Methodology & Experience
Методика и опит

ALTERNATIVE APPROACHES TO VOCATIONAL EDUCATION AND TRAINING

Phil Budgell
Education Leadership Consultancy (UK)

Abstract. In this paper, the author uses the planning cycle developed by Cedefop to compare Vocational Education and Training in England and Bulgaria. In the initial phase he uses reports from the EU, OECD and Cedefop to **define the issues** being faced in both countries. For the **conceptualisation phase**, the author focuses on the development of the National Qualifications Framework. **Formal adoption** is represented by the classification of individual vocational courses. The **operational phase** is interpreted as: the structure and organisation of schools; the curriculum framework; examples of vocational courses in schools and colleges; and work-based learning.

Finally, a range of analytical strategies at: student; school; municipality; and national level are used to illustrate the **monitoring**, **evaluation and impact phase**.

Keywords: approach; vocational education; England; Bulgaria; school; classification

Introduction

The European Centre for the Development of Education and Training (Cedefop)[1)], is the European Union's reference centre for vocational education and training (VET), it regards the development and implementation of a National Qualifications Framework (NQF) as a continuous, circular and iterative process – see Figure 1.

Initial Definition of the Problem External Evaluation

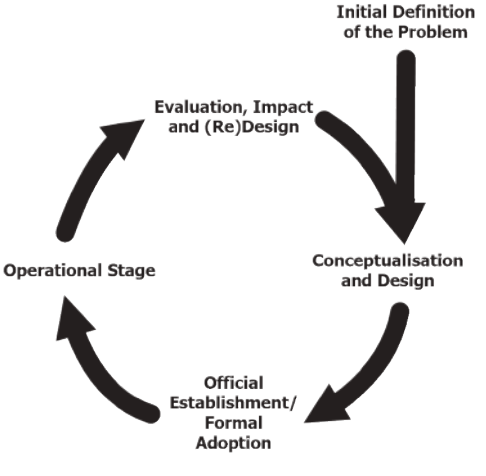


Figure 1

The European Union publishes annually an 'Education and Training Monitor'. Section 7[2)] of the individual country reports focuses on 'Modernising vocational education and training'. The Key Indicators for England and Bulgaria in 2019 are shown in Table 1.

Table 1

	Education and Training Monitor: 2019 KEY INDICATORS	
	ENGLAND	**BULGARIA**
EARLY LEAVERS FROM EDUCATION	**10.7%**	**12.7%**
YOUTH UNEMPLOYMENT	**13.3%**	**21.4%**

The **Country Highlights** from the same reports were:

England

Efforts are being made to tackle the high proportion of teachers leaving the profession. In England, school academies are growing in number but many are facing financial pressures. The consequences of Brexit for UK higher education are unclear but policy responses to address the potential loss of EU research funding and reduced student inflows will be needed. England will introduce new qualifications as part of ongoing reforms of upper secondary VET.

Bulgaria

The modernisation of the education and training system continues while quality, labour market relevance and inclusiveness remain challenging. Demographic trends and rising skill shortages suggest that Bulgaria needs to invest better in the skills of its current and future workforce. The need to upskill and reskill the adult population is high while participation in adult learning is low. Steps have been taken to increase the labour market relevance of vocational education and training (VET).

Cedefop, also provides information on and analyses of VET systems, policies, research and practice. In 2018, they reported the following **Key Challenges**.

England

In terms of some key identified priorities the 'scorecard' for the UK can be summarised as follows:

(a) England performs, on average, comparatively well in international surveys of the basic skills of 15 year olds;

(b) large numbers of adults are identified as lacking basic skills; this remains a major challenge;

(c) England has a higher level of early school dropout than the EU target, and lower levels of qualification at upper secondary level. While progress has been made, much will depend on the effectiveness of reform programmes.

Bulgaria

Many key concepts, such as quality assurance, work-based learning and validation of non-formal and informal learning credit system are now fully or partially implemented. The main challenges in VET are:

(a) reducing early leaving from education and training (higher in VET than in secondary education in general);

(b) expanding dual VET provision (dual training is still mostly project-based);

The Pre-school and School Education Act (2015) targets these challenges. However, it is too early to evaluate the results.

Similarly, the Office for Oversees Cooperation and Development (OECD) has recently published reports on different aspects of VET in England (Kuczera & Field, 2018) and Bulgaria (Bergseng, 2019).

England

Apprenticeships in England (2018)

England has launched a series of reforms that champion the institution of apprenticeships. The reforms encourage more substantive apprenticeship programmes and a stronger funding framework. Despite these strengths, there are several ways in which reforms could be adapted to achieve higher quality and better outcomes. An effective apprenticeship system involves various elements, such as:

– the development of the apprentice in the workplace by the employer; and

– the broader education of young apprentices.

These elements should be part of all apprenticeship programmes.

Bulgaria

Vocational Education and Training in Bulgaria (2019)

Over recent years, Bulgaria has shown great willingness to reform VET. Significant challenges remain, however, relating notably to the system's responsiveness to labour market needs and its capacity to ensure equitable outcomes for learners.

