker
Floor/Wall Tiler	Toolmaker
Heavy Vehicle Mechanic	Vehicle Body Repairer
Instrumentation Craftsperson	Wood Machinist

Source: FÁS

Appendix 2

Number of registered apprentices in Ireland for each trade as at 31st August 2003

Sheet Metal Worker	286
Metal Fabricator	849
Fitter	1,029
Toolmaker	262
Motor Mechanic	1,586
Heavy Vehicle Mechanic	523
Construction Plant Fitter	331
Agricultural Mechanic	201
Vehicle Body Repairer	372
Electrician	7,086
Instrumentation Craftsperson	137
Instrumentation	102
Refrigeration	298
Aircraft Mechanic	246
Originator	31
Printer	89
Carton Maker	4
Bookbinder	29
Plumber	2,977
Painter/Decorator	441
Brick/Stonelayer	1,493
Plasterwork	688
Cabinetmaker	840
Wood Machinist	100
Carpentry & Joinery	5,444
Floor/Wall Tiler	102
Total	25,546

Source: FÁS

Appendix 3

Interview Schedule – Lecturers – Cork Institute of Technology

Name_____ Trade_____ Date_____

Introduction: Thank youfor agreeing to take part in this interview. The purpose of the interview is to seek the opinions of some of the stakeholders regarding certain aspects of the Standards Based Apprenticeship system, in particular, the structure (7 phases etc.), the quality of craftspersons in terms of the needs of industry etc, the SBA as a preparation for progression to higher courses and the suitability of the current system of assessment. Any quotes used will not be traceable to the source. The purpose of the tape recorder is simply as an *aide memoir* for the analysis of the data.

No. 1

How long have you been teaching apprentices?

Probe: Have taught apprentices in any other institution besides CIT?

No. 2

You have/have not taught under both systems?

Prompt: So you have/have not experience of teaching apprentices before the introduction of the SBA?

Probe: Which one do you prefer, given the choice? Why?

Probe: do you find the SBA more or less structured than the old system, more flexibility, for example?

No. 3

Do you consider the structure of the SBA, with 7 Phases, 4 on-the-job and 3 off, a good system of apprenticeship?

Prompt: Some countries operate what is usually called a 2+2 system, i.e. 2 years in college/training centre and then 2 years with an employer? Would this be better/ worse.

Probe: What are , in your opinion, the main advantages/ disadvantages of the SBA?

No. 4

In your opinion, has the SBA the capacity to produce craft workers of the quality required by industry?

Prompt: people with the ability to apply their skill and knowledge in different situations, to be able to adapt to new technology, to new materials and techniques, to have the capacity to develop new skills?

Probe: Is it better than the old system in this regard?

No. 5

Is the present system of assessment /examination at Phases 4 & 6 an appropriate method of measuring the standard of practical work of apprentices?

Prompt: does the present system acknowledge different *levels* of hand skill? (not additional skill). Some apprentices may be much better than others, though all may have reached the required standard.

Probe: Does the present system of assessment of practical work seek to take account of the cognitive functions underlying task performance?

No. 6

Under the Qualifications Act, 1999, clear pathways of progression must be available for anyone wishing to do so, including apprentices. Do you think the current system prepares apprentices for progression, either horizontally or vertically?

Prompt: Do you think there should be an element of general education in the SBA?

Probe: If so, what subjects should be included in this element?

No. 7

Are there any other comments you would like to make about any aspect of the SBA?

Thank respondent for time and co-operation.

(Note: The interview schedule was adapted to suit each cohort of respondents)

Appendix 4

Questionnaire for Crafts Persons

The purpose of this questionnaire is to seek the views of recently qualified craftspersons regarding aspects of their apprenticeship. It is part of a research project. ***All information received will be treated in the strictest of confidence.*** Please read the questionnaire carefully before you answer the questions. There is no need to sign it.

No. 1.

Trade _____

Age _____

Gender: (Please tick box) Male ☐ Female ☐

Current Employment: Please tick box

Are you currently self-employed? ☐ Working for a sub-contractor? ☐

Working for a contractor? ☐ Unemployed? ☐

Other (please state) _____

If you are self-employed do you employ other people? Please tick box. Yes ☐

If you employ other people please state how many? ☐

☐ b

If you employ other people do you employ apprentices? Yes ☐

No ☐

If so, how many apprentices? ☐

No. 2

Please state the location of the FÁS training centre where you did your phase 2 course and the college(s) where you did your phase 4 and phase 6 courses. Also please tick the appropriate pass or merit box for the result you obtained for each phase.

