Quality Assurance: Conformance or the Pursuit of Excellence

An Evaluation of the Implementation and Effectiveness of Quality Assurance in the Adult Literacy Service of the City of Dublin Vocational Education Committee.

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Declaration

I hereby certify that this material, which I now submit for assessment of the programme of study leading to the award of MA HRM is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work

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Abbreviations

ABE	Adult Basic Education
CDVEC	City of Dublin Vocational Education Committee
ENQA	European Association for Quality Assurance in Higher Education
EQF	Evolving Quality Framework
FETAC	Further Education and Training Awards Council
HETAC	Higher Education and Training Awards Council
NALA	National Adult Literacy Association
QA	Quality Assurance
QC	Quality Control
TQM	Total Quality Management
VEC	Vocational Education Committee

ABSTRACT

Over time quality assurance has developed from being a concept that was solely concerned with conformance to specifications and standards and has become a management philosophy that is concerned with the pursuit of excellence and enhancement of the quality of everything we do as part of an organization or enterprise.

In 2000, the National Adult Literacy Agency in conjunction with the Vocational Education sector and the Department of Education and Science piloted the Evolving Quality Framework to facilitate the development of quality assurance in adult basic education. The Evolving Quality Framework was implemented mostly in Literacy services of Vocational Education Committees and by 2003 it was being used by 6 out of ten Vocational Education Committees as a means of self evaluation of their literacy services.

Early in 2007 the Literacy Service of the City of Dublin VEC became an approved FETAC provider so that it could provide programmes in adult basic education that would lead to FETAC awards. This development required approval by FETAC of the Literacy services quality assurance procedures and a process of integrating the Evolving Quality Framework and FETAC quality assurance requirements commenced in each of the City of Dublin VEC's twelve adult literacy centres.

This evaluation was carried out by comparing the results of a research project in quality assurance in the literacy services with the fundamentals of an effective quality assurance system as set out by Richard Freeman in 1998. According to Freeman the 20 standards in ISO 9000 for industry are equally relevant in education.

The research problem is to establish if quality assurance in the literacy service complies with the fundamentals of an effective quality assurance system that could be applied to either industry or education. It was explored by using a combination of a self completion postal survey with some open ended qualitative questions, a focus group meeting and internal organizational documents as a source of data.

Analysis of the data indicates that many of the requirements that would be considered fundamental to an effective QA system were present but that large numbers of tutors were not fully involved in the process.

It would appear also that the process of amalgamating two QA processes is creating difficulties with communications and clarity of roles.

To avoid losing the significant benefits that the inclusive self evaluation aspects of Evolving Quality Framework brings to the adult literacy service, it is recommended that the identified difficulties be addressed before the FETAC QA system becomes embedded.

INTRODUCTION

'The fundamentals of an effective quality assurance system are that:

- *The organization's mission and aims are clear and known to all*
- *The systems through which work will be done are well thought out and communicated to everyone*
- *It is always clear who is responsible for what*
- *What the organization regards as quality is well defined and documented*
- *There are systems to check everything is working to plan*
- *When things go wrong, there are agreed ways of putting them right.'*

Freeman R (1998)

'Quality assurance is a negative concept that can never ensure that things are done better or better things are done'

Elton L (2001)

'It is not about teaching reading and writing to these people but about teaching the poor to read the world'

Paulo Freire, Pedagogy of the Oppressed, 1970.

The difficulty with the concepts of Total Quality Management, Quality Assurance and Quality Control is that they are based on a preconceived perception of what constitutes a quality product or service. The alternative approach is to view these systems as a means of achieving continuous enhancement of the quality of products or services.

Despite the fact that many educationalists are uncomfortable with any form of external scrutiny, QA in education has much in common with TQM and ISO 9000. ISO 9000 is not some form of watchdog concerned only with compliance and organizations involved with ISO registration emphasize that applicants have complete autonomy at setting their own service standards at a level which meets the needs of their customers and clients. They also emphasize that external audit is not inspection but rather a means of verifying that QA policies and procedures are effective in addressing the organizations own aims and objectives.

When we examine the guidelines issued by organizations responsible for QA in education we find exactly the same philosophy and reassurances. Having accepted the principle that QA is essentially a self evaluation process, we must recognize that external agencies are necessary to ensure that among other things, state funding for providers of preschool, primary, secondary, vocational and other categories of education and training is used to the best advantage. We will see that there is a strong economic case for substantial increases in funding in the whole area of adult basic education and adult literacy.

Diana Green describes a product that is exclusive, expensive to produce and which confers status on the owner or user as the traditional concept of quality and concludes that this concept contributes little to the quality debate in education by asking if we really want all education institutes to emulate Oxford or Cambridge. Green goes on to consider other concepts of quality, for example quality as conformance to specifications or standards. In the final analysis she concludes that quality is a philosophical concept reflecting the perspective of the individual, enterprise or society. Green D (1994)

In education, when we consider quality as conformance to specifications or standards, we tend to think of external evaluation by institutions like the Higher Education or Further Education and Training Accreditation Councils in Ireland or the European Association for Quality Assurance in Higher Education.

The literature on quality reveals several references to Quality Control, Total Quality Management, Quality Assurance and its most recent iteration, Quality Enhancement. In broad terms we find that quality control generally refers to the product whereas the other concepts refer to the processes used to produce a product or deliver a service.

In many manufacturing industries Total Quality Management simply means that the focus needs to switch from rejecting or re-working non-conforming products to managing the process so that, insofar as it is possible, non-conforming product is not manufactured in the first place.

Typically this would involve procedures at every link of the external and internal supply chain so that what the organization defines as quality is delivered or produced at all times. This is more than preventing non-conforming product from reaching the customer. It is a self-evaluation process to optimize the quality of the finished product.

In process industries where manufacturing starts with basic raw materials and where there are several stages of conversion before the final product is manufactured, some element of inspection and rejection or re-working of non-conforming product is inevitable, but the objective must always be to keep this to an absolute minimum.

The underlying principle is that although inspection and consequential rejection or re-working may be necessary to ensure that non conforming product does not reach the customer, quality cannot be inspected into a product or service.

It seems reasonable to suggest that this is as true in education as in any other area. For example, it could be argued that repeating an examination is a form of reworking based on final inspection that could possibly have been avoided by more effective self-evaluation during the production process.

It is possible therefore to narrow the quality debate down to two general concepts; conformance to specifications and standards or the pursuit of excellence which encompasses ideas like total quality management, quality enhancement and self evaluation.

The research problem is to find if quality assurance in the CDVEC literacy service complies with the fundamentals of an effective QA system as defined by Richard Freeman at the front of this paper.

Freeman's definition was chosen because, having examined each of the 20 separate standards in ISO 9000, he concluded that the ISO 9000 system can be usefully applied to the education and training sector and that it is possible for an education and training provider to become an accredited ISO 9000 supplier. Of the twenty standards he identifies four where applicability is exactly the same in manufacturing and in education: process control, corrective action, internal quality audits and training. Elements of the remaining 16 standards can be applied to a greater or lesser degree Freeman R (1998).

The development of this proposition commences with a description of the introduction of quality assurance to the education sector in Ireland, followed by a description of the Literacy/ Adult Basic Education service in CDVEC, where the research project will be carried out. The available literature on quality assurance at each stage of the education process is examined taking account of the relevance of the wider scope of quality assurance, which includes the commercial sector.

CHAPTER 1

Quality Assurance in Education

Quality Assurance in Higher Education

The Higher Education and Training Awards Council (HETAC) was established in 2001under the Qualifications (Education and Training) Act 2001 and is now the national awarding body for qualifications within the national qualifications framework for higher education and training outside the university sector. HETAC processes are consistent with the European Association for Quality Assurance in Higher Education (ENQA) standards 2005. The European model has three sets of standards to cover internal quality assurance, external quality assurance and external quality assurance agencies.

Internal QA Policies and Procedures provide for:

- Formal mechanisms for approval, periodic review and monitoring of programmes
- Consistent Assessment of students by published criteria, regulations and procedures
- Procedures to ensure that teaching staff are qualified and competent
- Adequate resources to support student learning
- Access to relevant information for effective management
- The regular Publication of up to date impartial and objective quantitative and qualitative information about programmes and services.

External QA Policies and Procedures provide for:

- Verification of the effectiveness of the internal policies and procedures
- Aims and objectives that are identified before the process is developed
- Decisions that are based on explicit published criteria
- Processes that are designed to ensure fitness to achieve aims and objectives
- Clear accessible reporting where commendations are easy to find
- Follow up plans when recommendations are made
- Periodic reviews
- Summary reviews of general findings on a system wide basis

Source: the ENQA Standards and Guidelines for Quality Assurance in the European Higher Education Area (2005)

On a national basis registration in higher education is achieved by the submission of a self-evaluation report followed by a panel visit and a decision by HETAC, which is subject to approval by the National Qualifications Authority.

Quality Assurance in Further Education

The Further Education Training Awards Council (FETAC) was also established in 2001 under the Qualifications (Education and Training) Act 2001 and is now is the national awarding body for qualifications within the national qualifications framework in the areas of further education and training.

In the development of its quality assurance framework FETAC examined national and international practices and asserts that as a result of this, self-evaluation and improvement planning by providers is a key feature of its common framework for quality assurance.

To become a registered FETAC provider it is necessary to submit policies and procedures in the following areas: Communications, Equality, Staff Recruitment and Development, Access, Transfer and Progression, Programme Development, Delivery and Review, Fair and Consistent Assessment of Learners, Protection for Learners, Sub Contracting / Procuring Programme Delivery and Self Evaluation of Programmes and Services. Once the quality assurance policies and procedures have been approved and validated by FETAC, they are monitored and evaluated on a regular, ongoing basis.

Quality Assurance in Adult Basic Education

In 2000, the National Adult Literacy Agency (NALA) in conjunction with the Vocational Education sector and the Department of Education and Science piloted the Evolving Quality Framework (EQF) to facilitate the development of quality assurance in adult basic education. The EQF was implemented mostly in VEC centers.

In 2002 NALA launched its Evolving Quality Framework User Guide and by early 2003 about 60% of VEC literacy centers were using the EQF on a voluntary basis as a tool for self-evaluation of their adult literacy service.

An evaluation of the Evolving Quality Framework in adult basic education was carried out by Liz McSkeane on behalf of NALA in 2005. Although NALA is an external agency, this report could also be seen as part of an internal evaluation process as progress is not being measured against any externally defined specification or

standards and as NALA and the VEC sector could be described as a partnership for the delivery of adult literacy services. The evaluation report states that monitoring of action plans is the stage, which so far has received the least attention from the EQF teams.

The report also questions the direction the adult literacy service is taking in seeking approved provider status with FETAC and asks if FETAC accreditation is a valid measure of quality in the literacy service given that the previous experience of education for many of its clients would make them disinclined to pursue this route. However the report does acknowledge that when they are approved, the basic FETAC levels (1 to 3) may bring some change in this area.

By and large the evaluation was positive in terms of the effectiveness of the Evolving Quality Framework in meeting its objectives and of the degree of participation of stakeholders in the process.

In 2006 NALA issued a revised edition of the user guide. The most significant change in the revised edition is this statement:

'Most importantly for centers that offer accreditation under the National Qualifications Framework (NQF), you will also generate evidence that you can use to support the quality assurance requirements of the Further Education and Training Awards Council (FETAC).'

The EQF is a participative self-evaluation system that operates by forming teams of all the stakeholders in each adult basic education centre.
The ethos or guiding principles of adult basic education is expressed under five headings: voluntarism, confidentiality, respect for cultural difference, social interaction and informality and inclusiveness.
The teams meet four to six times a year to evaluate the adult basic education service using a cyclical 9-step reflective process of five quality areas: Resources, Management, Teaching and Learning, Progression, Outreach and Promotion.

Each quality area is described by statements of quality or quality standards. Standards address issues like tutor training and learner assessment. The system contains a total of 19 standards.

Compliance with standards or quality statements is measured by developing quality signs. For example the standard for tutor training can be measured by assessing the number of tutors who have completed their initial training and the number who have, or are working towards third level qualifications in adult education.

The 9 stages involve the EQF team describing full compliance to a quality standard (100% right), assessing the current level of compliance to the standard (where are we now?), finding ways of measuring compliance (quality signs), verification (finding proof), drawing up a report and action plan, communicating the action plan and monitoring the action plan.

CHAPTER 2

Adult Literacy/ Basic Education in the City of Dublin Vocational Education Committee (CDVEC)

The Irish Vocational Education sector consists of 33 Vocational Education Committees (VECs) providing a range of education services on a national basis. The largest of these, CDVEC, provides a broad range of educational courses to 12,000 full time students. In addition to its 22 schools and colleges, CDVEC operates 9 Youthreach centers and 100 outcentres including traveller education centers and an education service in Dublin's six prisons.

CDVEC also provides a range of self-financing professional and self-development courses to 17,500 part time adult learners. In 2006 CDVEC won a contract to provide a range of FETAC accredited courses for employees of the HSE (Skill VEC) and is currently in the process of rolling out this programme through the network of VEC's across the country. CDVEC's annual expenditure is approximately €150 million and it employs almost 4000 academic and support staff.

The CDVEC Literacy Service

CDVEC has 12 literacy centers spread around the Dublin City area. The literacy service encompasses basic literacy, integrated literacy, numeracy, communications, basic life skills and other forms of adult basic education.

Many of the clients of the literacy service will not have completed primary education and others will have left secondary education within one or two years. These people come to the literacy service for a variety of reason and the service is continually finding new ways to respond to their needs.

Many come to address a particular problem they may be experiencing in their daily life or in the workplace and will move on when they have acquired the skills to deal with this problem. For this reason the service places great emphasis on preserving the dignity of the individual and maintaining appropriate confidentiality.

Mission, Values and Goals of the Literacy Service

The stated mission and values of the CDVEC Adult Literacy Service as set out in its adult literacy plan for 2004 to 2007 are set out below:

Mission
To provide a high quality, adult literacy service that meets the needs of learners as individuals and citizens. This service will be delivered in a respectful, accessible and inclusive environment'.
Values
A high quality, person-centered, developmental and professional service, lies at the core of practice.
The adult appropriateness of the service is reflected in the learning environment and in the flexibility of provision.
An ethos of confidentiality, respect, trust, and inclusiveness informs the service.
The need for an appropriate infrastructure to support the service is recognized and is actively pursued by the organization.
The ethos of each scheme is valued along with the development of a quality assured and professional service across the city.
Working collaboratively within the organization and with external partners is integral to the service.
Goals
The first goal is to provide an adult literacy service in the Dublin city that is quality assured, learner centered and which provides a range of developmental opportunities for learners as individuals and as proactive citizens. There are three other goals that address organizational structures and staffing; information about and access to the literacy service, integration partnerships and alliances.
Implementation strategy
The strategy for implementation involves working groups to further the various aspects of the plan. The plan states that the quality assurance working group will support the schemes in the writing of local adult literacy plans and that it will report in November 2004 on progress in relation to the NALA Quality Framework and FETAC Quality Assurance.

Source: CDVEC Adult Literacy Plan (2004- 2007).

Local Adult Literacy Plans
The Adult Literacy Local Plans 2005-2008 took the four strategic goals from the Adult Literacy Plan 2004-2007 and used them to develop centre specific objectives and actions for each of the nine geographical areas covered by the CDVEC Adult Literacy Service. In addition to goals and objectives the local plans provide details and statistics of each service. The local plans were drawn up in consultation with tutors, learners and stakeholders in each area.

Other forms of Adult Basic Education in CDVEC
Adult basic education is also provided in other VEC community education initiatives. The Back to Education Initiative (BTEI) was introduced in 2002 to increase the participation of disadvantaged groups in education by providing short time flexible courses that could bridge the gap between 'once a week' tuition as provided in the literacy service and full-time second level or further education courses. Although FETAC accredited qualifications or upskilling for employment can be the outcome of this initiative, for many participants the outcome is a sense of social inclusion, empowerment and a growth in self-confidence. Where FETAC accredited qualifications are the objective, the learning process is made easier by the modular system which means that learners can progress at their own pace.

In 1989 the Vocational Training Opportunities Scheme (VTOS) was introduced to help address unemployment, which, at the time, was close to 20%. This is a two year second chance opportunity to acquire education and training for employment while at the same time retaining unemployment benefit, supplemented with a training allowance. As with the other forms of adult education, for some participants the major benefit is involvement in a range of activities from which they would otherwise be excluded.

Provider registration with FETAC
In order to be in a position to provide FETAC accredited qualifications for clients of the literacy service who wish to pursue this route (about 20% of learners), CDVEC submitted a proposal to FETAC for its Adult Literacy Service in November 2006 and the service was recommended for registration on 26 February 2007.

This development means that adult learners will now have the opportunity to attain formal FETAC accredited qualifications under the National Qualifications Framework. It also means that for the future in addition to the Evolving Quality Framework, the literacy service must be fully compliant with the FETAC Provider Quality Assurance Policy.

In its application for provider registration with FETAC, the Adult Literacy Service was required to furnish:

- An organization Chart showing the parts of the organization that will be adopting the QA system
- A list of each adult literacy centre adopting the QA system, signed by the manager of the centre and containing details

of the structure in the centre with details of the learners, tutors and the internal QA structures
- Policy and procedures for the assessment of learners
- Policy on protection of learners
- Policy and procedures for self evaluation of programmes and services

CHAPTER 3

Literature Review

Drivers of Quality Assurance in Education – The International Perspective

Frazer M (1994) examined common themes in quality assurance in education from 10 countries including France, Germany, the United Kingdom and the USA. According to Frazer the quality agenda in higher education is driven by four factors: the competition for state funding between providers of preschool, primary, secondary, vocational and other categories of education, the need for funding agencies of government to ensure that investment in education is correctly targeted, the tradition of academic freedom in the higher profile universities and the globalization of the world economy.

The OECD is concerned that the growing cross border and private provision of post primary education is increasing the risk that students are the victims of rogue providers and that employers will not have reliable information on the value of degrees, which can be detrimental to the reputation of national higher education systems. The principal concern is that with the increasing international mobility of graduates, quality assurance, accreditation and recognition of qualifications should provide protection for consumers of higher education including students, employers, the education community itself and the general public, OECD Secretariat (2003).

Although Frazer and the OECD are primarily concerned with quality assurance in the context of accreditation of higher education qualifications, the implications for the mobility of labour at all levels of educational achievement in the global economy should also be examined, given that the investment decisions in higher education in many of the countries studied have not always yielded a corresponding improvement in economic prosperity and in some cases have done little more than create a growing number of unemployed graduates who do not have the competencies to contribute to economic development.

Adult Literacy and Economic Development

The first report of the International Adult Literacy Society entitled *Literacy Economy and Society* was released in December 1995. The OECD (1997) together with Human Resources Canada and the Canadian Ministry of Industry released a further report that focused on five countries including Ireland.

This report entitled '*Literacy Skills for the Knowledge Society: Further Results from the International Adult Literacy Survey*' identifies many issues that ten years later have become part of everyday conversation about the changing face of the world economy.
The report refers to the knowledge economy, lifelong learning and most interestingly points out that there is no guaranteed correlation between high educational attainment and high levels of employment.

In relation to Ireland the report points out that in 1994 the USA had graduation rates of 76% and unemployment rates of 7.4 % for all young persons. The corresponding figures for Ireland were 93.8% graduation rates and 14.2% unemployment of young persons. From an Irish perspective this analysis highlights the degree to which poor levels of literacy have been disguised by the success of the so-called Celtic tiger.

Along with its sociological impact, the report identifies poor levels of adult literacy as a significant impediment to economic development and the development of the human capital that is a core element of the knowledge economy. There are therefore strong sociological and economic imperatives for addressing adult basic education and adult literacy. The report calls for a co-coordinated approach to the literacy problem that is supported by government, employers, social partners, local communities and families and it finds that what differentiates countries in their literacy levels is the performance of people from less advantaged backgrounds.

Morgan et al (1997) submitted a report to the Minister for Education on the scale of the adult literacy problem in Ireland. The report revealed that about 25% of the Irish population scored at the lowest level of literacy i.e. able to perform, at best, only the simplest of tasks, typically those that require the reader to locate a single piece of information in a text, where there is no distracting information and when the structure of the text assists the search.

Part of the government's response to this problem was to immediately double funding for adult basic education in Ireland and to commit €100m (€25M per annum) to adult literacy provision in the National Development Plan 2000 – 2006. In May 2006, the Oireachtas Joint Committee on Education and Science recommended that funding for adult literacy in the National Development Plan 2007-2013 be increased by an average of 25% per annum with a view to doubling the numbers taking literacy tuition.

Dreher F and Dougherty T (2001) examine the international market for labour and how labour market characteristics influence business and investment decisions. From a strategic human resource perspective they look at how investment decisions are influenced by the cost of labour, working time, values, attitudes, work orientation, demographic factors and educational attainment in the ever increasing drive for competitive advantage in a global economy.

It is no surprise therefore that literacy rates in domestic and international labour markets are evaluated as part of the decision making process for locating industries on a worldwide basis.

The ILO report (1995) on Adult literacy Rates for Selected Countries from Asia and Oceania are set out in the Table1 below:

Table 1:
Percentage of 15 plus age group meeting minimum literacy standards

Country	**Male**	**Female**
Afghanistan	44	17
Bangladesh	47	22
China	87	68
Republic of Korea	99	94
Iraq	70	49
Jordan	89	70
Kuwait	77	67
Pakistan	47	21
Singapore	92	74
Vietnam	92	84

Source: International Labour Organisation, World Labour Report 1995, Geneva, Switzerland.

We can see from this table that despite the success of the Irish economy in recent years, if it becomes necessary to rebuild the manufacturing base in future years it could be difficult to compete with Asia for direct foreign investment in industries that require a labour force with acceptable levels of adult basic education.