Four specific challenges are linked to the governance of VET:

– decision-making powers and capacity;

– the use of data and evidence to inform policy decisions;

– social partner engagement; and

– oversight of adult VET provision.

– With regard to funding:

– school level financial autonomy; and

– the capacity to act upon increased flexibilities are currently modest.

Conceptualisation and Design. A National Qualifications Framework

Vocational Education and Training has been a long standing focus for discussion in both England and Bulgaria – although for very different reasons. It was only in 2015 that England raised the school leaving age from 16 to 18. Therefore VET courses have only recently been introduced into the school system for students

who would have previously left school; and that introduction has been fraught with problems of 'parity of esteem':

– "they are only for less able students"; and

– "they are not as hard as academic courses".

By the end of 2018, 45,500[3)] 16/19 year olds remained out of education, employment or training.

Bulgaria has had a much longer tradition of VET, over half of students (52%) in upper secondary education attend vocational schools. Here the issue is:

– market relevance;

– very high youth unemployment; and

– early leavers – in 2020, 7545[4)] students dropped out of Vocational Schools.

Therefore, both countries have been in the process of developing a national qualifications framework.

The European Qualifications Framework

The European Qualifications Framework developed by Cedefop includes descriptors that outline the first four Levels in terms of **Knowledge**, **Skills** and **Responsibility and Autonomy**.

Level 1

Basic skills required to carry out simple tasks.

Work or study under direct supervision in a structured context.

Level 2

Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools.

Work or study under supervision with some autonomy.

Level 3

A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.

Take responsibility for completion of tasks in work or study;

adapt own behaviour to circumstances in solving problems.

Level 4

A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.

Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.

Both countries have developed their own national frameworks, but in the English framework Level 0 equates to Level 1 in the European and Bulgarian frameworks.

The English Regulated Qualifications Framework. The English Levels reflect the European Levels, the descriptors being defined in terms of knowledge and skills.

Level 0

Has basic knowledge and skills and the ability to apply learning in everyday situations under direct guidance or supervision.

Level 1

Has basic knowledge and skills and the ability to apply learning with guidance or supervision. Can relate to everyday situations .

Level 2

Has the ability to gain a good knowledge and understanding of a subject area of work or study, and to perform varied tasks with some guidance or supervision. Can build knowledge and/or skills in an area of work or a subject area.

Level 3

Has the ability to gain, and where relevant, to apply a range of knowledge, skills and understanding. Can work independently, and can supervise and train others in their field of work.

The Bulgarian National Qualifications Framework. The Bulgarian Levels are defined in terms of competences and the necessary time spent in Work-based Learning.

Level 1

Acquired competences for performance of routine activities (WBL at least 70%)

Level 2

Acquired competences for performance of complex activities in a changing environment (WBL at least 60%)

Level 3

Acquired competences for performance of complex activities in a changing environment, including human resource management (WBL at least 50%)

Level 4

Acquired competences for performance of a broad range of complex activities in a changing environment, including human and financial resource management (WBL at least 50%)

Formal Adoption. The Classification of Individual Vocational Courses

England

The **Office for Qualifications in Education (Ofqual)**[6)] has used the major **areas of the economy** in England to organise vocational qualifications into 13 areas:

– Accounting, law and personal finance;
– Agriculture, horticulture and animal care;
– Arts, media and publishing;
– Business and administration;
– Child development and well-being;
– **Construction, planning and the built environment**;
– Engineering, manufacturing and transportation operations;

– Hair and beauty;
– Health and social care;
– Hospitality and catering;
– **Information and communication technology**;
– Sport; and
– Travel and tourism

Each of these areas is made up of a very wide range of courses, for example:

• Information and Communication Technology
– Cyber Security
– Scripting and App Programming
– Digital Technologies
– Cyber Security and Security Administration
– Networking
– Programming
– Business Information Systems
– Computer Systems and Network Support
– Computing for Creative Industries;

and

• Construction, Planning and the Built Environment
– Plastering
– Bricklaying
– Carpentry and Joinery
– Insulation
– Moving, Handling and Storing Resources
– Erecting and Dismantling Working Platforms
– Health and Safety
– Employability Skills

(For the sake of consistency, the same two areas will be used throughout this paper).

Bulgaria

The National Agency for Vocational Education and Training (NAVET)[7)] has performed an analogous function and organised the vocational education on the basis of **professions, professional fields and specialities**:

– Arts;
– Humanities;
– Journalism, Mass Communication and Information
– Business and Administration;
– Physical Science;
– **Information Science;**
– Engineering and Engineering Industries
– Manufacturing and Processing;

– **Architecture and Construction;**
– Agriculture, Forestry and Fisheries;
– Veterinary;
– Public Health Care;
– Social Services;
– Personal Services;
– Transport;
– Environmental Protection;
– Public Safety and Security

Similarly, each of these areas is made up of a very wide range of specialities, for example:

• Information Science
– Computer Science
➢ Programming
➢ Systems Programming
– Applied Information Science
➢ Economic Informatics
➢ Economic information provision
➢ Word-processing
➢ Electronic commerce

and

• Architecture and Construction
– Building Engineering and Constriction
➢ Shuttering
➢ Reinforcement and concrete
➢ Masonry
➢ Rendering and puttying
➢ Interior lining and flooring
➢ Exterior facing and pavement
➢ Painting works
➢ Carpentry
➢ Tinsmith work in construction
➢ Roofing

Operational Stage. (i) The Structure and Organisation of Schools

Figure 2 indicates that:

– there are no **Vocational Schools** in England, but students can choose to study vocationally-oriented subjects after the age of 14;
– students in England transfer to secondary schools at the age of 11;
– about 40% of secondary schools take students from the ages of 11 – 18; and therefore

– about 60% of the schools take students from the ages of 11 – 16.

