Qualifications for the future
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Qualifications for the future

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Early recognition of qualification needs has been a problem for the UK for many years. Barriers include such things as poor labour market data supply, long gestation times for the development of qualifications and weak methods for collecting and analysing information about future qualifications needs. This paper concentrates on the early stages of the development of a new methodology, based on scenario planning, for maintaining an up-to-date set of qualifications that serve individuals, employers and the economy well.

The research described in this paper involves using skills needs analysis to develop a qualification or certificate that will act as a proxy for these skills. In other words, the development of a modern national qualification is the goal of the research and not just the recognition of future skills.

1. Introduction

Early recognition of qualification needs has been a problem for the UK for many years. There are barriers to building qualifications that recognise skills that are needed in the workplace now and in the not-too-distant future. These barriers include such things as poor labour market data supply, long gestation times for the development of qualifications and weak methods for collecting and analysing information about future qualifications needs. This paper concentrates on the early stages of the development of a new methodology, based on scenario planning, for maintaining an up-to-date set of qualifications that serve individuals, employers and the economy well.

Most readers will appreciate the dangers of using words such as ‘qualification’ in a European context. In this paper ‘qualification’ is used in the sense of a certificated outcome of the assessment of learning. In the UK a qualification certificate does not necessarily show that a person can do a particular job. However, in the context of this paper use of the word 'qualification' will be restricted to certificates in the occupational area and it is reasonable to assume that a person gaining a certificate has shown the capacity to perform certain tasks. The research described in this paper
involves using skills needs analysis to develop a certificate that will act as a proxy for these skills. In other words the development of a modern national qualification is the goal of the research and not just the recognition of future skills.

It is widely appreciated (Leney and Coles, 2001) that major benefits for individuals, employment and the economy can flow from a qualification system that is clear, helpful and efficient. A qualification needs analysis process is essentially a modernising process – a way of making sure that users of qualifications - and the framework of qualifications – feel confident about the content and structure of qualifications and the relationship between them. The logic then continues … if qualifications recognise the right skills, and people are inclined to achieve the qualifications, then a positive effect on the career of the individual, skills supply to the economy, the economy of the sector and international competitiveness will follow.

2. The UK approach to qualification needs

The UK qualification system is based on certain well-established and well-defined qualifications. These have been developed and managed within universities and the professions and it is probably true that even accepting recent government activities to regulate the qualifications system, the UK has a qualifications system that is devolved and voluntarist. Government action has been aimed at rationalising the system; maintaining the demand of assessments and creating a recognition system for those who have poor access to qualifications, such as unemployed youth. Recently the government has been attempting to arrest the rapid decline in the use of apprenticeship as training and qualification.

Within the EU, the methods (Sellin, 2001) for early recognition of skills needs include:

• examination of job specific qualification needs;
• examination of individual occupations;
• comparative qualifications analysis (cutting across occupations);
• qualification analysis at the level of society as a whole.

The UK engages in all of these methods to some degree. There is an infrastructure of organisations including the Learning and Skills Councils, National Training Organisations (now Sector Skills Councils) that work with specific occupational groups to ascertain skills needs. The work of these bodies is supplemented with analyses from specialist researchers in universities and other expert centres. The UK government commissions work
Early identification of skill needs in Europe on how occupations might change in the future and conducts research into qualification types. Periodically the government conducts a national review of qualifications, recently we have engaged in debate over the qualifications needs of 16-18 year olds and those in higher education. We are about to have a debate of the qualifications needed for upper secondary education in England.

Experts charged with carrying out reviews on qualifications are invariably asked to look to the future; the importance of developing highly skilled people to guarantee the future productivity of the UK nations is usually emphasised. However, as we shall see later, the practice of producing future-oriented qualifications is highly problematic.