The National Adult Literacy Agency (NALA)
NALA was established in 1980 and has been grant aided by the government since 1985. The NALA Strategic Plan 2002 -2006 has as its mission statement '*to ensure all adults with literacy problems have access to high quality learning opportunities*' NALA (2002).

NALA confirms that 25% of the Irish adult population has low literacy skills, 1 in 10 leave school with reading difficulties and that only 4% of people with literacy problems are in tuition. In its strategic plan NALA states that success will be measured as greater participation in high quality learning opportunities and significantly less people with literacy problems by 2006. Among its aims and objectives NALA addresses the Quality Assurance Framework for the literacy service and reports on the work that had already commenced in this area, including the matter of accreditation of learning. NALA's profile of the 4% of adults who are in literacy tuition is set out below:

28,000 learners receiving 2 hours tuition per week
50% of literacy learners are aged between 25 and 45
70% are in group tuition
30% are in 1:1 tuition with 4,000 trained unpaid voluntary tutors
51% of learners completed primary school
87% of learners completed less that upper second level education

Source: Adapted from the NALA strategic Plan 2002-2006

A review of international trends in adult literacy policies and programmes examined adult basic education in six English speaking western democracies and found that in each case the problem was having an impact on the capacity to build high skilled knowledge based inclusive economies. The countries studied (Canada, Republic of Ireland, New Zealand, USA, UK and Australia) are all adopting lifelong learning policies as part of a strategy to address skills shortages where employment in traditional rural based and manufacturing areas is being replaced by employment in service and IT based industries.

The review identified four categories of literacy; skills for basic school work, skills needed to contribute to the economy and society, higher order skills and foreign language literacy (ESOL). The review acknowledges the move away from traditional basic literacy to a more contextualised model to address the needs of learners as consumers, employees, parents and members of society. The review also found that a combination of voluntary tutors and teachers who

have moved over from mainstream education needs to be reassessed in the context of providing specific professional training in adult basic education, McKenna R, Fitzpatrick L (2004)

A conceptual paper on national skills formation systems in Ireland addresses the subjects of neoclassical economics and the Irish Vocational Education and training system. The paper identifies three areas that may well have contributed to the current skills deficit in the Irish economy; the introduction of free secondary education in the late sixties, free third level education in 1995 and the state's policy of effectively postponing most vocational training until after completion of the general academic secondary cycle. Whilst the report acknowledge that Ireland compares well in terms of expenditure on education generally and that we have a vibrant indigenous software industry and are second only to Japan in the proportion of young adults with an engineering or scientific qualification, it suggests that the middle classes have obtained the lion's share of the educational benefits and that there is a trade off between expenditure on vocational education and training and the cost of social welfare benefits.
This raises a question about the motivation of many early school leavers to continue in education as the post primary vocational route has been effectively abolished and it also raises a question about whether this policy has contributed to the increasing problem of adult literacy. O'Donnel et al (2001)

The Indian Statistical Institute carried out a study of the socio-economic factors determining adult literacy in developing countries. The study reveals important connections between adult literacy and the quality of human capital, population growth and economic growth and describes adult literacy as a crucial life skill that enables individuals to participate more fully in the practices in their community.

The findings reveal that the literacy level of a country is assumed to reflect its quality of human capital and that where literacy rates are higher economic growth is faster even though population growth may be lower.

The research shows that economies with low initial incomes tend to grow faster than economies with high initial incomes and that the extension of urbanization has a positive effect on literacy levels and it observes that China has substituted its high rate of population growth with a spread of knowledge, which has increased productivity. Mazumdar K (2005)

In a study of the effect of English language ability and time spent in the USA on the earnings of immigrants, Bellante and Kogut (1998) find that emigrants to the US who have English as their first language earn between 12 and 30% more than immigrants who indicated that they spoke English well, not well or not at all. This research serves as a reminder that having English as your first language is still a major advantage in the international employment market and poses the question about the additional advantages that might accrue to the Irish economy if we could combine the fact that we are an English speaking nation with better standards of adult basic education.

Dubois and Trabelsi (2007) illustrate the importance of education in life skills in pre- and – post conflict situations. Although the review is specifically focused on the contribution of life skills education to making or restoring peace in conflict situations (most of which are now civil wars) it also addresses many of the objectives of adult basic education. Referring to the 2000 World Forum of Daker, they identify the four key pillars of education as learning to know, learning to do, learning to be and learning to live together. They identify learning to be and learning to live together as the life skills that people need in order to live in harmony with others and to be able to master their own lives.

According to Dubois and Trabelsi these should be at least as important as knowledge and vocational skill based education even in non-conflict situations. There is no doubt that for many clients of adult basic education services (the homeless, lone parents, asylum seekers and others who are disadvantaged or marginalized in society) these are the priorities that will enable some of them to progress into knowledge and vocational skill based education.

Closer to home Mark and Tett (2007) point out that along with material disadvantage, adults with low literacy levels also suffer from cultural inequalities. The Literacy and Equality in Irish Society (LEIS) programme focused on the liberating influence of using non text methods of learning in the post conflict situation in the north of Ireland and in the border counties.

As a result of the LEIS programme the participating literacy tutors learnt that it is almost impossible to find a definition of literacy that suits everybody and that unless we understand how society can discriminate against and marginalize the disadvantaged, we will not be in a position to respond to the needs of learners, particularly in the area of equality.

Through the use of creative non text methodologies and focusing on the development of people's ability to do what they wanted in their lives, tutors learnt that literacy is not just about basic skills and is more about developing social skills that will enable people to change their lives. Among the issues for learners that were discovered in this process were the question of classes in the right location at the right times and the question of inappropriate accreditation systems.
The final Leitch review of skills in Britain was published in December 2006. Along with many positive comments the review brought about some severe criticism from organizations involved in adult basic education. Richard Bolsin, General Secretary of the Workers' Educational Association asks if learning as a skill in its own right is being overlooked and if there is a risk that Leitch has correctly identified the challenges of the global economy but has failed to identify the necessary supports for adult basic learners that will contribute to the achievement of his vision for 2020. Bolsin questions whether the need to develop the skills to meet the challenges of globalization will ever take precedence over level 2 qualification in Britain. Leitch (2006)

Hayes J (2007) Shadow Minister for Vocational Education asserts that there is a fundamental weakness in the Leitch report in that it has little to say about how to engage more people in adult education given that demographic trends clearly show that fewer young people will be entering the workforce in the future. According to Hayes part of the remit of the Leitch report was to address adult and community learning in the context of social justice and that it has failed to do this by focusing solely on skills training to meet the needs of employers. Hayes maintains that funding for many courses aimed at the disadvantaged is being cut simply because these courses do not lead to formal level 2 qualifications.

These issues are important in the context of the direction the VEC adult literacy services have taken by registering as FETAC providers. In the context of assuring the quality of adult literacy / adult basic education it could be useful to examine the work of some of the better known academics in the overall area of adult education.

Malcolm Knowles developed the concept of the teacher as a facilitator of learning. Knowles coined the term andragogy in 1970 and is considered to be one of the most influential writers on the subject of adult education. According to Knowles the adult learns best when the learning situation is adapted to fit the uniqueness of the learner Knowles et al (1998).

The concept of tutor as a facilitator of learning is a central theme for most writers on the subject of adult education. In comparing andragogy with pedagogy Cross (1981) talks about helping adults to plan their own learning and points out that the planning is part of the learning process and Brookfield S (1998) suggests that adult education should be a process of facilitating adults to challenge their received values, ideas and codes.

The Quality Assurance Agency for Higher Education states that reflective learning is increasingly important in postgraduate education but the difficulty with reflective learning is to find a means by which it can be assessed. According to Tom Bourner of Brighton Business School, lifelong learning is a combination of planned and unplanned learning, much of which is experiential and emergent. Reflecting on the unplanned experiential and emergent turns experience into learning and Bourner believes it is possible to assess this reflective learning if it is viewed as another form of critical thinking. Bourner describes this process as 'the interrogation of experience with searching questions' and he suggests that if this is done in a structured way it is capable of measurement and assessment, Although Bourner is concerned with higher education his views could be relevant when considering if the provision of formal qualifications in adult basic education actually enhances the quality of the educational experience for many learners in literacy centres. Bourner T (2003)

Although the concept of reflective learning is primarily a topic for research in higher education, the development of a capacity to learn how to learn and to learn from personal life experiences must surely have applications at all levels from adult basic education to postgraduate research. Viewed in this way the debate on reflective learning mirrors much of the previous work in the general area of adult education.

In 1994 the Washington State Board for Community and Technical Colleges carried out a study on the options for policy and practice in adult literacy in Washington State. The report addressed the usual issues around resourcing, training and qualifications of tutors, the voluntary nature of much of the tuition provided by the Adult Literacy and Basic Educators network (ABLE), planning, curriculum development and the structures and processes for managing the service in general. They also refer to the work of Knowles and others and suggest that many theorists and planners fear that the strength of adult literacy programmes could be weakened by the application of a one size fits all design.

They advocate that adult basic education should be seen in the context of replacing traditional curricula with instruction set in the specific context of personal development, learning to learn and using ICT and basic life skills that would enable learners to deal with their lives in the workplace and in the community. They refer to shifting the emphasis from loco parentis to customer satisfaction and an orientation towards learner's strengths.

In the final analysis they suggest that practices based on faulty assumptions about the nature of learners and their goals, outcomes for literacy instruction and the definition of learning and literacy cannot be effective, Fish S, Sampson L (1994)

In exploring the use of business models in the management of educational change, Morrison K (1998) suggests that many commercial enterprises are more people centered than educational institutions. Whilst he acknowledges the commercial imperative for this approach he believes that education providers have much to learn from the resources that businesses put into personal development and the management of the way people behave in and engage with, the organisation.

Morrison points out that most of the innovations in education derive from tried and tested developments in industry. To support this he cites, among other things, the topical issue of quality and quality development, leadership, management style, managing resistance to change, motivation and teamwork. He also identifies Kaizen as a philosophy that has a particular relevance in education. Kaizan is a Japanese strategy for continuous improvement by using suggestions for improving work systems and practices from individuals or teams on an ongoing basis. The underlying principle is that no suggestion is too small and that the collective effort over time will improve overall organizational success. Morrison suggests that it would be a salutary exercise in Kaizan for teachers to ask themselves each day:

1. What have I done today to improve teaching, learning, achievement, other aspects of learning and
2. What steps have I taken to ensure these actions have been discussed and disseminated to teams with whom I am concerned?

It could be argued that the difficulty with the concepts of TQM, QA and QC is that they are based on a preconceived perception of what constitutes a quality product or service. A more appropriate objective could be the continuous enhancement of the quality of a product or service. Viewed in this way quality is not something that

can be specified in advance although clearly controls must be in place to ensure that, as a minimum, standards do not fall below what has historically been acceptable. The concept of quality enhancement or prospective quality assurance was reviewed by Hodginson & Kelly (2007) who conclude that organizational culture is the most important contributor to improving quality in education.

The concept of quality enhancement is also the basis for Elton's view that quality assurance is a negative concept that can never ensure that things are done better or better things are done. According to Colling & Harvey (1995) complying with external scrutiny is not sufficient of itself nor should it hinder quality enhancement. In developing this idea they explore the importance of organizational culture and observe that in higher education teachers rarely behave as teams. They put this down to a culture of individual autonomy where teachers do not talk to each other about what they do with and for students. They propose that a culture of continuous improvement requires a team based approach which promotes a learning culture, collaboration between teaching staff, non teaching staff and learners, setting clear goals, sharing information, building relationships and recognizing good value.

While addressing the need to foster enterprise and entrepreneurship in third level colleges, Kotari and Handscombe (2007) analyse the university sector in the context of Mintzberg's configuration approach to organizational structure. They find that universities are professional bureaucracies consisting of an operational core of professionals with considerable autonomy, standardization of skills and complex governance models. Kotari and Handscombe identify a link between developing enterprise and entrepreneurship in students and the organizational structure in many universities. They conclude that any change in organizational structure should be seeping rather than sweeping, reflecting the fact that the concept of collegiality in education and teamwork in industry are far from the same thing.

Sitalakshmi Venkatraman of the Victoria University of Wellington, in proposing a TQM framework for higher education, observes that 'process orientation and continuous improvements are the most common philosophies that have direct implications for teaching and learning in higher education' and that 'whether it is in industry or higher education, TQM philosophy revolves around the customer'. Venkatraman sees students, parents and the labour market as primary, secondary and tertiary external customers. The internal customers are the teaching staff.

Venkatraman observes that TQM in education is practiced far more in the US than in Europe and that many observers in Europe see the process as a means of measuring teacher performance and not as a process of enhancing the learning process. The template proposed by Venkatraman is based on six core values and the use of quality circles or quality teams who meet on a regular basis in a participative problem-solving forum to address these values. The core values are: Leadership and quality culture; continuous improvement and innovation; participation and development; fast response and management of information; customer driven quality and partnership development, internally and externally. The approach here is similar in many respects to the one used by NALA for its Evolving Quality Framework, particularly the use of quality circles in Venkatraman's model and EQF teams in the NALA model. Venkatraman S (2007)

Another perspective on Venkatraman's approach can be found in a review by Eagle and Brennan of Middlesex University Business School, who attempt to answer the vexed question of whether students can be correctly described as customers. They conclude, predictably, that in the marketing sense where the objective is to delight the customer, the answer is no but on the basis that higher education can be expensive and paid for directly by the consumer the answer is yes. Clearly in higher education the student as customer cannot be delighted by granting an educational award that was not earned by hard work and study but elements of customer service, for example, library facilities or web based access to essential information, are an entirely different matter. This paper does however pose a question about a learner in adult basic education and a student in higher education as a customer and the link in each case with quality assurance. The difference is that in higher education where, unfortunately, most of the research has been carried out, the outcome is predetermined i.e. a degree, diploma or certificate that is accredited by a recognized authority based on some accepted form of QA. Eagle L, Brennan R (2007

On the other hand in a report for the National Centre for the Study of Adult Learning and Literacy, Beder et al (2006) clearly identify the fundamental differences between adult basic education and traditional qualification centered education. The research was carried out in the New Brunswick Public Schools Adult learning Centre in partnership with the National Centre for the Study of Adult Learning and Literacy. The centre caters for about 3,800 learners per annum. The research project covered a five-year period from 2000 to 2006. The researchers acknowledge that because of the qualitative nature of many of the topics covered further research

will be required but, nonetheless, were able to report that engagement was high in most classes studied due to learner's high levels of motivation. The research team defined engagement under three headings:

1) Productive engagement – when learners are engaged and processes and structures support and enhance learning
2) Unproductive engagement – learners are engaged but processes and structures impede learning and
3) Disengagement – Learners lack motivation and /or processes and structures seriously impede learning.

They emphasize that in Adult Basic Education and Literacy, tutors have an entirely different role than teachers in traditional education and they again highlight the difference between conveying content and facilitating learning. Their findings corroborate the findings in other reports, for example, that as learners engage to meet specific goals, tutors must be aware of what these goals are and organize instruction to meet them. They recommend that as motivation and hence engagement are enhanced by tutors, motivation theory should be a topic for the professional development of tutors and they reiterate that many traditional teachers moving over to adult basic education need training specifically targeted on the needs of this client group.

Managing Quality Assurance in Education as a Change Initiative

Based on her observations while on a work placement in Hoest, the principal teacher of a primary school in the UK, Garbutt S (1996) tells us that there is growing evidence in both industry and education that success is affected by the quality of personal relations. Based on her analysis of the TQM system in Hoest, Garbutt identifies the breaking down of unproductive department barriers as a means of helping people to see the full picture leading to the alignment of all members of staff with a common objective or mission statement. She also observed that many mission statements are somewhat wooly and need to be broken down into more strategic objectives before they can be measured. In common with almost all researchers in this field Garbutt emphasizes that the delivery of corporate objectives depends more than anything else on ongoing support and strong leadership of the changes necessary for success, from the top down.

Havelock and Havelock (1973) suggest that change agents in education would be well advised to collaborate with organizations representing teachers. They argue that without the backing of teacher organizations change effort will come to naught as such organizations are the most powerful persuaders of teachers and are

therefore best placed to facilitate innovation and to disseminate information about change initiatives. They go on to describe the various organizations representing teachers in the USA and they give examples of situations where change initiatives were effectively blocked by teacher organizations that were not bought in to the process from the start.

In 2007, the Dublin City Branch of the Teachers Union of Ireland (TUI) posted the results of their research into the implications of FETAC policies on Quality Assurance on TUI members, In their report the TUI DCPP branch express a number of reservations about the FETAC framework including:

- Lack of representation on the council of FETAC. Whilst they acknowledge that teacher's unions are represented they point out that the TUI as the union representing 92% of the teachers delivering further education courses is not represented.
- The additional non teaching duties associated with the QA framework were not factored in to the McIvor review of the further education sector or considered in the development of the QA framework.
- The FETAC interpretation of self evaluation in the context of the Qualifications (Education and Training) Act 1999.
- The use of external authenticators to provide independent verification that QA policies and procedures meet FETAC guidelines, as they do not agree that this process will provide fair and consistent assessment of programmes and services.

Source: TUI DCPP Branch Further Education Report (2007).

Jeffery Pfeiffer (1998) referring to research in the US points out that:

- US unwillingness to work with unions has presented difficulties for corporations that wish to expand overseas.
- Establishments with jointly administered programmes achieve quality improvements substantially greater than those achieved through either management controlled programmes or traditional collective bargaining relationships that exclude direct participation activities.
- Unionised companies can be more innovative than non unionised companies.
- Unionisation has either no effect or a positive effect on work place change.
- It is the state of employee relations and not the presence of a union or collective bargaining that determines productivity.

Sallis E (1993) portrays Total Quality Management (TQM) as a process of continuous improvement in which each category of staff is responsible for delivering quality in its own sphere. This approach requires a change in culture encompassing both changes in behaviour and fundamental changes in institutional management. According to Sallis status and control are not features in a TQM environment but this does not affect the structure of authority in an educational institute or the essential leadership role of senior managers, as TQM is a top down process and as 80% of quality initiatives fail within two years due to lack of senior management backing and commitment.

Based on his study of organizations where change programmes were attempted, Kotter JP (1998) identifies eight errors in the leadership of change that resulted in the change programme not achieving its objectives or ending in complete failure. According to Kotter:

- In most organisations, the senior group charged with developing a shared commitment to the desired change is rarely large enough or representative enough in terms of titles, information and expertise, reputations and relationships and that the difficulty of creating transformational change is usually underestimated.
- The process of forming a vision and a strategy for achieving that vision takes time, typically from three to twelve months. He warns that if the vision does not clearly show the direction in which the change is going a change initiative can dissolve into 'a list of confusing and incompatible programmes that lead the organization in the wrong direction or in no direction at all'.
- In common with all commentators in this field Kotter also addresses the areas of communicating the need for change, removing obstacles to change, performance management and reward systems that are aligned with the change programme, anchoring the change in the corporate culture.

Hull R (2006) referring to Waters (1989) suggests that, contrary to the popular perception, the concept of collegiality is more likely to be found in a small private sector organization where internal co-ordination is through complete consensus and face to face participation, than in an educational institute. According to Waters this is the case because ' there is no distinction between professional and administrative roles and both the internal exercise of authority over colleagues and the external exercise of authority over clients is unmediated by bureaucracy'.

Hull's research was concerned with the introduction of workload allocation models and collegiality in academic departments in higher education in the UK. According to Hull, university managers and academics are faced with some difficult choices as they deal with a new range of non-teaching administrative and managerial tasks. If they seek to retain control over these matters, and QA is a good example of one area where this may be desirable, they have to rely on a fundamental elitist notion of collegiality. The alternative is to seek additional resources, which will bring with them more bureaucracy and less academic freedom. On balance it would appear that Hull favours the latter combined with a more transparent and accountable approach to academic work.

In addition to giving some unexpected views on the concept of collegiality from an academic's point of view, this research raises the issue of providing adequate resources and support structures for the effective implementation of an effective QA system.

In 1990, Vice Chancellors and principals of universities in the UK set up an academic audit unit. The intention was to demonstrate that the unit would be capable of regulating the quality of education provision in the higher education sector although it was seen by some as being akin to 'putting Dracula in charge of a blood bank'. In 1997 Doherty, the Emeritus professor of the University of Wolverhampton and a member of the Institute of Quality Assurance pointed out that despite the fact that many educationalists are uncomfortable with any form of external scrutiny, QA in education has much in common with TQM and ISO 9000. He points out that ISO 9000 is not some form of watchdog concerned only with compliance and that ISO registered organizations have complete autonomy at setting their own service standards at a level which meets the needs of their customers and clients. In addressing the reluctance of educationalists to subject their work to external scrutiny, Doherty points out that external audit is not inspection but rather a means of verifying that QA policies and procedures are effective in addressing the organizations own aims and objectives. This is something that should be clearly communicated and understood by all stakeholders in an organization that seeks to introduce a QA system.

Earlier this year the International Journal of Healthcare Quality Assurance republished a paper from 1988 to celebrate its 20th anniversary. The paper by Hannu Vuori who, at the time, was Head of Research Promotion and Development in the World Health Organisation makes a number of observations that could equally be applied to the introduction of QA in education. Hannu points out

that as quality assurance means change, effective techniques for the management of change are vital for success. According to Hannu the essential steps for the successful implementation of change in health services were:

- To demonstrate that there is a need for change, this is usually achieved by senior management presenting facts to those who will be affected by the change.
- Assessing the readiness for change, this normally involves assessment of dissatisfaction with the status quo as this will help mobilize the energy required for the change
- Articulation of a clear vision of how things will be once the change has been successfully implemented.
- Deciding where to start, in almost all cases the best place is at the top.
- Assessing the prerequisites for change for example, political will and adequate resources and finally
- Assessing the motives for change. Motives for change can be different for each group affected. For example, in education the motives for accepting or resisting change may be different for support staff and educators but it is legitimate to present these in the most positive way, provided the presentation is honest.