There is no selection at the age of 11 (with the exception of the very small number of Grammar Schools that remain); students are allocated to the neighbourhood school – although parents can express a preference for which school they wish their children to attend.

A student's Post-16 Education (Budgell, 2019) can continue in three different settings:

– in the 16-18 provision of their 11 – 18 Comprehensive School or Grammar school;

– in a 6th Form College; and

– a Tertiary College or College of Further Education – the setting for the vast majority of student and adult Vocational Education.

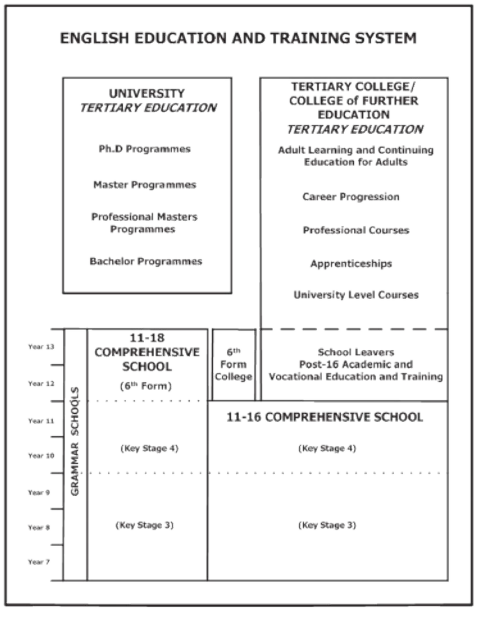


Figure 2

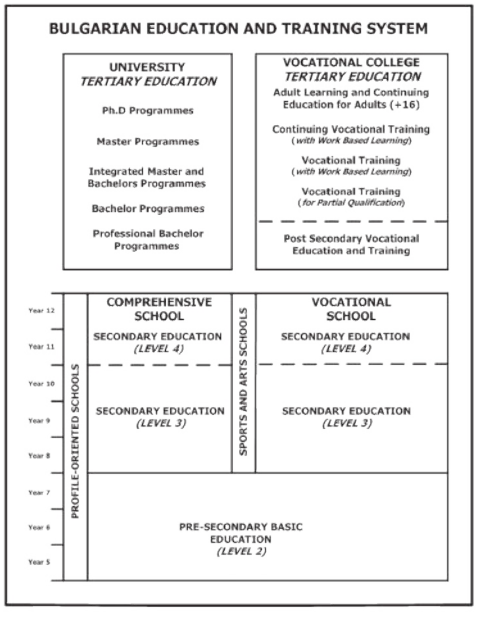


Figure 3

Figure 3 indicates how different the structure and organisation of secondary education is in Bulgaria. Students take examinations in Mathematics and Bulgarian Language and Literature at the end of Year 7 before their transfer to one of four types of secondary school:

– a Profiled High School – although some students are admitted after an examination at the end of Year 4;

– a Comprehensive (General) School;
– a Sports or Arts School; or
– a Vocational School.

Secondary VET aims to provide a vocational qualification. It also comprises a general education element that is required to acquire a secondary education diploma. VET may also be organised in dual form (apprenticeships). VET is provided in vocational high schools; art schools and sports schools.

Other providers (profiled high schools, secondary schools, prison schools) may also offer VET as a separate programme from mainstream. Secondary VET is completed with:

– the State matriculation examinations (Matura) in Bulgarian language and literature; and

– a State examination to acquire a VET qualification, that comprises theoretical and practical parts and is based on a set of possible questions, practical tasks and evaluation criteria approved by the Ministry of Education and Science.

Operational Stage. (ii) The Curriculum Framework

In the **England**, there is a unified curriculum until the end of Year 9 (14 years old) that all students must follow. For two years after the age of 14, the students can choose some of the subjects that they wish to study.

For every student in Years 10 and 11, there are compulsory subjects:

– Mathematics; English; PE/Sport; and Religious Education

– Then there are two groups of subjects and the students must choose 3 subjects from each group.

– Group One: Physics; Chemistry; Biology; Combined Science; Computer Science; English Literature; Geography; History; a Modern Foreign Language.

– Group Two, Group One subjects plus: Art; Dance; Drama; Music; PE/Sport; Design and Technology; Business Studies; Psychology; and vocationally-orientated subjects. Vocationally-orientated courses develop practical skills and knowledge related to a broad job area such as Business, Engineering, IT and Health and Social Care: they are explicitly **vocational education** not **vocational training** courses.

At the end of Year 11, the students take their first public examinations in the 8 subjects they have chosen from the list above.

