Application of ISO 9000 standards to education and training

Introduction

Over the last decade “Quality” has become a central preoccupation of companies, public services and non-profit organisations in Europe. One of the more visible features of this “quality wave” has been, particularly in Europe, the certification of the quality assurance mechanisms of organisations on the basis of the so-called ISO 9000 standards. This form of certification is becoming the de facto basic quality standard in many industrial sectors of Europe.

The ISO 9000 standards were originally conceived for companies in the manufacturing industry. Since the early 1990s, however, the application of the norms has quickly spread to other sectors of the economy. The developments over the last years have resulted in a broad recognition of the value of an ISO 9000 certificate and its function as a quality label.

Quality is, of course, not a new phenomenon in education and training, but the interest for ISO 9000 is of relatively recent origin. Since the early ’90s a number of education and training institutions in Europe have obtained an ISO 9001 or ISO 9002 certificate. Although ISO 9000 certification is still a marginal phenomenon in the education and training world, the numbers of certified institutions and departments are increasing, particularly amongst continuing, and vocational education and training providers.

But many practitioners in the education and training world wonder whether this development is the best way to improve quality within education and training institutions. For many, the real added value of such a certification process remains doubtful – not to mention costly.

This article aims to shed some light on these and related issues. It is based mainly on a study I conducted, published in 1997 as a Cedefop Report. The reader will find more information in that publication, in particular on interpretation and implementation issues.

What is ISO 9000?

“ISO 9000” is the commonly used name to label a series of international standards for quality assurance within organisations: ISO 9001, ISO 9002, ISO 9003, ISO 9004 (and their subsets). The most important norms to be considered in the context of this contribution are ISO 9001 and ISO 9002. The official title for ISO 9001 is “Quality systems. Model for quality assurance in design, development, production, installation and servicing”. ISO 9002 is similar to ISO 9001, except that design is not included. Unlike some other documents and ‘standards’ of the ISO 9000 series, these two norms allow certification of organisations by a third party.

In the definition of ISO 9001 and 9002, the term “quality assurance” is the key concept. The official international definition of quality assurance, according to ISO 8402, is: “All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality”.

Such a definition is, in my view, not very practical. A more operational view is to

1) The difference between ISO 9001 and ISO 9002 is explained later in this article.

2) The full title of the report is “Application of ISO 9000 Standards in Education and Training. Interpretation and Guidelines in a European Perspective”.

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describe the requirements of quality assurance as follows:

- defined quality criteria for all activities to which quality assurance applies;
- procedures to ensure that quality standards are met;
- procedures that are systematically monitored for conformance;
- identification and analysis of causes of non-conformance;
- elimination of the causes of problems through appropriate corrective action;

The principles of quality assurance can be applied to a particular activity, or to all processes in the organisation. If the quality assurance is applied throughout an organisation for all its activities, a “quality system” is in place. Such a quality system may also be called a “quality control system” or alternatively a “quality management system” (more modern usage).

Essentially, ISO 9001 and ISO 9002 contain a number of requirements which should be met by such a quality system. Some of these requirements are put in fairly general terms; others are more detailed. The English version of the norms contain about 8 pages, most of which consist of the requirements of Section 4, arranged into 20 “clauses” or “criteria” (see table 1).

The requirements of the standards can be grouped into three sets:

- general requirements of a quality system (management responsibility, quality manual and procedures, appointment of a quality manager, availability of qualified resources and staff, ...);
- the need to maintain documented procedures on the key processes of the organisation (design, development, purchase, delivery, etc.) and implement activities according to the procedures;
- specific quality assurance mechanisms, including test and inspection, keeping quality records, dealing with non-conformance, keeping documents up-to-date, conducting internal audits and holding regular management reviews.

Meeting most of these requirements is not a serious obstacle in a well-run organisation. In an effective, high performance organisation, often the only thing required is to write down, in a formalised manner, the way one is currently operating. Meeting some of the more specific quality assurance requirements, however, almost inevitably requires extra work. This includes the introduction of new activities and processes, particularly document control, internal audits and systematic corrective action.