Tom Schuller, Head of the Centre for Educational Research and Innovation in the OECD believes that the UK has a proud tradition of adult education and that learning unrelated to qualifications is an enormous value issue but he suggests that traditional ways of delivering learning should now be challenged. According to Schuller, the UK is better at inventing than innovating and this helps explain why they have poor cultures and mechanisms for implementing change. Schuller (2007).

We can see therefore that the level of adult basic education in Ireland is a major factor in our economic development. From a sociological perspective poor levels of adult basic education have a significant impact on the disadvantaged and marginalized and at a fundamental level can even affect a nation's ability to deal with conflict and to make or restore peace. Government has recognized this by providing substantial increases in funding but we do not know at this stage what effect these additional funds will have on the problem.

We also see that there is no correlation between high educational attainment and adult literacy levels and that there is a connection between economic growth, population growth and adult literacy. All of this poses the question about whether we should spend more time looking at education from the bottom up and less time looking at it from the top down.

There is a great deal of consensus among researchers in the area that a QA system for adult basic education should be based on a proper understanding of the nature of adult learners and their goals and that the measure of success in adult basic education is the extent to which the educational experience has enabled the individual to make a greater contribution in the workplace or in society than would otherwise have been possible - Fish & Sampson (1994), Bourner (2003) on reflective learning, Knowles et al (1998), Cross (1981), Brookfield (1986) on facilitating learning, Beder et al (2006) on learner engagement and facilitating learning.

CHAPTER 4

Methodology

In seeking the best method for conducting research, particularly business research, one of the first problems is to decide whether it should be quantitative, qualitative or both. In simple terms the difference between both methods is that quantitative research involves measurement whereas qualitative research this does.

According to Duggan R (2003) there is a clear distinction in most texts between qualitative and quantitative research but there are also many objectors to the strict classification of research as being either qualitative of quantitative and there appears to be a strong case for the use of both methods in order to bring both objective data and in-depth analysis to a study,

According to Bryman& Bell empiricism is an approach that suggests that only knowledge gained through experience and the senses is acceptable and therefore that empiricism is associated with quantitative research. They acknowledge however that quantitative research can be illuminated by qualitative research. Bryman& Bell (2003 p9, p467, p474)

According to Oppenheim A.N. (1992 p26) quantitative research differs from qualitative research as it gathers data in a more structured way, as results are based on representative samples of the population and as there is less focus on behaviour and attitudes leading to a more objective analysis of results.

In this case a number of research methods were identified and considered:

Focus Groups

Bryman and Bell (2003, p 368) describe the focus group method as a form of group interview where the emphasis is on the questioning of a tightly defined topic and the accent is on the interaction of the group and the joint construction of meaning. Fisher et al (2007,p160) recommend that in focus groups there should be no great difference in status or any other feature that might cause some participants to feel nervous or insecure and so not contribute to the discussion.

According to Barbour and Kitzinger (1999 p119) the inherent flexibility of focus groups means they can include different exercises as appropriate at different stages of research. They are also less demanding in terms of the researcher's time and are more economical in terms of ensuring the research agenda is addressed.

Survey questionnaires

McClelland A (1994, p.22) suggests that the survey questionnaire is the most prevalent and widely used method of gathering feedback. He further states that they are both cost effective and reliable for gathering data that can be qualitative as well as quantitative.

According to Oppenheim, some of the advantages of a self-completion questionnaire are that:

- Respondents can consider their responses without being influenced by the researcher.
- A larger population can be surveyed than in e.g. semi-structured interviews.
- Each respondent is given an identical set of questions that can be statistically analysed.
- They can be confidential (not to be confused with anonymous as this can be difficult to achieve).

Some of the disadvantages can be:

- Poor response rates.
- They require careful design- poor design will provide misleading results.
- They do not provide any real opportunity to follow up answers.
- Personal interviewing can provide a richer source of information.
- Oppenheim A.N. (1992 p 146-7).

Oppenheim also accepts that self-completion questionnaires can use a combination of quantitative (pre-coded) and open-ended qualitative questions.

Structured and Semi Structured Interviews

According to Bryman and Bell (2003, p116, p119) in pre coded structured or standardized interviews the questions are usually very specific and offer the respondent a fixed range of answers. In semi structures interviews the questions are frequently more general, the sequence in which they are asked can be varied and the interviewer has some latitude to explore the responses.

In this respect structured interviews are similar to exclusively pre coded questionnaire surveys and to a lesser degree semi structured interviews are similar to qualitative self-completion surveys but in both cases the sample is much smaller.

Panels of Experts

When using a panel of experts a pre-coded set of scenarios are put in a questionnaire and sent to each member of the panel. The experts respond by judging the probability of each scenario. Results are summarized as averages and fed back to the panel who are asked to reconsider their judgments. This exercise is repeated until some form of consensus emerges about the issue in question, Fisher et al (2007 p160).

Observational research and activity sampling

Observational research and activity sampling clearly identify the differences between open and pre-coded research. In purely open mode the researcher sits, observes and records his or her observations. For example a researcher interested in customer service in a doctor's surgery could spend a morning sitting quietly in a waiting room and afterwards record everything he or she saw and heard and their reactions to it. At the other end of the spectrum, in activity sampling researchers observe and record a limited number of conditions they wish to research e.g. the number of patients that that arrive early or late for their appointment. Fischer et al (2007 p161, p164).

Documents as sources of data

Organisational documents can be of particular importance to the management researcher. Documents that are not in the public domain include minutes of meetings, memos and internal / external correspondence. However the use of these documents needs to be evaluated in the context of Scott's (1990, p6) four criteria: authenticity, credibility, representative ness and meaning.

The issue of representativeness is particularly important when analyzing internal company documents. This is not to suggest that these documents are deliberately intended to be misleading but the researcher must be aware that internal documents often reflect the perspective of a particular group within the organization and therefore cannot always be considered to be an objective account of the overall state of affairs. Bryman & Bell (2003 p 404,413/4).

Methods for employee surveys

The Industrial Society (2000 pp6-9) carried out a survey of 5500 HR specialists. The survey covered nine geographical areas in the UK and 587 responses were received. The purpose of the Industrial Society survey was to consider best practice in the area of employee surveys. The found that:

- The most popular completion method for employee surveys was a tick box questionnaire (84%).
- 37% of respondents used a combination of questionnaire and focus group surveys.
- The number using qualitative research alone was small (6%).
- 49% used internal post to distribute employee surveys.
- 72% of public sector and voluntary organizations favoured internal post for distributing questionnaires.
- 38% included quality in the subjects covered.
- 89% guaranteed confidentiality to respondent employees.

The Industrial Society (2000).

Choosing the research design

Having considered all these options practical considerations ruled out panels of experts, observational research and activity sampling. As the research will be confined to a clearly defined area of activity within the CDVEC and as the population to be sampled is accessible in the short term, the other options were examined in some more detail. The desirability of using both qualitative and quantitative research and more than one survey method led to a decision to use the following combination of research methods:

a) A self-completion questionnaire for literacy tutors with both quantitative and open-ended qualitative questions as the principal research instrument. The factors leading to this decision were:
   - They are the most popular survey method for employee surveys
   - CDVEC has an internal postal network for more than 40 colleges and other educational centers across the Dublin City area. The target population can be reached by using this network and as the questionnaires these can also be returned through the internal network.
   - Permission has been sought and given from CDVEC management for this evaluation and for the use of internal resources as described above.

b) A focus group meeting with Centre managers to address the role of voluntary tutors in quality assurance and the need for both the EQF and FETAC quality assurance systems in the literacy service and

c) An analysis of organizational documents, specifically minutes of regular team meetings with managers of the literacy centers.

For analysis of the questionnaire survey a combination of descriptive statistical data and Chi-squared tests of independence will be used.

If quality assurance is about enhancement of services it will only be successful in organizations that seek continuous improvement. This level of quality awareness is only found where there is a clear vision as to what constitutes quality and where this is communicated and accepted as something of real value.

In the context of managing the introduction of quality assurance these issues together with questions of understanding the principles of QA, clarity about roles; systems to keep everything on track and effective team based implementation come into play.

Quality Assurance in adult basic education is addressed in the NALA/ VEC Evolving Quality Framework. This is a system that was specifically designed for adult basic education that also meets the requirements of quality assurance systems used in manufacturing industry and in education, as described by Richard Freeman at the front of this paper.

In developing the research instrument the following options were considered as being valid areas for testing attitudes and perceptions:

- How tutors perceive the introduction, management and effectiveness of the EQF/FETAC QA model in the Literacy Service.
- The level of awareness of the CDVEC mission statement.
- The level of awareness of the Literacy Services stated mission and values.

- The alignment of the EQF / FETAC QA Model with the CDVEC mission statement.

- The alignment of the EQF / FETAC QA Model with the Literacy Service's stated Mission and Values.

- Has the EQF / FETAC QA Model provided clarity about roles and responsibilities.

- Has management commitment to QA in ABE been evident and visible?

- Does the EQF / FETAC QA Model improve the service to learners.

- How important are FETAC qualifications to learners.

- The level of staff involvement in the design and roll out of the EQF QA system

- The level of learner's involvement in the design and roll out of the EQF QA system.

- Management support for the EQF QA system.

- Do tutors see the EQF / FETAC QA system as:

  a) A means of enhancing the quality of adult basic education provision.

  b) A means of providing access to FETAC accredited qualifications.

  c) A means of documenting what is already being done.

CHAPTER 5

Data collection and First findings

Focus Group

The first step in the research project involved a focus group meeting with the managers of the CDVEC adult literacy centers. The purpose of the meeting was to explore two specific questions:

1. The level of involvement of voluntary tutors in quality assurance.
2. The need for both the EQF and FETAC quality assurance systems.

The fact that voluntary tutors were not specifically mentioned in the available documentation was not conclusive proof of their involvement, lack of involvement or level of involvement.

The need for FETAC accreditation was also unclear given that the EQF was a QA system that seemed to meet the specific needs of the adult literacy service and that in the external review carried out on behalf of NALA in 2005 McSkeane raised questions about previous educational experiences of many of the clients of the service that could make them disinclined to pursue this route.

The Focus group met at 10:00 am on 15th March 2007 in Ringsend Technical Institute and was attended by the researcher and15 area and local managers from the literacy service. The meeting was completed within 45 minutes and provided some valuable insight into the identified areas.

1. When asked about participation of the voluntary tutors in the development and roll out of the EQF, the group was unanimous about the fact that this had not been the case as it was impracticable.

   The reasons given were:

   a) Voluntary tutors only provide 1:1 tuition.

   b) There can be long gaps between finishing with one learner and matching the tutor with another learner.

   c) This absence of continuity makes it difficult to provide a meaningful role for voluntary tutors in the ongoing self-evaluation process.

2. When asked about the need to introduce the FETAC system into the literacy service given that a tailor made QA system for adult basic education already existed, there was overall agreement that:

    a) FETAC accredited qualifications are an important motivator for many of the service's clients.

    b) In many cases these are the first such qualifications these clients receive.

    c) Learners often progress beyond the basic levels.

    d) The EQF system provides most of the data required for FETAC accreditation.

    e) There was a very strong consensus that whilst the FETAC system was necessary and desirable, it would fit into the EQF and not the other way around. To quote from two of the respondents on this question, the introduction of FETAC was described as 'morphing with the EQF' and 'bolting on to the EQF'. Overall there was clear sense of pride with, and loyalty to, the EQF.

Based the insights gained from meeting with the focus group it was decided that the self-completion questionnaire would only be distributed to paid tutors.

In arriving at this decision the following factors were considered:

- The focus group was forthright and open in expressing their views about the inclusion of voluntary tutors in the EQF.

- Although it could reveal valuable insight about perceptions held by voluntary tutors, to include them in another survey with questions about participation in the EQF would be insensitive and could possibly be unethical.

Analysis of internal documentation
Minutes from Adult Literacy Team meetings from February 2006 to May 2007 were examined to ascertain how the managers responsible for the literacy centers prioritize QA.

During this period 11 meetings took place and quality assurance was discussed at 10 of the meetings.

The QA issues on the agenda for discussion at the meetings included:

- The amount of time taken up in preparation for FETAC accreditation and the need for additional administrative support in this area. The possibility of sharing resources with other services was investigated.

- Regular reports on progress with the FETAC submission.

- Working in parallel with the EQF framework and broadening membership of the working groups to include tutors of numeracy English and special needs.

- Planning for the implementation of the FETAC QA system.

- The meeting on 15th March 2007 also noted the Focus Group meeting that took place as part of the research for this dissertation.

It is clear from the records that QA is an ongoing issue for adult literacy organisers and managers of literacy centers. There was an understandable priority given to the FETAC system during the period under review given that the CDVEC literacy service was finally approved by FETAC in February 2007 but there was also evidence of the need to integrate the FETAC and EQF systems in the longer term.

Self-completion questionnaire
A population in research terms can be described as 'any group of people or objects which are similar in one ore more ways and which form the subject of study in a particular survey Chisnall (1992,p51). Sampling theory is based on the assumption 'that a subset of the elements in a population can provide us with useful information which describes the entire population' Williams (1997, p61).

Table 2 below sets out the distribution of tutors across the centers.

Table 2: Profile of CDVEC Literacy Centers

Adult Literacy Centre	Paid Tutors	Mini-mum	Question-naires
Target Adult Literacy Service, Dublin 13	01-05	1	**0
Liberties College Reading and Writing Scheme, Dublin 8	06-10	6	5
Dublin City South West Reading and Writing Scheme, Dublin 12	21-50	21	20
KLEAR Reading and Writing Service, Dublin 5	06-10	6	6
Finglas Read and Write Scheme, Dublin 11	06-10	6	10
Cabra and Districts Community and Literacy Service, Dublin 7	21-50	21	20
Ringsend Adult Literacy Service, Dublin 4	11-20	11	**5
Ballymun Adult Read and Write Scheme, Dublin 11	6-10	6	4
Larkin Read and Write Scheme, Dublin 1	6-10	6	5
Kylemore College Adult Learning Centre, Dublin 10	01-05	1	5
Inchicore Adult Literacy Service, Dublin 8	01-05	1	**0
Coolock / Darndale Adult Literacy Service, Dublin 17	21-50	21	20
Total:		107	100

Source: Adapted from the CDVEC Application for Provider Registration with FETAC

In finding the best means of conducting the survey, methods and practical considerations had to be considered. From a practical point of view it was critical to reach tutors before the summer holidays commenced. To achieve the challenging target of protecting confidentiality and the identity of respondents, while at the same time getting a reasonable response, the following process was used:

a) 100 questionnaire packs were prepared for distribution across the centers based on the minimum number of tutors in each centre as submitted to FETAC (107 in total).

b) Each pack consisted of a sealed unaddressed A4 envelope containing a questionnaire, a stamped addressed envelope to be returned to the researcher's home address and a covering letter asking respondents to co-operate with the project. As the letters were not personalized the tutors were informed that it would not be possible to send out reminders and the researcher made a commitment to contribute €1 to a nominated charity for each questionnaire returned.

c) Administrators and/ or local managers in each centre were phoned in mid April to ascertain the current level of activity in adult literacy tuition in their respective centers.

d) Based on the responses to these calls some small adjustments were made to the minimum numbers listed for FETAC. For example in Ringsend there were fewer than 11 tutors active at the time.

e) In the final analysis 100 questionnaires were distributed.

f) The packs were delivered by internal post to the manager or administrator in each centre on who distributed them the tutors on duty at the time.

g) 47% of tutors responded by post.

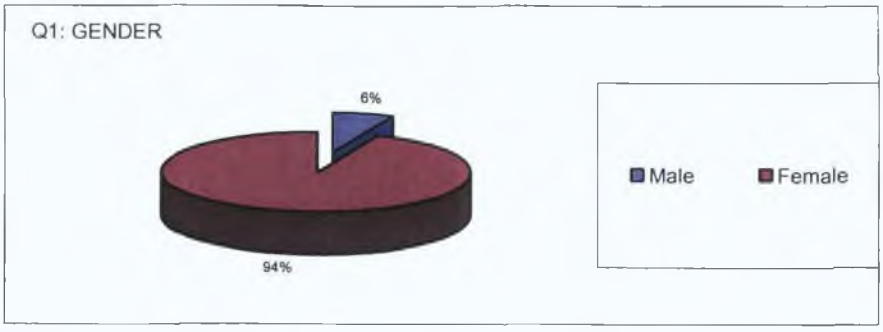
h) No responses were returned by any other means.

i) 24 respondents completed the open ended question seeking other views about QA in the literacy service.

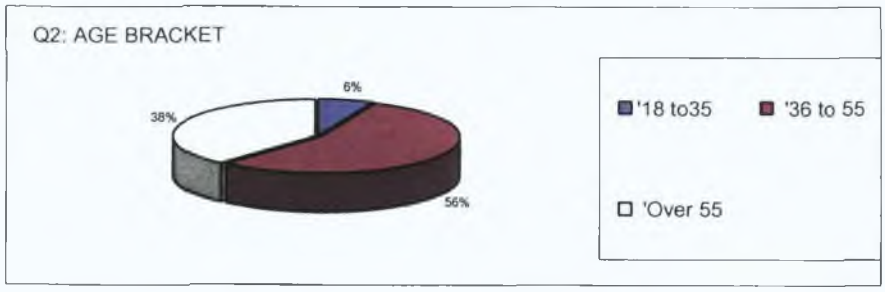
Appendix 1 gives the full results of the survey

Survey Part 1: Questions 1 to 4

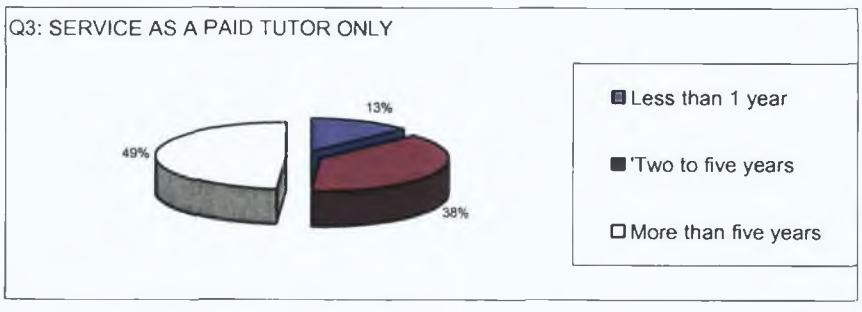
Profiles can be seen in the Pie charts below:



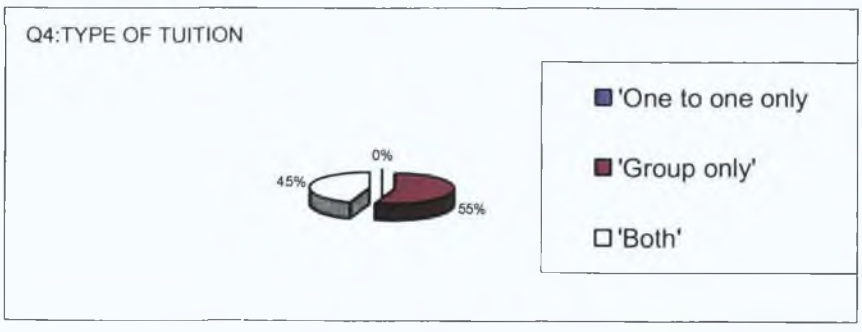
Adult literacy tuition is an almost exclusively female occupation



As we do not have details of the time spent as voluntary tutors these results are of limited value



Service of paid tutors is split 50/50 between less than 5 and more than 5 years.



Tutor's time is fairly evenly split between group tuition and a combination of 1:1 and group tuition.

Survey Part 2: Questions 5 to 15

Table 3: Questions from Part 2 of the Questionnaire Survey

	Quality Assurance in Adult Literacy / Adult Basic Education is addressed by two Quality Assurance Policies; the NALA Evolving Quality Framework which was introduced to VEC's in 2000 and the FETAC Provider Quality Assurance Policy which was registered in November 2006. The Evolving Quality Framework provided much of the evidence that was needed for FETAC registration and it will continue to provide evidence to support the quality assurance requirements of FETAC. The following lists a number of statements about quality assurance in the CDVEC Literacy Service. I would like you to reflect on your own experience and to indicate your level of agreement with each statement.
Q5	I have been briefed about how quality assurance works in the adult literacy service.
Q6	All paid adult literacy tutors have a part to play in quality assurance.
Q7	I understand what I am expected to do about quality assurance in adult literacy / adult basic Education.
Q8	Quality assurance is an internal self evaluation system that improves the quality of adult literacy tuition / adult basic education.
Q9	Quality Assurance is an externally evaluated system to comply with FETAC registration.
Q10	Quality assurance is a means of documenting what is already done.
Q11	When things go wrong in the adult literacy service, there is an agreed way of putting them right.
Q12	Management commitment to quality assurance is both evident and visible.
Q13	I am aware of the values and beliefs of adult basic education as set out in the guiding principles of the Evolving Quality Framework.
Q14	I am aware of the mission and values of the CDVEC Literacy Service as set out in the Adult Literacy Plan.
Q15	I need more information about Quality Assurance.

The full questionnaire can be seen in Appendix 2

Analysis of questions 5 to 15

The first stage of the analysis was to identify associated responses to survey questions by using a series of Chi-squared tests of independence.

Research in the area of QA in the literacy service is complicated by the fact that two QA systems operate in tandem so the approach taken was to first test for independence between questions 8 and 9. The other questions against questions 8 and 9. Questions 8 and 9 relate to the NALA EQF system and the FETAC system respectively.