After these public examinations at the age of 16, students in Years 12 and 13 in England specialise in 3 or 4 subjects. They then take a second set of advanced public examinations at the end of Year 13, when they are 18. They are free to *choose* which subjects to study. However, by way of contrast with the Bulgarian system, the English system is dominated by external, public examinations.

In the **Bulgarian** framework, there is an analogous unified curriculum until the end of Year 7 (14 years old) that all students must follow. After the age of 14 there are distinct pathways called **Profiles**. The curriculum within these pathways/

Profiles is, however, determined by the Ministry of Education and Science, for example:

Year 12 in an English Language Profile School	
Bulgarian Language and Literature	6 periods;
English Language	9 periods;
German Language	5 periods;
Mathematics	4 periods;
PE/Sport	3 periods
History and Civilisation	3 periods
Philosophical cycle	2 periods
Physics and Astronomy	1 period
Geography and Economics	1 period
Chemistry and Environmental Protection	1 period
Free elective subject	1 period
Year 11 in a Vocational School of Economics and Management	
Bulgarian Language and Literature	3 periods
English or German Language	3 periods
Mathematics	2 periods
History and Civilisation	2 periods
Philosophical cycle	1 period
PE/Sport	2 periods
Law	3 periods
Enterprise economics	2 periods
Marketing	1 period
Enterprise accounting	1 period
Statistics	1 period
Finance	2 periods
Economic informatics	2 periods
Enterprise study	12 periods

Operational Stage. (iii) Examples of Vocational Courses in Individual Schools

England. As was suggested above, students can choose some of the subjects that they wish to study after the age of 14. Some of those subjects are **vocational education** and provide students with an introduction to the knowledge and understanding of particular career paths. These are not **vocational training** courses that provide specific job related training and qualifications such as brick laying, plastering, plumbing, hairdressing or catering: these courses are only offered at **Colleges of Further Education**.

As was also indicated above, the vocationally-oriented subjects on offer to Year 10 and 11 students in individual schools is decided by the school leadership teams not by

the municipality nor by the Department of Education. Schools in the same municipality are free to take different decisions on the basis of different criteria; for example:

– the socio-economic characteristics of their pupils; or

– the knowledge, skills and experience of their teachers.

This is exemplified by the vocationally-oriented courses offered by four different schools in the same municipality.

– A large 11-18 school in a very prosperous area of the municipality where the majority of the parents have degrees or professional qualifications: Business & Administration; Health and Social Care; Hospitality and Catering; Engineering, manufacturing and transportation operations; Sport.

– A medium size 11 – 18 faith school situated in a similar area that attracts students from across the municipality: Child Development and Care; Health and Social Care.

– A very small 11 – 16 school in an area of multiple disadvantage: Art and Design; Business Studies; Digital Information Technology; Health and Social Care; Hospitality and Catering; Performing Arts; Sport Studies.

– A medium size 11-16 school in a area of relative disadvantage: Art and Design; Information Technology; Enterprise and Marketing; Health and Social Care; Music Technology; Performing Arts; Sport Studies

This freedom on behalf of the leadership teams to choose what vocationally-oriented courses (if any) applies equally to Year 12 and 13 students.

a) The large 11 – 18 school chooses not to offer any advanced vocationally-orientated courses and directs students to the local **College of Further Education**.

b) The smaller 11 – 18 faith school that wishes to retain the majority of its student population offers a limited range of vocationally-oriented courses:

– Information and Communication Technology;

– Health and Social Care;

– Product Engineering and Design.

Approximately 50% of 16-18 year old students go on to Colleges of Further Education to complete their education. These colleges tend to be very large (certainly by Bulgarian standards), catering, for example, for:

– more than 5,000 full-time 16 – 18-year-old students; and

– over 9,000 adults.

The internal organisation of the College of Further Education into departments reflects Ofqual's classification of vocational courses.

GCE Advanced Levels (20 Subjects)	Foundation Studies
Animal Care	Functional skills in English and Mathematics
Aviation, Tourism and Events	Hair and Beauty
Automotive/Motor Vehicle	Health and Social Care
Business Services and Enterprise	Horticulture and Floristry

Catering and Hospitality
Child Care
Construction and Building Services
Counselling
Creative and Digital
Design and Visual Arts
Engineering
Teaching English to Speakers of Other Languages
Hospitality
Information Technology and Computing
Logistics and Warehousing
Performing Arts
Public Services
Science, Dental and Pharmacy
Sport and Fitness
Teaching and Education

Each department offers a range of courses at different levels, using the same areas of the economy in England:

a) **Information Technology and Computing**

	Level
– Computing Access to Higher Education	3
– Cyber Security Apprenticeship	4
– Software Networks and General Pathways	3
– Computing	3
– Computing	4
– Information Technology	1
– IT Practitioners Apprenticeship	2
– IT Practitioners Apprenticeship	3
– Networks and Cyber Security	3
– Network Engineer	4
– Software Developer Apprenticeship	4
– Digital and Networking Pathways	2

b) **Construction and Building Services** – practical skill-based training courses that are not taught in schools in England.