It is important to recall that ISO 9001 and ISO 9002 are system standards. The certificates awarded indicate that the organisation is well able to meet the needs and demands of its customers in a planned and controlled way. But the label does not guarantee that the products or outputs of the organisation are of the highest possible quality level (although this is often suggested for publicity purposes). (...) ISO 9000 certificate for an education or training organisation provides “assurance” that it is well organised and that the outcomes of programmes and courses meet the intended goals and needs of the users; however, it does not necessarily guarantee that the content of these courses and programmes meet a particular educational standard.

### Table 1:
ISO 9001 ISO 9002 Quality System Requirements: “Clauses” or “Criteria”

<table>
<thead>
<tr>
<th>Clause/Title</th>
<th>ISO 9001</th>
<th>ISO 9002</th>
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<tr>
<td>4.1 Management responsibility</td>
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<td>4.2 Quality system</td>
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<td>4.3 Contract review</td>
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<td>4.4 Design control</td>
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<td>4.5 Document and data control</td>
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<td>4.6 Purchasing</td>
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<td>4.7 Control of customer-supplied product</td>
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<td>4.8 Product identification and traceability</td>
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<td>4.9 Process control</td>
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<td>4.10 Control of inspection, measuring and test equipment</td>
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<td>4.11 Inspection and test status</td>
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<td>4.12 Control of nonconforming product</td>
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<td>4.13 Corrective and preventive action</td>
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<td>4.14 Handling, storage, packaging, preservation and delivery</td>
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<td>4.15 Internal quality audits</td>
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<td>4.16 Control of quality records</td>
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<td>4.17 Training</td>
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<td>4.18 Servicing</td>
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<td>4.19 Statistical techniques</td>
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“Thus, the terms ‘norms’ and ‘standards’, as used within the ISO 9000 context, differ from traditional education and training concepts.”

A 9000 certificate for an education or training organisation provides “assurance” that it is well organised and that the outcomes of programmes and courses meet the intended goals and needs of the users; however, it does not necessarily guarantee that the content of these courses and programmes meet a particular educational standard.

Thus, the terms “norms” and “standards”, as used within the ISO 9000 context, differ from traditional education and training concepts. Official “standards” for education and training in general refer to required “inputs” (e.g. qualifications of teachers, contents of programmes, ...) or sometimes “outputs” (documents, diplomas, ...). ISO 9000 looks at quality in a different way, by requiring general principles to be followed for controlling the processes within the institutes (“process” or “system” standards).

Another important difference is that traditional education and training standards are often very specific and linked to a particular context. This feature makes such norms more relevant and verifiable, but also more time dependent (risk of rapid obsolescence) and less transferable. On the other hand, ISO 9001 and 9002 are much more general, which implies that considerable interpretation is always necessary (a sensitive issue for educationalists!) and certain issues may not be explicitly considered.

How certification works

One of the interesting features of ISO 9001 and 9002 is that compliance with the requirements of the standard can be certified by an independent third party. Certification is essentially organised at national level. Most developed countries have now a national organisation that is entitled to “accredit” national certification bodies. Following a successful accreditation process, the certification body is then allowed to award “recognised” ISO 9001 or 9002 certificates. This accreditation process requires the fulfilment of very tough criteria for the certifying body, both in terms of the qualifications of the auditors employed and its internal organisation. Moreover, accreditation is often limited in scope to certain industrial sectors, and has to be renewed regularly.

When an organisation is interested in obtaining an ISO 9000 certificate, in general the following stages will occur:

- development by the organisation of a quality system which is compliant with the requirements of the norm (ISO 9001 or ISO 9002);
- selection of an accredited certification body;
- (optional) pre-audit of the quality system by the certification body, followed by corrective measures (if needed);
- full compliance audit by the certification body, and award of the certificate (if successful);
- several interim audits with a more limited scope over a period of three years (typically every 6-8 months, but at least once a year);
- A certificate is only valid for a period of three years.

It should be clear that the certifying body has to be paid for its services. This may involve a considerable cost (for an education and training institute it will typically vary between 2500 and 10 000 ECU). However, this expenditure is only a small part of the overall cost of certification: the lions share is represented by the salaries of the staff members involved with the implementation of the quality system (possibly assisted by external consulting).

