

**CORE AND ENTREPRENEURIAL
SKILLS IN VOCATIONAL
EDUCATION AND TRAINING
FROM CONCEPT AND THEORY
TO PRACTICAL APPLICATION**

**THE EUROPEAN TRAINING FOUNDATION IS THE
EUROPEAN UNION'S CENTRE OF EXPERTISE
SUPPORTING VOCATIONAL EDUCATION AND TRAINING
REFORM IN THIRD COUNTRIES IN THE CONTEXT OF
THE EU EXTERNAL RELATIONS PROGRAMMES**

HOW TO CONTACT US

Further information on our activities, calls for tender and job opportunities can be found on our web site: www.etf.eu.int.

For any additional information please contact:

External Communication Unit
European Training Foundation
Villa Gualino
Viale Settimio Severo 65
I – 10133 Torino
T +39 011 630 2222
F +39 011 630 2200
E info@etf.eu.int

**CORE AND ENTREPRENEURIAL
SKILLS IN VOCATIONAL
EDUCATION AND TRAINING
FROM CONCEPT AND THEORY
TO PRACTICAL APPLICATION**

*Prepared for the ETF by Bob Mansfield
Hammerton Associates Ltd
York*

April 2003

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

Cataloguing data can be found at the end of this publication.

Luxembourg: Office for Official Publications of the European Communities, 2003.

ISBN 92-9157-350-7

Reproduction is authorised, provided the source is acknowledged.

Printed in Italy

TABLE OF CONTENTS

BACKGROUND	5
SECTION I	7
1. Introduction	7
2. The historical development of competence	7
2.1 The apprentice tradition	7
2.2 The industrial revolution – mass production	8
2.3 The new industrial revolution – internationalisation	8
3. Responding to historical changes	9
3.1 The VET response	9
3.2 Different versions of core skills	9
3.3 A specific example – the United Kingdom	10
3.4 Existing core skills categories	11
3.5 The most important categories	13
3.6 The most commonly occurring core skills	13
4. Identifying core skills – identifying labour market needs	14
4.1 The educational perspective	14
4.2 How employers describe core skills	14
4.3 Helping employers describe core skills – skills models	15
4.4 Holistic models	16
5. Practical applications – using core skills	18
5.1 Combining the existing work	18
5.2 What is being described?	18
5.3 Separating actions and methods	19
5.4 The final version	19
5.5 Key skills and learning outcomes	19
6. Developing key skills to meet local and national needs	20
6.1 Looking at your own economy	20
6.2 Who to consult	20
6.3 Elaborating the general descriptions	20
6.4 The employment perspective – what are the needs of employment?	22
6.5 Modifying the VET curriculum	23
6.6 Clear learning outcomes – an example	23
6.7 Adding or embedding the core skills	23
7. Conclusion	24
7.1 Core skills, key skills, entrepreneurial skills	24
7.2 Next steps	24

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

SECTION II	25
1. Introduction	25
2. The project aims and objectives	26
2.1 Start of extract – background	26
3. The work of the project	27
3.1 Clarifying terms	27
3.2 Entrepreneurial skills	27
3.3 Core skills	29
3.4 The core learning outcomes	29
3.5 Reflecting the core learning outcomes in learning materials	30
3.6 Embedding the core learning outcomes	31
3.7 Embedding within 'technical' activities	31
3.8 The learner centred approach	31
3.9 Format for the design of interactive learning materials	33
3.10 The example materials	34
3.11 What happened next?	34
3.12 Implementing the project approach and the materials in vocational schools	34
3.13 Regional dissemination seminars	35
3.14 Analysis of existing curricula	35
4. Extending the scope of the project – Phase 2	36
4.1 Implementation problems	36
4.2 Phase 2 project objectives	36
4.3 Evaluating progress	36
4.4 The model in practice	39
4.5 Developing the format of materials	39
4.6 Validating and extending the list of core learning outcomes with employers	41
4.7 Developing assessment formats	41
4.8 Example plan for 'laying a table for food service'	44
4.9 Disseminating the approach	45
4.10 The response of delegates	45
4.11 Concluding remarks	45
ANNEXES	47
Annex 1: Implications for learning	47
Annex 2: What is assessment?	50
Annex 3: Examples of materials produced following phase 1 of the Kazakhstan project	55

BACKGROUND

This publication comes from two sources. The first is the ETF project 'Standards 2000', which was developed in response to requests from partner countries from the NIS and Mongolia for support in establishing a procedure and methodology for the development of vocational education and training (VET) standards in their countries. Representatives of six countries expressed their wish and readiness to co-operate closely in this approach in order to learn from each other's experiences, share ideas and concepts, and trigger synergy effects. The project, 'Standards 2000' was developed to achieve this aim. Eight countries were invited to participate – Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Ukraine and Uzbekistan.

The objective of the project was to support partner countries in reforming their system of VET standard development by:

- disseminating information and best practice examples in the field of VET standards;
- discussing different approaches and methodologies;
- analysing the specific labour market demands within each partner country;
- mapping ongoing activities; and
- making recommendations for further improvement.

During the project it became clear that there was a need to include new skill requirements into existing VET standards which were, in the main, concerned with the knowledge and skills underpinning the 'technical' activities of the occupations and professions chosen for study. Some teams proposed the addition of 'core' or 'enterprise' skills to better meet the needs of the new market economies – however, it

was also clear that there was considerable confusion about the definition and use of core and enterprise skills.

The first part of this publication is an edited version of a paper which was produced at the request of the partner country teams in order to clarify the development and use of core and entrepreneurial skills. This section describes the different ways in which core and entrepreneurial skills have been described and defined and offers a 'consensus' based on an analysis of previous work.

Following the Standards 2000 project, a number of partner countries continued to work on VET standards development with a particular emphasis on forming closer links between VET standards and the emerging needs of the labour market. In their investigations into the needs of employers, the issues of core and entrepreneurial skills became an important theme, with employers identifying a number of 'non-technical' skills as critical to the needs of employment.

In Kazakhstan, with the encouragement of the National Observatory, it was decided to pay special attention to both the identification of employer requirements for core and entrepreneurial skills, and their delivery within the curriculum of vocational schools. The second part of this publication documents the progress and outcomes of this project, in which a framework of core and entrepreneurial skills was developed in consultation with employers, and materials were designed to transform the way in which core and entrepreneurial skills are delivered in practical training activities.

This publication, therefore, tries to make a bridge between the concepts and theories

surrounding core and entrepreneurial skills and the practical steps which VET practitioners can take to help young people develop skills which are of immediate and current use to employers in transition economies. The method developed in Kazakhstan is not dependant on any imported system of VET – it has been ‘home grown’ to meet the needs of young people in turbulent, transition economies. Consequently, both the method developed and the materials produced can have an immediate impact in other countries where VET programmes are being reformed to meet the needs of emerging market economies.

Acknowledgements

We acknowledge the contribution of the local team in Kazakhstan who gave continuing commitment and support to the project.

The National Observatory of Kazakhstan:

- Shaizada Tasbulatova – Team Leader
- Valentina Belosludtseva – Project Coordinator

The Project Coordination Team:

- Natalia Alistratova - Deputy Director, Gymnasium Number 4, Almaty
- Dina Almagambetova – Head of Department, Republican Centre for Informatisation of Education, Almaty
- Saltanat Kadyrova – Methodologist, VET school Number 10, Almaty
- Madina Kamnazorova – Teacher, Almaty College for Construction and Management

- Iskak Nurmukhambetov – Director, VET school Number 10, Almaty
- Nasymzhan Ospanova – Deputy Director, VET school Number 18, Almaty
- Isa Samsaev – Director of VET school Number 18, Almaty
- Marfuga Utetleuova – Deputy Director, VET school Number 10, Almaty

Vocational teachers and trainers who contributed directly to the project:

- Sholpan Chinibaeva – teacher and trainer in catering and restaurant operations, VET school Number 18, Almaty
- Aisha Duisenbaeva – teacher of electrotechnics, VET school Number 10, Almaty
- Erulan Karaguzov – trainer of meat and sausage production, VET school Number 18, Almaty
- Natalia Kovalyeva – teacher and trainer in accountancy, VET school Number 18, Almaty
- Marina Shvein – teacher of economics, VET school Number 18, Almaty
- Berik Omarov – trainer of car repair, VET school Number 10, Almaty
- Sergei Yaroslavtsev – trainer of electrotechnics, VET school Number 10, Almaty

European adviser:

- Bob Mansfield, Director, Hammerton Associates Ltd

European Training Foundation Project Manager:

- Claire Morel

SECTION I

1

1. INTRODUCTION

Managers, designers and artisans must be equipped to adapt themselves to circumstances which are forever changing ... it is of no use to train the young in one very special process which will probably be superseded ... give them alert minds exercised in observation and reasoning

*Alfred North Whitehead
An Address to Trade Apprentices at
Stanley Technical College, Coventry, 1919*

The idea of core or entrepreneurial skills is not new. As can be seen from the quotation above, people involved in vocational education and training have long realised that narrow, specific technical training fails to equip people for changes in both the economy and in occupations.

This publication is designed to give some detail to a very simple concept. The concept is this:

People need more than occupationally specific or 'technical' skills to be competent in employment

Notice that the word 'competence' is used. It is a word that is of the utmost importance in any discussion about vocational education and training. 'Competence based' systems of vocational education have dominated our thinking for the past 20 years – and the concepts of 'core' skills and 'entrepreneurial' skills are closely associated with the debate about competence.

So, we will start by looking at how ideas about occupational competence have developed historically.

2. THE HISTORICAL DEVELOPMENT OF COMPETENCE

2.1 THE APPRENTICE TRADITION

Before the industrial revolution in Western Europe, skilled workers were normally trained through apprenticeships during which they learned a number of skills

associated with their trade. There was no clear distinction made between what we now call technical skills and the core and entrepreneurial skills. So, for example, an apprentice shoemaker would learn from the 'master' the skills of cutting leather, sewing soles and uppers, finishing the leather. But the apprentice would also learn to plan their work, calculate the costs of producing shoes and the selling price, monitor and correct their manufacturing quality, deal with their customers. When they finished their apprenticeship and became a 'Master', they would often leave and form their own small business as well.

The 'non-technical' skills were as much a part of becoming a shoemaker as the craft skills of cutting and sewing leather. This combination of both the technical and the non technical skills is sometimes called a 'holistic' model of competence.

2.2 THE INDUSTRIAL REVOLUTION – MASS PRODUCTION

During the industrial revolution in Europe, two things happened. First, many agricultural workers moved into the industrial towns and cities to work in the newly established mass production factories. These people were mainly unskilled. Second, many of the traditional crafts and trades became automated through the introduction of new technologies.

This meant that it became possible to split the technical skills from the non-technical skills. Skills such as planning, organising and quality assurance became the responsibility of supervisors and managers. Work activities were divided into small operations – tasks – which could be more easily controlled. Factories were based on mass production – producing large numbers of small value items which did not change in design very often. Workers in factories were not expected to take any responsibility other than their allocated tasks. They were discouraged from trying to solve problems and in many factories they were not allowed even to talk to each other. Their work was reduced to routine

activities and to following strictly laid down procedures.

Throughout the nineteenth and twentieth centuries this process continued. It affected not just factory work but services (shops, offices and administration) as well. People became used to the idea that factory and office work was sub-divided into small tasks. As VET systems were developed to support industry, they concentrated on training people in the specific tasks and routines which were required by industry. Planning, organising and managing became a different 'subject' – management or supervision - separated from initial VET and treated as a specialism.

Some of the traditional trades remained because they could not be 'broken up' into small tasks controlled by managers. For example in most countries, plumbers and maintenance engineers still learn many of the non-technical planning and organising skills because the nature of their work obliges them to plan, solve problems and communicate with the people they work with.

2.3 THE NEW INDUSTRIAL REVOLUTION – INTERNATIONALISATION

Now that we are in the second industrial revolution we are moving away from repetitive mass production so the division of work into small tasks is no longer appropriate. To use the modern technologies and the complicated systems which they produce, people need to organise themselves and to think – to plan, to make decisions, to solve problems. Products change rapidly in response to customer demand. High quality is demanded and products may be modified to suit individual customers. Enterprises have modified their methods of organisation and management to manage these changes. They no longer need so many layers of management and the systems of control are different – people need to manage themselves.

In addition, we have seen a huge growth in the service sector and a corresponding

decline in large scale manufacturing and production. More employees have direct contact with colleagues and customers.

Quite clearly, new skills are needed in order to be judged as competent in the modern economy. The skills are not of a single type. There are communication skills, which involve interaction with other people in response to the growth in team working environments and more direct customer contact. Increased responsibility means that people need to have planning, organisational and problem solving skills. Changes in technology mean that people need to be able to use IT equipment and systems. These quite different types of skills are often grouped together under the title of 'core skills'.

But there are other significant changes in the modern economy. Put simply, enterprises are becoming smaller and more small and medium sized enterprises are being created. Large enterprises are broken into divisions, enterprises 'downsize' as technology replaces routine manual work, in departments, small project teams are created with wide responsibilities.

In the wider economy, small enterprises are seen to be the engine of economic growth – most people work for small and medium sized enterprises, and governments encourage this trend, with training, grants and tax incentives.

In the small and medium sized enterprise (SME) sector, more people have to be able to set up and run small companies. And even in large companies, an 'entrepreneurial' approach is encouraged as teams and departments deal with each other as if they were a collection of small businesses. This has led to an interest in how to develop entrepreneurial skills as well and in most approaches they are seen as an important sub-set of core skills.

3. RESPONDING TO HISTORICAL CHANGES

3.1 THE VET RESPONSE

VET professionals in the developed economies started to realise that these changes were taking place in the 1970s and looked for ways to change the VET curriculum to reflect the new demands. One of the most important developments has been to isolate these additional skills, give them the label of 'core skills' and then add the 'core skills' to the VET curriculum.

3.2 DIFFERENT VERSIONS OF CORE SKILLS

There are many different versions of core skills. If we say that core skills are all the skills which are not specific technical or occupational skills, there are many different ways in which they can be described. First of all there are different categories – here are some of them:

- basic skills
- broad skills
- common learning outcomes
- common skills
- core skills
- employment (or employability) skills
- enterprise skills
- entrepreneurial skills
- extra functional skills
- generic skills
- key qualifications
- key skills
- life skills
- non-technical skills
- personal competences
- personal effectiveness
- personal skills
- process skills
- process independent skills
- soft skills
- social competence
- social and life skills
- transferable skills
- transversal competences.

To make life even more complicated there can be variations within each category. There is considerable consensus – but there is also enough variation to cause confusion.

3.3 A SPECIFIC EXAMPLE – THE UNITED KINGDOM

The UK developed a list of core skills in the early 1980s to support a national training programme for young people. Core skills were developed by consulting with employers in the five areas of:

- application of number
- communications
- problem solving and decision making
- practical skills
- information technology.

Thirty five sub categories were developed containing a total of 103 core skills – phrased as learning outcomes – e.g. ‘plan the order in which work is to be carried out’. This list was used in initial training programmes up until the early 1990s.

The UK agency which regulates the design and development of vocational qualifications, the Qualifications and Curriculum Authority (QCA), also uses a list of core skills. These are broadly based on the previous UK research – but they have been changed. There are six sub categories:

- application of number
- communications
- problem solving
- working with others
- improving learning and performance
- information technology.

Each category is set at four different levels – giving 216 core skill statements in all. They are also phrased as learning outcomes – eg ‘listen and respond appropriately to what others say’.

In 1997, QCA changed the title of the ‘core skills’ to ‘key skills’ – but Scotland (part of the UK, but with a separate education system) changed the categories slightly and kept the term ‘core skills’. So in one country there are three ‘official’ versions of core skills with two different titles!

So the picture is quite complicated because there are so many variables and different versions of core skills. To clarify this situation it is helpful to ask a number of questions.

3.3.1 WHAT ARE CORE SKILLS FOR?

BROADER WORK ROLES

It may help to go back to the original purpose of core skills. They were developed in response to changes in the economy and the labour market. Work roles were changing in content and becoming broader, and employers were complaining that young people coming from general education and initial VET did not have the ‘additional skills’ which they needed. VET professionals responded by developing core skills – often, but not always, in consultation with employers.