Chi-squared tests on independence
The Chi-squared test can be described as a means of informing us as to whether the collected data are close to the value considered to be typical and generally expected and whether two variables are related to each other or, as a means of establishing how confident we can be that the findings displayed in a contingency table can be generalized from a probability sample to a population, Fisher F (2007, p218); Bryman &Bell (2003, pp252-253).

Social surveys frequently gather nominal or categorical data that is intended to measure preferences or the reasons for liking or disliking something. Such data cannot be measured in the same way as interval type data where there are equal intervals across a continuum and therefore analysis must rely on non-parametric measures like percentages or Chi-squared tests.

Chi-squared tests of independence can therefore be used in the analysis of surveys to determine if there is an association between the responses to questions. This process consists of comparing actual or observed responses to each question with expected responses.

The data is first entered in a contingency table and the test procedure can be summarised as follows:

The expected responses are normally calculated by multiplying the row totals and column totals in the table and dividing by the overall sample size. In some circumstances for example, there is an almost 50/50 split in the number of responses to each pair of questions, the expected value can be arrived at by taking half the sum of the responses to both questions.

The expected values are then subtracted from the observed values, squared to remove negative values and divided by expected values.

The values arrived at by this process are added together to give an actual Chi squared figure.

The actual Chi-squared figure is compared with a critical Chi square value in a Chi-square distribution table.

The comparison will indicate if we should accept the Null Hypothesis (there is no association between the pair of questions) or reject the Null Hypothesis (there is an association between the pair of questions).

In comparing the actual Chi-square value with the Chi-square distribution table two other factors must be considered:

1. The level of significance or the probability or risk of rejecting a true null hypotheses:

   The most common levels of significance in surveys of this nature are 0.5 or 0.01 with many researchers prepared to accept 5 chances in 100 that we may be accepting a faulty conclusion and fewer researchers prepared to accept only 1 chance in 100.

   In this case 5 chances in 100 are considered acceptable provided it is supported by responses to the open ended question in the survey.

2. The number of degrees of freedom:
   Degrees of freedom are calculated as the number of rows minus 1 multiplied by the number of columns minus 1 (R-1) x (C-1).

   In this case the number of rows will always be 2 as we are comparing pairs of questions. In a small number of cases where no responses were received under the same heading for both questions, the number of columns is 4 giving 3 degrees of freedom. As there are no instances where this occurred twice or more responses with less than 3 degrees of freedom do not arise.

   The results of this exercise are set out in table 4 below below.

   The full workings of the Chi-square tests can be seen in Appendix 3

Table 4: Chi- squared test - associated questions

Q No	Q No	Actual Chi-sq	Degrees of Freedom	Critical Chi-sq @5.0%	Null Hypotheses Accept/Reject
8	9	7.48	4	9.48	Accept: Independent
8	6	20.23	4	9.488	Reject: Associated
8	11	21.28	4	9.488	Reject: Associated
8	15	13.07	4	9.488	Reject: Associated
9	6	12.24	4	9.488	Reject: Associated
9	11	12.24	4	9.488	Reject: Associated
9	15	14.43	4	9.488	Reject: Associated

The Chi squared test would indicate that questions 8 and 9 are independent or not associated. However both these questions are associated with questions 6, 11 and 15

It is difficult to draw conclusions on the basis of these Chi-square tests alone and it is clear therefore that the problem needs to be examined from another perspective.

We know from questions 2 and 3 that there is an even split between:

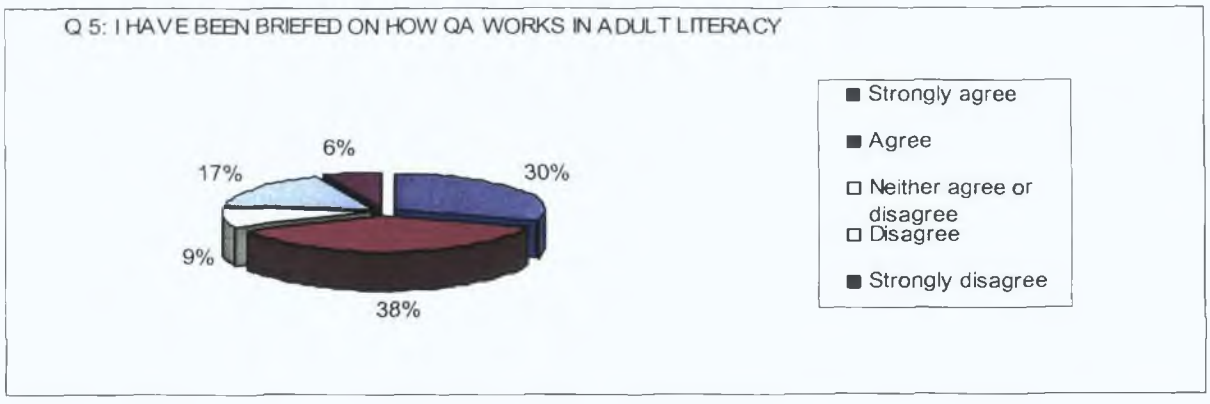
a) Tutors with more than 5 years service and tutors with less than 5 years service and
b) Tutors who provide group tuition only and tutors who provide a combination of group and 1:1 tuition.

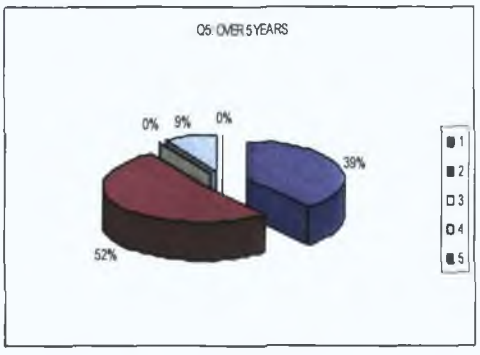
The second stage of the analysis will be to compare responses to questions 5 to 15 on the basis of:

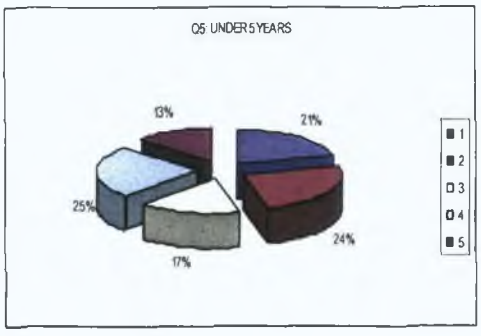
1) The overall responses.
2) Tutors with over 5 year's service.
3) Tutors with less than 5 years service.
4) Tutors who provide group tuition only.
5) Tutors who provide both group and 1:1 tuition.

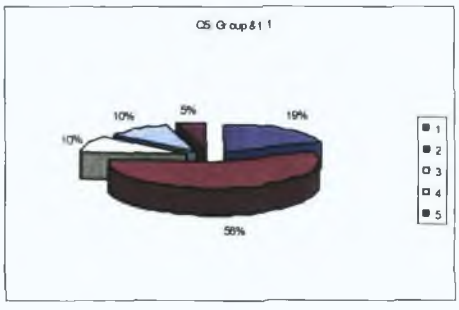
The results from stage two are set out below:

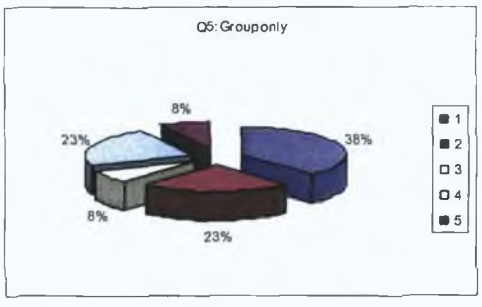
Question 5





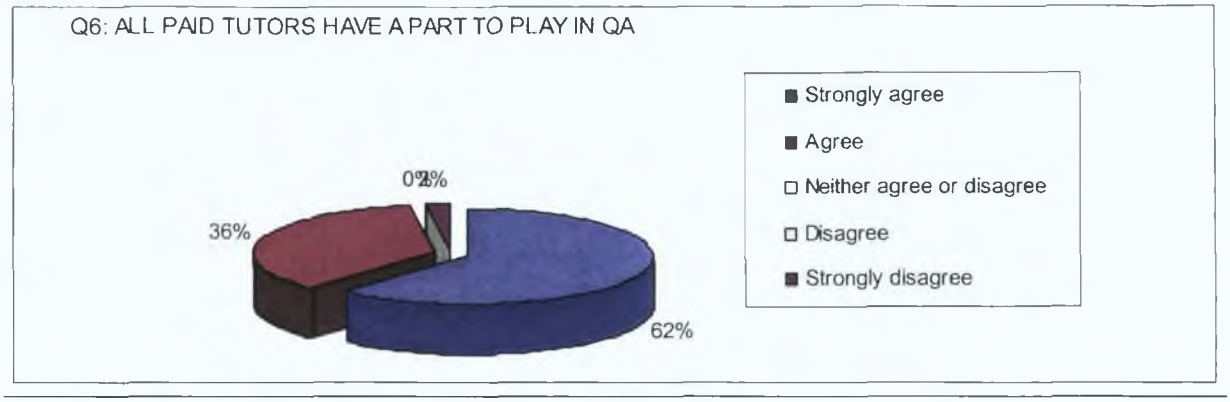


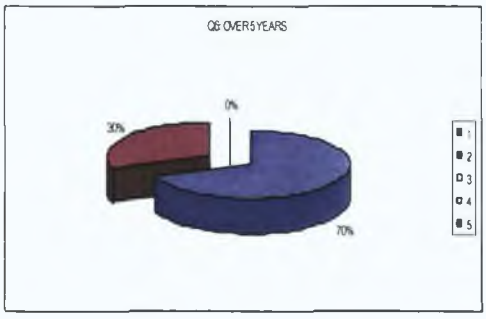


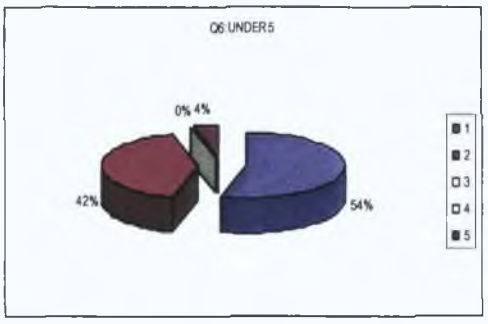


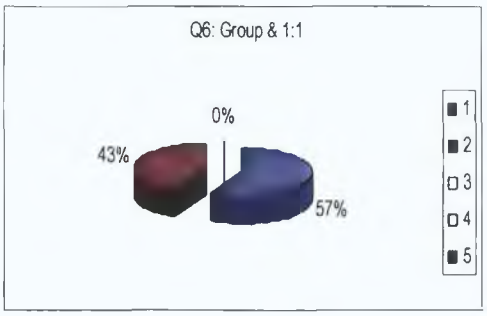
68% of the overall population agrees that they were briefed on QA.
25% disagree and the remainder is uncertain.
91% of tutors with more than 5 years service agree and 9% disagree.
45% of tutors with less than 5 years service agree and 31% disagree.
75% of tutors delivering 1:1 tuition agree and 61% of tutors who only provide group tuition agree

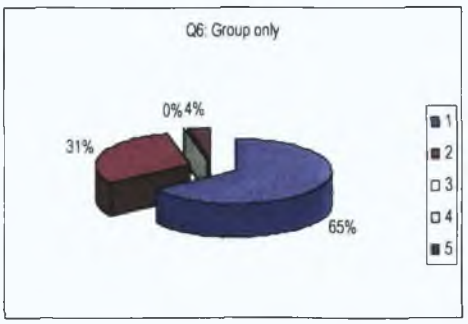
Question 6





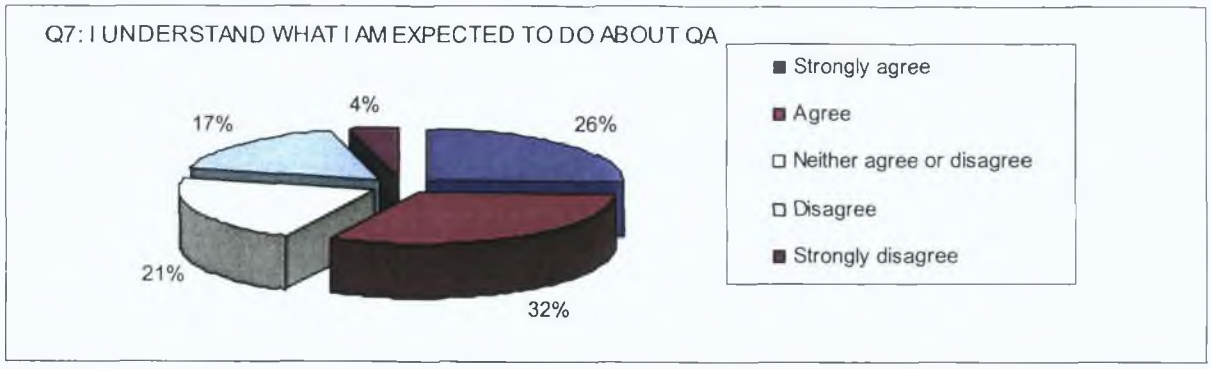


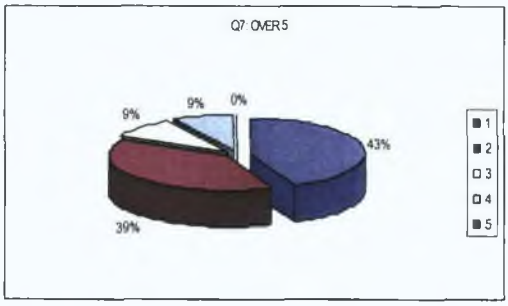


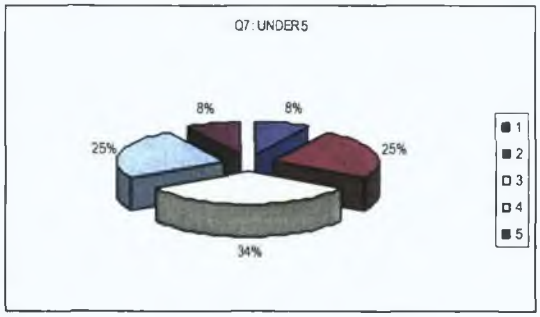


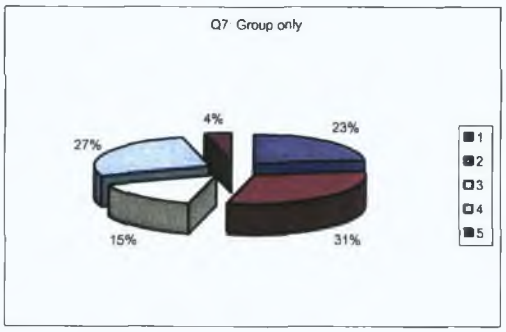
Almost every tutor recognizes that s/he has a part to play in QA.

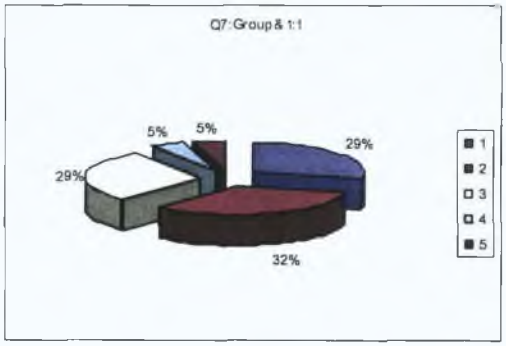
Question 7







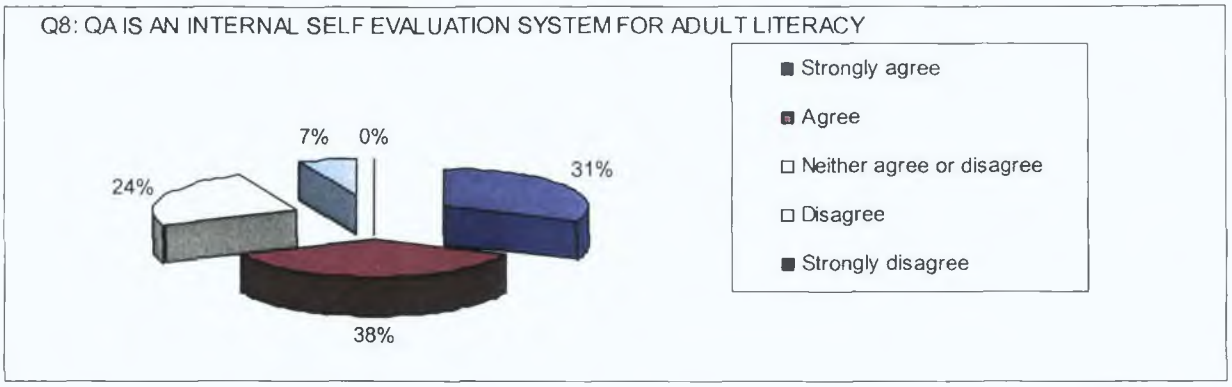


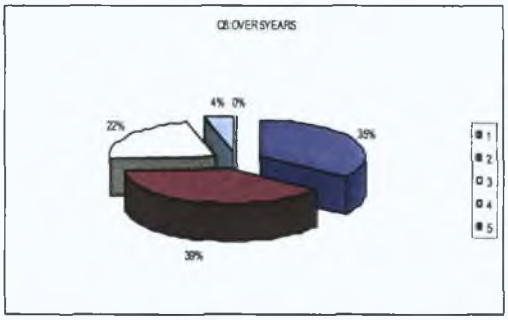


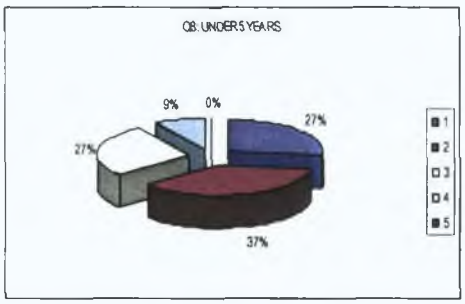
58% of the overall population says that they understand what they are expected to do about QA. 23% say they do not know what is expected and the remainder is uncertain.

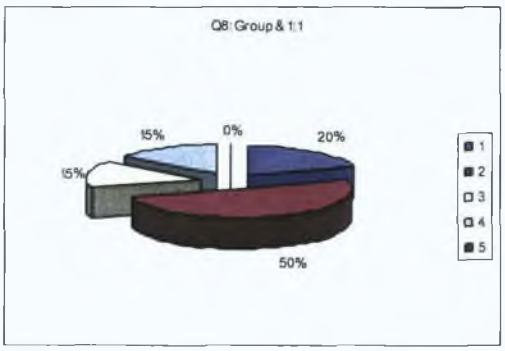
82% of tutors with more than 5 years service say they understand what they are expected to do about QA but only 33% of tutors with less than 5 years service say they understand what is expected.

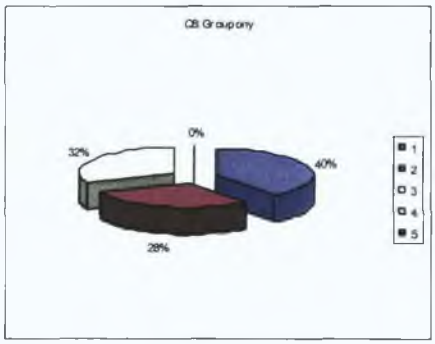
Question 8





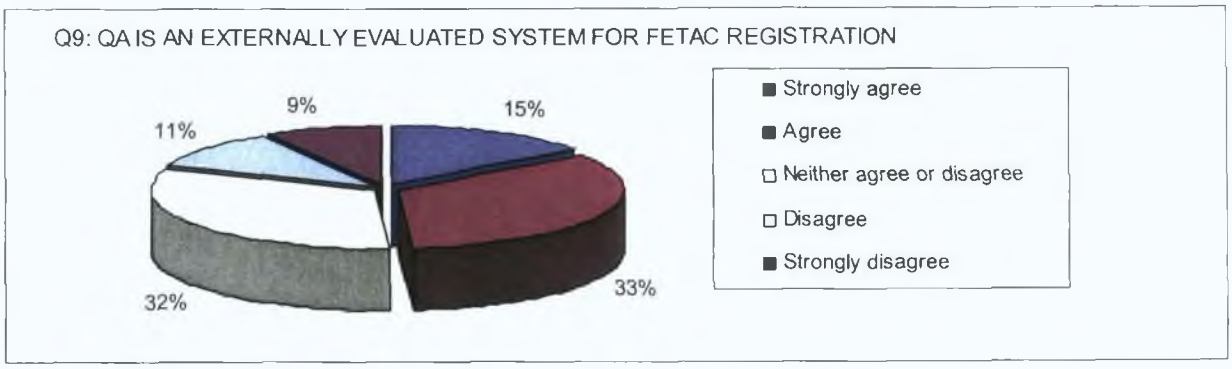


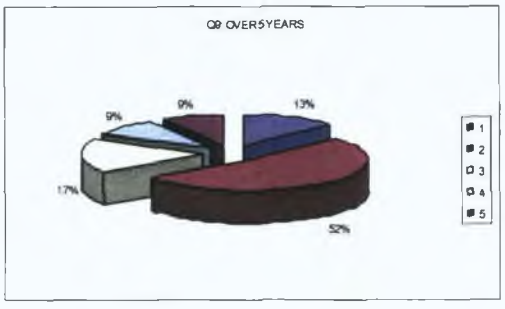


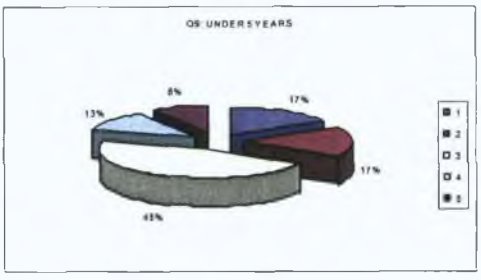


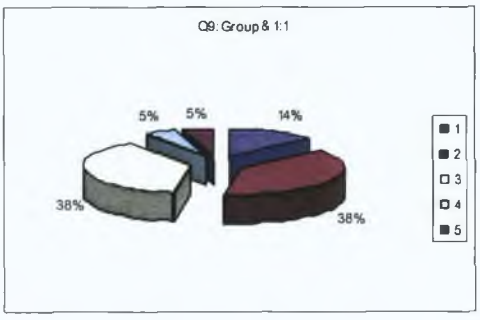
69% of the overall population agrees that QA is an internal self evaluation system. Only 7% disagree and the remainder is uncertain.