The relatively general formulation of the ISO 9000 standards, the “national” accreditation structure, and the “competition” between certifying bodies have all contributed to slightly different practices in relation to the award of ISO 9000 certificates. There is little “hard evidence”, but most experts would agree that not all certificates have the same value. Certification processes are said to be “easier” within certain countries or with certain certification bodies. In my experience, this “problem” certainly exists and should be taken seriously. On the other hand, the issue should not be exaggerated. Because
of the process nature of an ISO 9000 based quality system, with all its feedback loops and corrective actions, it is very difficult to run a “poor” ISO 9000 system. Actually, very few cases of “falsification” of systems or certificates have emerged so far – at least in an accredited environment. A useful analogy is the differences between the value and quality of similar looking degrees of universities across Europe: these differences are much more important than those between ISO 9000 certificates.

Advantages and disadvantages of ISO 9000 certification

Before we look at the appropriateness of ISO 9000 in education and training, it is useful to examine the advantages and disadvantages as they are perceived in companies. Both at national and international level, a growing number of studies have been conducted which examine the benefits and drawbacks of ISO 9000 certification.

An in-depth UK survey “ISO 9000 - Does it work?” conducted in 1995 by the Manchester Business School on behalf of SGS, found eight reasons for seeking certification which were each listed by at least half of the respondents to the survey (in decreasing order of importance):

- future customers likely demand for ISO 9000;
- to increase consistency of operations;
- to maintain/improve market share;
- to improve service quality;
- customer pressure;
- a good promotional tool;
- to make operations more efficient;
- to improve product quality.

The survey also found that,

“small companies principally sought the standard to improve market share and for promotional purposes. (...) The larger the organisation, the more likely it was to cite customer pressure as a reason for certification. The service sector emphasised the importance of increasing market share and the need to improve consistency of operations and quality of service (...)”.

These results, when interpreted in an education and training context, are consistent with my findings and experience regarding education and training providers.

But the same study also identified a number of important hurdles and problems in relation to ISO 9000 certification:

- the time required to write the manual
- the high volume of paperwork
- the high cost of implementation
- the time required to complete implementation
- the high cost of maintaining the standard
- the lack of free advice
- the lack of consistency between auditors
- the time spent checking paperwork prior to audits

Only the first of these drawbacks was mentioned by over 30% of the respondents; the last item by 16%. The survey concluded on this point that,

“The high cost of implementation - in terms of time, volume of paperwork and money - were seen as the major problems related to ISO 9000 across all groups. Small organisations generally considered drawbacks to be more significant, when compared to the benefits, than did large organisations. The same pattern was seen in concerns with ongoing maintenance of the standard (...)”.

The above arguments for and against ISO 9000 summarise, in my view, much of the debate about the benefits and drawbacks which companies associate with it. It also highlights that the relevance and cost-effectiveness of certification will depend highly on the specific context: both the external demands and opportunities, as well as the internal needs and possibilities.

It should therefore be no surprise that there are still many successful and high quality companies which are not ISO 9000 certified. Indeed, “going for ISO” is only one way to develop and maintain a quality system, to drive the quality assurance process and to engage in a spiral of continuous improvement. But it is an approach which is highly visible to the outside world (unlike other quality ap-
“It remains an open question, however, whether ISO 9000 will ever deeply penetrate the public and non-profit sector (including the education world). This is linked to questions of appropriateness, interpretation and cost, as well as to the quality culture of such organisations.”

Overall, it would appear that the reasons for seeking certification in the education and training world do not differ fundamentally from those elsewhere."

Appropriateness of the standard for education and training

The late 1980s saw the introduction of “industrial” quality concepts (such as Total Quality Management – TQM) in a few education and training institutes; in the early 1990s, some pioneers embraced ISO 9000. Since then, there has been increasing evidence that the adoption of TQM principles and methods – including those embedded in the ISO 9000 requirements – could be relevant and useful for education and training organisations.

There are a number of arguments which underpin the move towards ISO 9000 certification. Not surprisingly, education and training organisations seek in this way to improve or maintain the quality of their education or training provision. But often there are other arguments put forward, in particular the following:

- the promotion of a high quality image, with high visibility and credibility;
- a way of responding to external factors, in particular pressures from customers (directly or indirectly), governments or funding bodies;
- a method for developing a full quality assurance system which covers the whole organisation;
- the need to improve a number of specific activities of the organisation, which are currently badly organised.