But this raises an important issue. Most of the core skills lists are an educationally oriented response to changes in the labour market. We do not often hear of employers listing core skills – they are more likely to say rather general things like:

*Young people need better numeracy
We need to be able to communicate
with our customers
We need people with computer skills*

Often these descriptions are very general – as with many of the needs expressed by employers. After all, employers are not VET professionals, we should not expect them to be familiar with the language of education.

LINKING CORE SKILLS TO THE LABOUR MARKET

This is one of the first issues for the core skills concept. We need to ask whether a proper labour market analysis has been done to identify what employers actually need – rather than guess from the perspective of education. This raises a simple question:

*Are core skills the things people learn in
the VET curriculum – or are they the
(new) requirements of employment?*

We can rephrase this question:

Are core skills an 'input' to the curriculum or an 'outcome' which people need to achieve (be able to do)?

Most of the core skills lists are curriculum inputs. They are lists of skills and attitudes which people need to develop and learn.

3.3.2 ARE CORE SKILLS SEPARATE OR PART OF OVERALL OCCUPATIONAL COMPETENCE?

If core skills are separated there is a danger that they are separately 'taught' as a separate subject. Research has shown that without being integrated into the context of the occupation, core skills offer little added value to learning. There are a number of ways in which core skills can be embedded in the learning process so that they become part of the overall occupational competence or profile. There are also methods which do not identify core skills separately – rather they describe the 'new' outcomes of employment in a different way. One of these approaches is described in the second part of this publication.

3.3.3 WHAT DO CORE SKILLS DESCRIBE?

There is considerable debate about this issue. If we look at the lists of core skills which have been developed we find that, in general, they describe five things:

- what people are like (their personal qualities, attitudes and personality);
- people's intellectual abilities;
- the skills people have;
- the knowledge people have;
- what people in employment are able to do.

It is important to clearly distinguish between these categories – otherwise

there will be considerable problems in both teaching and assessment. Here, for example, is an extract from a list produced in the UK, which is described as 'skills for self employment':

- communication
- information processing
- adaptability
- languages
- initiative and creativity
- critical ability (reasoning)
- rights and duties of a citizen and consumer.

These are different things. Communicating, information processing and speaking a foreign language are things that people are able to do. Adaptability could be a skill or an aspect of personality. Initiative and creativity are personal qualities. Critical ability (reasoning) is an intellectual ability. Rights and duties of a citizen and consumer is knowledge.

This list also shows another problem with some core skill lists – the descriptions are extremely generalised. What, for example, does 'communication' mean? Communicate with whom, using what methods, for what purpose?

The list also shows a general tendency in the development and presentation of core skills – they are random **lists** rather than a structured **analysis**.

3.4 EXISTING CORE SKILLS CATEGORIES

There are many existing core skills categories. Many of them are described in the ETF publication *Development of Core Skills Training in Partner Countries*, Simon Shaw, ETF, June 1998. A summary of the general content is provided below.

In the report, Simon Shaw identifies eight categories which are interpreted as core skills. These are listed below.

3.4.1 BASIC SKILLS¹

These are the skills of literacy and numeracy which people need to function in any modern society, both socially and at work. It is assumed that these skills are developed within general secondary education. Concern about these skills continues and proposals for the continuing development of basic skills is a key feature of the latest EU communication² on lifelong learning.

3.4.2 LIFE SKILLS³

These skills enable people to live a full social life and to contribute to the community. The skills are:

- manage yourself and grow (psychologically and socially)
- relating to one other person
- relating to other people
- skills for specific situations: education, work, home, leisure, community.

This group of skills (and a number of similar approaches) were popular in the early 1980s in the UK and elsewhere in colleges of Further Education (similar to Vocational Schools) where they were used to supplement traditional craft skills training.

3.4.3 KEY SKILLS⁴

These are work based core skills. As discussed above, these were originally called core skills. There are six areas, with 216 separate skills at four levels. The term 'key skills' is also used prominently in Germany to support training in the dual system.

3.4.4 SOCIAL AND CITIZENSHIP SKILLS⁵

Skills which help people live together and participate in the social and economic life of a state. They are:

- being socially active
- communication
- co-operation – working with others
- nature of community
- roles and relationships in a democratic society
- duties, responsibilities and rights
- moral codes and values
- principles of representative democracy
- rule of law
- social justice
- human rights.

This is an interesting list because it illustrates some of the problems identified in paragraph 3.3.3 above. First the categories are mixed up, they describe both actions and knowledge. Second, many of the categories overlap, e.g. 'moral codes and values' and 'social justice'. Third, some of the categories are very generalised and vague, e.g. 'communication'.

3.4.5 SKILLS FOR EMPLOYMENT OR SKILLS FOR EMPLOYABILITY⁶

These are the skills most often sought by employers. They provide entry to employment and help people to develop and progress. They can be summarised as:

- communication
- information processing
- adaptability
- independent decision-making
- rights and duties of a citizen and consumer
- learning and self development

1 Origin: UK, Department for Education and Employment, 1996.

2 *Making a European Area of Lifelong Learning a Reality*, Commission of the European Communities, November 2001.

3 Origin: UK, University of Leeds/Life skills Teaching, 1981.

4 Origin: UK, National Council for Vocational Qualifications/ Qualifications and Curriculum Authority, 1997.

5 Origin: *Qualification challenges in the partner countries and Member States*, ETF, 1997.

6 No single reference, used in many states, a relatively new idea from 1995 onwards.

- languages
- initiative and creativity
- critical ability
- work process management
- problem solving
- self-confidence in uncertainty
- thinking and doing.

This list also illustrates some of the problems identified in paragraph 2.3.3.

3.4.6 ENTREPRENEURIAL SKILLS⁷

The skills which help people look for opportunities to start their businesses and improve business performance:

- communication
- dealing with uncertainty
- ethical competence
- generating and researching a business idea
- information processing
- investing personal and family assets
- learning
- making mistakes and recovering from them
- managing transactional and regulatory relationships
- numeracy
- operating independently
- problem solving
- taking action
- taking opportunities
- using limited resources
- using personal relationships and social networks
- working with others.

This is quite a long list and also illustrates many of the problems previously identified. It also fails to group the skills in a structured way.

3.4.7 MANAGEMENT SKILLS⁸

This is so large and complicated a category that it will not be discussed in this publication.

3.4.8 BROAD SKILLS⁹

These are the 'higher order' skills used to manage complicated situations:

- analysis
- monitoring
- planning
- diagnosing
- synthesising.

3.5 THE MOST IMPORTANT CATEGORIES

In the report, Simon Shaw suggests that for VET the most important categories are:

- key skills
- skills for employment
- entrepreneurial skills
- management skills.

In the context of vocational education, we will concentrate on the first three.

Management is a specialised area which would not necessarily apply to the level of occupation that is the focus for VET.

This list of categories is not totally complete, and that is the first problem. There are many categories and within each category there are many variations in both the ways in which the categories are structured and their content.

3.6 THE MOST COMMONLY OCCURRING CORE SKILLS

To summarise the ETF document, Simon Shaw identifies the skills which most commonly occur in the three categories selected; key skills, skills for employment, entrepreneurial skills. They are:

- communication
- application of number (or numeracy)
- information technology (or information processing)
- working with others (or team working)
- problem solving

⁷ No single source, now widely used, this version from the publication *Qualification challenges in the partner countries and Member States*, ETF, 1997.

⁸ Developed in many states.

⁹ Reference given is to UK practice.

- improving own learning and performance (or self development)
- adaptability (or flexibility, taking opportunities)
- independent decision making (or initiative)
- rights and duties of a citizen and consumer
- foreign languages
- creativity
- critical ability (or reasoning, analytical thinking)
- self confidence in uncertainty
- action and reflection
- ethical competence
- motivation
- focus on achievement
- influencing others (or using networks and relationships).

The same problems persist. This list is not structured, there are overlaps and most of the statements are extremely vague.

4. IDENTIFYING CORE SKILLS – IDENTIFYING LABOUR MARKET NEEDS

4.1 THE EDUCATIONAL PERSPECTIVE

Most of the core skills categories are developed from an educational perspective. They are 'VET professionals' interpretations of changes in the economy, the culture and employer needs. Many are based on feedback from employers and the interpretation of labour market needs.

But there is a problem because the language used to describe these skills is not always shared between those who identify skills needs (employers, social partners) and those who have the responsibility of meeting those needs (VET professionals).

This is a major problem for identifying core skills. If an employer identifies a need for improved 'team working' or 'communication skills', these descriptions are so vague that a VET professional has no clear guidance

about how to translate this need into a VET standard or an item in a curriculum.

4.2 HOW EMPLOYERS DESCRIBE CORE SKILLS

Enterprises describe skills in different ways – remember, people in enterprises are not VET professionals so they do not use a consistent or 'scientific' language. To simplify matters we are using the terminology 'technical skills' to describe those skills which are relevant to the main purpose of the occupation and 'core skills' to describe those skills which enable the technical skills to be used. So for an architect, 'design' is a technical skill and 'co-ordinating a multidisciplinary team' is a core skill. For a carpenter, cutting wood to size and shape is a technical skill whilst planning and costing the installation of a kitchen is a core skill.

If we look at specific enterprises, we find that they are not particularly concerned with this distinction. Enterprises simply need to describe what their employees need to be able to do. Whether that requirement is 'technical' or a 'core skill' is of little significance.

There are two methods for helping employers identify core skills. The first is to choose a list of core skills, and ask employers to choose those which are important. The second is to identify the things that people need to do in employment and allow the core skills to remain 'embedded' in the description. Extracting the core skills may then be done by VET planners for curriculum design. Sometimes it is helpful to group together similar core skills to make the learning process more efficient, and this is equally true of the technical skills.

Whichever method we choose, employers will need some help in both identifying the skills and clarifying their language and terminology. Ideally we should design a questionnaire to act as a prompt for questions when we are working with employers.

There are a number of models available for standardising descriptions of both technical and process skills. These are described below.

4.3 HELPING EMPLOYERS DESCRIBE CORE SKILLS – SKILLS MODELS

The first model, which is reproduced below, was developed by the HOST consultancy in the UK, which has been used to analyse employer skill needs. The skills descriptions are still rather vague, but it may be helpful to group the skills into the categories shown.

Stage 1 skills are developed within general education – they are very similar to the basic skills described in section 3.4.1 above.

Stage 2 skills are those which might be reasonably expected as outcomes of education and training programmes. The left column lists the technical skills which will be the main focus for VET programmes. What are called the ‘generic’ skills (yet another category!) are very similar to the key skills described in section 3.4.3.

Stage 3 skills, it is argued, cannot be fully developed within training and educational programmes because they are, in the main, company specific. They must be developed and learned in real workplace situations. If they are embedded within VET they need to be delivered within very realistic simulations or on work placements.

A Three-Stage Skill Framework - developed by the HOST consultancy

Stage 3: Overarching Capabilities The application of knowledge, skills and personal aptitude in support of organisational performance		
Systems thinking Team working Continuous learning Shared vision Dealing with colleagues		New practices Self-management Commercial awareness Customer orientation Quality awareness
Stage 2: Skills, Knowledge and Aptitudes		
Occupation Specific: Welding Designing Toolmaking Maintaining	Generic Skills: Communication Problem solving Interpersonal skills Application of number Work process management	Personal Aptitudes: Motivation Assertiveness Leadership Decisiveness Initiative
Stage 1: Underpinning Basics Essentials for employability		
Education Basics: Reading Writing Oral communication Numerary		Personal Traits: Openness Honesty Reliability Presentability

4.4 HOLISTIC MODELS

The next two models are different because they change the focus of core skills by suggesting that what is needed is a more integrated and broad definition of occupational competence. This thinking reverses the perspective of education. As stated in 3.3.2 above, 'there are also methods which do not identify core skills separately – rather they describe the 'new' outcomes of employment in a different way'.

These approaches ask the question:

What do the changes in the economy mean for the needs of employment?

We will call this approach the 'holistic' approach. The holistic approach, in effect, rejects the idea of separate core skills. Core skills, it is argued, are part of a 'deficiency' model of VET, which assumes that occupational tasks are, by definition, limited in scope – deficient. Full occupational competence means that we add something to the occupational skills to make them broader. The additions are core skills.

The holistic approach argues that what we need is a new way of describing occupational competence which takes account of the changes in our economy which result in a demand for broader based skills and competence.

4.4.1 MODEL 1: KEY QUALIFICATIONS

The first holistic approach is that adopted in Germany, which is described as 'key qualifications' or 'overarching capabilities' rather than core skills. This model was introduced to modernise VET standards. There are two main components:

A set of qualification goals which describe self organised action within organisations. It is based on the need for a 'skilled worker to plan, carry out and control his or her work autonomously'. The components are:

1. A process of work activities:
 - information retrieval (researching, information analysis)

- planning
 - task implementation
 - quality assessment.
2. A concept of integrated occupational competence:
 - integrity of specialised knowledge
 - social and participating competence (including team working)
 - mastery of new challenges in changing work situations.

Within the VET system these components are delivered through the learning process (using participative learning models), work placements in companies and the assessment system. Methods of self directed learning are used which follow the cycle of: information gathering and analysis, planning, decision making, carrying out the activity, self assessment, review and revision. The role of trainers and teachers changes to that of a 'coach' who sets up and monitors the learning environment.

This model can be used both to identify the needs of employment and to structure (and also enhance) the learning process. A modified version of this model, developed by Professor Hermann Schmidt, is used in the second part of this publication as a framework for modifying teaching methods in order to develop more 'enterprising' learners.

4.4.2 MODEL 2: THE JOB COMPETENCE MODEL

The second holistic approach is called the Job Competence Model which takes an 'outcome' approach to describing skills. The Job Competence Model redefines occupational competence using four interrelated components which are present in all work activity - the components are :

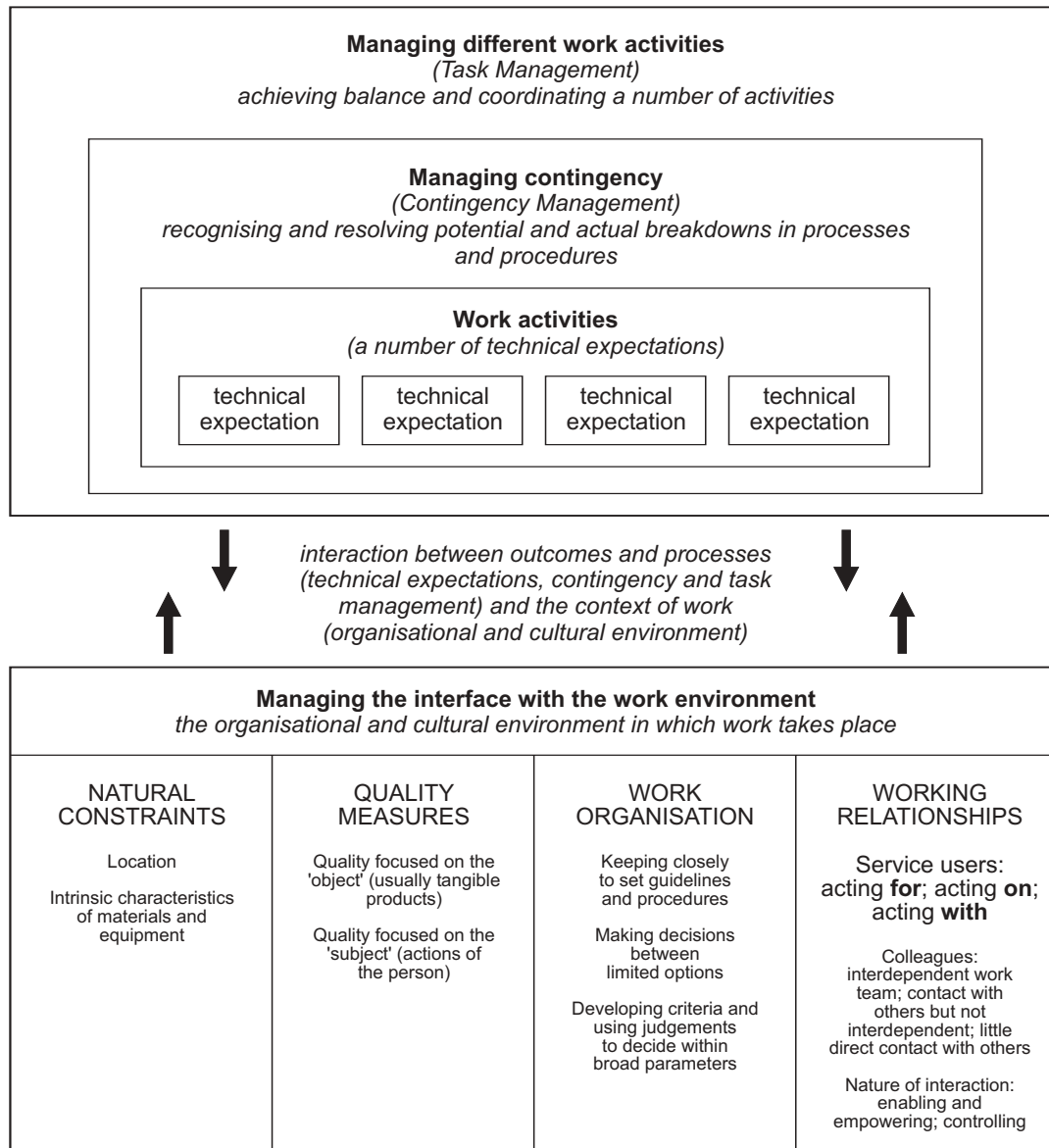
- 1 **Technical expectations** - achieving the expectations of the work role which characterise the occupation (e.g. producing manufactured items, processing information, designing components and systems).
- 2 **Managing contingencies** - recognising both potential and actual breakdowns in processes and procedures and resolving them (this may also include

coping with emergencies in some environments). In a core skills approach this would be part of 'problem solving'.