	Level
– Brickwork	1
– Brickwork	2
– Carpentry and Joinery	1
– Carpentry and Joinery	2
– Carpentry and Joinery Apprenticeship	2
– Construction and the Built Environment	3
– Construction Building Apprentice	2
– Electrical Installation	2
– Electrical Installation	3
– Furniture Making	2
– Construction	4
– Painting and Decorating	1

– Painting and Decorating	2
– Plastering Apprentice	2
– Plumbing	1
– Plumbing	2
– Plumbing and Gas Fitting Apprenticeship	3

Bulgaria. As was first indicated in Figure 3 (above), Bulgaria has vocational schools that are attended by 52% of students after the age of 14. These schools offer skill-based practical courses that are not taught in English schools – only Colleges of Further Education for students over the age of 16.

a) a **Vocational High School of Information Science**;

	Level
– Programming	2
– Systems Programming	3
– Economic Informatics	4
– Economic information provision	2
– Word-processing	1
– Electronic commerce	3

b) a Vocational High School of Architecture and Construction;

	Level
– Shuttering	2
– Reinforcement and concrete	2
– Masonry	2
– Rendering and puttying	2
– Interior lining and flooring	2
– Exterior facing and pavement	2
– Painting works	2
– Carpentry	2
– Tinsmith work in construction	2
– Roofing	2

c) a Vocational High School of Interior Architecture and Woodworking;

	Level
– Wood cutting	2
– Packaging	2
– Parquet production	2
– Furniture Production	3
– Design and production of interior furniture	3
– Restoration of stylish furniture and windows	3
– Upholstery and decoration	3
– Production of doors and windows	3
– Production of stringed musical instruments	3

Operational Stage. (iv) Work-Based Learning

England. All courses and qualifications that are part of the Regulated Qualifications Framework are regulated by Ofqual – the Office of Qualifications and Examinations Regulation.

Regulated Vocational Qualifications are hands-on qualifications gained while actually working. The individual has to be either in full or part-time employment or studying in a College of Further Education. Relevant and required skills are taught and learnt in a working environment, while theory is taught in the classroom.

Apprenticeships provide practical training in a job with study. Apprentices:

– work alongside experienced staff;

– gain job-specific skills;

– earn a wage and get holiday pay; and

– get time for study related to your role (usually one day a week in a College of Further Education)

Bulgaria. The most obvious difference between England and Bulgaria is that Bulgaria has vocational schools; while England has only vocationally-oriented courses within general secondary schools.

Work-based learning is a compulsory element in every VET programme. In the national context, work-based learning at school premises as part of regular classes during the school year is called **study practice**. For professions related to high-end technology it takes place in a real working environment. In-company work-based learning time (for example a week or month) at the end of grades 11 and 12 is called **production practice**. Work-based learning comprises at least:

– 70% of VET programme time at NQF/EQF level 2;

– 60% at level 3; and

– 50% at levels 4 and 5.

Dual vocational education and training. There are several types of training in real work environments. Since 2014, **Dual VET** has started to evolve; this allows learners to acquire a VET qualification. Practical training in a company alternates with periods of theoretical training in a school or another vocational education and training provider. In-company trainers (mentors) are responsible for the practical training. While legislation encourages dual vocational education and training and the new school curricula and training programmes for dual VET are in place, implementation is still mostly project-based.

Evaluation, Impact and (Re)Design

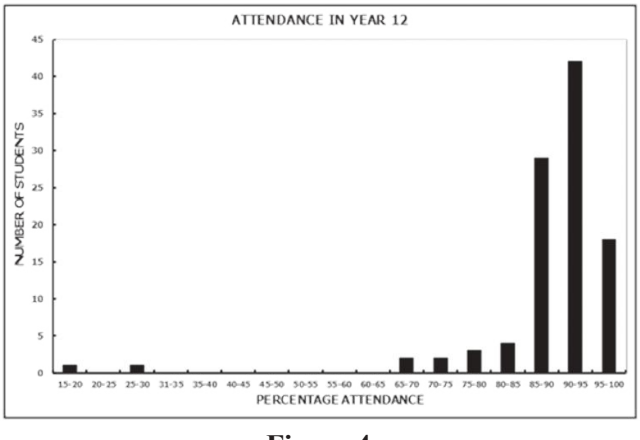
The DfE in England publishes School Performance Tables[11)] for every school, every year. However, as VET in England is in a constant state of change, these performance tables do not yet focus on vocational courses. The OECD recommends that Bulgaria should improve access to, and use of, performance data to inform policy decisions.

Currently there is no VET graduate tracking mechanism that provides data on economic returns linked to programmes. There needs to be improved emphasis on ensuring that better data on: attendance; performance; and Post-19 participation, is available across all levels: student; school; local government; and nationally, which provides insights into decision making.

With the exception of Figure 13, the data presented in this final section is derived from schools and municipalities in England and Bulgaria.

Attendance.