In each of these areas, several factors may play a role. The importance of these arguments is likely to vary strongly depending on the nature of the organisation and its external environment. Overall, it would appear that the reasons for seeking certification in the education and training world do not differ fundamentally from those elsewhere.

Arguments in favour of certification should, of course, be balanced against the counter-arguments and disadvantages. These are numerous and – in the light of the limited number of certified education or training institutes – still outweigh the positive arguments. There are several possible disadvantages:

- interpretation problems (the standard was initially designed and written for the manufacturing industry);
- insufficient relevance of certain components of the norm (and lack of specific mention of some issues which are considered critical to education and training);
- inappropriate standardisation in use and application;
- time consumption and cost;
- risk of increased bureaucracy;
- specific problems linked to particular types of education and training institutes.

It must thus be recognised that the ISO 9000 approach has some inherent weaknesses for education and training, which require skill and creativity to address. The cost and time implications are a real hurdle, and there is a serious risk of a bureaucracy.

Overall differences by type of education and training provider are:

- compared to schools and higher education institutions, the providers of
continuing education and training are more likely candidates for ISO 9000 (market pressure, more similarity with other industrial services);

- vocational education and training providers are more suitable candidates for ISO 9000 than general education institutes (closer linkage to the employment market with its quality ethos and culture);

- ISO 9000 is more likely to be appropriate for "larger" than for "small" institutes (economies of scale, and need for more formalised process control in larger institutes);

- the more varied and customised the provision of education and training is, the more time it will take (and the more costly it will be) to obtain an ISO 9000 certificate.

Interpretation issues

A particular feature of the ISO 9000 standards is the need for interpretation. Many of the specifications laid down in the standard need careful analysis and adequate interpretation before they can be applied in a particular education or training context. This relates to both the terminology and to the processes concerned. This feature is both an advantage (it allows considerable flexibility and customising, over time) and a drawback (it may lead to insecurity and be the source of controversy and resistance).

A critical point in the interpretation for education and training is the definition of the "product": is it the "learning output", the "learning process", or rather the education or training programme which is offered? This is not just an academic problem, but one which has implications throughout the standard. In my view, based on comparisons with other service sectors, given the real difficulty of controlling the learning process, and the choices made by many certified education and training organisations, this is the most operational way to define the "product" in an ISO 9000 context.

This choice has many implications when interpreting a number of clauses of ISO 9001/9002. For instance, when "learning" is taken as the "product", then the "testing and inspection" requirements concern assessment and evaluation of students and trainees. However, when "the course (programme)" or "training" is considered as the product then the "testing and inspection" requirements refer to the evaluation of a course or training session by students, trainees and/or their employers. Interestingly, however, even when "learning" is be taken as the definition of the product, in practice it might lead to a similar implementation of the quality system. This is related to the somewhat redundant nature of the ISO 9000 requirements, and the fact that the systematic application of the principles of quality assurance is almost independent of the definition of the product. In particular the general clauses 4.2 (Quality system) and 4.9 (Process control) are formulated in such a way that quality assurance arrangements must be in place for all critical processes, whether these are covered by a specific clause of the norm or not.

There is a second, more challenging set of interpretation problems. These concern the assessment of how the requirements can be addressed effectively with minimum overheads. Indeed, in many situations it is often not straightforward to say whether or not a particular requirement is entirely fulfilled. Consider, for instance, the need to define and analyse "design input factors" during the design process (Clause 4.4 in ISO 9001). It will be a matter of judgement by the institution and the auditor of the certifying body to decide whether all critical input factors are being considered.

How such issues are dealt with has major consequences for the implementation and maintenance of the quality system. The ISO 9000 standards contain many parts which need subjective assessment for a particular education or training provider. This is, actually, both a strength and a weakness of ISO 9000.

A third, related type of interpretation difficulty concerns the rigour and extent to which the requirements have to be followed, such as:

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“The whole process from decision to certification for a typical organisation is typically in the range of 12 to 18 months. Thus, the relevance of adopting ISO 9000 should not only be considered in terms of the advantages and drawbacks of the quality system, but also in the light of the complexity and risks of implementation.”