**How are qualifications modernised in the UK?**

There is no generic needs analysis process that is applied to all qualifications across the systems in the UK. Until recently the ‘refreshment’ of qualifications varied according to the type of qualification. The major school qualifications were required to shift in response to political intent (e.g. for the main qualification taken at the mid-point of upper secondary education the General Certificate of Secondary Education to be a more inclusive qualification than its predecessor qualifications). There is great inertia in the general qualifications system; this may stem from the need to maintain public confidence in standards, it is also the case that UK higher education generally prefers a narrowly specialised preparation for a three-year degree course. Change to the system therefore tends to be incremental. Occupational qualifications have, for many years, been continuously developed to better meet the needs of users and the market for qualifications has been the main force for change. However in the late 1980’s wholesale rationalisation followed a review of occupational qualifications (Department of Education and Science and the Manpower Services Commission, 1986). This review was needed because qualifications had developed in diverse ways and the qualifications system became very complex. Today occupational qualifications are developed sector by sector. The Qualification and Curriculum Authority’s (QCA) accreditation (1) regime, coupled with the establishment of an explicit National Qualifications Framework (NQF), has begun to establish a common system and timescale to revisions of all types of qualifications.

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(1) QCA is a government agency that regulates qualifications by scrutinising them against criteria. If a qualification meets QCA's criteria it is accredited and is admitted to the National Qualifications Framework.
The system of developing occupational qualifications begins with the development of National Occupational Standards (NOS). These industry standards are produced by analysing occupations in the sector; currently over 90% of the UK workforce is covered by NOS. This is then generally followed by functional analysis that defines the competence that needs to be demonstrated in each job type within the occupation. These competencies form the standards that are used to build qualifications. National Vocational Qualifications (NVQs) use them as building blocks, other vocational qualifications need to have demonstrable links with the standards if they are to be accredited by QCA and admitted to the NQF. There are currently about 750 NVQs and nearly 2000 other vocational qualifications.

3. The future is a problem


The analysis should go beyond simple reflection of existing practice. It should address and incorporate predicted future occupational needs and practices so as to permit the skills base of the UK workforce to be updated and upgraded.

A major review carried out by NCVQ/SCOTVEC in 1996 did not address the future skilling issue. This is surprising since one of the characteristics of NOS is:

Ensure that the competence is broad enough to give flexibility in employment and be capable of adaptation to meet new and emerging occupational patterns.

It was not until a statement from QCA (1999) that NOS were explicitly required to ‘take account of the future needs of the sector’, through:

- taking account of technology currently used within the sector;
- encouraging the consideration of the sector’s anticipated needs;
- using innovative ways of capturing the views and needs of the sector.

However methods of achieving this were not specified.

A research report produced for QCA (Green and Hartley, 1999) concludes:

In order for future needs to be seen as a priority and to become embedded into the process and outcomes from the development of National Occupational Standards, QCA needs to:

- ensure that preferred tools, methods and processes are clearly identified, have been tested and shown to work, be valuable across a variety of sectors and become part of the funding criteria for the acceptance of tender documents and outcomes from standards and qualification development projects;
• develop guidance notes to accompany the tools, methods and processes;
• market the value of capturing future requirements to industry bodies, especially in demonstrating how future needs of the sector when captured can be reflected in National Occupational Standards that people currently working in the sector can use.

More evidence of the difficulty of identifying future qualifications needs emerged from a recent QCA commissioned pilot study (Green and Hartley, 2000) that investigated the range of techniques used by consultants to identify qualification needs in different occupations. The results were generally disappointing for those who expected to see forward-looking analyses. Many projects only seemed to pay lip service to future-proofing qualifications. Evidence showed that a variety of techniques (see Annex 1) were used to determine the competencies to be included in the NOS and that there was little consistency in the use of these techniques.

The government has recognised that accurately identifying future skills and qualifications needs is fraught with methodological problems. For example a recently convened expert group, the National Skills Task Force (Department for Education and Employment, 1999) (2), was asked to provide advice on such things as:
• the likely changes in the longer term skill needs of the economy and the extent to which these needs will be met on the basis of existing trends;
• how best to ensure that the education and training system responds effectively to needs identified.

Recent research carried out by Wilson (2001) on behalf of Cedefop states that whilst there has been a revival in interest in future skills forecasting the methods used have focused on issues for employers and often do not attempt to collect quantitative data on future skill requirements. In the UK there are many agencies that collate and disseminate information about skills and qualifications needs, however all this effort at data gathering and processing still leaves a data problem. The Skills Task Force (Department for Education and Employment, 1999) extensively reviewed labour market and skills information available in the UK. It found:

Despite the extraordinary volume of data, there was an almost unanimous opinion from those we consulted that there was too much data overall, that what there was found to be inconsistent and incoherent, and that it was primarily backward looking, and of little use in helping either individuals or providers make sound judgements on future labour market opportunities and demand.