- 3 Managing different work activities** - achieving balance and co-ordinating a number of different and potentially conflicting work activities to lead to the successful conclusion of aims and goals. In a core skills approach this would be part of 'planning' and 'problem solving'.

- 4 Managing the interface with the work environment** – dealing with the natural constraints, the quality measures which are applied, the nature of work organisation and the nature of working relationships.

The model is expressed in the diagram below.



The Job Competence Model

The Job Competence Model suggests that occupational competence means being able to meet the technical requirements specific to the occupation, to manage and control breakdowns in equipment and technology and variance in procedures,

co-ordinate different activities to meet overall objectives and to adapt and modify to meet the requirements of different environments. It is a new description of occupational competence.

This approach can also be used to identify competence needs with employers.

5. PRACTICAL APPLICATIONS – USING CORE SKILLS

5.1 COMBINING THE EXISTING WORK

There has been a lot of research in Western Europe, the USA and in many other countries to try and identify the skills which people need in addition to the well known technical skills. We have already referred to the ETF report by Simon Shaw above, in which most of the core skill categories are described. The most commonly used core skills are listed as follows:

- communication
- application of number (or numeracy)
- information technology (or information processing)
- working with others (or team working)
- problem solving
- improving own learning and performance (or self development)
- adaptability (or flexibility, taking opportunities)
- independent decision making (or initiative)
- rights and duties of a citizen and consumer
- foreign languages
- creativity
- critical ability (or reasoning, analytical thinking)
- self confidence in uncertainty
- action and reflection
- ethical competence
- motivation
- focus on achievement
- influencing others (or using networks and relationships).

We will now try to ‘tidy up’ the list so that it is more usable.

5.2 WHAT IS BEING DESCRIBED?

One thing we notice about the list is that it describes different things. Some of the words and phrases are descriptions of **what people can do**. Others are

descriptions of **what people are like**. This is an important distinction, particularly in education.

To make it clear which words and phrases describe action (what people can do) we will change the language of the list slightly by putting the phrase ‘The student will be able to ...’ at the beginning. Here are the core skills that fit under this heading (the original words are in brackets in italics):

The student will be able to:

communicate with other people	<i>(communication)</i>
apply and use number	<i>(application of number)</i>
use information technology	<i>(information technology)</i>
work with other people and in a team	<i>(working with others)</i>
solve problems	<i>(problem solving)</i>
improve their own learning and performance	<i>(improve own learning and performance)</i>
take independent decisions	<i>(independent decision making)</i>
speak and read a foreign language	<i>(foreign languages)</i>
influence other people	<i>(influencing others)</i>
reason and think analytically and critically	<i>(critical ability)</i>
reflect on their actions	<i>(action and reflection)</i>

We will use the same approach to list the core skills which describe what people should be like. This time we will use the phrase ‘the student must be ...’ to start the list.

The student must be:

adaptable	<i>(adaptability)</i>
creative	<i>(creativity)</i>
self confident in uncertainty	<i>(self confidence in uncertainty)</i>
motivated	<i>(motivation)</i>
ethical	<i>(ethical competence)</i>
focused on achievement	<i>(focus on achievement)</i>

This leaves us with just one item in the list left over – ‘Rights and duties of a citizen

and consumer'. This is knowledge that people need to have in a modern market economy. We can add it to the categories by using the phrase 'the student needs to know ...'.

The student needs to know:

the rights and duties of a citizen and consumer

5.3 SEPARATING ACTIONS AND METHODS

We now have the list separated into three categories:

1. the things the student needs to be able to do;
2. what the student must be like and;
3. what the student needs to know.

We need to take just two more steps to make the core skills model more consistent.

In the first list (what the student must be able to do) we still have two different things. First, we have clear **actions** which will produce a result. For example, communicating will produce a report or provide information to somebody. Solving a problem will correct an error. Using information technology will produce text files.

But three of the skills in the list – speaking a foreign language, reasoning and reflecting on action - are not actions, they are **methods** which are used to act successfully. For example, we use critical reasoning to solve problems. We reflect on our action in order to improve our learning and performance. We use a foreign language to communicate with other people or to read web pages on the Internet. These skills describe **how** we do things – not what we achieve. They are often referred to as 'process skills'.

The second change is to remove an inconsistency. 'Influence other people' is one of the things that happens when we communicate with people and when we work with other people in a team. This is an

'overlap' – a category which belongs within another category. We will remove this skill because we can make sure that it is covered within the other two.

5.4 THE FINAL VERSION

So, we can change the list slightly. Here is the final version. Headings have been added which show how these skills are usually described and the statements have been grouped so that similar categories are placed together (e.g. communicating and team working are similar):

1. **Key skills - the student will be able to:**
 - communicate with other people
 - work with other people and in a team
 - apply and use number
 - solve problems
 - take independent decisions
 - use information technology
 - improve their own learning and performance.
2. **Process skills - to do these things, the student will have to:**
 - speak and read a foreign language
 - reason and think analytically and critically
 - reflect on their actions.
3. **Personal competences - the student must be:**
 - adaptable
 - creative
 - self confident in uncertainty
 - motivated
 - ethical
 - focused on achievement.
4. **Essential knowledge of the market economy - the student needs to know:**
 - rights and duties of a citizen and consumer.

5.5 KEY SKILLS AND LEARNING OUTCOMES

The key skills are about action – what the student must be able to do. The other skills are no less important, but they are developed by the way in which the learning programme is designed and developed. Students have to be taught foreign

languages and given opportunities to practice. Problems can be set for students to help them develop the ability to think critically. They can be helped to reflect on their actions by coaching or being helped to assess their work. They can be taught about their rights and responsibilities. These are all areas and subjects which VET teachers and trainers can apply in both curriculum design and teaching.

However key skills are different. These are actions that students must be able to do. And more detail about them is needed to be able to include them in the VET standard and the VET curriculum.

The list shows that the key skills have been changed from subjects to learning outcomes, descriptions of what students will have learned to do at the end of their programme of VET training. To link these learning outcomes with the changes which are happening in employment, our own economy needs to be looked at to see how these skills are needed, both now and in the future.

6. DEVELOPING KEY SKILLS TO MEET LOCAL AND NATIONAL NEEDS

6.1 LOOKING AT YOUR OWN ECONOMY

The broad categories of skills described in 5.4 above will not help VET planner, VET teacher or employers. They represent an **international** consensus on the important skills that people need in the new economic realities, but they are still too broad for practical use. They need to be elaborated.

For example, if students are expected to 'communicate with other people', the following questions need to be asked:

- **How** will they be expected to communicate (e.g., in writing, by speaking, by corresponding on e-mail, by video conferencing)?

- **With whom** will they communicate (e.g. other workers, the public, customers, professional contacts)?
- **Why** will they communicate, for what purpose (e.g. to negotiate a sale, to pass on information, to make recommendations for improvements, to offer advice)?

Similar questions have to be asked for each of the categories. The important point is that these questions can only be asked for specific cultures and economies. A perspective which asks:

What do employers need now?

... and

What are employers likely to need in the future?

... and

What international trends are there which we may not need now, but which we cannot afford to ignore?

6.2 WHO TO CONSULT

It is not only employers who need to be consulted. Usually, employers are only interested in their immediate needs. That is not enough for VET planning, as we are trying to produce competent people for the future. Views about the future and international trends need to be added. The National Observatory in each partner country should be able to help with some of this information and there are ETF reports which will help as well¹⁰. Ministries of Labour research services should have information and there are international sources like OECD and CEDEFOP.

6.3 ELABORATING THE GENERAL DESCRIPTIONS

The example of elaborating the category of communications has been given. Here are some of the questions that need to be asked in the other categories of key skills

¹⁰ See, for example: *Qualifications and Training Methods – Manual No 3 - Development of vocational education and training standards - the impact of labour market information*, European Training Foundation, Turin, 2000.

('improving learning and performance' has not been covered).

Work with other people and in a team

What are the teams?

- immediate work groups where work is interdependent (i.e. one person's work affects the others);
- colleagues in the same work area but not interdependent;
- teams where all the members are in the same occupation or profession;
- teams comprising of people with different occupations or professions.

What is the purpose of the team?

- to plan and carry out work collectively (continuously – like in a production environment);
- to plan and carry out work collectively (on a single project – like a task group);
- to solve problems and make decisions;
- to share information with each other.

Apply and use number

What number processes are used?

- simple mathematics (use of plus, minus, divide, multiply, summation);
- complex mathematics (use of equations, formulae, algebra).

What are numbers used for?

- counting items;
- checking and correcting numerical information;
- working out the costs of things;
- interpreting numerical data;
- measuring and marking out;
- estimating (quantities, portions, dimensions, time, costs, settings for machines).

Solve problems

What problems have to be solved?

- quality of work;
- work processes;
- operation and breakdown of machines;

- interactions between people;
- complains from customers;
- emergencies and hazards.

What problem solving responsibilities are needed?

- anticipating problems;
- identifying/diagnosing problems;
- analysing of problems;
- identifying solutions;
- testing solutions;
- choosing solutions;
- implementing and monitoring solutions.

Take independent decisions

What decisions are made?

- planning of work;
- progress of work;
- quality of work;
- allocating resources (resources include money, capital, working capital, people and time);
- choosing resources (including people);
- obtaining resources.

What decision making processes are involved?

- choosing the criteria for decisions;
- applying criteria chosen by others;
- making the choice individually;
- making the choice collectively;
- explaining the choices made.

Use information technology

What technology is used?

- personal computers;
- mini or mainframe computers;
- computer controlled equipment.

What is the role?

- choosing or specifying hardware and software;
- recommending hardware and software;
- specifying system requirements;
- setting system specifications;
- setting application specifications;
- operating equipment to produce outputs.

What processes are used?

- programming at the system level;
- programming applications;
- originating data;
- interpreting data;
- entering and editing data;
- processing data;
- outputting data.

These questions are designed to help define the detailed requirements for employers in each economy.

6.4 THE EMPLOYMENT PERSPECTIVE – WHAT ARE THE NEEDS OF EMPLOYMENT?

The 'holistic' approach uses a slightly different method. A list of skill categories is not used. Instead, descriptions which describe what people do at work are used. These are the important changes which have happened in employment. Broadly, these are:

What new technical skills and processes do people need to perform?

- What are the traditional skills and tasks?
- What new skills and tasks are needed?
- What new equipment and machinery is used?
- What equipment and machinery is likely to be used in the near future?

What do people need to do to manage when things go wrong?

- What are people expected to do when things go wrong?
- At what point is a person expected to call for help?

How do people balance different tasks and aims?

- What different responsibilities do people have?
- How do they decide which are the most important things to do?
- How do they balance different needs?

What do people need to do to manage the physical work environment?

- What natural hazards are there in the work environment?
- What physical conditions do people have to work in?

How do people interact with other people?

- working on their own;
- working in an interdependent work team;
- working in a team, but not interdependent;
- giving advice and help to others;
- providing services to customers and clients;
- providing services to the public (i.e. not sales – e.g. people working in a library or government office);
- working for other people (managers);
- having other people working for them.

What standards do people have to work to?

- standards which are 'tangible' (i.e. standards for products which can be seen and inspected);
- standards which are not tangible (e.g., standards of service, like a waiter).

What level of decision making is expected of people, based on the way in which work is organised?

- keeping closely to set guidelines and procedures;
- making decisions between limited options;
- developing criteria and using your own judgement to decide between options.

The same perspective as before is used:

What do employers need now?

... and

What are employers likely to need in the future?

... and

What international trends are there which we may not need now, but which we cannot afford to ignore?

6.5 MODIFYING THE VET CURRICULUM

If these new skill requirements are not included and embedded in the VET curriculum they will not be learned. The skills need to be embedded in three places:

- in the **learning outcomes** which students are expected to achieve;
- in the **learning processes** during which they learn the skills;
- in the **assessment process** to confirm that the skills have been learned.

This section will look at how these skills are included in the learning outcomes. Section II will give an example of how to change the learning process and develop assessment tools, based on the experience of the project team in Kazakhstan.

6.6 CLEAR LEARNING OUTCOMES – AN EXAMPLE

First some remarks about learning outcomes. In many of the VET standards which are being developed in different countries, there **are** learning outcomes, but they are not clear. They are usually stated within the 'occupational profile'.

Here is an example from the Standards 2000 project where some feedback was offered on the ways in which the outcomes were phrased (from the VET standard: Standard for a Farmer).

Here is a statement from the draft standard:

Plants trees, bushes, seedlings. Does inoculation, trimming, fights illnesses, uses mechanisms for planting and processing trees

This statement contains sub statements at different levels of detail. For example, the overall outcome 'Plants trees, bushes, seedlings' is achieved by '(using) mechanisms for planting and processing trees'. Here is how it could be phrased:

In order to: plant and nurture trees, bushes and seedlings (*the general outcome*) ...

The student must be able to (*sub components*):

- use machinery for planting and maintaining growth;
- trim and prune plants to control their growth;
- maintain the health of plants by applying inoculation and other disease treatments.

This is a learning outcome.

6.7 ADDING OR EMBEDDING THE CORE SKILLS

Looking at the statement from the standard, the question 'where are the core skills?' can be asked. At the moment they are not very visible. But this learning outcome can be changed to show where the core skills could or should be.

Original learning outcome	Learning outcome with core skills added
Plant and nurture trees, bushes and seedlings (the learning outcome) ... The student must be able to: <ul style="list-style-type: none"> ● use machinery for planting and maintaining growth ● trim and prune plants to control their growth ● maintain the health of plants by applying inoculation and other disease treatments 	Plant and nurture trees, bushes and seedlings (the learning outcome) ... The student must be able to: <ul style="list-style-type: none"> ● select, prepare and use machinery for planting and maintaining growth ● decide when to trim and prune plants to control their growth ● maintain the health of plants by identifying growth defects and applying inoculation and other disease treatments

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

As can be seen from the example above, the processes which **require** core skills to be used have been added; **selecting and preparing** machines, **deciding** when to prune, **identifying** growth defects.

Here is another way of identifying core skills. In this example a matrix with a column for each of the core skill groups can be used. The example only uses communications, decision making and problem solving.