The first sequence of charts present data on individual students within a school and two measures of attendance across schools within one municipality



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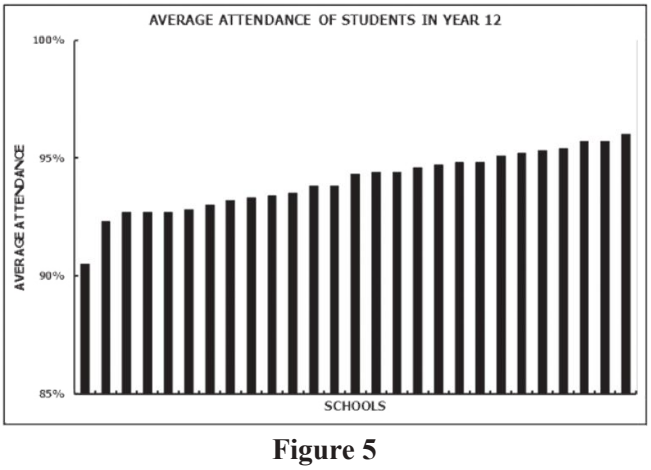

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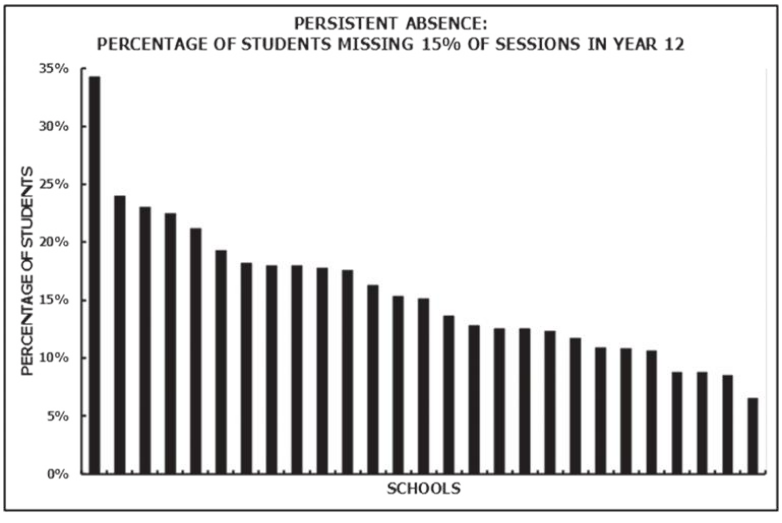
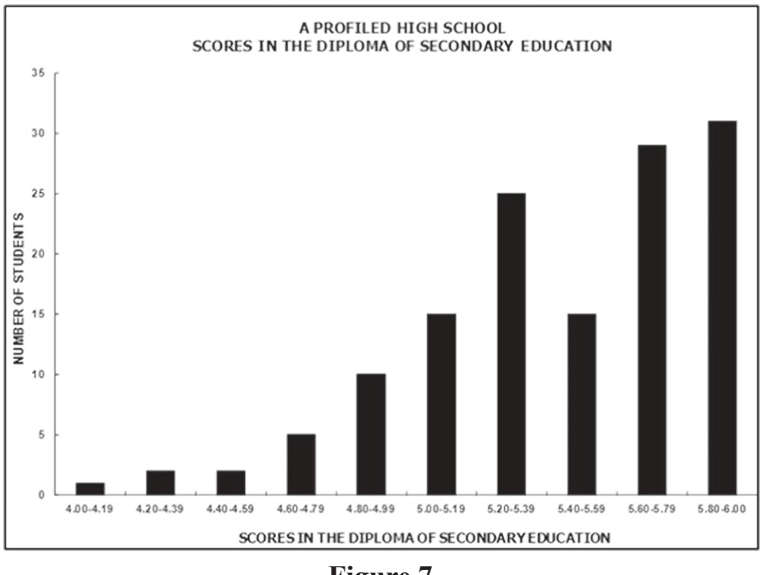


Figure 6

Performance (i).

These charts on performance are derived from the data set used by Kunchev and Budgell (2014) and are from one school.



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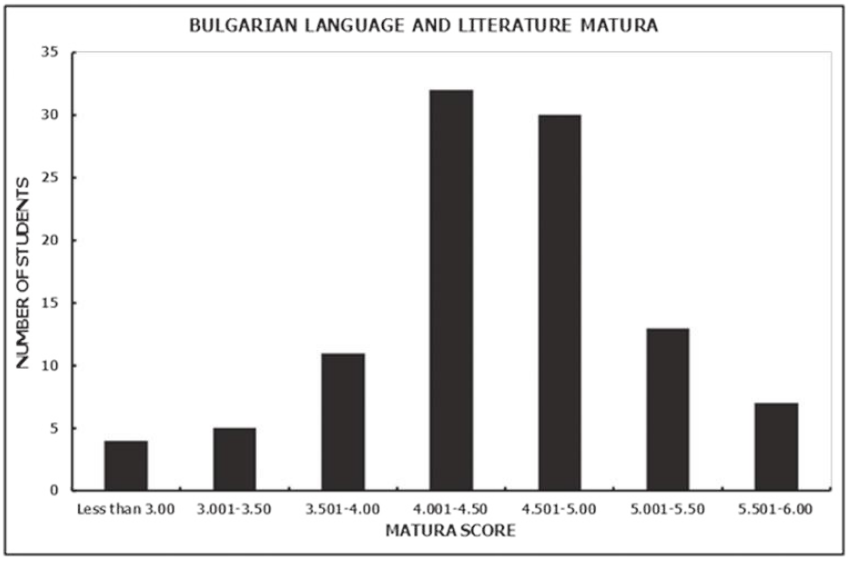