(2) National Skills Task Force, 1999, chapter 7 ‘Informing the market – gaps in our current approach’ P87 section 7.35.
This situation has been reported widely elsewhere. Focusing on the issue of future skills, Haskel and Holt (1999) cite the lack of consistent quantitative information about past skills patterns as a reason why accurate forecasts cannot now be made at this level.

4. **Researching improvements**

There are changes in the UK that might lead to improvements in processes for identifying future skills and qualifications needs. Currently the UK is restructuring the sectoral bodies that play a major role in identifying skills needs and qualification needs. At the same time a relatively new organisation called the Learning and Skills Council is establishing its role (nationally and regionally) in identification of skills needs and funding training schemes to meet these needs. Recently the area of developing background or underpinning knowledge has received attention. QCA has been consulting on the idea of a Technical Certificate that covers this knowledge and can be taught off-the-job. These Technical Certificates have now been developed by industry experts and, interestingly; some consultants have found it easier to build in future-oriented requirements into these certificates that into the National Occupational Standards.

Within QCA procedures are being developed for encouraging a systematic identification of the need for a qualification and there is growing interest in the application of scenario methodology to qualifications needs analysis. Scenario methodology was first developed by businesses. Its use can be traced to the early seventies in the large oil companies when they were recoiling from the shock of the doubling of the price of crude oil (Shell, 2000) – the planning methods in use at the time had failed to take account of such dynamic variables (3). The methodology involves the development of plausible scenarios for 10 or 20 years hence and the testing of strategies for achieving objectives in the context of these scenarios. The scenarios can be seen as a kind of lens or ‘wind tunnel’ through which to explore the potential and detail of different strategies. The methodology does not create a convergent tool that provides a best guess for a single, inevitable future, nor does it provide a ‘best possible strategic approach’, nor is it a derivative of forecasting. It is fundamentally different to other strategic tools and is best used alongside them. The distinctiveness of scenarios lies in the way it

\[(3)\] For the latest developments in this area see Buchan and Roberts (Financial Times, 21 Jan 2002).
tackles uncertainty, the richness of the data it generates for discussion and its capacity to facilitate 'out of the box' thinking.

Several applications of scenario methodology have been reported recently. These include the United Nations (1998), the European Commission (Bertrand, Gilles et al., 1999) and the Organisation for Economic Cooperation and Development (OECD, 1999). Some countries have used scenario methodology to look specifically at development of educational systems for example New Zealand (Ministry of Education, 2001). In the UK, the Future Learning Unit (2001) has developed socio-economic scenarios for 2020 which include an education and training dimension. The QCA has completed a joint project with the Institute of Education in London looking the future of vocational education and training in the UK; this was part of a Europe-wide project (van Wieringen et al., 2001) commissioned by Cedefop and the ETF. (4)

Strategic planning based on scenario methodology is now well known and fairly well tested (Schoemaker, 1995). A brief general description of application of the methodology is provided in Annex 2 for readers who are unfamiliar with its structure.

5. Application of scenarios methods to qualification needs analysis

QCA's Research Team has been working on the use of scenario methods to qualification needs analysis for the last two years. The first application was in the financial services sector where an element of scenario planning was added to a sector-led project that aimed to produce a map of qualifications needed by the financial industries in 10 years time. The second application is in the transport sector and is a more substantial application of the methodology than the first. Development work is underway in three transport industries to produce a series of models for qualifications frameworks for 10 years hence. The project is also optimising the ways scenarios might be used with industry stakeholders.

The financial services and transport sectors are two of the most volatile sectors in terms of industry changes and emerging skills needs. The financial services sector has undergone massive restructuring, has been

(4) Cedefop: European Centre for the Development of Vocational Training, Thessaloniki, Greece, see: www.trainingvillage.gr, under 'Scenarios and Strategies'; ETF: European Training Foundation, Turin, Italy, see: www.etf.eu.int
spearheading the use of new technologies and whereas some businesses in
the sector are increasingly customer-facing others are truly global in nature.
The transport sector was selected for this study because:
• it has skills shortages (e.g. in local authorities, rail middle managers);
• it has new national and EU regulatory requirements;
• it is influenced by international developments and some parts operate
  internationally;
• it has occupations that are regarded as safety critical or safety significant -
  thus placing considerable importance on the achievement of defined levels
  of competence;
• licensing is a requirement in a number of key occupations;
• changes in the business environment have led to a high dependency on
  outsourced services and a consequential need for means to provide
  assurance about consistency of competency standards.
These features make forecasting qualifications needs in the sectors
particularly difficult and in such circumstances scenarios methods can be
particularly helpful. In a separate paper (5) presented in this publication more
detail is provided of the transport project.