Learning outcomes	Communication	Decision making	Problem solving
Plant and nurture trees, bushes and seedlings (the learning outcome) ... The student must be able to: <ul style="list-style-type: none"> • use machinery for planting and maintaining growth 	Read and interpret operating manuals	Select the machinery to use	Diagnose and correct operating faults
<ul style="list-style-type: none"> • trim and prune plants to control their growth 		Decide when plants need pruning	
<ul style="list-style-type: none"> • maintain the health of plants by applying inoculation and other disease treatments 	Ask experienced colleagues for advice on diseases Look up plant diseases in reference manuals	Decide which treatments to use	Diagnose plant diseases Identify why plants are failing to grow properly

7. CONCLUSION

7.1 CORE SKILLS, KEY SKILLS, ENTREPRENEURIAL SKILLS

This section has shown that many names are given to those skills which are an essential part of occupational competence. Whilst it is important to have a shared understanding of these skills, the titles and categories are not critical. What is needed is a consistent way of describing them. This section has examined a number of different approaches and identified a list of the common skills which are identified in different countries.

Furthermore, it has been suggested that it is important to make a distinction between descriptions of what people have to do, what they should be like and what they need to know. These distinctions are critical for curriculum design – for if the core/key/entrepreneurial skills are to be developed, then they must be embedded in the VET curriculum.

For curriculum designers it is not enough to have broad and vague descriptions like ‘communication’ and ‘team working’ – these are neither subjects or learning outcomes. Curriculum designers, teachers, students, all need to know what is expected of them, both in employment and in the learning process. To facilitate this a number of ways in which the skills can be elaborated and embedded in VET standards and the subsequent curriculum have been put forward.

7.2 NEXT STEPS

The next step in this publication is to show how one country has taken the concepts of core and entrepreneurial skills and used them to enrich both the content and delivery of the VET curriculum. In this example, which describes a one and a half year project, VET planners, employers, school managers, teachers and students all worked together to turn these theoretical ideas into a reality. The approaches they have developed are an example of what can be done locally to make use of a valuable tool.

SECTION II

2

1. INTRODUCTION

The second part of this publication describes a two stage project carried out in the Republic of Kazakhstan in which some of the approaches described in section I have been developed and implemented.

The first stage of the project is described in the final report of the Kazakhstan national team entitled *Increasing the employability of youth through integration of core and entrepreneurial skills in education and training - Training materials for teachers on the development of job search and employability skills with pupils*, published in Kazakhstan in 2001. This is a summary of the content of the report.

First, the project team clarify the often confusing and sometimes contradictory concepts of 'core' and 'enterprise' skills and proposes a consensus on definitions and descriptions which are immediately useful for the design of curriculum materials.

Second, the team suggests that the development of these groups of skills requires a change in the structure of the

learning **process** as well as changes in curriculum design. In just the same way that people cannot be ordered to participate in democratic processes, students cannot be instructed to be enterprising. This is a contradiction in terms. To achieve enterprising outcomes, a move towards learning methods which encourage enterprising behaviour is necessary.

Third, the team presents a model format for the development of learning materials designed to encourage and develop enterprising behaviour, and four concrete examples which show how the model can work. This model is 'self sustaining' – this means that the development of these materials is now 'owned' by the practitioners and does not depend on the import of systems, materials or expertise from Europe or other donor agencies.

The report represents the first stage of the project. In 2001, it was decided to build on the achievements of the first project by developing further training materials and considering the important issue of assessment of core and enterprise skills.

This section gives a commentary on the first stage of the project and then describes the second stage – the development of smaller training activities – in effect, 'lesson plans' – and also contains a section on assessment.

2. THE PROJECT AIMS AND OBJECTIVES

The following extract is taken from the project description as developed by the National Observatory of Kazakhstan and explains the background to the work.

2.1 START OF EXTRACT – BACKGROUND

Project Title: Increasing the employability of youth through integration of core and entrepreneurial skills in education and training - Training materials for teachers on the development of job search and employability skills with pupils

Entrepreneurial qualities cannot be developed by a set of pure technical skills inherent to traditional VET curricula. To promote enterprising behaviour and an entrepreneurial culture within the educational system it is of the utmost importance to develop such qualities as the ability:

- to take initiative;
- to perform independently;
- to adopt a disciplined attitude in the interests of the organisation's predetermined aim;
- to efficiently handle all the tasks with which he or she can be confronted across the occupational spectrum.

In a working world, school leavers need to be able to mobilise their ability to act, to take initiative in several dimensions which suggests:

- self-confidence, i.e. the ability to perceive uncertainty as a possibility for creativity;

- communication, i.e. the ability to express one's point of view, to honour the opinion of others and to come to an agreement;
- ability to shape reality, i.e. to find a particular solution fitting the circumstances.

The development of these and other abilities should be integrated into the curricula implicitly by means of all subjects and courses delivered by a more personal approach to students.

The project is aimed at:

- analysis of the existing curricula and programmes;
- analysis of needs and problems;
- selection and elaboration of suitable training models taking into consideration the experience and expertise of EU and countries from Central and Eastern Europe to foster the development of creativity, skills of problem solving and critical thinking;
- entrepreneurial skills - not only those involved in setting up and developing a business.

In the future such programmes should be disseminated and implemented in VET institutions to increase the employability of young people who are to enter the labour market.

Overall objective

Strengthening economic and social reform in Kazakhstan, by increasing the employability of the population through the development of high quality vocational education and training for young people.

Immediate objective

Elaboration of a system of training in entrepreneurial and core skills in vocational schools in Kazakhstan through the integration of new personal and interpersonal skills in the training process to increase the employability of school leavers in the labour market and further successful career development.

Expected outcomes

1. classification of skills developed;
2. methodology of training skills in the system of VET in Kazakhstan developed, incorporated into standards and pilot tested;
3. training course for teachers in implementation of the methodology prepared;
4. core group of VET experts trained.

(End of Extract)

3. THE WORK OF THE PROJECT

3.1 CLARIFYING TERMS

The project objectives were discussed thoroughly by the team and led to a process of clarification. As can be seen in the immediate objective, the terms ‘entrepreneurial and core skills’ are set alongside ‘new personal and interpersonal skills’ – which leads to the simple but fundamental question – what do these terms mean?

The team, with external advice, examined the previous ETF work¹¹ on these topics and found little in the way of clarification. This is not to say that the ETF work is, in itself, confusing – rather the ETF work elaborates the issues and confusions about these concepts which abound in developed economies. In a general sense, these terms and concepts can be understood at a superficial level – but they require precise elaboration before they can be used to structure a training curriculum. Many of the issues identified in Section I of this publication were discussed by the team.

Core, entrepreneurial, personal and interpersonal skills are new topics for transition economies and although the issues are well discussed in the literature, there is little practical and concrete experience against which to evaluate the many and varied options available.

The team were obliged to ‘unpack’ the concepts and examine each in turn – which also led to a re-examination of the objectives of the project.

3.2 ENTREPRENEURIAL SKILLS

First, the team looked at the apparently simple idea of ‘entrepreneurial skills’. What, in the context of the Kazakhstan economy, is this intended to mean? Do we expect 18 year old graduates from vocational schools to immediately start their own businesses? Or are our expectations more modest – is the expectation little more than a general desire that young people should understand market economies a little better.

The team examined Alan Gibb’s paper ‘Concepts and Experiences of Entrepreneurship in Education and Training – What has been discussed, what has been achieved and what is missing?’¹², which has a very useful section on ‘Objectives and Outcomes’ (pages 7 and 8). Here is the extract which the team considered in detail:

What are the curriculum objectives?

- To create a capacity to start a new venture?
- To provide insight into working in a small venture?
- To develop ‘business’ understanding in general?
- To develop personal ‘enterprising’ capabilities?

What is the desired outcome for participants?

- To have the capacity to start a new venture?
- To have the capacity to work effectively in a small organisation?
- To have the capacity to work effectively in the flexible labour market?
- To have the personal entrepreneurial skills to enjoy all aspects of life to the full?

¹¹ See, for example, *Development of Core Skills Training in Partner Countries*, Simon Shaw, ETF, June 1998.

¹² In *Increasing employability by integrating entrepreneurship in education and training*, ETF, 2000.

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

Other sections of the ETF report were useful pointers to the clarification of expectations which were required. Significant extracts include:

On one level there is discussion of the introduction of entrepreneurial skills within a broad educational setting where they play a part in preparing young people for the wider world of both work and citizenship. At another level there is reference to what specific training should be given to people who have a business idea and who wish to set up their own company

Cross Country Review, George Whyte

... the time has come to integrate entrepreneurship into vocational education and training, so that the student is capable of responding to the demands of the market, both as an employee (intrapreneur) and as an employer (entrepreneur).

Towards Entrepreneurship in Education and Training, Bernhard Buck

The general consensus was that although it might be desirable for the Kazakhstan economy to develop a cadre of business entrepreneurs capable of starting chains of small businesses – this was not a realistic objective for this project. Small business development is a complex economic process which is not solely dependent on vocational education and training. Small businesses require clearly targeted markets, capital investment including venture capital, enabling fiscal policies and many other conditions which lead to successful establishment and growth.

In general, it was felt that some of the objectives proposed by Alan Gibb were realistic targets – in particular:

- to develop personal 'enterprising' capabilities;
- to have the capacity to work effectively in a small organisation;
- to have the capacity to work effectively in a flexible labour market.

The challenge for the project was to convert these targets into clear and more detailed learning objectives.

The team were also influenced by comments in many of the papers which drew attention to the importance of the learning process in developing 'enterprising' capabilities. Comments by Alan Gibb and Bernhard Buck were particularly relevant:

If, however, entrepreneurship is really to be embedded in the education system then it must be reflected in the culture of the education institution itself, the organisation of the classroom and the ability of the teacher.

Concepts and Experiences of Entrepreneurship in Education and Training – What has been discussed, what has been achieved and what is missing?, Alan Gibb

In contrast to the traditional concept of vocational education and training, entrepreneurship in education and training (EET) relies wholly on the student's potential as an innovator. Releasing that potential, and transforming it so that the student is perceived as unique and able to implement his ideas, is the central aim of EET.

Towards Entrepreneurship in Education and Training, Bernhard Buck

This process of clarification resulted in the team proposing a number of sub-objectives designed to elaborate what was now seen as a rather vague initial objective. The team proposed the following¹³:

'To strengthen the ability of teachers and students to act effectively and flexibly while seeking a job, entering a job and adapting oneself to the new work place. The expected outcome should be the following skills:

- *the ability to set an objective and make a decision in the uncertain situation in the labour market;*

¹³ In most instances, the original translation of the project report has been used. The content of the objectives has been slightly modified from the first translation. The phrase 'sure and rational (technologically correct) behaviour after finishing a school' was eventually re-translated as 'adapting to new technological requirements'.

- *sure and rational (technologically correct) behaviour after finishing school;*
- *to identify and use the necessary information on labour market needs to identify employment opportunities;*
- *use own and external opportunities;*
- *abilities to adapt professionally (flexibility);*
- *communication skills.'*

The team added:

'In our opinion this list can be continued. This might create a problem - too big a task for a limited time frame. Taking this into account, the team members propose to identify the most necessary skill to reach this objective. One of these integrated skills and abilities was proposed: the integrated ability to independently, confidently and in a result-oriented way to meet the requirements of the uncertain labour market.'

'We think that the development of such an ability in the process of interactive training will give the expected outcome.'

The phrase 'interactive training' resulted in an additional objective for the project – the development of a learner centred teaching process.

3.3 CORE SKILLS

Having gone some way towards clarifying the meaning of 'entrepreneurial', the team also looked at the core skills which were thought to be necessary to meet the main objective. Once again, the team found interminable lists of core skills so a decision was taken to identify the skills which were a priority for the economy and then to re-state the skills as a clear structure of core learning outcomes which described what student would be able to do, rather than lists of skills which they should possess – broadly following the approaches described in section I.

The first stage involved separating the different groups of skills which were embedded in both the original objectives

and the subsequent elaboration by the team. Three groups were proposed:

- skills to improve employability (to gain and keep employment);
- skills which enable students to identify and obtain employment (described as 'job search');
- additional knowledge and skills which support job search and employability.

Through a process of discussion, clarification and consultation with employers, a final list of skills was agreed. These skills were then re-stated as core learning outcomes.

3.4 THE CORE LEARNING OUTCOMES

1. Skills which improve employability:

1a Communicating with people by:

- speaking directly;
- using the telephone;
- active listening;
- writing.

1b Communicating in order to:

- identify and obtain information;
- summarise key points in information;
- present information to others;
- work effectively as part of a work group (team).

1c Planning and implementing the action required to meet an objective.

1d Identifying, analysing and solving problems in both professional and personal life.

1e Using a personal computer to obtain, enter, edit, process and output information and data by:

- starting up a computer and managing the operating system;
- entering, editing, formatting and processing text using text processors, spreadsheets and databases (Microsoft Office components);
- outputting information to printers and for electronic transmission (e-mail);
- identifying and obtaining useful information using the Internet.

2. Skills which enable students to identify and obtain employment (job search)

2a Identifying and using information about the local and national labour market to identify appropriate and realistic job opportunities.

2b Identifying appropriate vacancies.

2c Communicating with employers by:

- preparing CVs and résumés;
- preparing job seeking letters;
- completing application forms.

2d Preparing and presenting yourself at an interview by:

- selecting an appropriate form of self-presentation;
- answering questions clearly and accurately;
- asking appropriate questions.

3. Additional knowledge and skills which support job search and employability

3a Knowledge of the rights and duties of a citizen in relation to labour legislation.

3b Adapting to uncertainty and changes in the labour market by:

- adapting existing skills to meet new skill needs;
- willingly learning new skills to widen labour market opportunities;
- exploring alternative routes to employment (widening search area, self-employment, voluntary work, higher education etc).

Three points need to be made about this list. The first is that the 'technical' skills for computer application are included. This is quite deliberate and represents the importance of information technology in establishing and maintaining employability.

The second is that the list is open to adaptation and change. It is not an attempt to make a definitive list of capabilities – it represents informed and authoritative opinion of the outcomes required to enhance employability in Kazakhstan in

2001. As such, it is designed to be changed and modified as conditions change¹⁴. It is also worth noting that the list benefited from considerable employer input.

The third point is that each of the statements in the list is phrased as an 'outcome' – it describes what a student will be able to do, rather than topics which have to be taught. In this sense, it is a starting point to achieving one of the significant changes noted by the team – that the central focus must be what the student needs to learn and be able to do – not what the teacher has to teach.

The team was confident that these outcomes represented, in concrete terms, the characteristics of entrepreneurial behaviour and the essential core skills required by enterprises in Kazakhstan.

3.5 REFLECTING THE CORE LEARNING OUTCOMES IN LEARNING MATERIALS

Attention now turned to the way in which these core learning outcomes should be presented and delivered within the VET curriculum. The purpose of the project was to develop learning materials as a delivery mechanism, so there are essentially two options. The first is to develop specific materials designed to develop the groups of skills – in effect, lesson plans to teach the skills. The second is to embed the skills in the professional or technical training by designing work related activities which are then 'enriched' with the core and enterprise skills.

The first option would result in specific lessons for the 'subjects' of communication skills, problem solving, planning etc. This would be the more familiar route for colleagues in Kazakhstan and many other New Independent States. However, the team had already made a commitment to a more integrated and learner centred approach, so the development of instructional materials for separate core and enterprise skills lessons seemed to be a retrograde step.

¹⁴ Later in this publication the development of a rolling programme of employer consultation, using a database to collate responses and to propose additions and modifications to the list of skills will be discussed.

3.6 EMBEDDING THE CORE LEARNING OUTCOMES

The discussion turned to the second option – how the core learning outcomes could be ‘embedded’ in technical activities so that the technical, core and enterprise skills could be developed in parallel and in context. Much of the research into these issues in Europe has shown that the separation of core skills into specific topics is fraught with difficulties. Taken out of context, these ‘generic’ skills lose much of their meaning and relevance. Take communication skills for example. In the context of professional and technical activities, communication skills can be quite different. The ability to interpret a technical manual, essential for an installation engineer, is quite different from the ability to advise a customer about goods and services. Yet, both are ‘communication skills’.

Some advances had already been made in this direction in the way in which the list of skills had been formatted - in the form of outcomes with some context – so for example, communications skills had been divided into the different ways of communicating (speaking, listening etc) and the different purposes of communication (to present information, to obtain information etc).

3.7 EMBEDDING WITHIN ‘TECHNICAL’ ACTIVITIES

The local team decided that this should be the route to take – as far as possible, the learning materials were to be based on existing technical activities where there were already opportunities for the development of the core learning outcomes. Three potential types of material were identified – related to different opportunities for development.