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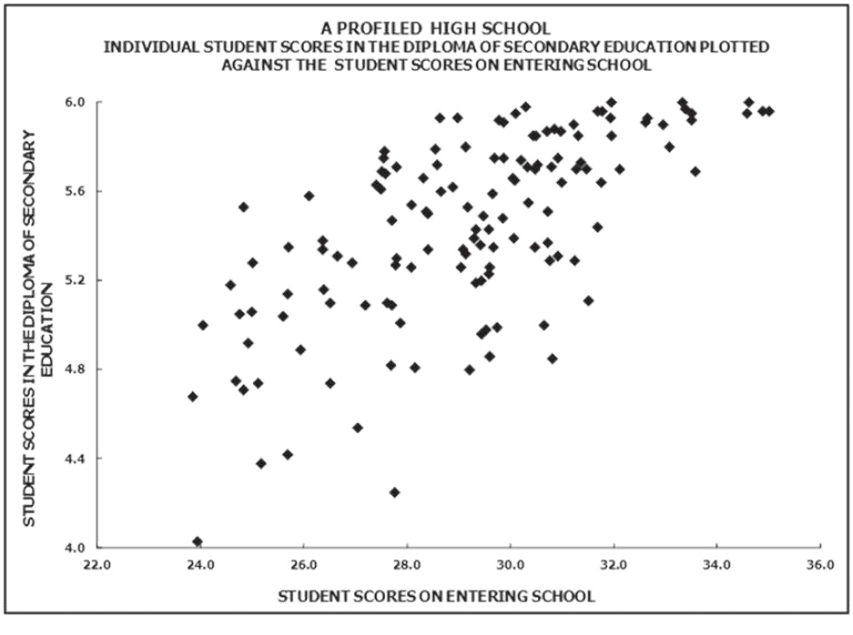

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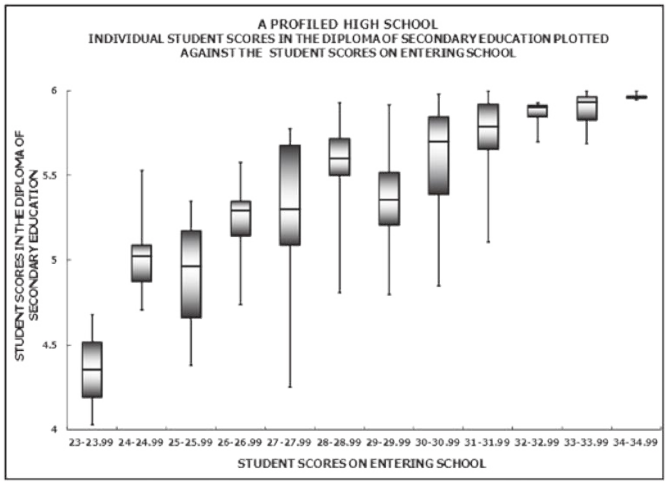

Figure 10

Performance (ii)

The data points in this section are schools rather than individual students. This type of analysis can be used to demonstrate the relative progress made by students in different schools; for example:

– all the High Schools in a municipality;

– the Profiled Mathematics High Schools across Bulgaria; or

– Vocational Schools of a given category, say 'Construction, planning and the built environment'.