Three problems – is scenario methodology an answer?
There seem to be three main problems associated with modernisation of
qualifications. The first is the difficulty of obtaining unambiguous, dependable
and detailed evidence for the need for change and the second is the
resistance or inertia to change within the stakeholder groups. A third is the
difficulty of managing an evolution from one qualifications model to another.
How might scenario methods help with these problems?

6. Obtaining good quality evidence

The problem of evidence arises because forecast data gets less dependable
as the period of the forecast is extended. Uncertainties grow and
consequentially decisions are not easy to make with confidence. The
production of scenarios that have at their centre the pivot of uncertainty can
extend the value of forecasts and increase confidence in a limited range of
outcomes. Scenarios also accommodate main areas of agreement amongst

(5) See Tom Leney’s paper in this volume on the application of the methodology to three industries in
the UK transport sector.
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experts about what is likely to happen and what is not. This serves to raise
the plausibility of the different futures.

In their work on transport scenarios for the UK in 2012, Leney and
Mackinnon (2002) have also developed quantitative descriptions of futures to
complement qualitative ones. This provides a richness of data types which
helps to provide a more secure common understanding of what each
scenario means. This welding together of quantitative and qualitative data is
another major strength of scenario method.

In summary, data generated through scenario building and the testing of
strategies seems to help overcome some significant data problems. However
the need for good data sets describing current labour markets and work
practices remains key.

7. Generating momentum for modernising qualifications

The process of developing the scenarios requires the involvement of key
experts at several stages and serves as an early warning system for change
and predisposes some experts to the need to look carefully at options for
modernisation. The building of scenarios can lower resistance to change
amongst stakeholder groups because it involves these groups in early stages
of the development process. However, the method goes further as a
consultation and dissemination tool - the testing of new qualifications and
qualifications frameworks against scenarios is proving to be a particularly
powerful method for building consensus. It is the fact that the method
generates models to which people can react that is important. Each scenario
is a focus of attention that provides a language which stakeholders can
share.

There is one aspect of scenario building work that is potentially helpful
with this second problem – that of identifying the precise nature of the
‘drivers’ of specific proposals for change. There is no shortage of experts
who are willing to express an opinion on how a qualification should develop,
but few express opinions about how it will evolve. One reason for this might
be people worry about as yet uncertain influences, such as technological
developments. Another is the difficulty people seem to face in weighing up
which influences will dominate others in years to come. Some of these
influences reinforce one another; others are in tension. Drivers of change do
not exist in isolation. Lobby groups, public ‘champions’, legal instruments,
financial backing, communication infrastructures may all be part of the driver
anatomy. It is essential to consider the nature of these powerful influences on the qualification system in an attempt to help experts decide which changes are likely to happen and which ones are not. Experience of the application of scenario methodology in several projects has shown that defining, as far as possible, the nature of drivers for change is a very important and useful process.

Scenario method seems to have the potential to lower resistance of groups with a tendency to look for small, incremental, change processes and to lengthen the period over which modernisation is discussed.

8. Getting from here to there

The third problem is how to manage the transition from an existing qualification system to a new one. This remains a particularly difficult issue. It would be easy to put too much store on the consultative power of scenario method and conclude that it is likely to help with managing transitions. However experience to date shows that this is not likely to be the case. People do not easily understand scenario methodology until they have used it. It takes time to fully appreciate the strengths and weaknesses of the method and often managers do not have the time required. In QCA we have decided that the current scenario activity should lie outside our formal accreditation schedules until it is clear that the method can be applied easily, efficiently and adds value to the modernisation process. When this is the case we will produce guidance for awarding bodies and industry bodies on how to use scenarios method in combination with other methods.