1. Those where there were already substantial opportunities for identifying core and enterprise skills as part of a normally occurring work activity – an example would be the design and fabrication of a steel window frame. This already contains considerable elements of planning, decision making and

communication skills (if done in a team context).

2. Work activities which could be enhanced by the addition of core and enterprise skills – an example would be preparing correspondence. Normally students would be given manuscripts to process on a word processor – but the ‘normal’ activity could be enhanced by setting a context of organising a conference so that students would have to develop and prepare different types of document (letters of invitation, advertisements, delegate lists, abstracts of papers etc).
3. Activities directly related to the core learning outcomes – an example would be job search where students could be given the task of investigating the requirements of local employers and preparing CVs and application forms based on their investigations.

But as well as identifying appropriate technical activities, the design of learning materials also needed to take into account the teaching and learning methods which would be used.

What was now needed was a more concrete model of the learner centred approach and a model format for the design of the learning materials.

3.8 THE LEARNER CENTRED APPROACH

During the process of clarifying terms and shaping the project objectives (see 3.2 above) the team had already noted that changes to the learning process would be needed to encourage an ‘enterprising’ model of learning. The team referred to this as ‘interactive training’, and chose to adopt a learner centred model proposed by Hermann Schmidt. A paper describing the approach in more detail is attached as Annex 1.

This model gave the team a format for the design of learning materials. The Schmidt model gives a series of stages in organising learning based around student managed projects which emulate work activities. The stages can be simplified as:

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

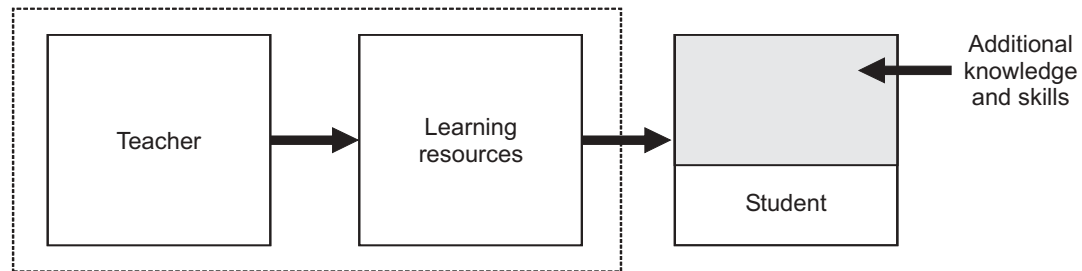
- setting learning objectives and defining outcomes;
- planning;
- implementation/execution;
- evaluation.

The focus of the learning materials is to give as much responsibility as possible to

the students in planning, implementing and evaluating the activity, with the teacher acting as resource provider, coach and adviser.

In the course of discussion, two diagrams were produced which illustrate the different relationships. Here is the first one:

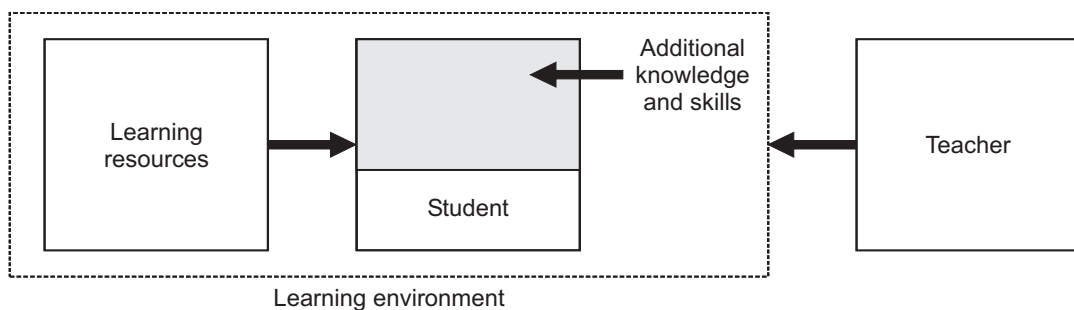
Figure 1: The teacher controls the learning process



In this model, the teacher has total control over the learning resources (which will include the classroom, teaching materials, equipment etc) and these are used to add knowledge and skills to the student. The dotted line represents the teacher's 'ownership' and control of the learning

process which is then applied to students. This ownership model is typical of traditional education and is reinforced even in the physical layout of classrooms with the visual aids being behind the teacher who stands facing a class, acting as a barrier between the students and the learning resources.

Figure 2: The teacher facilitates the learning process



In this model the student, in collaboration with other students, is encouraged to use the learning resources directly. The role of the teacher is to create an effective learning environment, represented by the dotted line. The teacher acts as guide, coach and mentor – and becomes, in effect, part of the learning resources available to students.

Having agreed the role of the teacher, attention turned to completing the format for learning materials by proposing some

additions to the activity cycle proposed by the Schmidt model. These were:

- a section which gave information about who the materials were designed for and the level of existing competence needed to make the activity viable;
- the team recognised that errors might occur and that this could cause potential safety hazards and waste of resources, so a section was added which identified stages and activities which must be checked with the teacher before continuing with the activity.

3.9 FORMAT FOR THE DESIGN OF INTERACTIVE LEARNING MATERIALS

The format, which is phrased as guidelines for a teacher, is shown below.

1. Who is this for?

This section should contain:

- a description of the occupational/professional area or specialism (e.g. welding, electronic assembly);
- whether the activity is for an individual or a group – and if for a group, an indication of the preferred group size;
- the existing knowledge and skills the students need to have to be able to undertake the activity (e.g. – for a welding activity you would need to specify what welding skills the student(s) need to have);
- whether the activity is designed to develop professional skills as well as the core learning outcomes.

2. Outcome

This should include:

- the outcome of the work activity, phrased as an outcome – not a subject or topic (e.g. preparing business letters, mixing and baking a cake for a special occasion);
- the quality criteria which will be applied to evaluate the outcome (what is produced) and the criteria used to evaluate the process (how things are done).

3. Core/employability skills developed

- the core learning outcomes which are specifically developed by this work activity;
- any professional skills which are developed by the activity.

4. Planning phase

A description of the typical resources, methods etc required to complete the work activity. This should **not** be a list of

instructions – it is for the students to identify the key planning stages and resource requirements. The purpose is to help the teacher prepare the resources which are likely to be necessary.

Depending on the activity and professional area, you might need to describe:

- reference materials and other information;
- identifying and specifying the equipment needed;
- calibration and setting the equipment;
- calculating the materials required;
- selecting an appropriate method or technique;
- deciding the sequence of activity and allocating roles to team members.

If the activity is to be done by a team, you can suggest whether the team should work as a 'co-operative' (i.e. no specific leader) or whether a leader should be chosen.

An indication of any stage or part of a stage in which the student(s) must bring their plans for checking before proceeding should be given. This is particularly important where safety and potential waste is an issue. For example, if students are selecting a method of welding, this would need to be checked because selecting the wrong method could be dangerous. When calculating the ingredients for a cake and deciding the sequence of mixing, this should be checked because the wrong ingredients mixed in the wrong order would produce waste.

In this section there is also a description of parts of the planning process where student(s) may be given freedom to make choices and decisions and where there is no choice.

5. Implementation/execution

This section describes the typical way in which the activity is implemented. Any steps or activities in which instruction might be required should also be included.

In general, instruction should only be given when:

- the activity is designed to develop a professional skill which requires specific methods or techniques;
- the activity, as implemented by the students, could result in danger or waste;
- instructions are requested and the students are unlikely to be able to succeed without instruction.

6. Evaluation

This section is a description of who does the evaluation (this could be the student(s) themselves, another student group, the teacher). As far as is possible and practicable, students should be involved in the evaluation process.

In this section the evaluation criteria for the outcome and process can be repeated.

3.10 THE EXAMPLE MATERIALS

The team worked with this format and drafted four example materials for:

- planning and preparing a cake for a special occasion;
- designing and fabricating a window frame;
- preparing business letters;
- preparing a contract of employment.

During the working sessions the team elaborated the original format by adding a table to enable teachers to plan the organisation of the activity and the nature of interaction, and an explanatory note for students to brief them about the activity. The completed materials are shown in Annex 3.

3.11 WHAT HAPPENED NEXT?

The team had developed, in a short time, a list of core and employability skills of direct relevance to the Kazakhstan economy, expressed them as a list of core learning outcomes, which had, in addition, been validated by key employers. In parallel, they had developed a number of large scale 'work related projects', designed to 'embed' the core learning outcomes and deliver them through a student centred learning process.

The next phase, which lay outside the original project remit, was to implement the project approach and to start a process of dissemination to other VET teachers to check that the method was transferable.

3.12 IMPLEMENTING THE PROJECT APPROACH AND THE MATERIALS IN VOCATIONAL SCHOOLS

Four vocational schools were involved in this project and in three of them, the project immediately moved towards implementation¹⁵. In three of the schools, senior managers decided to review current learning approaches as they had identified a major weakness which could compromise delivery. In short, VET teachers were trained in a highly didactic 'control' model, involving formal lessons, lectures and demonstrations, with very little group activity – typical of the model illustrated in Figure 1 above. It was anticipated, correctly, that teachers would find the new approach, typified in Figure 2, extremely challenging and would find it difficult to relinquish control and authority.

The three schools decided to meet this problem head on. Each ran a series of development programmes for teachers, starting with a core group in each school whom, senior managers judged, would be best able to adapt to the new approach. Under the title of *Goodbye Training, Welcome to Self Learning*, the development programmes were designed to brief teachers on the new approach and to start each teacher on the process of adapting their own teaching practice by using the model format.

The precise method and approach to the development programme varied in each school. In school number 18, weekly workshop sessions were held with the core group, later widening to all the teaching staff with the core group acting as coaches. In school 10 a special development unit was established to act as a resource centre for self guided learning. In the Gymnasium, the Deputy Director acted as an internal trainer and coach, building on previous work in the establishment.

¹⁵ In the fourth school, a change in personnel meant that the project work was not implemented in full.

3.13 REGIONAL DISSEMINATION SEMINARS

At the same time, the local experts from the National Observatory, together with members of the project team, ran a series of regional seminars on the approach involving local teachers. The seminars introduced the approach and invited participants to develop their own materials using the model format.

3.14 ANALYSIS OF EXISTING CURRICULA

Finally, a team member used some of the categories in the learning materials format to undertake an analysis of existing curricula to identify the existing coverage of essential core learning outcomes. The analysis is shown below:

Figure 3: Core skills in existing curricula (developed by Dina Almagambetova)

Occupation	Technical skills	Technical knowledge	Managing the process	Communication skills	Organisation of work	Social – ecological
Hairdresser	18	11	-	-	1	3
Art and design specialist	10	13	4	-	3	-
General construction worker	25	33	1	-	1	3
Metal worker-plumber	12	15	1	-	1	2
Tailor (category 4)	8	12	2	-	1	1
Dress cutter (category 5)	2	5	2	-	1	-
Controller of car technical condition	12	13	3	-	1	1
Specialist in hotel business	14	16	10	-	-	1
Specialist in restaurant business	7	17	13	1	1	1
Waiter-barman	7	25	-	2	1	-
Cook (category 3)	8	6	1	-	-	-
Cook (category 4)	6	5	-	-	-	-
Confectioner (category 3)	8	6	-	-	-	-
Confectioner (category 4)	7	4	1			
Tractor-driver – machinist	6	15	3	-	-	2
Vegetable and fruit grower	15	13	-	-	1	-
Typist – office worker	8	8	1	-	2	1
Controller-cashier	5	11	2	-	1	1

The analysis is extremely useful because it shows an almost complete lack of coverage in most of the core learning outcomes. The only significant feature is the coverage of 'managing the (work) process' in hotel and restaurant occupations – both of which are relatively new occupations which have been developed according to international standards.

4. EXTENDING THE SCOPE OF THE PROJECT – PHASE 2

4.1 IMPLEMENTATION PROBLEMS

At the end of the local implementation phase, a number of problems had emerged which suggested a second stage to the project. The problems were as follows:

First, it was proving difficult to implement the original materials. The project based approach was designed using models drawn from European practice, where trainers have considerable freedom to develop and implement large scale learning activities. The materials designed in Kazakhstan were simply too large to fit with the officially required format of the school day – with lessons and subjects broken into 45 minute sessions. Some of the original projects would require training activities extending over whole days, or even a number of days.

Second, it was sometimes difficult to persuade teachers that the core learning outcomes were those required by employers. Although employers were involved in the original project team, there were few of them and there had been no clear validation of the list of outcomes.

Third, it became clear that assessment of students learning with the new method was a major challenge. Many of the core learning outcomes cannot be assessed,

validly, using the assessment tools of traditional education – practical testing and examinations.

4.2 PHASE 2 PROJECT OBJECTIVES

In response to these problems a second phase of the project started in 2001 with the following objectives:

- to develop a format for materials which met the realities of school organisation – in effect, changing from large scale projects to more modest lesson plans;
- to identify a reference group of employers to validate and extend the list of core learning outcomes;
- to develop assessment formats for the lesson plans;
- to disseminate the approach and the new materials at a national seminar involving all 16 regions of Kazakhstan and a seminar for other Central Asian countries.

In addition, this second stage gave an opportunity to review progress and, in particular, to evaluate the reactions of both teachers and students to the new approach.

4.3 EVALUATING PROGRESS

This section draws on a number of meetings held with the project team, meetings with teachers and students in each school and observations of four lessons designed using the new approach.

The response of teachers

The teachers all responded positively to the new approach and most admitted that they had found it challenging in the first instance. The following three case studies illustrate typical responses (as far as possible, verbatim, translated comments are used).

Marina Shvein, Teacher, School No 18

Context: Marina is a teacher working in sales occupations. She organises training sessions in the workplace of a chain of local supermarkets who approached school 18 to ask for help in developing product knowledge and improving customer service. At the suggestion of the school, the employees are also trained in accountancy to broaden their employment potential.

Before: 'In the past I instructed students. They were attentive, but passive. This method worked with product knowledge, but for customer service it was not a very good method – just theory of interaction and rules for dealing with customers'.

Now: 'Now the students work together in groups. For example, for customer service I will ask them to identify the desirable characteristics of a shop assistant from the customer's point of view. They develop their own profiles and use these to assess their own behaviour. For each session I give a theme and together we design a training activity based on the theme. Then they assess the results.

At first the students found it difficult, but now they are very happy with the approach – they are more active.'

Sholpan Chinibaeva, Trainer, School No 18

Context: Sholpan teaches the theory and practice of food preparation and food service.

Before: 'I give practical lessons to follow the theory sessions. In the past I would divide the students into work groups of four to five students, tell them the lesson objective, give practical demonstrations and give instructions on the tasks to be done.'

Now: 'I have a changed role. I produce a guidance note for the students describing the objectives, the knowledge and skills which will be developed and the assessment criteria. The students, in self selecting teams, then decide how the work will be carried out, they complete the tasks and then assess the results of their work and that of their colleagues, referring to me only if they have difficulties. They work independently on the activities. The students have become more active and creative. They make decisions, suggestions for improvements, they are more flexible and more confident. They feel more ownership of the product.'

Natalia Alistratova, Deputy Director, Gymnasium No 4

Context: Natalia is both a Deputy Director with responsibility for the development of teaching methods, and a teacher of chemistry.

Before: 'The Gymnasium has experimented with a more student centred approach for about eight years, but it is presented as a different way to teach and for some teachers it is difficult to accept. New teachers in particular try to teach the class for the whole lesson – just standing at the front and lecturing. The children are passive and quickly lose interest.'

Now: 'The work of the project has given us a more rational structure and teachers can now see that the teaching method has a clear purpose – to develop core skills which can be used in both education and work. The method works with general subjects. For example, I teach chemistry and I give as much opportunity to the students to be involved in practical assignments. In a lesson on the element 'ferrous', I question students to establish their current knowledge, encourage them to use reference materials and then give different groups a practical assignment. They elect a leader, plan the activity through discussion, decide who will do each part of the activity, present the results to the class and evaluate their work.'

Madina Kamnazorova, teacher of Geography, College of Construction

Before: Students studying travel and tourism attended lectures in geography, conducted in the traditional manner.

