

**RECENT DEVELOPMENTS IN CARTOGRAPHIC EDUCATION
IN THE UNITED KINGDOM**

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ABSTRACT

There have been many changes in government education policy in the United Kingdom in recent years, several of which have had or will have an impact on cartographic education. These new policies affect those studying at University level, those taking technical qualifications and those in employment seeking some creditation for their knowledge and experience. Through their Education and Training Committee, the British Cartographic Society have been involved in monitoring these changes overall, and in particular they have been party to discussions about new qualifications at the technical level where the greatest changes are taking place.

With regard to those in employment seeking acknowledgement for their experience, the Government have adopted a scheme of National Vocational Qualifications (NVQs). NVQs do not require any course work, but are based on an assessment of competence in a range of tasks. The BCS was involved in discussion about NVQs in cartography at an early stage, although later in the process there was some controversy about who was in the best position to define standards and implement them. The first part of this paper charts the progress of NVQs in cartography, relationships with other interested parties, the criteria adopted and reports on their current (unhappy) situation.

Unlike NVQs, General National Vocational Qualifications (GNVQs) are based on taught course and are likely to replace the successful BTEC National Certificate and National Diploma courses taught in colleges of Higher and Further education over the next few years. Changes here, while equally controversial and apparently confusing at first, now seem to be moving ahead in a logical fashion and it now seems hopeful that a sensible conclusion to this change will result.

National Vocational Qualifications

The National Council for Vocational Qualifications (NCVQ) was established by the Government in 1986 in order to reform and rationalise the provision of vocational qualifications within the United Kingdom. The concept is was to create a 'National Vocational Qualifications Framework' which would allow unification of all existing qualifications from senior levels in schools, Higher Education and Further Education, and also give recognition to 'on the job' experience. The idea of creating some form of uniform credit system for work experience was seen as a way of increasing work force mobility, but also to allow those in the

workplace to have formal recognition of their knowledge, skill and experience and equating this with traditional methods of obtaining qualifications.

The National Vocational Qualifications (NVQs) (and Scottish Vocational Qualifications (SVQ)) currently being introduced are the new work place based qualifications. It was also recognised that the traditional technical training courses needed to be equated to these new units, so General Vocational Qualifications (GNVQs) (and General Scottish Vocational Qualifications) are also gradually being introduced to replace the existing certificates and diplomas offered by the current accrediting bodies for technician training (BTEC and SCOTVEC). The general relationship between the traditional academic qualifications (GCSE, 'A' levels and University degrees), the taught certificate courses (GNVQs) and workplace qualifications forming the National Qualification Framework for post 16 achievement is shown in Figure 1.

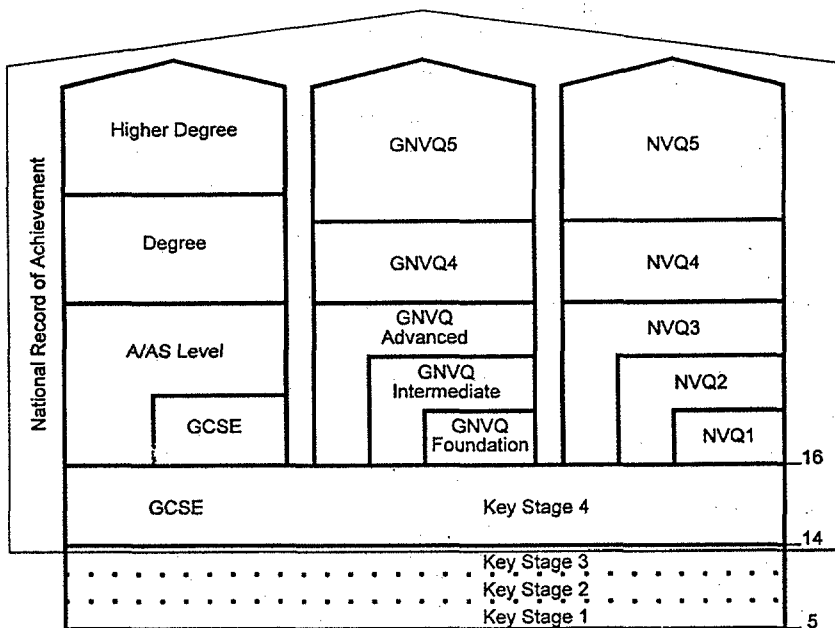


Figure 1. The National Qualification Framework (After NCVQ)

It is intended to develop NVQs from level 1 representing very low levels of work to level 5, representing managerial and professional levels. The initial emphasis of NVQs has been at the first three levels, although there are now some 70 qualifications at Level 4 and one at Level 5. Unlike traditional technical and vocational qualifications in the U.K. NVQs are

competence based rather than based on examination of knowledge. The concept is that NVQs are independent of the method of learning. One candidate may have attended relevant training courses, another may have gradually attained competence at the tasks through experience. Thus, the description of an NVQ includes a series of statements of competence - the tasks those with the qualification should be able to carry out - and the assessment incorporates a series of performance indicators required to be demonstrated by the candidate.

In summary, the aims of NVQs are:

- 1) to secure standards of occupational competence;
- 2) to be independent of learning method;
- 3) for the statements of competence to incorporate the requirements of employers;
- 4) to incorporate an assessment of performance.