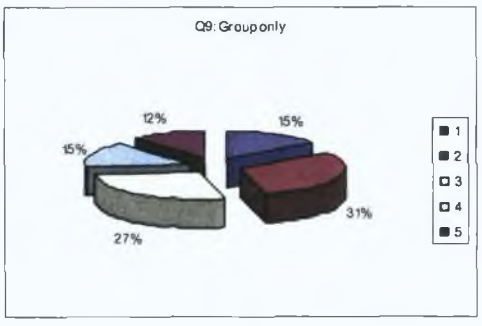
Question 9







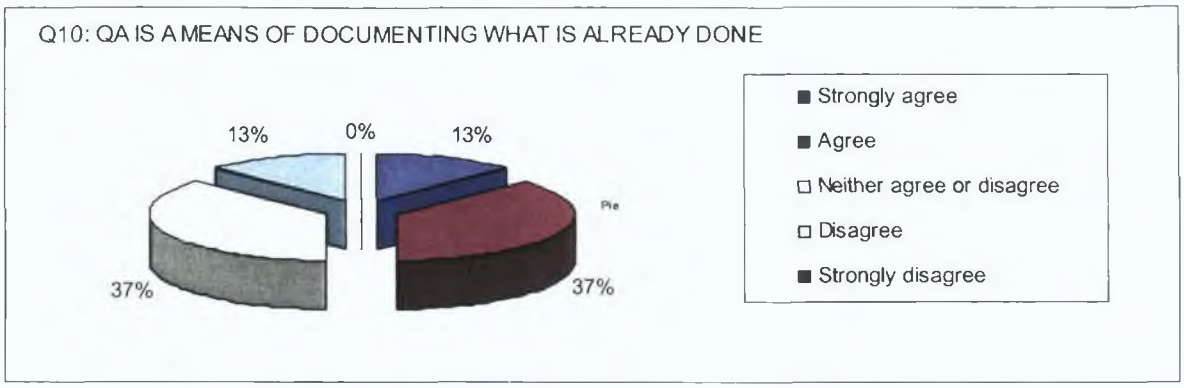


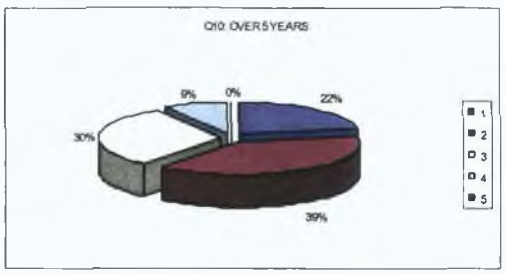


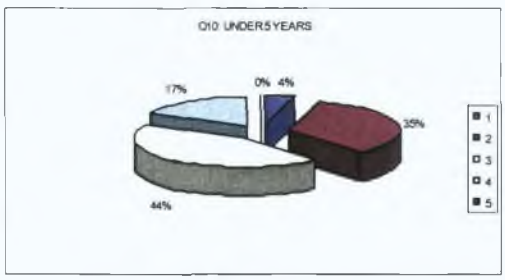
48% of the total population agrees that QA is an externally evaluated system for FETAC. 20% disagree and the remaining 32% are uncertain.

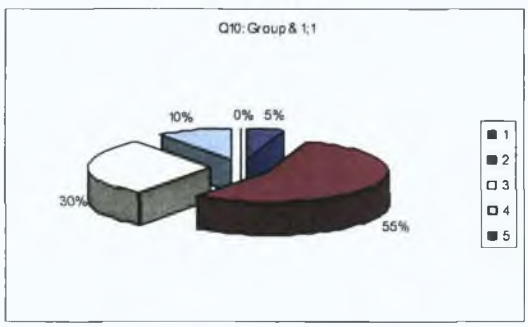
65% of tutors with more than 5 years service agree and 34% of tutors with less than five years agree.

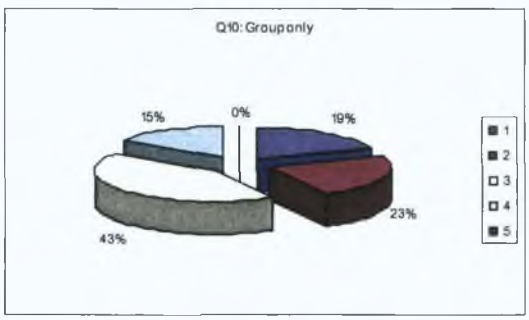
Question 10









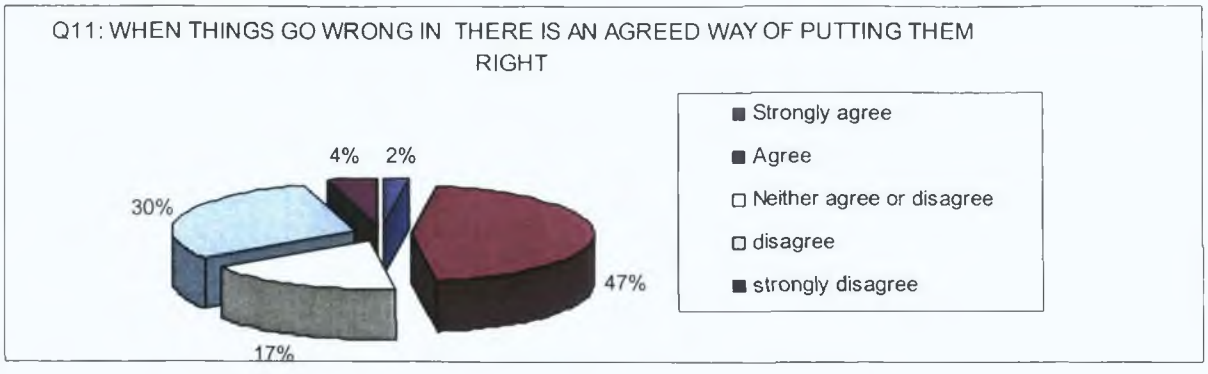


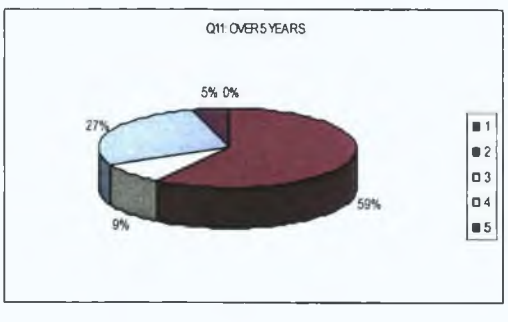
50% of the overall population agrees that QA is a means of documenting what is already done, 13% disagree and the remaining 37% are uncertain.

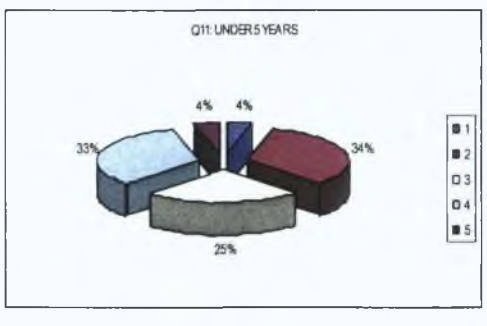
61% of tutors with more than 5 years service agree that QA is a means of documenting what is already done and

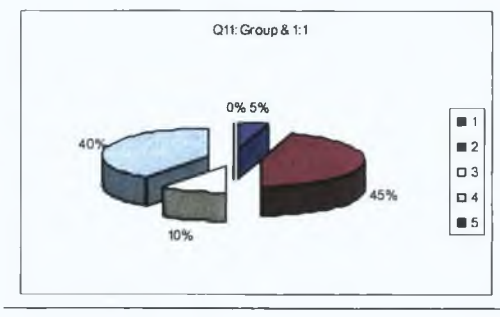
39% of tutors with less than 5 years service agree with this statement, 60% of tutors who provide 1:1 tuition agree and 42% of tutors who only provide group tuition agree.

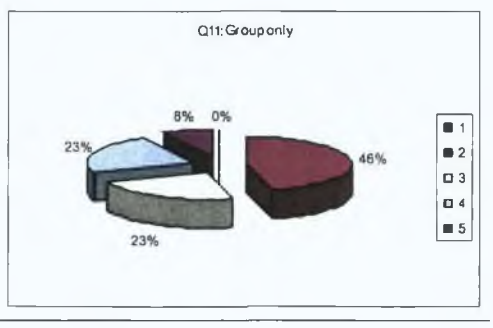
Question 11







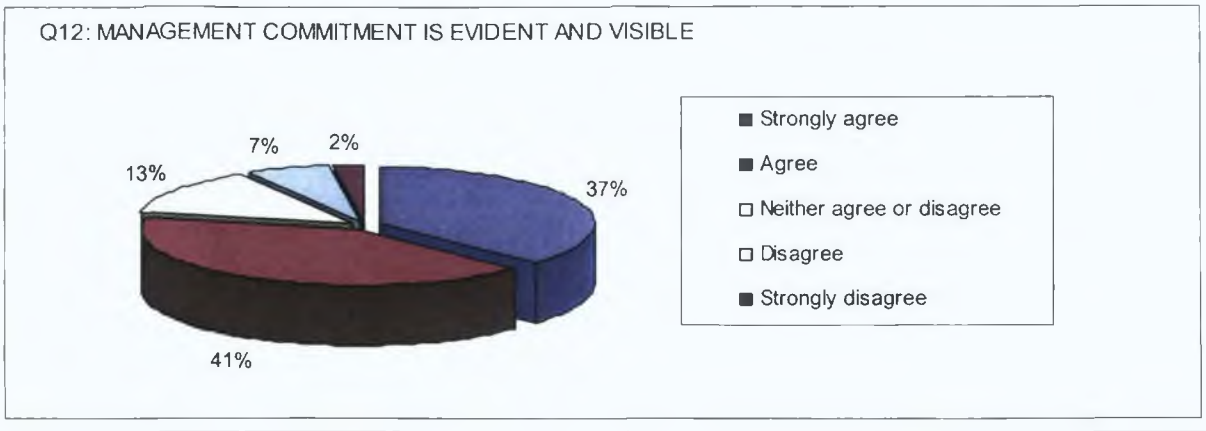


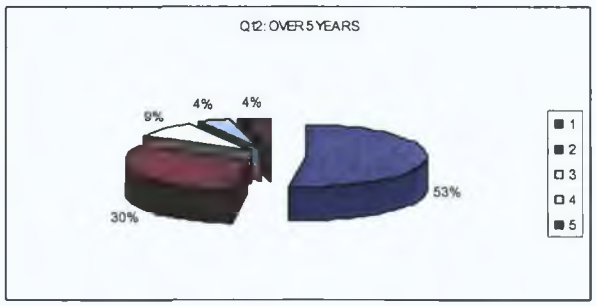


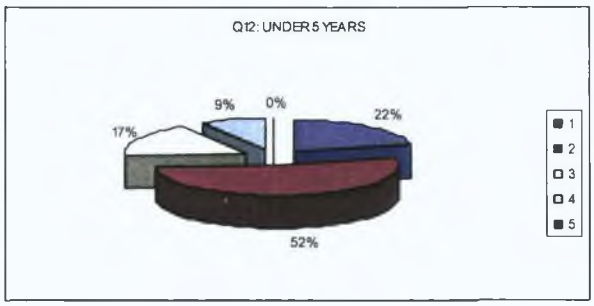
Almost half the total population (49%) agrees that when things go wrong there is an agreed way of putting them right. 34% disagree and the remaining 17% are uncertain.

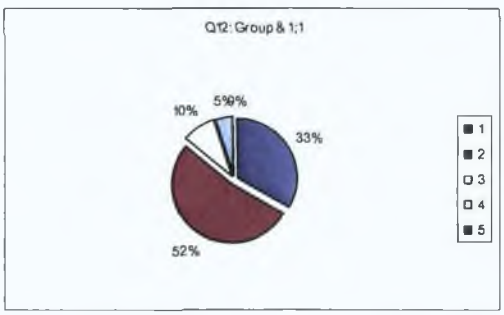
59% of tutors with over five years service agree but only 38% of tutors with less than five years service agree.

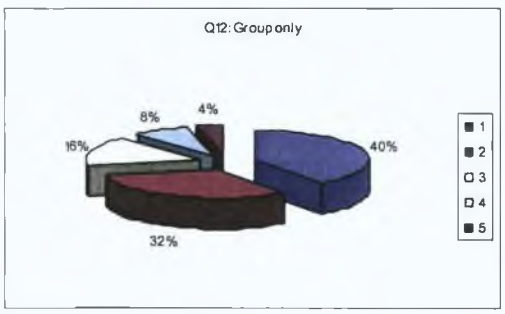
Question 12









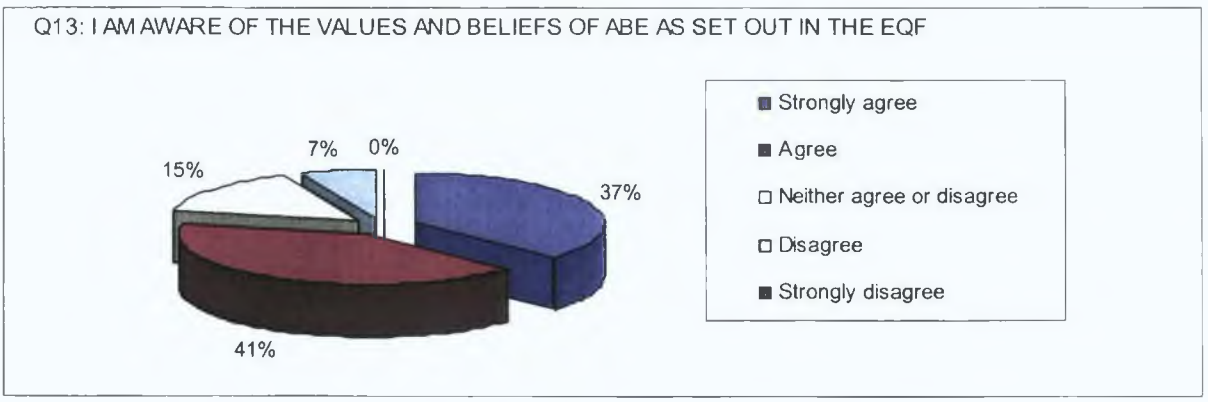


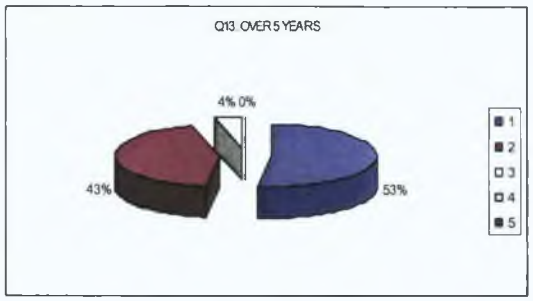
78% of the overall population agrees that management commitment id evident and visible. 9% disagree and the remaining 13% are uncertain.

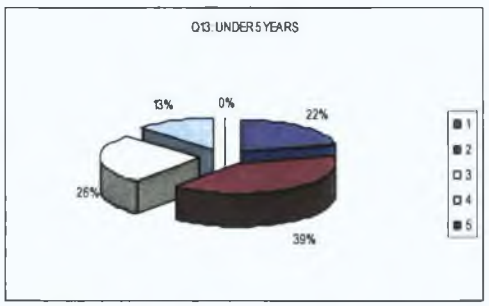
83% of tutors with more than five years service agree and 74% of tutors with less than five years agree.

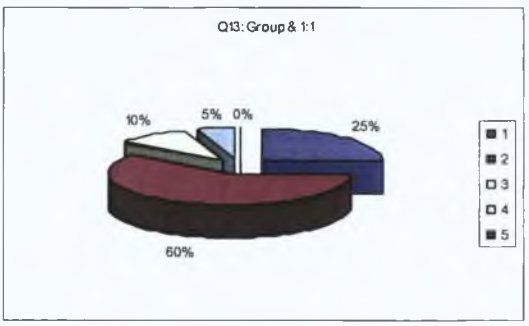
85% of tutors involved in 1:1 tuition agree and 72% of tutors who provide group tuition only agree.

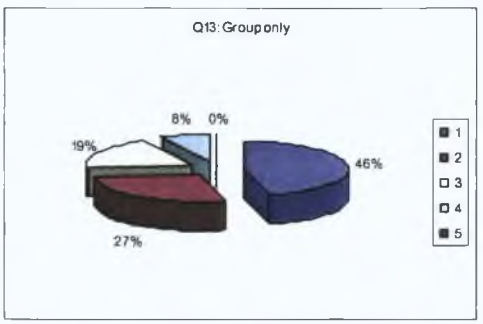
Question 13







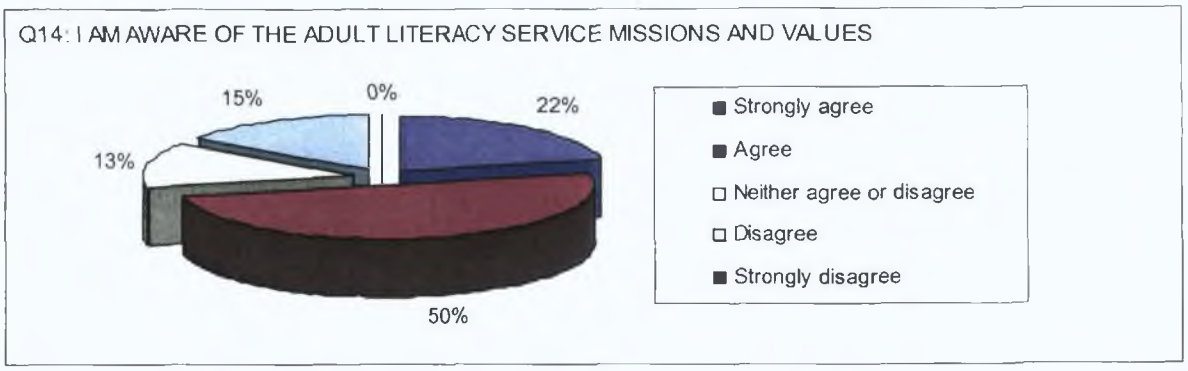


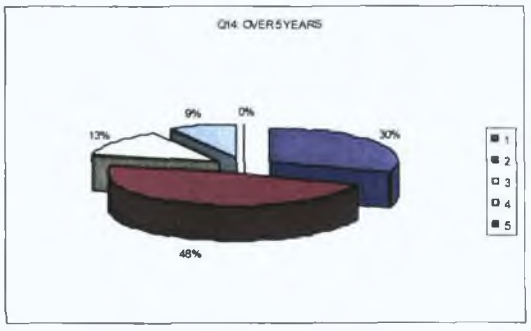


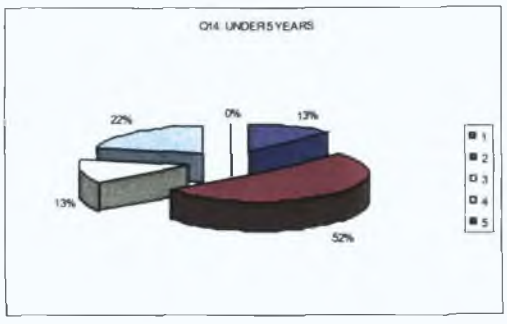
78% of respondents say they are aware of the values and beliefs of the EQF. 7% are not aware and the remaining 15% are uncertain.

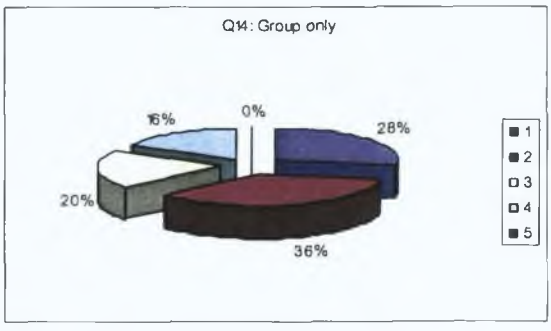
96% of tutors with more than five years service are aware of the EQF values and beliefs but only 61% of tutors with less than five years service said they were aware.