Now: 'I have used my lecture notes to create workbooks and handouts for the students. I set the objectives for an area of study and break it into practical assignments which the students work on in groups. They can choose to work on areas that are of interest to them. I act as an adviser, helping them to identify the resources they need.'

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

General comments

Here are some general comments by teachers and trainers involved in the project:

'We use this approach for complex work activities, students assess their own work, they help each other and look at new ways of doing things. The teacher creates the environment.'

Berik Omarov, trainer in motor repairs, School No 10

'We have completely changed the organisation of activities. I involve the students in the quality of the outcome. They identify the required quality of the product, they set standards, they identify criteria for assessing the quality of the sausage and any defects.'

Erulan Karaguzov, trainer in butchery and sausage making, School No 18

'The approach is attractive, but quite difficult at first as there is a psychological barrier for teachers. However, we find that it [the method] gives us more time for observation and evaluation and it makes the students more comfortable and confident'

Aisha Duisenbaeva, School No 10

Finally some comments from a group of students and teachers from School No 18, involved in carpentry, painting, electrical installation and welding:

'It helps because we have to think logically .. we are responsible for the results of the work of the team ... working together is important'. (student)

'Students become more active, even the timid ones ... ' (teacher)

'This will help us to compete in the labour market.' (student)

'We now guide the work of students. It was difficult at the beginning, but now less so. Students quickly developed the skills of research.' (teacher)

'In secondary school we just listened and responded to questions. Here we learn to communicate, with the teacher and each other. This practice is very important and employers will value it. Life is changing ... team working is becoming important.' (student)

Overall, the project implementation was highly successful. Both teachers and students were enthusiastic about the new approach and the process of continuing development of teachers was proving

successful as well. As had been anticipated, teachers and students found the initial adaptation challenging and demanding, but soon became comfortable with the method.

4.4 THE MODEL IN PRACTICE

The use of the method was further validated by the observation of four lessons involving:

- laying a table for food service;
- planning a domestic electrical installation;
- identifying the properties of ferrous metals;
- preparing starter courses for a function.

In each lesson the learning process followed a similar pattern. Teachers opened the sessions by outlining objectives using a question and answer format to check existing knowledge and handed out work sheets. Students then worked in teams, checking with each other, the teacher and in one instance, 'consultant experts' (other teachers) for advice. Tasks were completed, evaluated by the teams,

other teams and the teacher. In most cases, teams presented their work to the rest of the class using audio and visual aids. From the observer's point of view the results were extremely impressive.

4.5 DEVELOPING THE FORMAT OF MATERIALS

As we have already noted, the original concept of large scale projects was difficult to implement in the vocational schools. The original format was also impossible to implement in general subjects because it relied on a work related activity. As a result, the team had changed the overall format to a lesson plan, which was then reproduced as a short case study which combined the original 'learner centred' activity cycle with an evaluation of the impact of the approach. The format, and a completed example, are shown below.

Format for Case Study:

Name of teacher and school	
Description of subject area	
If appropriate – why this subject area was chosen	
Where the training activity takes place	
How students are involved in:	
● Planning	
● Research and analysis	
● Setting quality criteria	
● The activity itself	
● Evaluation of the results	
How the teacher is involved in:	
● Planning	
● Research and analysis	
● Setting quality criteria	
● The activity itself	
● Evaluation of the results	
Teaching/learning resources which have been developed	
Main differences between what is done now and what was done before	
The teacher's opinion on the benefits and advantages of the approach	
Feedback from students on the approach	
Plans for further development	
General comments	

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

Completed Case Study

Here is an example of a completed format for the activity described in the first case study:

Name of teacher and school	Marina Shvein, VET School No 18.
Description of subject area	Sales Assistants – customer service.
If appropriate – why this subject area was chosen	This is a modern occupation with high demand. Customer service is still undeveloped and students need to learn how to communicate with customers and identify needs.
Where the training activity takes place and other information like duration of activities etc.	We work with a local chain of supermarkets. Training takes place in the employers premises in a separate training room. Training sessions last four hours.
How students are involved in:	
● Planning	Not directly involved.
● Research and analysis	Students observe customer interaction during normal work.
● Setting quality criteria	Students identify the key characteristics of a shop assistant and the important factors of customer service.
● The activity itself	The training activity is based on group working, including role play exercises in which students practice different types of interaction (e.g. advising customers, dealing with complaints).
● Evaluation of the results	The group evaluates the results and gives feedback.
How the teacher is involved in:	
● Planning	The general theme of each session is set by the teacher.
● Research and analysis	The teacher encourages students to make observations of customer interaction.
● Setting quality criteria	The teacher helps groups to identify quality criteria if they ask for help or if they are clearly missing an important criterion.
● The activity itself	During the activity the teacher is available for help and advice if students ask for it.
● Evaluation of the results	The teacher helps the groups with the evaluation but the students are always given the first opportunity to evaluate results. The teacher corrects obvious mistakes.
Teaching/learning resources which have been developed	Each theme/activity has a worksheet which describes the overall theme and the process of working. The format of the worksheet follows the format for student guidelines developed in the first stage of the project.
Main differences between what is done now and what was done before	In the past the students were given lessons and instruction on each theme by the teacher. There were opportunities to practice and ask questions, but controlled by the teacher.
The teacher's opinion on the benefits and advantages of the approach	The students are more active, animated and interested – they learn more and more quickly. The atmosphere is quite different – it is more collaborative.
Feedback from students on the approach	The students like the new approach – they say it gives more interest and they remember what they have learned.
Plans for further development	This approach will be used for all the themes in the curriculum for sales assistants.
General comments	The employer is also pleased with the new method. It seems that students are more motivated and the employer hopes that this will have an impact on labour turnover – which was very high when staff were untrained.

In practice the two formats are used in parallel. The large scale format is still used to plan overall themes and lessons, with the case study completed later to help the project team monitor and evaluate results. It is the case study format which is disseminated to other teachers.

It is the intention of the project team to make the case studies available on a web site so that teachers in different regions and Russian speaking countries can have access to the materials. One of the agreements made with participants on the seminars run by the project team is that completed case studies are sent to the team to contribute to the bank of materials.

4.6 VALIDATING AND EXTENDING THE LIST OF CORE LEARNING OUTCOMES WITH EMPLOYERS

The second project objective was to develop a 'reference group' of employers who could comment on the validity of the existing list of core learning outcomes and update it as necessary. The project team had the advantage of being involved with a regional project on Training in Enterprise Development (TED), so the group of some 60 employers involved in this project were asked to contribute to this part of the work.

For each of the core learning outcomes, employers were asked to identify different key occupations in their organisation and to rate each outcome on a three point scale:

- essential – needed at all times;
- desirable – needed sometimes, but can be learned as required;
- not significant for this occupation.

In the first validation exercise, a score of over 98% was achieved for all the identified outcomes in the first two categories (essential or desirable).

Employers were also asked to propose any outcomes or skills which were missing from this list. This additional list is being monitored and will be used to update the original list of core learning outcomes as patterns emerge. The questionnaire has now been entered into a database so that

changes can be tracked for requirements in different occupations, industries and enterprises.

4.7 DEVELOPING ASSESSMENT FORMATS

The project team recognised that the assessment of this form of learning is quite different from traditional methods of testing and assessment. The topic of 'competence based' assessment is complex. In this section, some of the problems inherent in using more traditional methods is examined and a more extensive discussion is developed in a paper prepared for the project team (Annex 2).

Teachers developed their own assessment formats and criteria and all involved students in assessing their own and their colleagues' work. However, the assessment methods used relied heavily on traditional practice and the implicit knowledge of each teacher. In all the lessons observed, teachers developed marking schemes for assessing students. Here are two examples:

Assessment example 1

For the lesson on planning and connecting electrical circuits the group was broken into four sub groups of four students. One group acted as 'expert assessors' although it was difficult to determine how this group was selected or whether the same group acted as assessor for each session.

Following the activity, each group elected a speaker who presented the results of the activity and described the processes used, including demonstrating tools and equipment. Other groups and the 'expert assessors' then asked questions – which seemed to be quite arbitrary. Questions included costs, safety points etc.

The groups were then assessed, or rather, marked, by the 'expert assessors' on a scale of 3 to 5. Each mark was confirmed by the teacher. The criteria for marking was:

- 5 = all criteria met with acceptable minor mistakes;

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

- 4 = two minor and one major mistake allowed;
- 3 = two major and two minor mistakes allowed.

Marks were awarded against five criteria:

- the design of the circuit and the sequence of activities chosen;
- the selection of materials, tools and equipment;
- the secure connection of cables and joints;
- following safety rules.

In addition, 0.25 of a mark was awarded for every question posed by other groups answered correctly. Also, the quality of the presentation was marked on a three to five scale, although no clear criteria were identified – instead, comments like ‘presented very well’ and ‘good job’ were used to justify the marks awarded.

In the lesson observed, each group achieved five marks for the activity and the presentation. The group mark became the individual mark, plus any marks accumulated for answering questions, which were given to the person making the presentation (this role circulated). Marks were accumulated in student records, although it was difficult to determine how the marks were used and whether they contributed to the final diploma or certificate.

Assessment example 2

In the chemistry lesson the students were broken into four groups and each group was given a separate task, set by the teacher. Each group elected a leader to co-ordinate activities and the leader also presented the results to the class.

Results were explained to the class by each group leader, using the blackboard as a visual aid, and marks were awarded by a consensus reached between the non-presenting groups and the teacher. The marking scheme was described as being from one to five, but in practice, only three to five were used. The criteria for assessment were given to students with the work sheets which described the task.

As with the first example, scoring was based on the number of errors and omissions. One group scored five, two scored four and one scored 3+ (the ‘+’ was added by the teacher).

Assessment examples – commentary

In all the examples observed, and in further discussions with teachers, it was clear that all the teachers had adopted a marking scheme approach. This is not at all surprising since that is the method used in the school system. But all had also worked on identifying criteria for assessment, and for many teachers this was a new approach. Furthermore, clear attempts had been made to make the criteria and the marking schemes ‘transparent’. In that they were shared with students and the students were closely involved in the assessment process.

Despite these positive points, most of the teachers involved were uneasy about the methods they had developed. They agreed on the value of having criteria, but were much less confident in the marking schemes.

The key issue here is that a competence based approach to assessment rarely uses marking systems – which are primarily designed to assess the performance of students against each other (called ‘norm referenced assessment’). This approach has its merits and uses, but is limited in terms of assessing the achievement of clear objectives. It also relies on judgements which can be quite arbitrary (for example, comments like ‘presented very well’ to justify marks).

The object of a competence based approach is to determine whether a student or a group of students has met the standard defined by the criteria (called criterion referenced assessment). In this form of assessment there are only two results: ‘yes’ or ‘no, not yet’. In a learning environment if the result is ‘no’, feedback to identify what would be needed to meet the criteria would be expected. The only ‘mistakes’ which would be allowed would be those which can be identified and corrected before they result in damage or waste.

The key to this method is to define clear assessment criteria to which the results 'yes – the student can do this' or 'no, the student cannot do this yet', can be applied. As we have seen, teachers did identify assessment criteria – but in fact, what they did was identify areas of the activity to which criteria could be applied. Let us look at the examples of electrical installation.

In this example, the teacher identified four assessment criteria:

- the design of the circuit and the sequence of activities chosen;
- the selection of materials, tools and equipment;
- the secure connection of cables and joints;
- following safety rules.

These assessment criteria, as stated, simply identify areas which are important for assessment and, as they stand, are amenable to a marking or grading approach. What is needed, in order to make them amenable to competence based (criterion referenced) assessment, is to identify assessment criteria in each area to which the result 'yes' or 'no, not yet' can be applied. Here are some examples (which are limited by the author's lack of technical knowledge!):

- The area *The design of the circuit and the sequence of activities chosen* could produce the following assessment criteria:
 - the design of the circuit optimises the use of materials and is appropriate to the type of installation;
 - the sequence of activities chosen is logical and maximises the use of the time of all team members.
- The area *'The selection of materials, tools and equipment'* could produce the following assessment criteria:
 - the tools and equipment selected are appropriate to the type of installation;
 - the materials selected are capable of taking the circuit load.

- The area *The secure connection of cables and joints* could produce the following assessment criteria:
 - the correct jointing methods are used to connect cables;
 - all connections are safe and secure and the system operates as intended.
- The area *Following safety rules* could produce the following assessment criteria:
 - tools and equipment are checked before use for safe operation and are used in accordance with the manufacturer's instructions;
 - all mains supplies are isolated before work on live circuits begins;
 - the work area is secured against accidental entry from members of the public;
 - all joints, connections, circuits and systems are tested for safety before being integrated into the main supply;
 - safety equipment and clothing is used as appropriate.

Following a workshop session on assessment, a discussion paper was produced to help the teams to identify appropriate methods of assessment. The complete paper is in Annex 2.

Following the workshop session, an example assessment format, based on the activity of laying tables, was developed and is shown below. The assessment format also covers the core learning outcomes which are embedded in the activity, the team working environment and the presentation by students.

The assessment format follows the method for identifying a number of 'assessment criteria' – essentially, a list of statements which describe the requirements of the activity. Care is taken to choose the most appropriate evaluative phrase and the statement is phrased in such a way as to allow a 'yes/no' judgement to be made; in line with most systems of competence based assessment.

This format is still in development and has not yet been fully implemented.

4.8 EXAMPLE PLAN FOR 'LAYING A TABLE FOR FOOD SERVICE'

Assessment Criteria – Professional Activity

Criteria	Yes/no	If no – what is needed to meet the criteria
The table is checked before laying and is clean and visibly free from debris		
The linen, cutlery, glassware and crockery selected is appropriate for the type of meal		
Linen, cutlery, glassware and crockery is stacked safely and within easy reach		
Tables cloths are positioned symmetrically with equal overhang on opposite sides		
Plates are positioned accurately, approximately two finger widths from the edge of the table		
Glasses are positioned in an appropriate pattern to the top right of the main plate		
Cutlery is positioned at an equal distance from each side of the plate and in order of serving		
Additional service items (flowers, condiments etc.) are positioned appropriately		
All cutlery, glassware and crockery is checked after laying and is cleaned if necessary		
Items are handled safely and hygienically		

Assessment Criteria – Core Learning Outcomes

Criteria	Yes/no	If no – what is needed to meet the criteria
Each member of the team works safely and in a way which does not hinder others		
Team members offer help and advice when asked to do so		
Members cooperate in activities which involve more than one person		
Any plans are agreed by the team		
Each stage of the activity is checked by team members and necessary changes are made		
The results of the activity are explained (orally), problems, solutions and recommendations for improvements are identified and are clear and concise		

Additional assessment formats are being developed but it is too early to judge whether they have been successfully implemented.

4.9 DISSEMINATING THE APPROACH

At the end of the project, two dissemination seminars were held. The first involved delegates from the 16 regions of Kazakhstan and the second was directed at participants from Kyrgyzstan, Mongolia, North West Russia and Uzbekistan. In both seminars the results of the project were presented, briefings given on the methodology and teams were invited to develop learning materials.

4.10 THE RESPONSE OF DELEGATES

The seminars were very successful and the project team took the opportunity to ask delegates from both seminars to conduct an analysis of the approach using the SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) technique. Here is a summary of the results:

Strengths	Weaknesses
<ul style="list-style-type: none"> ● We can include core and enterprise skills into any teaching activity (technical and general) ● We do not have to change the overall, mandatory content of the curriculum ● Offers concrete, achievable results ● It is closer to the needs of the labour market, employer's needs and international requirements ● An innovative method which helps develop independence in young people ● Improves the relationship between students and teachers ● Frees teacher from routine work, they can be more creative with less control 	<ul style="list-style-type: none"> ● It takes time to prepare the materials ● Requires investment in teacher training and re-training and a change in the psychological orientation of teachers ● Lack of social partnership means that labour market information, and new skill requirements, is difficult to obtain
Opportunities	Threats
<ul style="list-style-type: none"> ● Impressive results in the seminar should lead to further dissemination ● Opportunities to analyse own activities for development and improvement ● Increasing employment opportunities for young people by improving the quality of training ● Potential transferability to other regions and countries ● Helps to modify the curriculum to meet employment requirements 	<ul style="list-style-type: none"> ● A change is needed in the mentality of teachers, is this possible? ● There is little official support to spread this experience ● Once the project ends there will be no funding to continue the work, is it sustainable? ● Absence of continued monitoring and evaluation ● Needs to be properly implemented or the approach will be discredited

4.11 CONCLUDING REMARKS

The model developed by the project team has been shown to be successful in its key objective – to develop core and enterprise skills in young people by expressing the skills as clear learning outcomes, modifying the learning process and by embedding of the core learning outcomes in normal teaching and learning activities. The teachers in Kazakhstan are now experienced in this method and are using it extensively. The only remaining issue is to implement a more robust form of assessment as identified in section 4.7 above.