It was made clear by government that any implementation of NVQs must be industry lead, i.e. employers were to have a major say in what competencies were required and performance indicators that should be attained. In order to achieve this, a major exercise was carried out to define the main vocational areas of employment, each of which was assigned a designated 'lead body.' Traditionally technical education in cartography has been closely associated with surveying and hence generally grouped with the construction and built environment field. The designated lead body for this area is the 'Construction Industry Standing Council' (CISC) which performs a co-ordinating role for all NVQs related to the construction industries.

One of the first tasks carried out by CISC was to create a 'functional map' of the construction industries. This first stage identified 6 key areas (A-F), each of which has two or three major sub areas. Surveying and Mapping is in group B 'Develop proposals for the development, improvement and use of the built environment'. In particular, 'Key role' B12 is 'Survey the physical characteristics of the natural and built environment and 'Key role' B13 is 'Map the physical characteristics of the natural and built environment.'

Responsibility for developing surveying and mapping units in area B12 and B13, along with input to other more general units, was devolved by CISC to The Survey Association (TSA), a trade association of U.K. land, hydrographic and civil engineering surveying companies. TSA formed a sub committee, the Industrial Liaison Group (ILG) to progress NVQ matters. Arguably cartography has not been well served by TSA, with cartographic representation only being brought into the ILG at the eleventh hour, and generally little attention paid to the cartographic industry and representations from the British Cartographic Society. However, the Government made it clear that NVQs must be industry lead and given that there is no industrial body or trade association representing cartographic employers in the U.K. CISC dealt with the only obvious body representing the surveying and mapping industry.

Table 1. Key role B13 - Map the physical characteristics of the natural and built environment

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| <p>B131 Select, plan and commission mapping methods
.1 - identify mapping requirements, data standards and outputs
.2 - select and plan mapping processes and operations</p> <p>B132 Assess and compile map data
.1 - analyse mapping data
.2 - compile mapping data</p> <p>B133 Process and print mapping data
.1 - process mapping data
.2 - present map data</p> |
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Each Key role is divided into a number of Occupational Standards. These Occupational Standards will then be used to 'build' the specific qualifications required (i.e. the system is essentially modular). Each Occupational Standard consists of:

- **an element title** which describes the outcomes which people are expected to achieve in the work environment;
- **Performance Criteria** which define the acceptable level of performance required in employment, normally expressed in terms of an outcome;
- **a Range Statement** which details the range of applications within which the standard is expected to be applied. Initially **Range Indicators** are shown, specific range statements being developed from these later for particular qualifications.

As can be implied from this list, the initial drafting of occupational standards does not differentiate individual disciplines or levels of seniority. This further detailed differentiation occurs only when particular qualifications are drafted. Thus, in the author's understanding, these Occupational Standards are general in the first instance. When an NVQ at a particular level is developed appropriate Range Statements will be incorporated for that level.

General Vocational Qualifications

As noted above, as well as the new workplace qualifications, a new scheme of qualifications for technical education are being introduced, known as General Vocational Qualifications (GNVQs). Many of these will replace the current BTEC and SCOTVEC national diploma and certificate courses, but are also intended to accommodate courses by other accredited bodies, and create part of an overall nationally recognised system of qualifications.

Initially there appeared to be some confusion about the relationship between NVQs and GNVQs, with some college teachers being told they would be teaching NVQs, but this was viewed by many to be impractical, in part due to the nature of NVQs and the fact that they were never intended to be taught courses.

In an effort to rationalise technical education, the initial plans of the National Council for Vocational Qualifications only allowed for a single GNVQ for the 'Built Environment'.

This would have reduced the role of surveying and mapping to an optional component of this GNVQ in Construction. Both the teachers of Surveying and Mapping courses and BTEC viewed this position as undesirable, and probably unworkable. BTEC have given an undertaking that they will continue to recognise Surveying and Mapping courses in the interim until the situation has been fully resolved. The likely outcome will be a GNVQ in Surveying and Mapping to gradually replace the existing BTEC certificates and diplomas as they come up for revalidation.

The effects of NVQs and GNVQs on cartographic qualifications.

It is likely that all the existing BTEC and SCOTVEC taught national certificate and diploma courses will be replaced by GNVQs in due course. Overall this is likely to have little impact on technical education in cartography as the courses will largely be taught by the same staff in the same colleges as before.

Potentially NVQs and SVQs should have a more significant impact on the work force, but this now seems unlikely to occur for a number of reasons. Despite initial enthusiasm for NVQs, some large employers (not in the mapping industry) who were early adopters of the scheme have since decided that NVQs do not meet their specific internal training needs and have reverted to customised training.

As far as the British cartographic industry is concerned, NVQs perhaps have less relevance in assessing potential employees that larger sectors of industry, because most companies are well aware of what other companies produce and achieve, with interviews and samples of previous work being sufficient to establish ability. Finally, despite the efforts of the British Cartographic Society and others, there is no doubt that the NVQs in mapping reflect more what is required of a cartographic draftsman working for a surveying firm producing plots of surveyed information, rather than the range of knowledge and skills required of map editors, etc., working for firms who producing a wide range of maps at a variety of scales.

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