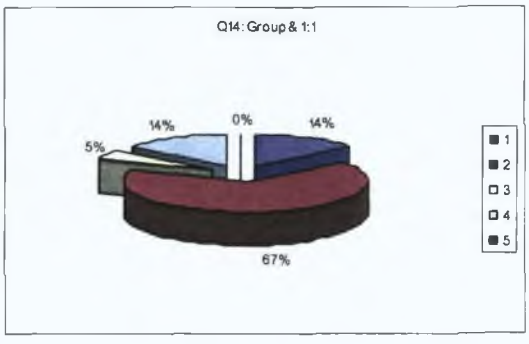
Question 14









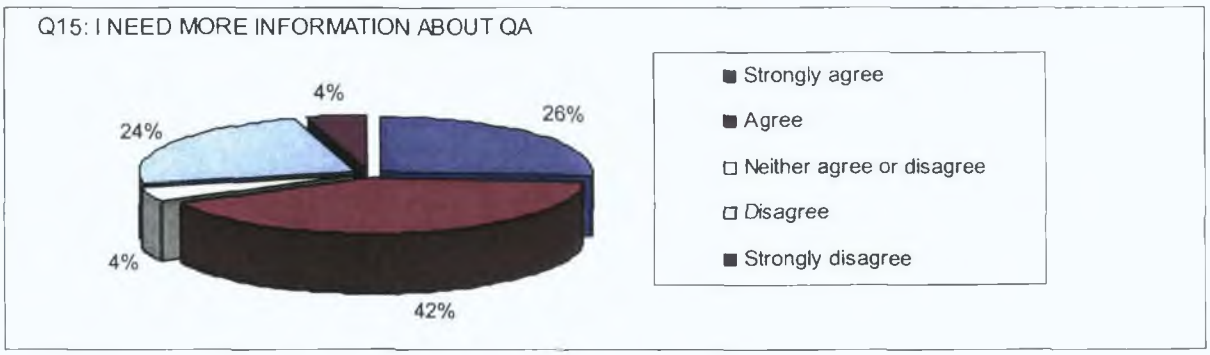


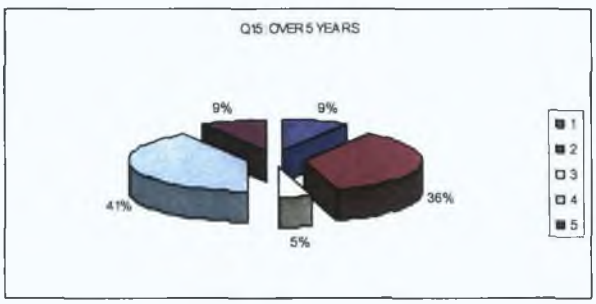
72% of respondents said they were aware of the adult literacy service's mission and values. 15% said they were unaware and the remaining 13% are uncertain.

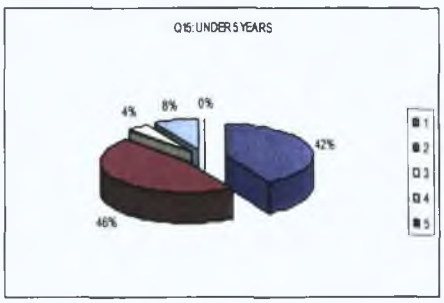
78% of tutors with more than five years service said they were aware and 65% of tutors with less than five years service said they were aware.

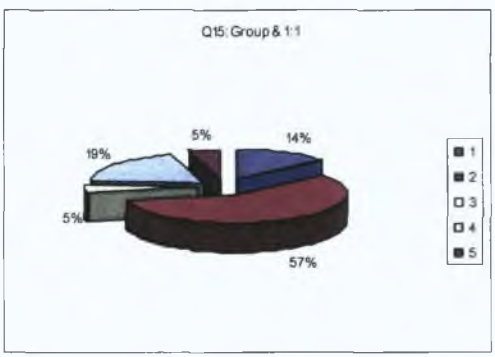
81% of tutors involved in 1:1 tuition said they are aware of the adult literacy service's mission and values and 64% of tutors providing only group tuition said they were aware.

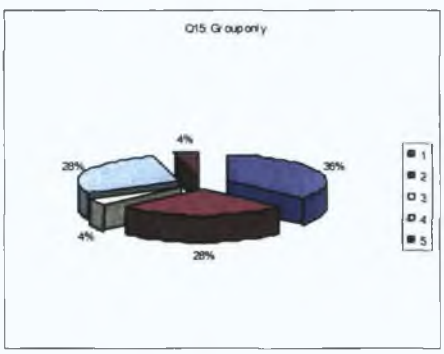
Question 15











88% of tutors with less than five years service say they need more information on QA.
71% of tutors involved in 1:1 tuition say they need more information.
68% of all respondents say they need more information
64% of tutors providing group tuition only said they need more information and
Less than half (45%) of tutors with more than five years service say they need more information

CHAPTER 6

Conclusions and Recommendations

The research problem is to find if QA in the CDVEC literacy service complies with the fundamentals of an effective QA system as defined by Richard Freeman. The questions in the survey are broadly based on the headings that Freeman identified from the literature on QA. To ascertain if QA in the literacy service complies, responses to each question will be commented upon before drawing any conclusions on the overall effectiveness of the system. Responses to the opened ended questions in the self-completion survey questionnaire will also be assessed in the context of the other data.

The general impression gained from this exercise is that there are significant variations in the way different groups of tutors perceive quality assurance in the literacy service. There are also significant gaps in knowledge of QA between different groups of tutors. The key difficulty is in finding a common understanding among all tutors about how QA works and how each member of the team interfaces with a clear QA mission and policy and a common set of procedures for ensuring that the system is achieving its goals and objectives. These issues are discussed in more detail below.

Mission statements

The introduction of any initiative or change programme, and a QA system falls naturally into this category, should commence with clear communication about the proposed change and its objectives. In a QA system this means that the organization's mission and aims should be clear and known to all. In this case the problem is exacerbated by the fact that the CDVEC literacy service has two sets of missions and values that are directly related to QA. In addition the organization has set out its overall purpose, beliefs, principles and challenges in the five year plan 2006-2011. On this occasion respondents were only asked for their knowledge of the values and beliefs of adult basic education as set out in the EQF and the mission and values of the adult literacy service as set out in the adult literacy plans 2005-2008.

As would be expected the managers who participated in the focus group were clear about the missions values and beliefs of adult basic education and adult literacy.

The results from tutors were less straightforward. Almost all tutors with more than five years service, that is those tutors who were around since the introduction of the Evolving Quality Framework were aware of the EQF values and beliefs which would indicate that these were effectively communicated from the outset. Tutors with less than five years service were considerably less clear and the actual figures from the survey indicate that only six out of ten tutors with less than five years service were aware of the EQF values and beliefs. One respondent with long service used the open ended question to state that she had been involved in the EQF for many years and that she believes that not all tutors have a knowledge of QA as managers do not have the time to involve them in the process.

With regard to the mission and values of the literacy service, the overall level of awareness was lower. In this case 78% of tutors with more than five years service said they were aware of the literacy service mission and values (96% of this group was aware of the EQF values and beliefs) but the level of awareness for tutors with less than five years service was the same at around 60%.

These results would seem to indicate that with the passage of time the number of tutors who will be aware of the values and beliefs of adult basic education as set out in the EQF may diminish.

Nonetheless at 78% and 72% overall for the EQF and Literacy Service mission and values the level of awareness among literacy tutors is reasonable given the overall level of complexity.

Briefing on QA

As with communication on missions and values the effective implementation of a new QA system requires that all stakeholders receive clear and detailed communications and briefing about what QA means. What the organization regards as quality should be well defined and documented and tutors should know how the system works.

In this area the responses were not as encouraging as in the previous topic. Only 68% of tutors agree that they were briefed on how QA works and 23% disagree. As expected, by comparison with other question a relatively small number were uncertain. On this question the figure for the subgroup of tutors with over five years service was more than twice that for tutors with less than five years service. 91% and 45% respectively, agreed that they were briefed.

Open ended questions
In the open ended section of the survey a number of respondents complained about lack of briefing:

One tutor with over five years service stated that it was positive to see QA in the service but that it was not enough to have bits of the process and that a proper understanding of the whole process is required.

Another tutor with between two and five year's service said she knew nothing about it and that as a result of the survey she intends to find out more.

A third tutor with less than one years service suggests that if QA were explained in a more formal manner it may be taken more seriously

A fourth tutor with more than five years service admits to having a sketchy knowledge of QA and

A fifth tutor with two to five years service asks for more written information as tutors work in a vacuum.

A sixth tutor stated that during her 10 week training as a voluntary tutor she was given no information about the EQF or the FETAC QA system. This person has less than one years service as a paid tutor.

13% of respondents used the open ended section of the survey to express a view on this specific question.

Management commitment
Another fundamental part of an effective QA system is a clear management commitment to the process, from the top down. Unfortunately respondents were not asked to differentiate between the two QA systems or the levels of management involved. However some respondents did provide some clarity about this in the open ended questions. One respondent specifically stated that her response referred only to her local manager as she had never met 'the others'. This tutor has more than five years service as a paid tutor.

Overall 78% of respondents agree that management commitment is evident and visible but within the subgroups the level of agreement is higher with tutors with over five years service and with tutors who are involved in 1:1 tuition. Once again the overall evidence of management commitment is high.

Understanding of tutor's role in QA

According to Freeman, in an effective QA system it is always clear who is responsible for what. In QA this means that every link in the internal and external supply chain should contribute to the assurance of what the organization defines as quality. In education tutors, instructors and teachers are clearly a central part of this process. Responses to the statement 'I understand what I am expected to do about QA yielded the following results from tutors in the literacy service:

Only 58% of all respondents said they understand what they are expected to do about QA. 21% say they do not know and the remaining 21% are uncertain. Of the subgroup 83% of tutors with over five years service say they understand what is expected and only 33% of tutors with under five years service say they understand what is expected of them. Apart from the overall low level of understanding of tutor's role in QA the recurring theme of newer tutors not being involved in QA should be a source of concern as it is unlikely that this is due to any resistance on their part.

Corrective action

QA systems are needed to check everything is working to plan and when things go wrong procedures for corrective action are required. Simply put, when things go wrong, there should be agreed ways of putting them right. This question was put in the survey. Only 49% of the respondents agree with this statement, 34% disagree. Respondents who agree with this statement comprise 59% of tutors with over five years service and 38% of tutors with less than five years service. This 40/60 split between over and under five year's service is fairly consistent throughout the survey.

Documentation

Tutors were asked to respond to the statement that QA is a means of documenting what is already done. The question was put in this way to avoid leading the respondents. By taking this approach it is possible that the responses are not an indication of agreement or disagreement with the commonly held view that QA is only a paper exercise. On this issue 37% neither agree nor disagree, 50% agree and 13% disagree.

All tutors have a part to play in QA

There was almost 100% agreement with this statement and the distribution of responses is broadly similar across all subgroups. It is not possible therefore to interpret he responses as either enthusiasm for QA or a statement that the additional work should be shared equally.

Internally or externally evaluated

Questions 8 and 9 in the survey were intended to test for internal or external focus on the basis that internal self evaluated QA is about quality enhancement or the pursuit of excellence and externally evaluated systems are often no more than conformance. This line of investigation would have been easier to pursue if the Chi-squared test of independence had indicated that both questions were dependent or associated with each other. Despite laborious checking this proved not to be the case and the analysis took another direction.

Provision of information about QA

Responses to the statement 'I need more information about QA' provide a useful summary of responses to some of the previous questions and they pose a question as to whether QA in the literacy service is solely in the hands of the long serving tutors who have been involved in the EQF from its implementation. This may make sense in terms of integrating the FETAC system but it is not an indicator of a robust internally focused self evaluation QA system. Further research could easily establish if this is the case but unfortunately this must wait until classes resume in September 2007. This does not inhibit our ability to draw conclusions from the data as presented and these are set out in the next section.

In this case:

88% of tutors with less than five years service say they need more information. This corroborates the findings on previous questions i.e. that awareness of QA and involvement in QA among this group is far lower than with tutors with over five years service.

71% of tutors that are involved in 1:1 tuition say they need more information.

68% of all tutors say they need more information.

64% of tutors providing group tuition only say they need more information.

Only 45% of tutors with over five years service say they need more information and

24 respondents or 50% of the overall responses took the opportunity to give open ended views on QA in adult literacy. The open ended responses are summarized and listed below in table 5.

Table 5: Open ended responses to survey

	Service Years	Tuition Type	Responses
1	+ 5	Group	FETAC should not take over the from internal system
2	2 to 5	Group	Lack of funding for QA
3	+ 5	Group	Need the whole picture of QA
4	2 to 5	Grp/1:1	Management commitment is confusing, QA means more paper and shows a lack of trust in tutors
5	+5	Group	QA is great success as it involves everyone
6	2 to 5	Grp/1:1	Not possible to implement due to lack of resources
7	2 to 5	Group	Given no information, know nothing about QA
8	2 to 5	Group	QA is important, it would help if things were moved along faster
9	+5	Group	EQF is like the bible for literacy tutors
10	+5	Group	EQF & FETAC both beneficial and serve together to progress students
11	+5	Group	Familiar with EQF but not FETAC. Tutors have no say and the old way of working will disappear
12	+5	Group	EQF provides guidelines for achieving quality. FETAC provides verification
13	-1	Group	Don't think tutors in general are familiar with the issues
14	-1	Grp/1:1	Haphazard approach. Needs to be explained in a more formal setting
15	2 to 5	Grp/1:1	Increase in paperwork will deter new tutors from joining the service
16	+5	Grp/1:1	Sketchy knowledge. Believes it is useful for assessment and for identifying work to be done
17	+5	Grp/1:1	QA is an ideal that takes up extra time filling forms
18	2 to 5	Grp/1:1	EQF has given me an opportunity to put forward my ideas for improvement
19	2 to5	Group	QA needs more coverage and written information
20	+5	Group	Before QA most tutors were providing an excellent service
21	-1	Group	QA not covered in tutor training
22	+5	Grp/1:1	Managers do not have time to involve tutors in QA. Many tutors unaware of QA
23	+5	Grp/1:1	Ongoing information required to ensure standards are maintained
24	2 to 5	Grp/1:1	A lot expected by FETAC. More resources needed.

Observations on the open ended responses

Open ended responses were split 50/50 between tutors with more or less than five years service. 14 respondents are involved in group tuition only and 10 are involved in both group and one to one tuition. As the profile of tutors who provided qualitative open ended responses is similar to the profile of tutors in the overall survey it seems reasonable to accept that the qualitative information is representative of the overall survey.

8 of the open ended responses state that tutors have no information or insufficient information on QA.

7 open ended responses complained of more paperwork and a shortage of resources to back up QA in the literacy service. One of these believes QA shows a lack of trust in tutors and another states that tutors were providing an excellent service before QA was introduced.

4 respondents were very positive about the EQF system but did not comment on the FETAC system

2 respondents said that the EQF and FETAC systems were working in tandem

1 respondent said that QA is important but that it would help if things were progressed at a faster pace.

Conclusions

The mission and values of adult basic education/ adult literacy in CDVEC are expressed in two different documents; the NALA /EQF user guide and the CDVEC Adult Literacy Local Plans 2005-2008.

78% of all tutors are aware of the Mission of Adult Basic Education. This includes almost all tutors who were in situ when the EQF was introduced but about 40% of tutors who commenced since then have no knowledge of this mission.

72% of all tutors say they are aware of the Literacy Service Mission. There is no great difference between the level of awareness between new and old entrants to the service. Awareness of the Literacy service's mission is greater with tutors who are involved in 1:1 tuition than with any other group.

68% of tutors say they were briefed on the introduction of QA but 48% of tutors with less than five years service say they were not briefed.

68% of all tutors also say they need more information on QA but most of these would appear to be tutors with less than five years service (less than half the tutors with more than five years service say they require more information and almost all tutors with less than five years say they need more information). If the fundamentals of effective QA require that the systems through which work will be done are clear and communicated to everyone, this level of communication about the operation of the system cannot be considered adequate.

If effective QA requires that it must always be clear who is responsible for what, the responses to the statement 'I understand what I am expected to do about QA' would also be a source of concern. In this case less than 60% of tutors said they understood what they were expected to do about QA and only 33% of tutors with less than five years service said they understood what they were expected to do.

All the literature on QA including guidelines from organizations like the ISO HETAC, FETAC and ENQA emphasise that it is essentially an internal self evaluation process to enhance the quality of and organizations goods or services. The role of the external agencies is to approve the procedures used by the organization to enhance what it defines as quality. Each organizations definition of quality should be shaped by the needs of its customers and other stakeholders.

Almost 70% of tutors believe that QA is an internal self evaluation process and almost 50% believe it is an externally evaluated system for FETAC. Clearly a number of tutors agree with both statements but the fact that almost half the tutors see QA as an externally evaluated system should be a cause for concern if the objective is for QA to be a process of quality enhancement or the pursuit of excellence.

Overall the answer to the research problem must be that QA in the literacy service complies with the fundamentals of an effective system if the objective is to meet the requirements of external evaluation.

If the objective is quality enhancement or the pursuit of excellence the existing system falls short in a number of areas including the involvement of all tutors in QA, clarity about each tutors role in QA, communications, training and briefing for all tutors and above all, the articulation of a clear mission that places the pursuit of excellence above all else.

Recommendations

If the CDVEC Literacy Service encompasses 1:1 literacy tuition, group tuition leading to FETAC awards and other forms of adult basis education, perhaps it should have a common mission to which all stakeholders can aspire.

Steps should be taken to ensure that the internal focus on QA from the NALA EQF system is preserved in the transition to FETAC accreditation. If the two systems are to be integrated, the ideal solution would be to have one set of QA policies and procedures for the Literacy Service that would preserve the participative self evaluation process developed by NALA and also provide the information required by FETAC.

Whilst it is understandable from an operational point of view that longer serving tutors with experience of QA would be more deeply involved in the implementation of a new system, there is a clear need for briefing / training for all tutors in the operation of QA.

Information on QA should be included in the VEC courses for training voluntary tutors. This would be particularly useful for those tutors who graduate from voluntary service to paid 1:1 and group tuition. Although there are practical difficulties with involving voluntary tutors in the EQF teams, these tutors should not be left out of the loop in relation to QA and at the very least they should be provided with information about progress and developments on an ongoing basis.

A means of measuring performance in QA should be developed and all stakeholders, including voluntary tutors, should be kept informed of progress.

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Appendix 1: Survey Results

Questionnaire number	Q1 Gender		Q 2 Q 2 Age			Q 3 Years of Service			Q 4 Tuition type			Q5 Briefed on QA	Q6 All tutors have a part to play	Q7 Understand my role in QA	Q8 Internal EQF self evaluation	Q9 External FETAC evaluation	Q10 Documentation of what's already done	Q11 Agreed correction plan	Q12 Management commitment	Q13 Aware of EQF values and beliefs	Q14 Aware of adult Lit values	Q15 Need more information on QA	Tot
	M	F	18-35	36-55	Over 55	Under 1	2 to5	Over 5	1 to 1	Grp	Both												
												Likart scale: strong agree - strong disagree: 1 to 5											
1		1		1			1			1		1	5	3	1	6	4	3	2	2	4	2	32
2		1			1			1		1		1	1	2	1	4	3	4	2	1	3	3	25
3		1		1			1				1	2	1	3	2	3	2	2	2	2	2	1	22
4		1		1			1			1		1	1	1	1	5	3	2	1	1	1	1	18
5		1		1				1		1		4	2	4	2	2	3	5	3	2	3	2	32
6		1		1			1				1	5	1	5	2	2	2	4	2	2	2	1	28
7		1		1			1				1	1	1	2	2	2	2	2	1	2	2	2	19
8		1		1			1				1	2	1	2	2	4	4	2	2	2	2	4	27
9		1		1				1		1		2	1	1	1	1	1	4	2	1	1	5	20
10		1		1			1			1		4	2	4	3	3	3	2	2	3	2	2	30
11		1			1			1		1		2	2	2	2	2	2	2	1	2	2	4	23
12	1				1			1			1	2	2	2	2	2	3	4	2	2	4	2	27
13		1		1				1			1	1	1	1	1	2	2		1	1	1	5	16
14		1			1		1				1	2	2	3	1	3	2	4	2	2	4	2	27
15		1		1			1			1		5	2	4	3	3	3	4	4	4	4	1	37
16		1			1			1		1		1	1	3	1	5	3	4	4	1	4	1	28
17		1			1		1			1		1	1	2	2	4	4	2	1	2	2	1	22
18		1		1				1		1		1	1	1	1	3	1	3	1	1	3	4	20
19	1				1			1		1		1	1	1	1	2	2	2	1	1	1	4	17
20		1		1		1				1		3	1	3	1	1	1	2	2	1		1	16
21		1		1			1				1	3	1	2	1	3	3	4	2	2	3	2	26
22		1			1			1		1		2	1	2	2	2	1	2	2	2	2	2	20
23		1		1			1			1		4	2	4		3	4	3		3	4	1	28
24		1		1				1		1		2	2	2	2	2	2	2	1	2	2	4	23
25		1	1				1			1		4	2	3	3	2	2	4	3	2	2	1	28
26		1			1			1			1	1	1	1	3	1	2	2	1	2	2	4	20
27		1			1			1		1		1	1	1	3	1	1	2	1	1	1	4	17
28		1		1				1		1		4	1	4	3	3	3	4	5	1	1	4	33
29		1		1				1		1		1	1	2	2	4	4	2	1	1	1		19
30		1	1				1				1	4	2	4	3	3	3	4	4	3	4	2	36
31		1		1		1				1		1	2	2	1	1	2	3	1	1	1	2	17
32		1		1		1					1	3	1	3	2	3	3	4	2	4	2	2	29
33	1			1			1				1	2	2	3	4	3	3	3	2	3	2	4	31
34		1			1			1			1	2	2	3	2	3	2	2	2	2	2	2	24
35		1			1			1			1	2	1	1	2	2	2	2	1	1	2	2	18
36		1			1		1				1	2	1	1	2	2	2	4	1	1	2	3	21
37		1			1		1			1		3	1	4	2	4	3	5	2	4	3	1	32
38		1			1			1		1		2	1	2	3	2	3	2	1	3	2	4	25
39		1		1				1			1	2	2	2	3	3	1	2	1	2	2	4	24
40		1			1			1		1		2	1	1	1	2	2	2	2	1	2	1	17
41		1		1		1				1		4	1	4	3	3	3	3	3	3	2	2	31
42		1			1			1			1	2	2	2	2	2	2	4	2	2	2	2	24
43		1		1				1			1	1	1	1	1	5	4	2	1	1	1	2	20
44		1	1			1				1		5	1	5	3	3	3	3	3	3	3	2	34
45		1			1			1			1	2	1	1	4	2	3	3	3	2	2	2	25
46		1		1		1					1	4	2	3	4	1	2	2	3		2	1	24
47		1		1			1				1	2	2	2		1		1	2	1	1	2	14
	3	44	3	26	18	6	18	23	0	26	21	109	68	114	93	124	115	133	90	88	102	110	1148

	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
COUNT											
1 Strongly agree	14	29	12	14	7	6	1	17	17	10	12
2 Agree	18	17	15	17	16	17	21	19	19	23	19
3 Neither agree or disagree	4	0	10	11	15	17	8	6	7	6	2
4 Disagree	8	0	8	3	5	6	14	3	3	7	11
5 Strongly disagree	3	1	2	0	4	0	2	1	0	0	2
	47	47	47	45	47	46	46	46	46	46	46

Appendix 2: Survey Questionnaire

19 April, 2007

Dear Tutor:

I am enclosing a questionnaire survey on quality assurance in the CDVEC Literacy Service.