Phase 2 _____	Pass <input type="checkbox"/>	Merit <input type="checkbox"/>
Phase 4 _____	Pass <input type="checkbox"/>	Merit <input type="checkbox"/>
Phase 6 _____	Pass <input type="checkbox"/>	Merit <input type="checkbox"/>

Did you find the Practical exams difficult or easy? Please tick one box for each phase.

<u>Phase 2:</u>	Very difficult <input type="checkbox"/>	<u>Phase 4</u>	Very difficult <input type="checkbox"/>	<u>Phase 6</u>	Very difficult <input type="checkbox"/>
	Difficult <input type="checkbox"/>		Difficult <input type="checkbox"/>		Difficult <input type="checkbox"/>
	Fair <input type="checkbox"/>		Fair <input type="checkbox"/>		Fair <input type="checkbox"/>
	Easy <input type="checkbox"/>		Easy <input type="checkbox"/>		Easy <input type="checkbox"/>
	Very Easy <input type="checkbox"/>		Very easy <input type="checkbox"/>		Very easy <input type="checkbox"/>

No. 3

Do you think the system of apprenticeship that you went through with 4 on-the-job phases and 3 off-the job phases is a good system? Please tick one box

Very good ☐

Good ☐

It is OK ☐

Not so good ☐

Poor ☐

Would you recommend any changes to the system? If so please write them here.

(You may write on the back of the page if you need more space for your comments)

How well do you think your apprenticeship prepared you to work as a craftsperson in the construction industry during the 7 phases?

Extremely well ☐

Reasonably well ☐

It was OK ☐

Badly ☐

Very Badly ☐

Are there any comments you wish to make regarding the answer you gave to the above question? If so, please write them here.

No. 4

Do you intend to do any more courses in the future? Please tick box. Yes ☐ No ☐

If you answered YES to the last question do you think your apprenticeship course prepared you for further study? Please tick box.

Yes ☐ No ☐

If you intend to do any other course what type of course would you prefer? Please state.

No. 5

Educational attainment at school (before your apprenticeship). Please indicate your highest educational attainment at school. Please tick box

Group Cert. ☐

Leaving Cert: Traditional ☐

Junior Cert. ☐

Vocational ☐

Inter Cert. ☐

Applied ☐

If you did the traditional or vocational Leaving Cert how many points did you get?

Other qualification(s) Please state:

What type of school did you attend? (Please tick box)

- Secondary ☐
- Vocational ☐
- Community School ☐
- Community College ☐
- Youthreach ☐

Are happy with your choice of career? Yes ☐ No☐

Would you like to be working as a craftsperson in five years time? Yes ☐ No ☐

If you answered No please state what you would like to do in the future:

Thank you for completing the questionnaire. Please post it today.

Appendix 5

Theoretical Framework For Analysis of Interviews

Coding System

1.10 Length of Experience	4.22 SBA no different from TS
2.10 TS and SBA	5.10 Assessment of practicals
2.11 Prefer teaching TS or SBA	5. 10.1 Apply subjectivity to marking
2.20 More or less flexibility at Ph.2	5.11 Problem with theory exams
3.10 Structure of SBA	5.12 Different levels of hand skill
3.10.1 Advantages of SBA	5.20 Cognitive functions
3.10.2 Duration of apprenticeship	5.21 Compare TS to SBA
3.11 Backlog	6.10 Prep. for Progression
3.20 Phase 1 - enculturation	6.11 General education
3.21 Standard of apps on Phase 2	6.12 Specific subjects
3.21.1 Quality of teaching	7.00 Any other comments
3.21.2 On-site-experience	
4.10 Calibre of crafts persons	
4.20 Adapt a new technology	
4.21 Transferability of skills	

Appendix 6

The Irish Education System

Overall responsibility for education in Ireland lies with the Minister for Education who is a member of the Irish Government and responsible to the *Dáil* (National Parliament).

In practice, the administration of education is conducted from the Department of Education & Science (DES). Thus, the system of administration is a centralised one, although there are elements of localised management at first (primary) and second levels. Higher education institutions are autonomous statutory bodies.

The DES sets the general regulations for the recognition of schools and effectively controls the curricula and the public examination system and establishes rules and regulations for the management, resourcing and staffing of schools and negotiate teachers' salaries. The DES also exercises a detailed control function, particularly in budgetary matters, within the vocational sector (Vocational Education Committees). In addition, it has an overview function in relation to certain higher-level institutions and is directly responsible for negotiating overall funding for designated institutions under the Higher Education Authority (HEA).

The HEA has statutory responsibility for furthering the development of higher education and assisting in the coordination of state investment in higher education and preparing proposals for such investment. It is also required to maintain a continuous review of the demand and need for higher education. Institutes of technology do, at present come under the authority of the HEA but this is currently under review.