- the level of detail needed for documents (particularly procedures and work instructions) - which has considerable implications for document control
- the nature and quantity of quality records - often the biggest stumbling block in the effective maintenance of the quality system, and the seeds for a bureaucratic, paper-based system
- the specificity of the quality policy and objectives
- the frequency of internal audits and management reviews
- the scientific validity of the evaluation and assessment methods used.

No authoritative guidance exists on such issues. What needs to be done in practice depends on the complexity of the organisation, the demands from customers, and the educational attainment of the staff. It is safe to check in advance that the certifying body agrees with the interpretation adopted.

**Implementation of an ISO 9000 based quality system**

The whole process from decision to certification for a typical organisation is typically in the range of 12 to 18 months. Thus, the relevance of adopting ISO 9000 should not only be considered in terms of the advantages and drawbacks of the quality system, but also in the light of the complexity and risks of implementation. After all, establishing a quality system is not merely adding a few bells and whistles to an existing organisation, but is an important “change process” which will have an impact on the whole organisation. It is well known from management consulting practice that the implementation of change processes is always difficult and risky, and that resources are often underestimated. This also applies to the whole certification process.

Although it is dangerous to generalise about the “ideal” starting requirements for ISO 9000, my personal “top ten” are the following initial conditions that:

- there is already a quality policy (at least implicitly), with standards which are taken seriously;
- the organisation has been, and is likely to remain, fairly stable in terms of activities and personnel (no other important change, expansion or streamlining operations are going on);
- there is a good understanding of all internal processes;
- many standardised documents exist already;
- the organisation is financially sound;
- a qualified, motivated and credible (highly regarded) person is available to co-ordinate the implementation;
- the senior management believes in the value of certification and is committed to it;
- the number of significantly different types of customers, products and services is limited;
- the organisation is small with only a few departments and maximum of a few dozen staff members.

If most of these conditions are met, the organisation can safely engage in an ISO 9000 exercise. But if none or only a few apply, then it is likely that the journey towards certification will be long and paved with obstacles. A bonus in all cases would be the easy access to professional advice and to the experience of similar organisations who have already implemented the requirements.

**Conclusions**

Although experience with ISO 9000 in the education and training world is still limited (a few dozen institutions in each of the larger or more advanced European countries), first lessons can already be drawn.

The tangible and often compulsory requirements of ISO 9001 and 9002 standards (quality policy, quality manual and procedures, regular audits, ...) provide an overall, measurable framework for quality efforts, which can be used by an education and training organisation. Experience so far indicates that ISO 9000 based
quality systems contribute to improved customer service, high levels of quality assurance and a dynamic of continuous quality improvements. ISO 9000 is not in contradiction with any sound educational standards or practice, and can easily complement other quality approaches (in particular those focussing on input- or output-factors). Obtaining a certificate enhances the organisation’s quality image and underpins its quality claims in an increasingly competitive environment. It may enable an education or training provider to fulfil or exceed externally imposed quality criteria.

But even education and training organisations who are generally very positive about ISO 9000, recognise a number of problems and drawbacks in the operation of the system. The problems most frequently reported are: the continuous volume of paperwork involved, the cost of certification and the ongoing cost of maintenance, the risk of evolving towards a bureaucracy focused on procedures and registrations, and the difficulty of implementing changes fast.

It should be recognised that the ISO 9000 norms are not the best imaginable quality standards for education and training. Ideally, they should be complemented by content-related criteria. What remains unresolved as yet is the question of the cost-effectiveness of the certification process and the maintenance of the quality system. More research is needed on the impact of ISO 9000 certification, its relevance, its cost-effectiveness, and the coherence with traditional quality concepts and mechanisms used in education and training. More studies over a sufficient time scale will also be required to examine whether the benefits reported continue to outweigh the drawbacks, and under what assumptions the experience of implementing an ISO 9000 based quality system may be transferable to other education and training organisations.

In conclusion, even the increasing number of ISO 9000 certificates is unlikely to put an end to the vivid debate about quality assurance and quality management in education and training institutions. Eventually, it will be the market which will decide whether the cost of certification is worthwhile, whether its benefits will outweigh the drawbacks, and whether any other national or international quality scheme is more appropriate.

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