The method developed is transferable. It will work in any VET system which has the vision and foresight to change the ways in which learning has traditionally been developed. As the team has so graphically described it 'in the technology of student-oriented teaching and learning process a teacher abandons the centre; he is not informer, translator of the knowledge, but rather a consultant, a facilitator. He is not in the centre, but on the orbit observing what is going on and assisting students only when it is necessary, enabling students to do and learn by themselves'.

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

This notion of the teacher 'in orbit' amused the team members – but it is also a reminder us that the most important actor in the learning process is the learner.

This project lays the groundwork for exciting future developments. The common language of Russian means that these materials can be disseminated widely in all Russian speaking states. Once the method is disseminated, materials can be developed locally and made available, nationally and internationally, through materials 'banks'. This is facilitated by the common and consistent format which makes the learning materials ideal candidates for entering into a database so that teachers can access them with ease – including over the Internet. The underlying structure of the skills which the materials are designed to develop, enables users to search for materials using significant

keywords, so that 'gaps' in the learning process can be filled.

The work started in this project is of great importance. All transition economies face the challenge of developing competent people to meet the requirements of a market economy – and a key to understanding these requirements is the recognition of the importance of what are variously called 'key', 'core' 'generic', 'entrepreneurial' and 'enterprise' skills. What these skills have in common is that they express the development of the autonomous and competent skilled person – the person who is able to contribute to the planning and organisation of the work process, to take responsibility for quality assurance and to adapt to new economic requirements. This project has demonstrated a simple but effective method which will help to make that vision a reality.

ANNEXES

ANNEX 1: IMPLICATIONS FOR LEARNING¹⁶

The term 'learning' is usually linked with 'education' and terms from this field of life like 'school', 'teaching', 'curriculum' and 'assessment'. This is so because education usually organises formal learning processes in schools and institutions of higher education. But learning, as everybody knows, begins with life when school is still far in the future. Learning takes place in our brain when the baby listens to the sound of mothers voice or the apprentice watches closely how the master does his work. Life teaches longer and less pedagogic than school and informal learning processes happen more often than formal learning.

Informal learning in the world of work follows a different logic than formal learning usually does in the world of education. It is the logic of action rather than the logic of

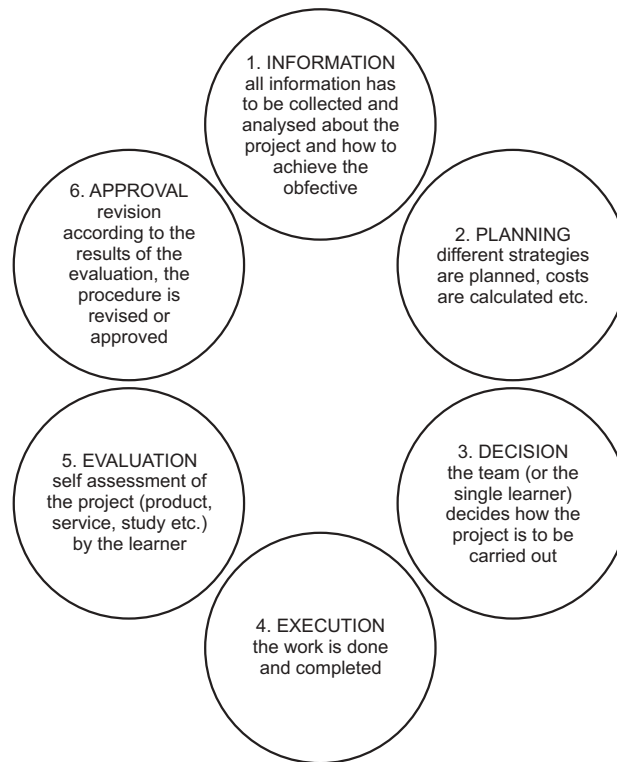
the subject or the rationale of science. To obtain a broad basic knowledge it is necessary to follow the logic of the subjects and science. To learn how to do things, to apply knowledge and to perform best practice it is necessary to learn in the world of action and follow its logic in the learning process.

In vocational education it is necessary to 'marry' the world of education with the world of work in order to set reliable, flexible and useful VET standards. But it is even more important to introduce the different logic of the world of action into learning processes at school. If we cannot combine two learning locations (school and company) there are numerous methods at hand to simulate world-of-work-reality in school, i.e. by the project method.

The following diagram describes six learning cycles which characterise the process of learning in a project:

¹⁶ Presented by Hermann Schmidt at the Standards 2000 conference, Tashkent, April 2000.

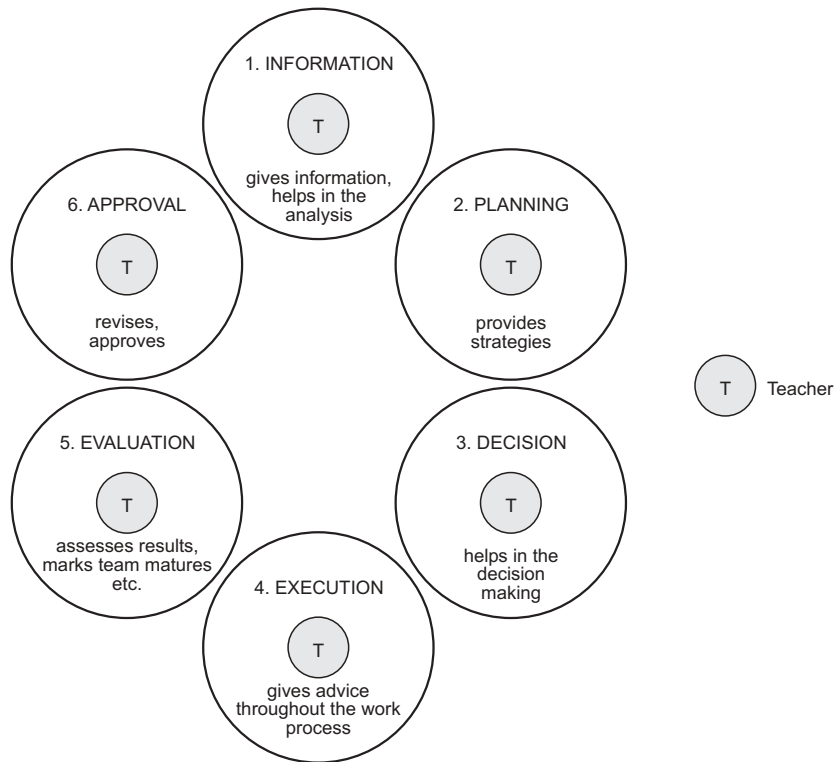
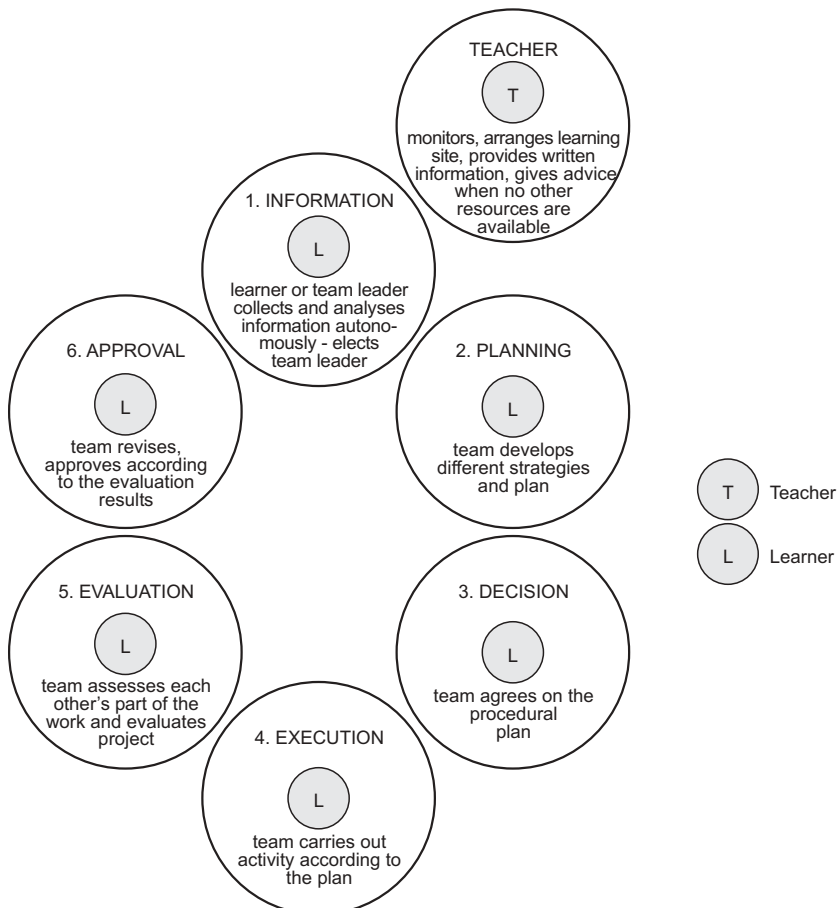
**Figure 1: Information - planning - decision making - carrying out - evaluation/control
- revision/approval**



Any kinds of project can be chosen to apply this method i.e. the production of children's toys in a workshop or the preparation of a school festival.

There are two ways to organise the learning cycles: teacher or learner centred. The teacher centred method introduces a more systematic 'subject logic' into the action oriented learning cycles while the learner centred method puts the learner into the middle of action and gives her/him the steering wheel. The teacher moves into a new role: he/she prepares the self-directed learning process by providing

information about the project and the learning process itself, through written information; organises the learning arrangement in which the six cycles take place; monitors the learning process; gives advice, if no other self-instruction resource is available; takes notes for the follow up; externally checks after learner's self-checking is finished. Usually, the project is team work. Thus, the teacher's monitoring comprises assessments of team member performance and display of competence through monitoring in the process.

Figure 2: Learning Process – Teacher Centred**Figure 3: Learning Process – Learner Centred**

ANNEX 2: WHAT IS ASSESSMENT?

Note: This discussion paper was prepared at the request of the team by Nanci Downey of Hammerton Associates Ltd.

Assessment is an information system which enables decision making. In an assessment system, information is gathered, judged against criteria and presented in a way which is useful for those who wish to use the information.

Imagine that I wish to buy a used car. I can assess the condition and value of the car myself – but I am not an engineer, so I will not know what to look for or whether the car is worth the price asked. As an alternative, I can ask a specialist mechanic to examine the car and give me a report. The report will detail the condition of the car, identify any problems, calculate the likely costs of repair and maintenance and give the specialist's professional judgement of the value of the car. The criteria the specialist will use to make the judgement will be a comparison between the condition of the car, allowing for reasonable wear, against the condition when new. I can use this information to make a choice about whether I buy the car or whether I negotiate the price for the car based on the professional assessment.

This is an example of assessment. Information is collected and judged against criteria to enable a decision to be made. In this example it is an object (the car) which is assessed. When we look at assessing the achievement of people, we find that the general principles of collecting and judging information against criteria still apply.

Enterprises are constantly making judgements about people's achievement. When recruiting staff, for example, companies will obtain information about potential candidates from:

- the information given on the application form;
- interviewing candidates;
- asking candidates to take a practical test;

- making enquiries with other people who know the candidate and their work (references);
- considering qualifications and examples of previous work.

This information will be judged against criteria – the job description or 'person specification'.

These processes of collecting and judging information are expensive – so we expect assessment to **add value** to decision making. Evaluating application forms, conducting interviews, arranging practical tests, paying for the services of a professional mechanic, all cost money and we expect a return on that investment.

Assessment is used by many different stakeholders to make decisions. For example, in vocational education and training, the results of assessment are used to:

- allow students to progress to the next stage of a course;
- give students access to educational courses at higher levels;
- allow qualified people to practice in certain occupations;
- evaluate the success of a course;
- evaluate the effectiveness of teachers;
- make recruitment and selection decisions in employment.

In VET we have worked hard to make the VET standards, the curriculum and the learning process relevant to the needs of employment. But we need to present information about the achievement of students in ways which are helpful to all stakeholders. So, for example, a system of marks or grades may be useful within a school where all the teachers share a common understanding of how marks are awarded and what the marks mean, but this system may be of limited use to employers who are looking for recruits.

What are we assessing?

We know that assessment is serving at least two purposes in VET. The first is 'internal' to the vocational school. Teachers

are identifying the progress their students have made, they are using this information to evaluate their own performance and the courses which the school offers. This type of assessment is focused on the **learning** which has been acquired.

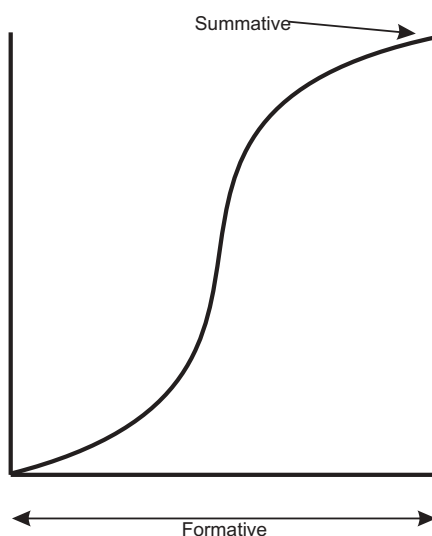
The second is 'external' to the school. This type of assessment is aimed primarily at employers who want information about the ability of students to work in employment. This type of assessment is focused on the **competence** which has been acquired.

So the first distinction which we need to make is between:

Assessment of learning
and
Assessment of competence

Technically, the different types of assessment are called 'formative' (assessment of learning) and 'summative' (assessment of competence). We can show this difference using a diagram of the learning curve:

Figure 4: The Learning Curve



The purpose of formative assessment is to identify the progress the student is making towards an objective. The objective could be a learning objective in a learning programme or one of the 'outcomes' we would find in the employment specification in a VET standard. Formative assessment should provide useful feedback to the student, informing them what progress they have made.

The purpose of summative assessment is to record whether a person has achieved the objective or not.

What and how can we assess?

We can only assess three things:

- what has been done (the result);
- how things are done (the process);
- what a person knows (knowledge and understanding).

Each of these is assessed using different methods, as is shown in the table below:

What we assess	How we assess
Results	Inspection
Process	Observation
Knowledge and understanding	Testing: <ul style="list-style-type: none"> ● Oral testing ● Written testing

In practice each of the methods may have many sub-methods. Inspection would include checking work in the classroom, or examining work produced previously (including work from a workplace). Observation could be direct observation in person, by viewing a video or listening to a tape recording. Written testing might be forced choice, multi-choice, case studies or traditional examinations. Oral testing could involve informal questioning by a teacher or more formal questioning by an examination commission or panel.

CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

The problem in the past was that most assessment involved the testing of knowledge and understanding with some limited practical testing involving the inspection of results. But these methods are limited if we are trying to assess **competence**, where we are trying to assess the application of knowledge and skills in realistic applications. Also, these methods are not the most effective way to assess some of the important core skills like communication, team working, planning and decision making.

How do we make judgements?

We make judgements against criteria. Assessment is a judgement made against criteria. In the example of recruitment, a company will set criteria for the person who will be recruited usually within a job description or person specification. Some criteria will be clear and absolute. For example – ‘they must have a certificate or diploma in the occupational specialism’. Some are less clear. For example, ‘they must have some experience in a similar

organisation’. Some criteria will be optional, i.e. it would be nice if the person met the criteria, but it is not essential, for example, ‘knowledge of a foreign language is desirable’. Optional criteria are usually those which are less important and where it is possible that the person could learn to do this over time.