I am carrying out the survey as part of a research project for a Degree in Human Resources Management. I wish to assure you that the contents of the survey will be kept absolutely confidential and that information that could identify respondents will not be disclosed under any circumstances. The information you provide will only be used on an aggregated basis to identify trends but, as you can appreciate, the level of response will have a significant affect on my ability to identify such trends.

In anticipation of your co-operation, I have made a personal commitment to contribute €1.00 to (a charity) for every completed survey and I would be more than happy to be in a position to make this contribution on the basis of a 100% response.

Sincerely,

Finbar Duggan

24 HAZELWOOD, SHANKILL, CO. DUBLIN

SURVEY

Quality Assurance in the CDVEC Adult Literacy Service

Part A

This part of the survey is designed to provide a profile of literacy tutors who have responded to the survey

Q 1 Gender - are you :

Female ☐

Male ☐

Q2 Age - Which age bracket applies to you:

18-35 ☐

36 - 55 ☐

55 + ☐

Q 3 How long have you been working as a paid Tutor in the Literacy Service (please do not include service as a voluntary tutor or in any another capacity).

a) Less than one year ☐

b) 2 to 5 years ☐

c) More than five years ☐

Q 4 Do you provide

a) Both group and one to one tuition ☐

or

b) Group tuition only ☐

or

c) one to one tuition only ☐

Part B

Quality Assurance in Adult Literacy / Adult Basic Education is addressed by two Quality Assurance Policies; the NALA Evolving Quality Framework which was introduced to VEC's in 2000 and the FETAC Provider Quality Assurance Policy which was registered in November 2006. The Evolving Quality Framework provided much of the evidence that was needed for FETAC registration and it will continue to provide evidence to support the quality assurance requirements of FETAC. The following lists a number of statements about quality assurance in the CDVEC Literacy Service. I would like you to reflect on your own experience and to indicate your level of agreement with each statement

	Please circle one answer for each question:	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Q 5	I have been briefed about how quality assurance works in the adult literacy service	1	2	3	4	5
Q 6	All paid adult literacy tutors have a part to play in quality assurance	1	2	3	4	5
Q 7	I understand what I am expected to do about quality assurance in adult literacy / adult basic education	1	2	3	4	5
Q 8	Quality assurance is an internal self evaluation system that improves the quality of adult literacy tuition / adult basic education.	1	2	3	4	5
Q 9	Quality Assurance is an externally evaluated system to comply with FETAC registration	1	2	3	4	5
Q 10	Quality assurance is a means of documenting what is already done	1	2	3	4	5
Q 11	When things go wrong in the adult literacy service, there is an agreed way of putting them right	1	2	3	4	5

		Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Q 12	Management commitment to quality assurance is both evident and visible	1	2	3	4	5
Q 13	I am aware of the values and beliefs of adult basic education as set out in the guiding principles of the Evolving Quality Framework.	1	2	3	4	5
Q 14	I am aware of the mission and values of the CDVEC Literacy Service as set out in the Adult Literacy Plan	1	2	3	4	5
Q 15	I need more information about Quality Assurance	1	2	3	4	5

Please use the space below to give any other views you may have about quality assurance in the adult literacy service

Thank you for taking the time to complete this survey

Please return the completed survey in the enclosed Stamped Addressed Envelope

Appendix 3: Chi-square tests of independence

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q9 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q9 are DEPENDENT in some way

	Likart scale	1	2	3	4	5
	Observed: Question 8	14.0	17.0	11.0	3.0	0.0
	Observed: Question 9	7.0	16.0	15.0	5.0	4.0
		21.0	33.0	26.0	8.0	4.0
Question 8: 50%		10.5	16.5	13.0	4.0	2.0
Question 9: 50%		10.5	16.5	13.0	4.0	2.0
		21.0	33.0	26.0	8.0	4.0

Observed (O)	Expected (E)	O-E	O-E squa	O-E squa	
14.0	10.5	3.5	12.3		1.17
7.0	10.5	-3.5	12.3		1.17
17.0	16.5	0.5	0.3		0.02
16.0	16.5	-0.5	0.3		0.02
11.0	13.0	-2.0	4.0		0.31
15.0	13.0	2.0	4.0		0.31
3.0	4.0	-1.0	1.0		0.25
5.0	4.0	1.0	1.0		0.25
0.0	2.0	-2.0	4.0		2.00
4.0	2.0	2.0	4.0		2.00
			Actual Chi Squared:		7.48
	Degrees of freedom: (2-1 rows) x (5-1 columns)				4.00
	Critical Chi Square @ 5% margin of error				9.48

Excel CHITEST 0.11

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 9 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q5 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q5 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 5	14.0	18.0	4.0	8.0	3.0
	28.0	35.0	15.0	11.0	3.0
Expected: Question 8: 50%	14.0	17.5	7.5	5.5	1.5
Expected: Question 5: 50%	14.0	17.5	7.5	5.5	1.5
	28.0	35.0	15.0	11.0	3.0

Observed (O)	Expected (E)	O-E	squared	squared/	
14.0	14.0	0.0	0.0	0.00	
14.0	14.0	0.0	0.0	0.00	
17.0	17.5	-0.5	0.3	0.01	
18.0	17.5	0.5	0.3	0.01	
11.0	7.5	3.5	12.3	1.63	
4.0	7.5	-3.5	12.3	1.63	
3.0	5.5	-2.5	6.3	1.14	
8.0	5.5	2.5	6.3	1.14	
0.0	1.5	-1.5	2.3	1.50	
3.0	1.5	1.5	2.3	1.50	
			Actual Chi Squared:	**8.57**	Excel CHITEST 0.07
	Degrees of freedom: (2-1 rows) x (5-1 columns)			**4.00**	
	Critical Chi Square @ 5% margin of error			**9.48**	

ACCEPT THE HYPHOTESIS: QUESTIONS 5 AND 8 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q6 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q6 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 6	29.0	17.0	0.0	0.0	1.0
	43.0	34.0	11.0	3.0	1.0
Expected: Question 8: 50%	21.5	17.0	5.5	1.5	0.5
Expected: Question 6: 50%	21.5	17.0	5.5	1.5	0.5
	43.0	34.0	11.0	3.0	1.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E
14.0	21.5	-7.5	56.3	2.62
29.0	21.5	7.5	56.3	2.62
17.0	17.0	0.0	0.0	0.00
17.0	17.0	0.0	0.0	0.00
11.0	5.5	5.5	30.3	5.50
0.0	5.5	-5.5	30.3	5.50
3.0	1.5	1.5	2.3	1.50
0.0	1.5	-1.5	2.3	1.50
0.0	0.5	-0.5	0.3	0.50
1.0	0.5	0.5	0.3	0.50
			Actual Chi Squared:	20.23

Excel CHITEST 0.00

Degrees of freedom: (2-1 rows) x (5-1 columns) 4.00

Critical Chi Square @ 5% margin of error 9.48

REJECT THE HYPHOTESIS: QUESTIONS 8 AND 6 ARE ASSOCIATED

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q7 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q7 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 7	12.0	15.0	10.0	8.0	2.0
	26.0	32.0	21.0	11.0	2.0
Expected: Question 8: 50%	13.0	16.0	10.5	5.5	1.0
Expected: Question 7: 50%	13.0	16.0	10.5	5.5	1.0
	26.0	32.0	21.0	11.0	2.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E			
14.0	13.0	1.0	1.0		0.08		
12.0	13.0	-1.0	1.0		0.08		
17.0	16.0	1.0	1.0		0.06		
15.0	16.0	-1.0	1.0		0.06		
11.0	10.5	0.5	0.3		0.02		
10.0	10.5	-0.5	0.3		0.02		
3.0	5.5	-2.5	6.3		1.14		
8.0	5.5	2.5	6.3		1.14		
0.0	1.0	-1.0	1.0		1.00		
2.0	1.0	1.0	1.0		1.00		
			Actual Chi Squared:		**4.60**	Excel CHITEST	**0.33**
	Degrees of freedom: (2-1 rows) x (5-1 columns)				**4.00**		
	Critical Chi Square @ 5% margin of error				**9.48**		

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 7 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q10 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q10 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 10	6.0	17.0	17.0	6.0	0.0
	20.0	34.0	28.0	9.0	0.0
Expected: Question 8: 50%	10.0	17.0	14.0	4.5	0.0
Expected: Question 10: 50%	10.0	17.0	14.0	4.5	0.0
	20.0	34.0	28.0	9.0	0.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	10.0	4.0	16.0	1.60	
6.0	10.0	-4.0	16.0	1.60	
17.0	17.0	0.0	0.0	0.00	
17.0	17.0	0.0	0.0	0.00	
11.0	14.0	-3.0	9.0	0.64	
17.0	14.0	3.0	9.0	0.64	
3.0	4.5	-1.5	2.3	0.50	
6.0	4.5	1.5	2.3	0.50	
0.0					Zero error
0.0					Zero error
			Actual Chi Squared:	**6.49**	Excel CHITEST **0.14**
			Degrees of freedom: (2-1 rows) x (4-1 columns)	**3.00**	
			Critical Chi Square @ 5% margin of error	**7.81**	

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 10 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q11 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q11 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 11	1.0	21.0	8.0	14.0	2.0
	15.0	38.0	19.0	17.0	2.0
Expected: Question 8: 50%	7.5	19.0	9.5	8.5	1.0
Expected: Question11: 50%	7.5	19.0	9.5	8.5	1.0
	15.0	38.0	19.0	17.0	2.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	7.5	6.5	42.3		5.63
1.0	7.5	-6.5	42.3		5.63
17.0	19.0	-2.0	4.0		0.21
21.0	19.0	2.0	4.0		0.21
11.0	9.5	1.5	2.3		0.24
8.0	9.5	-1.5	2.3		0.24
3.0	8.5	-5.5	30.3		3.56
14.0	8.5	5.5	30.3		3.56
0.0	1.0	-1.0	1.0		1.00
2.0	1.0	1.0	1.0		1.00
			Actual Chi Squared:		21.28
	Degrees of freedom: (2-1 rows) x (5-1 columns)				4.00
	Critical Chi Square @ 5% margin of error				9.48

Excel CHITEST 0.00

REJECT THE HYPHOTESIS: QUESTIONS 8 AND 11 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q12 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q12 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 12	17.0	19.0	6.0	3.0	1.0
	31.0	36.0	17.0	6.0	1.0
Expected: Question 8: 50%	15.5	18.0	8.5	3.0	0.5
Expected: Question 12: 50%	15.5	18.0	8.5	3.0	0.5
	31.0	36.0	17.0	6.0	1.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	15.5	-1.5	2.3		0.15
17.0	15.5	1.5	2.3		0.15
17.0	18.0	-1.0	1.0		0.06
19.0	18.0	1.0	1.0		0.06
11.0	8.5	2.5	6.3		0.74
6.0	8.5	-2.5	6.3		0.74
3.0	3.0	0.0	0.0		0.00
3.0	3.0	0.0	0.0		0.00
0.0	0.5	-0.5	0.3		0.50
1.0	0.5	0.5	0.3		0.50
			Actual Chi Squared:		**2.87**
	Degrees of freedom: (2-1 rows) x (5-1 columns)				**4.00**
	Critical Chi Square @ 5% margin of error				**9.48**

Excel CHITEST **0.58**

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 12 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q13 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q13 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 13	17.0	19.0	7.0	3.0	0.0
	31.0	38.0	18.0	6.0	0.0
Expected: Question 8: 50%	15.5	18.0	9.0	3.0	0.0
Expected: Question 13: 50%	15.5	18.0	9.0	3.0	0.0
	31.0	38.0	18.0	6.0	0.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	15.5	-1.5	2.3	0.15	
17.0	15.5	1.5	2.3	0.15	
17.0	18.0	-1.0	1.0	0.06	
19.0	18.0	1.0	1.0	0.06	
11.0	9.0	2.0	4.0	0.44	
7.0	9.0	-2.0	4.0	0.44	
3.0	3.0	0.0	0.0	0.00	
3.0	3.0	0.0	0.0	0.00	
0.0					Zero error
0.0					Zero error
			Actual Chi Squared:	1.29	Excel CHITEST 0.73
	Degrees of freedom: (2-1 rows) x (4-1 columns)			3.00	
	Critical Chi Square @ 5% margin of error			7.81	

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 13 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q14 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q14 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 14	10.0	23.0	6.0	7.0	0.0
	24.0	40.0	17.0	10.0	0.0
Expected: Question 8: 50%	12.0	20.0	8.5	5.0	0.0
Expected: Question 14: 50%	12.0	20.0	8.5	5.0	0.0
	24.0	40.0	17.0	10.0	0.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	12.0	2.0	4.0	0.33	
10.0	12.0	-2.0	4.0	0.33	
17.0	20.0	-3.0	9.0	0.45	
23.0	20.0	3.0	9.0	0.45	
11.0	8.5	2.5	6.3	0.74	
6.0	8.5	-2.5	6.3	0.74	
3.0	5.0	-2.0	4.0	0.80	
7.0	5.0	2.0	4.0	0.80	
0.0					Zero error
0.0					Zero error
			Actual Chi Squared:	4.64	Excel CHITEST 0.20
			Degrees of freedom: (2-1 rows) x (4-1 columns)	3.00	
			Critical Chi Square @ 5% margin of error	7.81	

ACCEPT THE HYPHOTESIS: QUESTIONS 8 AND 14 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q8 and Q15 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q15 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 8	14.0	17.0	11.0	3.0	0.0
Observed: Question 15	12.0	19.0	2.0	11.0	2.0
	26.0	36.0	13.0	14.0	2.0
Expected: Question 8: 50%	13.0	18.0	6.5	7.0	1.0
Expected: Question 15: 50%	13.0	18.0	6.5	7.0	1.0
	26.0	36.0	13.0	14.0	2.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E	
14.0	13.0	1.0	1.0	0.08	
12.0	13.0	-1.0	1.0	0.08	
17.0	18.0	-1.0	1.0	0.06	
19.0	18.0	1.0	1.0	0.06	
11.0	6.5	4.5	20.3	3.12	
2.0	6.5	-4.5	20.3	3.12	
3.0	7.0	-4.0	16.0	2.29	
11.0	7.0	4.0	16.0	2.29	
0.0	1.0	-1.0	1.0	1.00	Zero error
2.0	1.0	1.0	1.0	1.00	Zero error
			Actual Chi Squared:	13.07	
			Degrees of freedom: (2-1 rows) x (5-1 columns)	4.00	
			Critical Chi Square @ 5% margin of error	9.48	

REJECT THE HYPHOTESIS: QUESTIONS 8 AND 15 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q5 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q5 are DEPENDENT in some way

Likart	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 5	14.0	18.0	4.0	8.0	3.0
	21.0	34.0	19.0	13.0	7.0
Expected: Question 9: 50%	10.5	17.0	9.5	6.5	3.5
Expected: Question 5: 50%	10.5	17.0	9.5	6.5	3.5
	21.0	34.0	19.0	13.0	7.0

Observed (O)	Expected (E)	O-E	O-E squa	O-E squa		
7.0	10.5	-3.5	12.3		1.17	
14.0	10.5	3.5	12.3		1.17	
16.0	17.0	-1.0	1.0		0.06	
18.0	17.0	1.0	1.0		0.06	
15.0	9.5	5.5	30.3		3.18	
4.0	9.5	-5.5	30.3		3.18	
5.0	6.5	-1.5	2.3		0.35	
8.0	6.5	1.5	2.3		0.35	
4.0	3.5	0.5	0.3		0.07	
3.0	3.5	-0.5	0.3		0.07	
			Actual Chi Squared:		**9.86**	Excel CHITEST **0.05**
			Degrees of freedom: (2-1 rows) x (5-1 columns)		**4.00**	
			Critical Chi Square @ 5% margin of error		**9.48**	

ACCEPT THE HYPHOTESIS: QUESTIONS 9 AND 5 ARE INDEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q6 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q6 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 6	29.0	17.0	0.0	0.0	1.0
	36.0	33.0	15.0	5.0	5.0
Expected: Question 9: 50%	18.0	16.5	7.5	2.5	2.5
Expected: Question 6: 50%	18.0	16.5	7.5	2.5	2.5
	36.0	33.0	15.0	5.0	5.0

Observed (O)	Expected (E)	O-E	squared	squared/
7.0	18.0	-11.0	121.0	6.72
29.0	18.0	11.0	121.0	6.72
16.0	16.5	-0.5	0.3	0.02
17.0	16.5	0.5	0.3	0.02
15.0	7.5	7.5	56.3	7.50
0.0	7.5	-7.5	56.3	7.50
5.0	2.5	2.5	6.3	2.50
0.0	2.5	-2.5	6.3	2.50
4.0	2.5	1.5	2.3	0.90
1.0	2.5	-1.5	2.3	0.90
			Actual Chi Squared:	**35.27**
			Degrees of freedom: (2-1 rows) x (5-1 columns)	**4.00**
			Critical Chi Square @ 5% margin of error	**9.48**

Excel CHITEST **0.00**

REJECT THE HYPHOTESIS: QUESTIONS 9 AND 6 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q7 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q7 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 7	12.0	15.0	10.0	8.0	2.0
	19.0	31.0	25.0	13.0	6.0
Expected: Question 9: 50%	9.5	15.5	12.5	6.5	3.0
Expected: Question 7: 50%	9.5	15.5	12.5	6.5	3.0
	19.0	31.0	25.0	13.0	6.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E			
7.0	9.5	-2.5	6.3		0.66		
12.0	9.5	2.5	6.3		0.66		
16.0	15.5	0.5	0.3		0.02		
15.0	15.5	-0.5	0.3		0.02		
15.0	12.5	2.5	6.3		0.50		
10.0	12.5	-2.5	6.3		0.50		
5.0	6.5	-1.5	2.3		0.35		
8.0	6.5	1.5	2.3		0.35		
4.0	3.0	1.0	1.0		0.33		
2.0	3.0	-1.0	1.0		0.33		
			Actual Chi Squared:		3.71	Excel CHITEST	0.45
	Degrees of freedom: (2-1 rows) x (5-1 columns)				4.00		
	Critical Chi Square @ 5% margin of error				9.48		

ACCEPT THE HYPHOTESIS: QUESTIONS 9 AND 7 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q10 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q10 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 10	6.0	17.0	17.0	6.0	0.0
	13.0	33.0	32.0	11.0	4.0
Expected: Question 9: 50%	6.5	16.5	16.0	5.5	2.0
Expected: Question 10: 50%	6.5	16.5	16.0	5.5	2.0
	13.0	33.0	32.0	11.0	4.0

Observed (O)	Expected (E)	O-E	O-E squared	red/E		
7.0	6.5	0.5	0.3	0.04		
6.0	6.5	-0.5	0.3	0.04		
16.0	16.5	-0.5	0.3	0.02		
17.0	16.5	0.5	0.3	0.02		
15.0	16.0	-1.0	1.0	0.06		
17.0	16.0	1.0	1.0	0.06		
5.0	5.5	-0.5	0.3	0.05		
6.0	5.5	0.5	0.3	0.05		
4.0	2.0	2.0	4.0	2.00	Zero error	
0.0	2.0	-2.0	4.0	2.00	Zero error	
			Actual Chi Squared:	**4.32**	*Excel CHITEST*	**0.36**
			Degrees of freedom: (2-1 rows) x (5-1 columns)	**4.00**		
			Critical Chi Square @ 5% margin of error	**9.48**		

ACCEPT THE HYPHOTESIS: QUESTIONS 9 AND 10 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q11 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q11 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 11	1.0	21.0	8.0	14.0	2.0
	8.0	37.0	23.0	19.0	6.0
Expected: Question 9: 50%	4.0	18.5	11.5	9.5	3.0
Expected: Question 11: 50%	4.0	18.5	11.5	9.5	3.0
	8.0	37.0	23.0	19.0	6.0

Observed (O)	Expected (E)	O-E	O-E squared	red/E		
7.0	4.0	3.0	9.0		2.25	
1.0	4.0	-3.0	9.0		2.25	
16.0	18.5	-2.5	6.3		0.34	
21.0	18.5	2.5	6.3		0.34	
15.0	11.5	3.5	12.3		1.07	
8.0	11.5	-3.5	12.3		1.07	
5.0	9.5	-4.5	20.3		2.13	
14.0	9.5	4.5	20.3		2.13	
4.0	3.0	1.0	1.0		0.33	
2.0	3.0	-1.0	1.0		0.33	
			Actual Chi Squared:		12.24	Excel CHITEST 0.02
			Degrees of freedom: (2-1 rows) x (5-1 columns)		4.00	
			Critical Chi Square @ 5% margin of error		9.48	