9. Conclusions

Experience to date of using scenario methodology in the toolbox of methods for identifying future qualifications needs is promising. However it is too early to be sure that the method is practical, efficient and effective when used in the mainstream of methods. We need to test the reactions of stakeholders coming ‘cold’ to this new and challenging way of looking at the future.

The issue of welding scenarios method to other processes needs to be addressed. There is little research evidence that suggests particular combinations of methods are best suited to particular contexts. There is also a particular problem with engaging managers in the process of integrating the method into current strategic approaches.
The initiation of QCA’s research on scenario method originated through involvement in Cedefop’s pilot work on Scenarios for VET in Europe. Already there have been three additional applications in different educational fields that have yielded useful and previously unobtainable perspectives on the future. QCA is therefore grateful to Cedefop for the opportunity to research and learn in the VET project. It is also important that we continue to share experiences of applying the methodology in different ways that are suited to different contexts. This conference provides an opportunity to do this and again we are very pleased to provide our experiences and to receive commentary from experts from other countries on our research described in this paper.

References


Department of Education and Science; Manpower Services Commission.


Annex 1

Techniques used by UK consultants in identifying future qualifications needs

- Workshops with experts – half or day long structured sessions with high levels of interaction between participants and a sharp task focus throughout.
- Focus groups, discussion groups, working groups, sector expert groups, brainstorming sessions – shorter sessions which cover specific issues to exploratory discussion
- Delphi methods – iteration of views by a structured method of engaging with experts
- Questionnaires – these can vary in length, depth, openness, mode of contact with the interviewer
- Interviews – taking the form of one to one interviews, small group or telephone interviews. Interviews can be heavily structured, semi structured or open.
- Desk research – looking at reports, statistics, recruitment data and other company documentation.
- Case studies – applying trend analysis to specific work groups to discover implications. This includes work place observations and HR practices.

ICT is playing a growing role in all of these methods. The lack of consistency in the way the techniques are used may signal a methodological problem in this area.

Annex 2

An outline of scenarios methodology

Once an organisation is committed to the need to define longer-term strategic development in a context that is uncertain, the first step is to conduct desk research on published materials to draw up a list of possible future trends in the field of interest. Experts may contribute their views as to which possibilities to look for.

These trends are put to a predefined sample of experts who judge their importance and likelihood of coming about. Trends that most experts consider to be unimportant are removed from the set. Trends still in the frame that most experts consider will come about, and those that provoke a similarly strong feeling that they will not come about, are set aside for use
later. The remaining set of future trends is characterised by divided opinion about the likelihood of their coming about. These are used to build the spine of a set of scenarios. By analysing the areas of uncertainty to identify overarching themes and tensions in these trends, the scenario builders can determine dimensions that could flip one way or the other in the future, according to the experts. For example, if a key theme carrying uncertainty is ‘participation in education’, a dimension that spans from ‘the system becomes open to all and participation is encouraged’ to ‘the system is geared to those who are willing and able to participate’ can be developed - in other words a high-low spectrum.

These dimensions are then set against one another and used to generate scenarios that are narratives describing plausible futures. At this stage the future trends that were set aside earlier are reintroduced to all scenarios. An effective set of scenarios is that the scenarios are all plausible, internally consistent, interesting and challenging to those who will use them to assist planning.

Scenarios themselves are only the beginning. The power of the method is that it allows the testing of strategies. The agency wishing to plan for long-term change identifies strategies that could be adopted. Each strategy is researched in relation to each scenario, usually by face-to-face interview with a fresh sample of key players. These may be experts in the specific field of interest or may be experts in specialisms tangential to the main field. A robust and useful strategy is one that seems to have potential in a range of scenarios. Some strategies will resonate strongly or weakly, with a particular scenario. In addition, the process of testing the strategies reveals data on driving forces, resistant forces, key players and policy instruments needed to make a strategy effective, and so serves the purpose of rounding off strategies to make them more likely to be more effective. The process can also highlight risks and show why any side effects of deploying the strategy might be unhelpful.

In conclusion there is increasing confidence that using scenarios method to complement other methods of carrying out needs analysis brings major advantages in ‘future proofing’ qualifications. The way that the method requires stakeholders and experts to back from 10 years forward instead of starting from the status quo is a major advance. However the key advance is the generation of strategic conversations amongst stakeholders about the form of a thoroughly modern qualification system for an industry.