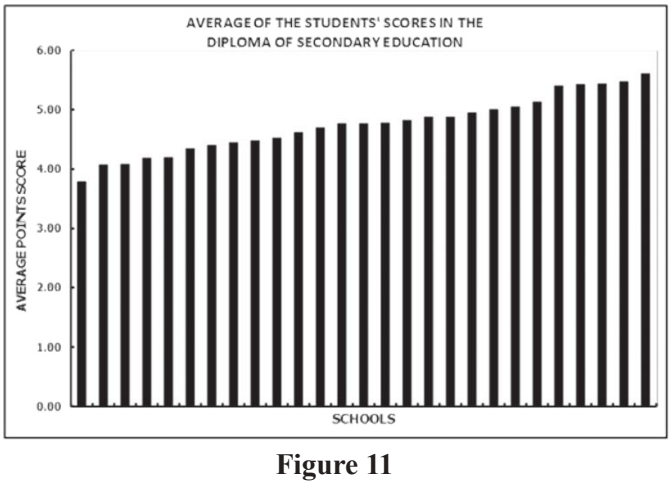

Figure 11

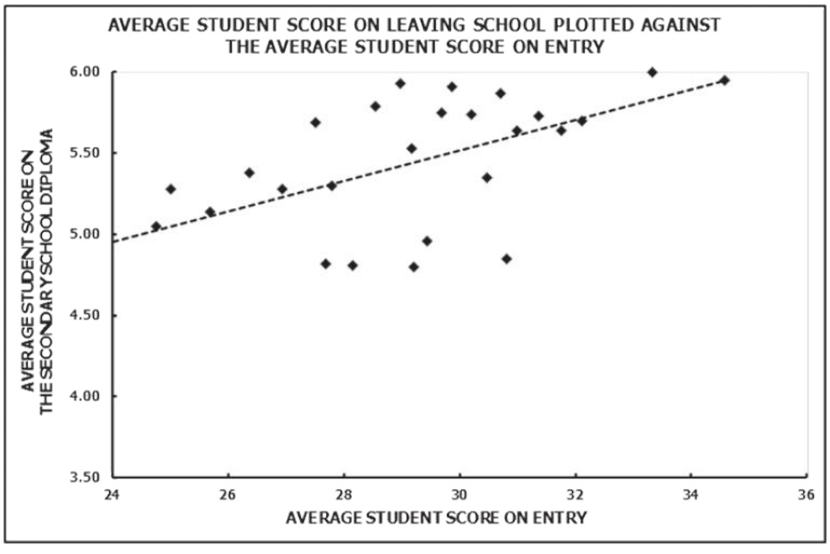

Figure 12

Post-19 Participation. The type of data should be routinely collected and analysed every year in order that the provision of VET can be evaluated.

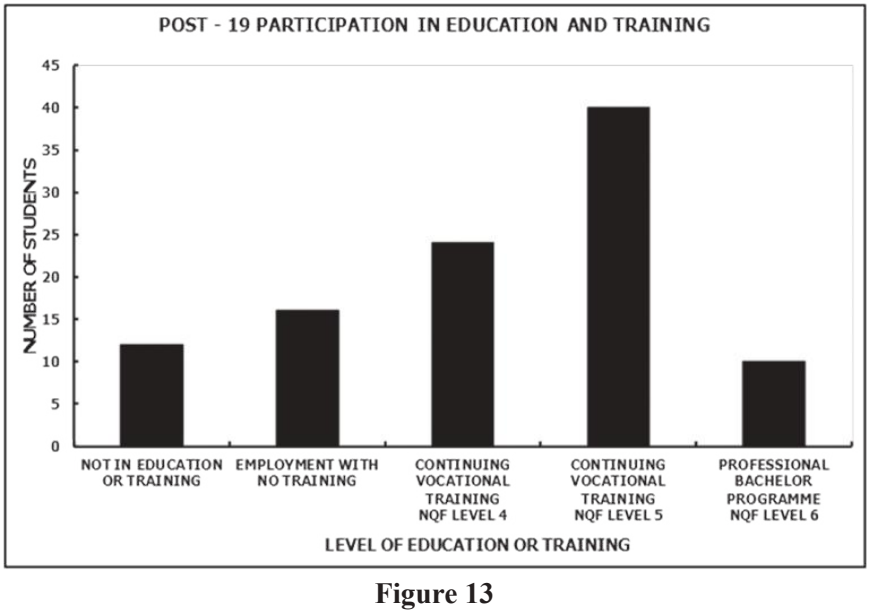

Figure 13

ATTENDANCE➔PERFORMANCE➔POST-19 DESTINATIONS

This flowchart illustrates the relationship between Attendance in the last year at school, Academic Performance and Post-19 Destinations. In this examples, the scores in the Bulgarian Language and Literature Matura are used as an operational definition of Academic Performance: the scores on the Secondary School Diploma or the levels achieved in the State Vocational Examinations could also serve the same purpose.

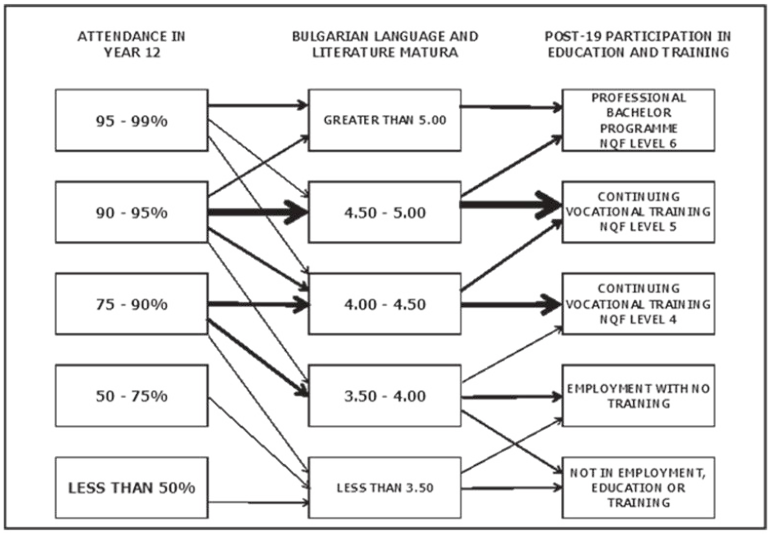

Figure 14

NOTES

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3. NEET Statistics Annual Brief: 2019. https://www.gov.uk/government/statistics/neet-statistics-annual-brief-2019
4. Republic of Bulgaria, National statistical institute, Statistical Data, Education and Lifelong Learning. 2020.
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✉ **Dr. Phil Budgell**
Principal Inspector
Education Leadership Consultancy
Sheffield, UK