REJECT THE HYPHOTESIS: QUESTIONS 9 AND 11 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q12 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q12 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 12	17.0	19.0	6.0	3.0	1.0
	24.0	35.0	21.0	8.0	5.0
Expected: Question 9: 50%	12.0	17.5	10.5	4.0	2.5
Expected: Question 12: 50%	12.0	17.5	10.5	4.0	2.5
	24.0	35.0	21.0	8.0	5.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E			
7.0	12.0	-5.0	25.0		2.08		
17.0	12.0	5.0	25.0		2.08		
16.0	17.5	-1.5	2.3		0.13		
19.0	17.5	1.5	2.3		0.13		
15.0	10.5	4.5	20.3		1.93		
6.0	10.5	-4.5	20.3		1.93		
5.0	4.0	1.0	1.0		0.25		
3.0	4.0	-1.0	1.0		0.25		
4.0	2.5	1.5	2.3		0.90		
1.0	2.5	-1.5	2.3		0.90		
			Actual Chi Squared:		**10.58**	Excel CHITEST	**0.03**
	Degrees of freedom: (2-1 rows) x (5-1 columns)				**4.00**		
	Critical Chi Square @ 5% margin of error				**9.48**		

REJECT THE HYPHOTESIS: QUESTIONS 9 AND 12 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q13 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q13 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 13	17.0	19.0	7.0	3.0	0.0
	24.0	35.0	22.0	8.0	4.0
Expected: Question 9 : 50%	12.0	17.5	11.0	4.0	2.0
Expected: Question 13: 50%	12.0	17.5	11.0	4.0	2.0
	24.0	35.0	22.0	8.0	4.0

Observed (O)	Expected (E)	O-E	O-E squared	O-E squared/E		
7.0	12.0	-5.0	25.0	2.08		
17.0	12.0	5.0	25.0	2.08		
16.0	17.5	-1.5	2.3	0.13		
19.0	17.5	1.5	2.3	0.13		
15.0	11.0	4.0	16.0	1.45		
7.0	11.0	-4.0	16.0	1.45		
5.0	4.0	1.0	1.0	0.25		
3.0	4.0	-1.0	1.0	0.25		
4.0	2.0	2.0	4.0	2.00	Zero error	
0.0	2.0	-2.0	4.0	2.00	Zero error	
			Actual Chi Squared:	11.83	Excel CHITEST	0.02
	Degrees of freedom: (2-1 rows) x (5-1 columns)			3.00		
	Critical Chi Square @ 5% margin of error			9.48		

REJECT THE HYPHOTESIS: QUESTIONS 9 AND 13 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q14 are INDEPENDENT

Alternative hypothesis: The answers to Q9 and Q14 are DEPENDENT in some way

Likart scale	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 14	10.0	23.0	6.0	7.0	0.0
	17.0	39.0	21.0	12.0	4.0
Expected: Question 9: 50%	8.5	19.5	10.5	6.0	2.0
Expected: Question 14: 50%	8.5	19.5	10.5	6.0	2.0
	17.0	39.0	21.0	12.0	4.0

Observed (O)	Expected (E)	O-E	O-E squa	O-E squa		
7.0	8.5	-1.5	2.3		0.26	
10.0	8.5	1.5	2.3		0.26	
16.0	19.5	-3.5	12.3		0.63	
23.0	19.5	3.5	12.3		0.63	
15.0	10.5	4.5	20.3		1.93	
6.0	10.5	-4.5	20.3		1.93	
5.0	6.0	-1.0	1.0		0.17	
7.0	6.0	1.0	1.0		0.17	
4.0	2.0	2.0	4.0		2.00	Zero error
0.0	2.0	-2.0	4.0		2.00	Zero error
			Actual Chi Squared:		**9.98**	Excel CHITEST **0.04**
			Degrees of freedom: (2-1 rows) x (5-1 columns)		**3.00**	
			Critical Chi Square @ 5% margin of error		***9.48***	

THE HYPHOTESIS: QUESTIONS 9 AND 14 ARE DEPENDENT

CHI -SQUARED TEST OF INDEPENDENCE

Null hypothesis: The answers to Q9 and Q15 are INDEPENDENT

Alternative hypothesis: The answers to Q8 and Q15 are DEPENDENT in some way

Likert	1	2	3	4	5
Observed: Question 9	7.0	16.0	15.0	5.0	4.0
Observed: Question 15	12.0	19.0	2.0	11.0	2.0
	19.0	35.0	17.0	16.0	6.0
Expected: Question 9: 50%	9.5	17.5	8.5	8.0	3.0
Expected: Question 15: 50%	9.5	17.5	8.5	8.0	3.0
	19.0	35.0	17.0	16.0	6.0

Observe	Expected	O-E	O-E squared	O-E squared/E		
7.0	9.5	-2.5	6.3		0.66	
12.0	9.5	2.5	6.3		0.66	
16.0	17.5	-1.5	2.3		0.13	
19.0	17.5	1.5	2.3		0.13	
15.0	8.5	6.5	42.3		4.97	
2.0	8.5	-6.5	42.3		4.97	
5.0	8.0	-3.0	9.0		1.13	
11.0	8.0	3.0	9.0		1.13	
4.0	3.0	1.0	1.0		0.33	Zero error
2.0	3.0	-1.0	1.0		0.33	Zero error
			Actual Chi Squared:		14.43	Excel CHITEST 0.01
			Degrees of freedom: (2-1 rows) x (5-1 columns)		4.00	
			Critical Chi Square @ 5% margin of error		9.48	

REJECT THE HYPHOTESIS: QUESTIONS 9 AND 15 ARE DEPENDENT

APPENDIX

Q5

Observed -over 5	9.0	12.0	0.0	2.0	0.0
Observed-under 5	5.0	6.0	4.0	6.0	3.0
	14.0	18.0	4.0	8.0	3.0
Expected Q5 -over 5	7.0	9.0	2.0	4.0	1.5
Expected Q5 - under5	7.0	9.0	2.0	4.0	1.5
	14.0	18.0	4.0	8.0	3.0

Null hypotheses: the answers are independent
Alternative hyphoteses: they are dependent in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
9	7	2.0	4.0	0.6
5	7	-2.0	4.0	0.6
12	9	3.0	9.0	1.0
6	9	-3.0	9.0	1.0
0	2	-2.0	4.0	2.0
4	2	2.0	4.0	2.0
2	4	-2.0	4.0	1.0
6	4	2.0	4.0	1.0
0	1.5	-1.5	2.3	1.5
3	1.5	1.5	2.3	1.5
Actual chi-squared				12.1

Degrees of freedom:	4.0
Critical Chi Square @ 5% margin of error	9.48

Alternative hyphoteses: Q's 5 are associated in some way

Q6

Observed -over 5	16.0	7.0	0.0	0.0	0.0
Observed -under 5	13.0	10.0	0.0	0.0	1.0
	29.0	17.0	0.0	0.0	1.0
Expected-over 5	14.5	8.5	0.0	0.0	0.5
Expected - under 5	14.5	8.5	0.0	0.0	0.5
	29.0	17.0	0.0	0.0	1.0

Null hypotheses: the answers are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
16	7	9.0	81.0	11.6
13	7	6.0	36.0	5.1
7	9	-2.0	4.0	0.4
10	9	1.0	1.0	0.1
0	2	-2.0	4.0	2.0
0	2	-2.0	4.0	2.0
0	4	-4.0	16.0	4.0
0	4	-4.0	16.0	4.0
0	1.5	-1.5	2.3	1.5
1	1.5	-0.5	0.3	0.2
Actual chi-squared				30.9

Degrees of freedom:	3.0
Critical Chi Square @ 5% margin of error	7.82

Alternative hyphoteses: they are associated in some way

Q7

Observed -over 5	10.0	9.0	2.0	2.0	0.0
Observed -under 5	2.0	6.0	8.0	6.0	2.0
	12.0	15.0	10.0	8.0	2.0
Expected -over 5	6.0	7.5	5.0	4.0	1.0
Expected - under5	6.0	7.5	5.0	4.0	1.0
	12.0	15.0	10.0	8.0	2.0

Null hypotheses: the answers are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
10	6	4.0	16.0	2.7
2	6	-4.0	16.0	2.7
9	7.5	1.5	2.3	0.3
6	7.5	-1.5	2.3	0.3
2	5	-3.0	9.0	1.8
8	5	3.0	9.0	1.8
2	4	-2.0	4.0	1.0
6	4	2.0	4.0	1.0
0	1	-1.0	1.0	1.0
2	1	1.0	1.0	1.0
Actual chi-squared				13.5

Degrees of freedom:	4.0
Critical Chi Square @ 5% margin of error	9.48

Alternative hyphoteses: they are associated in some way

Q8

Observed -over 5	8.0	9.0	5.0	1.0	0.0
Observed -under 5	6.0	8.0	6.0	2.0	0.0
	14.0	17.0	11.0	3.0	0.0
Expected -over 5	7.0	8.5	5.5	1.5	0.0
Expected - under5	7.0	8.5	5.5	1.5	0.0
	14.0	17.0	11.0	3.0	0.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
8	7	1.0	1.0	0.1
6	7	-1.0	1.0	0.1
9	8.5	0.5	0.3	0.0
8	8.5	-0.5	0.3	0.0
5	5.5	-0.5	0.3	0.0
6	5.5	0.5	0.3	0.0
1	1.5	-0.5	0.3	0.2
2	1.5	0.5	0.3	0.2
0				
0				
Actual chi-squared				0.8

Degrees of freedom:	3.0
Critical Chi Square @ 5% margin of error	7.82

Accept null hypotheses: the answers to are independent

Q9

Observed -over 5	3.0	12.0	4.0	2.0	2.0
Observed -under 5	4.0	4.0	11.0	3.0	2.0
	7.0	16.0	15.0	5.0	4.0
Expected -over 5	3.5	8.0	7.5	2.5	2.0
Expected - under5	3.5	8.0	7.5	2.5	2.0
	7.0	16.0	15.0	5.0	4.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
3	3.5	-0.5	0.3	0.1
4	3.5	0.5	0.3	0.1
12	8	4.0	16.0	2.0
4	8	-4.0	16.0	2.0
4	7.5	-3.5	12.3	1.6
11	7.5	3.5	12.3	1.6
2	2.5	-0.5	0.3	0.1
3	2.5	0.5	0.3	0.1
2	2	0.0	0.0	0.0
2	2	0.0	0.0	0.0
Actual chi-squared				7.6

Degrees of freedom:	4.0
Critical Chi Square @ 5% margin of error	9.48

Accept null hypotheses: the answers to are independent

Q10

Observed -over 5	5.0	9.0	7.0	2.0	0.0
Observed -under 5	1.0	8.0	10.0	4.0	0.0
	6.0	17.0	17.0	6.0	0.0
Expected -over 5	3.0	8.5	8.5	3.0	0.0
Expected - under5	3.0	8.5	8.5	3.0	0.0
	6.0	17.0	17.0	6.0	0.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
5	3	2.0	4.0	1.3
1	3	-2.0	4.0	1.3
9	8.5	0.5	0.3	0.0
8	8.5	-0.5	0.3	0.0
7	8.5	-1.5	2.3	0.3
10	8.5	1.5	2.3	0.3
2	3	-1.0	1.0	0.3
4	3	1.0	1.0	0.3
0				
0				
Actual chi-squared				3.9

Degrees of freedom:	3.0
Critical Chi Square @ 5% margin of error	7.82

Accept null hypotheses: the answers to are independent

Q11

Observed -over 5	0.0	13.0	2.0	6.0	1.0
Observed -under 5	1.0	8.0	6.0	8.0	1.0
	1.0	21.0	8.0	14.0	2.0
Expected -over 5	0.5	10.5	4.0	7.0	1.0
Expected - under5	0.5	10.5	4.0	7.0	1.0
	1.0	21.0	8.0	14.0	2.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
0	0.5	-0.5	0.3	0.5
1	0.5	0.5	0.3	0.5
13	10.5	2.5	6.3	0.6
8	10.5	-2.5	6.3	0.6
2	4	-2.0	4.0	1.0
6	4	2.0	4.0	1.0
6	7	-1.0	1.0	0.1
8	7	1.0	1.0	0.1
1	1	0.0	0.0	0.0
1	1	0.0	0.0	0.0
Actual chi-squared				4.5

Degrees of freedom: 4.0
Critical Chi Square @ 5% margin of error 9.48

Accept null hypotheses: the answers to are independent

Q12

Observed -over 5	12.0	7.0	2.0	1.0	1.0
Observed -under 5	5.0	12.0	4.0	2.0	0.0
	17.0	19.0	6.0	3.0	1.0
Expected -over 5	8.5	9.5	3.0	1.5	0.5
Expected - under5	8.5	9.5	3.0	1.5	0.5
	17.0	19.0	6.0	3.0	1.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
12	8.5	3.5	12.3	1.4
5	8.5	-3.5	12.3	1.4
7	9.5	-2.5	6.3	0.7
12	9.5	2.5	6.3	0.7
2	3	-1.0	1.0	0.3
4	3	1.0	1.0	0.3
1	1.5	-0.5	0.3	0.2
2	1.5	0.5	0.3	0.2
1	0.5	0.5	0.3	0.5
0	0.5	-0.5	0.3	0.5
Actual chi-squared				6.2

Degrees of freedom: 4.0
Critical Chi Square @ 5% margin of error 9.48

Accept null hypotheses: the answers to are independent

Q13

Observed -over 5	12.0	10.0	1.0	0.0	0.0
Observed -under 5	5.0	9.0	6.0	3.0	0.0
	17.0	19.0	7.0	3.0	0.0
Expected -over 5	8.5	9.5	3.5	1.5	0.0
Expected - under5	8.5	9.5	3.5	1.5	0.0
	17.0	19.0	7.0	3.0	0.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
12	8.5	3.5	12.3	1.4
5	8.5	-3.5	12.3	1.4
10	9.5	0.5	0.3	0.0
9	9.5	-0.5	0.3	0.0
1	3.5	-2.5	6.3	1.8
6	3.5	2.5	6.3	1.8
0	1.5	-1.5	2.3	1.5
3	1.5	1.5	2.3	1.5
0				
0				
Actual chi-squared				9.5

Degrees of freedom:	3.0
Critical Chi Square @ 5% margin of error	7.82

Alternative hyphoteses: they are associated in some way

Q14

Observed -over 5	7.0	11.0	3.0	2.0	0.0
Observed -under 5	3.0	12.0	3.0	5.0	0.0
	10.0	23.0	6.0	7.0	0.0
Expected -over 5	5.0	11.5	3.0	3.5	0.0
Expected - under5	5.0	11.5	3.0	3.5	0.0
	10.0	23.0	6.0	7.0	0.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
7	5	2.0	4.0	0.8
3	5	-2.0	4.0	0.8
11	11.5	-0.5	0.3	0.0
12	11.5	0.5	0.3	0.0
3	3	0.0	0.0	0.0
3	3	0.0	0.0	0.0
2	3.5	-1.5	2.3	0.6
5	3.5	1.5	2.3	0.6
0				
0				
Actual chi-squared				2.9

Degrees of freedom:	3.0
Critical Chi Square @ 5% margin of error	7.82

Null hypotheses: the answers to are independent

Q15

Observed -over 5	2.0	8.0	1.0	9.0	2.0
Observed -under 5	10.0	11.0	1.0	2.0	0.0
	12.0	19.0	2.0	11.0	2.0
Expected -over 5	6.0	9.5	1.0	5.5	1.0
Expected - under5	6.0	9.5	1.0	5.5	1.0
	12.0	19.0	2.0	11.0	2.0

Null hypotheses: the answers to are independent
Alternative hyphoteses: they are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
2	6	-4.0	16.0	2.7
10	6	4.0	16.0	2.7
8	9.5	-1.5	2.3	0.2
11	9.5	1.5	2.3	0.2
1	1	0.0	0.0	0.0
1	1	0.0	0.0	0.0
9	5.5	3.5	12.3	2.2
2	5.5	-3.5	12.3	2.2
2	1	1.0	1.0	1.0
0	1	-1.0	1.0	1.0
Actual chi-squared				12.3

Degrees of freedom:	4.0
Critical Chi Square @ 5% margin of error	9.48

Alternative hyphoteses: they are associated in some way

Q5

Observed :Both	4.0	12.0	2.0	2.0	1.0
Observed :Group	10.0	6.0	2.0	6.0	2.0
	14.0	18.0	4.0	8.0	3.0
Expected	7.0	9.0	2.0	4.0	1.5
Expected	7.0	9.0	2.0	4.0	1.5
	14.0	18.0	4.0	8.0	3.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e	
4	14.5	-10.5	110.3		7.6
10	7	3.0	9.0		1.3
12	7	5.0	25.0		3.6
6	9	-3.0	9.0		1.0
2	9	-7.0	49.0		5.4
2	18	-16.0	256.0		14.2
2	2	0.0	0.0		0.0
6	2	4.0	16.0		
1	4	-3.0	9.0		2.3
2	4	-2.0	4.0		1.0
Actual chi-	1.5				36.4
	1.5		**Degrees of freedom**		4
			Critical Chi-square @ 5%		9.48

Alternative hyphoteses: the answers are associated in some way

Q7

Observed:Both	4.0	12.0	2.0	2.0	1.0
Observed :Group	10.0	6.0	2.0	6.0	2.0
	14.0	18.0	4.0	8.0	3.0
Expected	7.0	9.0	2.0	4.0	1.5
Expected	7.0	9.0	2.0	4.0	1.5
	14.0	18.0	4.0	8.0	3.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e	
4	14.5	-10.5	110.3		7.6
10	7	3.0	9.0		1.3
12	7	5.0	25.0		3.6
6	9	-3.0	9.0		1.0
2	9	-7.0	49.0		5.4
2	18	-16.0	256.0		14.2
2	2	0.0	0.0		0.0
6	2	4.0	16.0		
1	4	-3.0	9.0		2.3
2	4	-2.0	4.0		1.0
Actual chi-	1.5				36.4
	1.5		**Degrees of freedom**		4
			Critical Chi-square @ 5%		9.48

Q6

Observed :Both	12.0	9.0	0.0	0.0	0.0
Observed :Group	17.0	8.0	0.0	0.0	1.0
	29.0	17.0	0.0	0.0	1.0
Expected	14.5	8.5	0.0	0.0	0.5
Expected	14.5	8.5	0.0	0.0	0.5
	29.0	17.0	0.0	0.0	1.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
12	14.5	-2.5	6.3	0.4
17	14.5	2.5	6.3	0.4
9	8.5	0.5	0.3	0.0
8	8.5	-0.5	0.3	0.0
0				
0				
0				
0				
0.5	0.5	0.0	0.0	0.0
0.5	0.5	0.0	0.0	0.0
Actual chi-squared				0.9
		Degrees of freedom		4
		Critical Chi-square @ 5%		9.48

Null hypotheses: the answers are independent

Q8

Observed:Both	4.0	10.0	3.0	3.0	0.0
Observed :Group	10.0	7.0	8.0	0.0	0.0
	14.0	17.0	11.0	3.0	0.0
Expected	7.0	8.5	5.5	1.5	0.0
Expected	7.0	8.5	5.5	1.5	0.0
	14.0	17.0	11.0	3.0	0.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
4	7	-3.0	9.0	1.3
10	7	3.0	9.0	1.3
10	8.5	1.5	2.3	0.3
7	8.5	-1.5	2.3	0.3
3	5.5	-2.5	6.3	1.1
8	5.5	2.5	6.3	1.1
3	1.5	1.5	2.3	1.5
0	1.5	-1.5	2.3	
0	0			
0	0			
Actual chi-squared				6.9
		Degrees of freedom		4
		Critical Chi-square @ 5%		9.48

Q9

Observed:Both	3.0	8.0	8.0	1.0	1.0
Observed :Group	4.0	8.0	7.0	4.0	3.0
	7.0	16.0	15.0	5.0	4.0
Expected	3.5	8.0	7.5	2.5	2.0
Expected	3.5	8.0	7.5	2.5	2.0
	7.0	16.0	15.0	5.0	4.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e	
3	3.5	-0.5	0.3		0.1
4	3.5	0.5	0.3		0.1
8	8	0.0	0.0		0.0
8	8	0.0	0.0		0.0
8	7.5	0.5	0.3		0.0
7	7.5	-0.5	0.3		0.0
1	2.5	-1.5	2.3		0.9
4	2.5	1.5	2.3		
1	2	-1.0	1.0		0.5
3	2	1.0	1.0		0.5
Actual chi-squared					2.1
	1.5		**Degrees of freedom**		4
			Critical Chi-square @ 5%		9.48

Q10

Observed:Both	1.0	11.0	6.0	2.0	0.0
Observed :Group	5.0	6.0	11.0	4.0	0.0
	6.0	17.0	17.0	6.0	0.0
Expected	3.0	8.5	8.5	3.0	0.0
Expected	3.0	8.5	8.5	3.0	0.0
	6.0	17.0	17.0	6.0	0.0

Null hypotheses: the answers are independent
Alternative hyphoteses: the answers are associated in some way

Observed	Expected	o-e	o-e sq	o-e sq/e
1	3	-2.0	4.0	1.3
5	3	2.0	4.0	1.3
11	8.5	2.5	6.3	0.7
6	8.5	-2.5	6.3	0.7
6	8.5	-2.5	6.3	0.7
11	8.5	2.5	6.3	0.7
2	3	-1.0	1.0	0.3
4	3	1.0	1.0	
0				
0				
Actual chi-squared				5.9
	1.5	**Degrees of freedom**		4
		Critical Chi-square @ 5%		9.48