The Higher Education and Training Awards Council (HETAC) has statutory responsibility for the validation of courses and the award of qualifications for third-level institutions outside the university sector. The authority to award these qualifications may be devolved to these institutions provided such institutions meet certain criteria.

The Further Education and Awards Council (FETAC) make awards below the level of those awarded by HETAC.

Primary education in Ireland normally takes eight years with children beginning school at 4 to 5 years of age, but not older than 6 years, and finishing at 12 to 13 years. There are no state examinations for primary school children.

The last three years of compulsory education usually take place in the Junior Cycle of one of the main types of second-level schools: Secondary, Vocational, Comprehensive, Community Schools or Community College. Parents are free to choose the second-level school.

60% of pupils attend Secondary Schools, 30% attend Vocational Schools, 2% attend Comprehensive Schools and 6% attend Community Schools. The Secondary School (sometimes referred to as a Voluntary Secondary School) is the largest category, comprising approximately two-thirds of all second-level schools. Traditionally, these schools provided an academic (or grammar school) type of education. In recent years, however, they have been increasingly influenced by the practical and technical content of vocational education. In recent years a broad consensus has emerged that every second-level school should attempt to offer a comprehensive curriculum, providing a broad balance between academic and vocational subjects.

Initially, the main thrust of Vocational schools was the inculcation of manual skills and the preparation of young people for entry into the trades. Nowadays, however, the full range of second-level courses is available in these schools.

Comprehensive schools were established in 1966 in areas where existing provision was inadequate. They combine academic vocational subjects in a wide curriculum. Community schools and Community Colleges had their origins in the amalgamation of Secondary and Vocational Schools due for replacement or renovation. They are also seen as meeting a demand in newly developed urban areas formerly supplied through separate Secondary and Vocational Schools. Apart from the provision of comprehensive facilities to cater for the varying aptitudes and abilities of all children irrespective of family means,

it was envisaged that these schools and colleges achieve the optimum utilization of teachers, buildings and equipment, as well as being the focal point of the community.

With minor exceptions, Vocational, Comprehensive, and Community Schools and Colleges are coeducational. Many secondary are, however, single gender. The majority of second-level schools have an enrolment of between 300 and 800 pupils.

The last three years of compulsory education (for pupils aged 12 to 15 years) usually take place in the Junior Cycle of one of the main types of second-level schools: Secondary, Vocational, Comprehensive, Community Schools or Community College.

The Junior Certificate examination is taken at the end of the third year of second-level education. All subjects are examined by formal examinations. Pupils usually study from eight to ten subjects for the Junior Certificate examination.

At the end of compulsory schooling, pupils may follow a two-year course at Senior Cycle at a second-level school leading to the Leaving Certificate examination. This examination has as its stated aim 'to prepare pupils for immediate entry into open society or for proceeding to further education'. It is used for a variety of purposes: for example, as an entry qualification for a range of third-level institutions, including universities and institutes of technology and as a selection test for many kinds of employment. This variety of use makes the Leaving Certificate a dominant influence upon much of the work of second-level schools, affecting curricula, methodology, assessment and organisation. Students usually study seven subjects for the Leaving Certificate, of which the best six results may be counted for entry to third-level institutions.

Pupils in the Senior cycle may opt to enter Transition Year immediately following completion of the Junior Certificate examinations, meaning that pupils would spend six years at a second-level school. Transition Year offers pupils a broad educational experience with a view to the attainment of increased maturity before proceeding further study. It provides a bridge to help pupils make the transition from a highly structured environment to one where they take greater responsibility for their own learning and decision-making. Pupils in Transition Year usually get two weeks of work experience in a

discipline of their choice as a familiarisation process before making a decision on the type of career they would like to follow. Most pupils in second-level opt to avail of the Transition Year.

Pupils may follow the traditional academic Leaving Certificate route or they may opt for the Vocational Leaving Certificate programme for which they must take at least five subjects including Irish and at least two subjects from construction studies, engineering, technical drawing or business. Pupils are also required to undertake a period of work experience. The objective of this programme is the enhancement of the vocational dimension within the Leaving Certificate programme. The Leaving Certificate Applied programme is a two-year post Junior Certificate programme. This programme can be adapted to meet particular needs and circumstances of the local community. In general, assessment for this programme is by assignment, by task (as, for example, the organisation of a specific function), by oral examination and by written examination. The programme must include Irish and at least one continental language. This programme does not count for entry to third-level institutions.

The minimum requirement for entry to any of the designated trades, as determined by the National Apprenticeship Advisory Committee, is a pass in five subjects. However, employers may set higher entry requirements if they so wish, and many do. As will be seen from the analysis of the data in this thesis, most apprentices have obtained either the Traditional or Vocational Leaving Certificate before entering apprenticeship.

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