So, the first thing we need to do when we are assessing is to set clear and transparent¹⁷ criteria against which the judgements will be made.

How do we set assessment criteria?

The assessment criteria will depend on the degree of variation that is acceptable. For some aspects of competence, the student is allowed no variation – health and safety regulations are an example. But often, there is a range of variations which is acceptable and in many cases the action of the student depends on the context. We can see these three types in the table below.

Level of variation	Type of criteria	Examples of words used to describe actions
Absolute	Yes/no	Correct
Tolerance	Range of acceptable variations	Accurate
Conditional/Dependent	Variation depends on context	Appropriate

Here are examples of activities in which the different types of criteria are applied (the examples are taken from activities developed in the project):

Example criteria	This is used because ...
● The correct specification of cable is selected	There is a danger of an electrical fault if the wrong cable is used so no variation is allowed
● Plates are positioned accurately , approximately two finger widths from the edge of the table	Plates and tables (and fingers!) vary in size and shape – so there is no exact or ‘correct’ position
● The appropriate glass is selected, depending on the meal	The meal will determine the type of glass

¹⁷ By ‘transparent’, we mean criteria which can be understood by those involved in the process. For assessment, both the assessor and the person being assessed need to know and understand the criteria.

These are only single examples. There are many more words we can use to set the criteria. Here are some more examples of each type.

Yes/no criteria (absolute)	Commentary
● Surfaces are visibly clean and free from debris	This criterion simply states what should happen
● Health and safety clothing conforms to legal requirements	We use 'conforms to' when legal requirements or procedures have to be followed
● Equipment is checked and is safe for use	No variation, because of health and safety
Range of variations (tolerance)	
● Orders sent to the kitchen are legible	Handwriting can vary, but it has to be legible
● Customers are greeted politely	We do not have to have a single way of greeting customers, but we need to be polite
● Table settings for each course are cleared promptly	Variation is allowed. It does not have to be immediate, but we do not want used dishes left on the table for too long
Variation depends on context (Conditional/Dependent)	
● A suitable method for covering the cable is used	The method used will depend on the type of cable and the type of installation
● Sufficient paper of a suitable type is available for the print run	The amount will depend on the length of the print run and the purpose of the document
● The recommendation is realistic	The realism of the recommendation will depend on the purpose and the resources available

What we will notice with the criteria described above is that, as we move away from 'absolute' criteria, we have to make more judgements. In the first example, only one cable will meet the specification. Any variation is incorrect. This is easy for the assessor and the student to recognise. The same is true of the three other examples of absolute criteria.

But when we get to the 'range of variations' it becomes more difficult. For example, how do we judge if handwriting is 'legible' or whether a greeting is 'polite'? In these cases, the extremes are obvious and we can produce examples for students to examine. But there will be a point where the difference between 'legible' and 'not legible' becomes a matter of individual opinion.

In formal assessment systems, assessors will agree the boundaries between what is and is not acceptable for examples like this. This can be a useful discussion topic for students, particularly when they are encouraged to identify their own examples and develop a sense of 'ownership' of the assessment standards.

Where the 'variation depends on the context', judgement can be easier because the context determines the acceptable variation. So, for example, a vodka glass is not 'appropriate' if the meal is breakfast – knowing the context narrows the range of possibilities. Equally, if we know that we have to install a single phase power cable in a factory, a light plastic cover is not 'suitable'. Again, we can help students understand the criteria if we develop examples of what is and is not acceptable.

Developing enterprise – contingency management

The aim of this project is to develop enterprising young people who will be employable in a changing, market led, labour market. We want our young people to be flexible, adaptable, to make decisions and we can help them to do this by creating learning environments where they are exposed to choice and challenge. This means that we should avoid setting all the assessment criteria as 'absolute'. In reality, many professional activities involve variation and dependency and young

people have to learn how to manage this. We need to confine 'absolute' criteria to those instances where they are really necessary, usually where there is a risk to safety, to meet legal requirements or where there is the potential to waste resources.

We also need to help young people manage when things go wrong, as they inevitably do at work. We call this particular aspect of competence 'contingency management'. It involves:

- scanning the environment for problems or potential problems;
- trying to put things right, without prompting, before matters become critical;
- using reference sources (including people) to try to correct problems;
- knowing when to call for expert help – and not making matters worse by trying to correct something which is beyond your capability;
- learning from the experience so that you are better prepared for the next time.

We can help students develop these skills in all sorts of ways, for example:

- presenting incomplete supplies of tools and equipment;
- setting up 'hazard spotting' exercises;
- providing tools and equipment which are faulty;
- building problems and breakdowns into learning activities;
- providing 'expert' advice, but only when asked for;
- turning requests for information from students into questions (e.g. 'how do I do ...', 'how will you find out how to do ...');
- encouraging students to record their actions and to identify what they might do in the future to avoid contingencies.

What we are trying to achieve is the 'ownership' of this approach by students. So, rather than 'teaching' students about contingency management we can help them by using all available opportunities to develop these skills within the learning environment. This often involves the use of questions rather than instructions, questions like:

- What variations would we expect to find in a workplace?
- What variations and new requirements are likely to develop in this occupation?
- If we were doing this in a different context, what tools and equipment would we use and why?
- What would happen if this was not done in the correct order?

How do we assess against the criteria?

Once we have set the assessment criteria we then make the judgement. There are two ways of making judgements:

- can do/can't do yet;
- grading or scoring.

Traditionally, we make judgements by awarding marks or scores. For academic subjects or disciplines this system can work – and it can also be useful for formative assessment. But one major stakeholder – the employer – simply wants to know if a person can do something. A mark of four out of five or 65% in waiting service does not help the employer. They want the answer to the question 'can this person lay tables for different meal services – 'yes' or 'no'? This is summative assessment.

Notice that we do not say 'pass' or 'fail' – we use the terms 'can do/can't do yet'. This means that if the person does not meet the assessment criteria, we assume that with further learning, they will be able to meet it at a later date. This also means that if a person does not meet the criteria they need immediate feedback to let them know **why** they have not met the criteria and **what** they need to learn in order to meet the criteria.

If we choose to give marks or scores, we still need assessment criteria, but in this case we need to make the marking scheme clear and transparent. This can be done by:

- having separate criteria for each score;
- removing marks for mistakes;
- identifying 'essential' and 'desirable' criteria.

ANNEX 3: EXAMPLES OF MATERIALS PRODUCED FOLLOWING PHASE 1 OF THE KAZAKHSTAN PROJECT

Note: The materials have been edited, following translation, by the author. The examples follow the format described in section II, chapter 3.9 in the main publication although some amendments in content and structure have been made by teachers. The materials are intended to be guidelines for teachers and also include handout materials for students. References in brackets [e.g. (1.1 C), (2.2 A)] are references to the core learning outcomes which are developed in the training activity. The core learning outcomes are shown in paragraph 3.4 of section II of this publication.

Two examples are included in this appendix.

Example 1: Baking cakes for a special occasion

1. Overview

- a) Description of the occupation/professional area: confectioner, confectionery production
- b) Form of the training activity: student group (15 students), three small groups of five persons each
- c) The existing knowledge and skills the students need:
 - prepare eggs: process, separate white of egg from yolk, freeze white of egg;
 - duration of keeping eggs, white of egg, cream, soufflé and shelf life for keeping the prepared cake;
 - preparation of the work table, equipment;
 - baker's oven, be able to set the needed temperature;
 - safety and operational procedures for working with mixing machines, baker's oven, electric oven;
 - knowledge of recipes, technology of baking biscuits, soufflés;
 - technological process of baking cakes;
 - methods of decorating cakes and be able to apply them in decorating the "Wedding" cake.
- d) job search and employability skills that can be developed along with professional (technical) skills during the training activity (authors note – the references are relating to the core learning outcomes described in section II, chapter 3.4):
 - active listening (1.1. C);
 - identify and obtain information (1.2. A);
 - present information to others (1.2. C);
 - summarize key points in information (1.2.B);
 - planning and implementing the action required to meet objective (1.3.);
 - work effectively as part of a work group (1.2. D);
 - using a personal computer to obtain, enter, edit, process and output information and data (1.5. A, B, C).
- e) Training professional (technical) skills which students will learn:
 - organise the work place;
 - work with the recipes, technological map and scheme;
 - work independently and creatively;
 - prevent waste of raw materials and products;
 - weigh raw materials against recipe requirements, prepare raw materials, identify freshness of products by taste, colour and outlook (using organoleptic methods);
 - identify visually the readiness of the mixed mass for biscuits, of the white of eggs for soufflé, readiness of syrups, readiness of the biscuit bake;
 - work with a mixing machine, switch off from one speed to another;
 - work with baker's oven, set up a temperature for baking butter biscuit;
 - work with a confectioner' sack;
 - decorate the cake;
 - prepare various semi-finished products for decoration using special devices and appliances;
 - work in a team;
 - solve problems, find a solution.

2. Outcome

By the end of the training activity students will be able to prepare a “wedding” soufflé cake for a special occasion.

3. Planning phase

a) Methodological support:

- Butejkis N.G., *Technology of preparing confectionery goods*;
- Yershov T.S., *Collection of recipes for preparing confectionery goods*;
- *Cakes*, Training video-films, VET school No 18, 1999;
- technological maps for baking cakes;
- cards with recipes of raw materials for cakes;
- catalogues with pictures of confectionery goods;
- professional magazines for confectioners.

b) Equipment:

- training laboratory;
- cuisine tables;
- electric oven;
- electric baker's oven;
- mixing machines or driving gear with changeable mechanism;
- scales;
- appliances: metal ware, confectionery sacks with various attachments, confectionery griddles, etc.;
- raw materials.

c) Organisation of the activity:

Composition of the team:

- one student to organise the work of the group;
- one student to make required notes;
- one student to watch the time;
- one student to present the “wedding” soufflé-cake.

Description of training situations when:

- students are given freedom to make choice and decisions:
 - decoration of the cake;
- students are not given freedom to make choice and decisions:
 - in selecting raw materials, equipment and making calculations which must be checked with the teacher before proceeding.

Role of the teacher:

- teacher is a consultant/facilitator;
- teacher supervises how students execute the work at the following stages: products are weighed in order to use the resources in a cost-effective way, preparing semi-finished and ready products to ensure that the process is conducted correctly and safety rules are observed.

4. Evaluation

a) Criteria for evaluation of the quality of the “wedding” soufflé cake:

Quality criteria	Mark			
	«5»	«4»	«3»	«2»
Decoration	There are complex thematic details (e.g heart, swan, bride and fiancée, rings, etc.)	There are thematic details, but simple ones	Decoration details are simple	No decoration
Form	Originally shaped, figured, in several layers	Standard (round, square)	No clear shape	No clear shape, uneven
Colour	Biscuit - yellowish Soufflé - white Decorated in tender tones	Biscuit - yellowish Soufflé – white, with yellow shade. Decoration is not bright, not striking	Biscuit slightly burnt, soufflé – yellowish, decoration is bright	Biscuit slightly burnt, soufflé – yellowish, decoration is bright, too many colours
Smell	No outside smells Aromatic, specific		Outside smells	
Taste	No outside taste		Outside taste	
Structure	Small pores, stable, slightly ductile	Without pores, stable, ductile	Without pores, not very stable, ductile	Without pores, not stable, ductile, solid

b) Activity stages and interaction between teacher and student:

	Main stages of the training activity	Kinds and sequence of activities of teacher & student	Students' activity			Joint activity of teacher and students	Teacher's activity		
			Individual	In groups	Between groups		Consulting	Instructing	Control
1.	Planning phase	Theme and topic of the training activity		*		*		*	
		Instruction on safety features	*					*	
		Elaboration and discussion of evaluation criteria:							
		Decoration		*		*	*		
		Form		*		*	*		
		Colour		*		*	*		
		Smell		*		*	*		
2.	Implementation phase	Taste		*		*	*		
		Structure		*		*	*		
		Preparation of the work place		*			*		
		Preparation of raw materials		*			*		*
		Technological process:							
		Preparation of biscuit		*			*		*
		Preparation of syrup		*			*		*
3.	Evaluation of the intermediate and final product	Preparation of cream		*			*		*
		Preparation of soufflé		*			*		*
		Decoration of the cake		*			*		*
		Evaluation against quality criteria:							
		Decoration	*		*	*			*
		Form	*		*	*			*
		Colour	*		*	*			*
		Smell	*		*	*			*
		Taste	*		*	*			*
		Structure	*		*	*			*

5. Explanatory note for students

- a) Your assignment: to prepare and decorate a “wedding” cake for a special occasion. You will be doing this together with other students working as a team. Your teacher will describe what a finished cake should be like, and explain quality criteria for evaluation. You have free access to reference materials and your teacher will answer your questions should you have any queries.

- b) Skills you will learn:

Employability and job search skills:

- active listening;
- summarise key points in oral information;
- plan own activity;
- work effectively as part of a work group (team);
- work independently and creatively;
- solve problems and find solutions.

Technical skills:

- organise work place;
- work with collection of recipes, technological map and scheme;
- use raw materials and products in a cost-effective way;
- scale raw materials against a recipe, prepare raw materials against rules, identify quality of products using organoleptic methods;
- identify visually the readiness of the whipped mass for biscuit, white of egg for soufflé, readiness of the syrup, readiness of the biscuit baked;

- work with baker’s oven, set up a temperature required for baking a butter biscuit;
- work with a confectioner’s sack;
- aesthetic decoration of the “Wedding” cake;
- prepare various semi-finished products for decoration using a variety of special devices and appliances.

- c) Work procedure: you have to make up a team that will have to:

- agree on the sequence and methods of work;
- decide what products are needed to prepare a cake;
- decide what equipment and appliances will be needed;
- agree on the aesthetic decoration of the cake;
- allocate roles to members of the team so that every member of the team should have a possibility to develop technical skills;
- weigh products needed;
- prepare all necessary details;
- check the quality of the final output against quality criteria.

At each stage of preparing the “wedding” soufflé cake you have to present your plans to the teacher, explain and discuss with him your decisions before you start working. This will help you to make your work safe and cost-effective.

Example 2: Making a safety window frame

1. Category		
1.1.	Occupation	Welder
1.2.	Course, year of training	Course I, one year of training
1.3.	Discipline, section of the curriculum	Practical training «welding of constructions»
1.4.	Theme of the training activity	Welding of a safety window frame
1.5.	Form of work	Work in small groups
1.6.	Required knowledge and skills	Layout of the equipment used, brand of the material welded, welding regime, norms of consumption, defects and evaluation of welded joints, safety regulations.
1.7.	Possibilities for integration of job search and employability skills	<p>Along with technical skills this training activity enables to develop such "social" skills as:</p> <ul style="list-style-type: none"> Communicating with people by speaking clearly, listen actively (1.1 A, C) Identify and obtain information, summarise key points, present information to others, work effectively as part of a work group (team) (1.2 A, B, C, D) Plan and implement the actions required to meet the objective (1.3) Identify, analyse and solve problems (1.4) Use a personal computer to obtain, enter, edit, process and output information and data (1.5) Answer clearly and accurately (2.4) Ask appropriate questions (2.4 C)
2. Objective		
2.1.	Development of job search and employability skills	<ul style="list-style-type: none"> Speak clearly and precisely (1.1 A) Listen actively to the teacher and members of the team (1.1 C) Communicate in order to identify and obtain information (1.2 A), summarise key points (1.2. B), present information to others (1.2 C) Work effectively as part of a team (1.2 D) Plan and execute activities required to implement the activity (1.3) Identify, analyse and solve problems (1.4) Use a personal computer to obtain, enter, edit, format and output information and data (1.5) Answer questions clearly and accurately (2.4 B) Ask appropriate questions (2.4 C)
2.2.	Development of professional skills	<ul style="list-style-type: none"> Make designs Independently select material Choose the welding method Execute operations on arc welding of constructions Use material in a cost-effective way Observe safety regulations
3. Describing the outcome		
3.1.	Output	Window frame at the size appropriate to the size of the window
3.2.	Quality criteria to the output	<ul style="list-style-type: none"> The size appropriate to the size of the window: maximum size – when window frame is installed it does not touch the window and does not damage it. Minimum size – there should be no more than 0.5 cm between the window opening and the frame Firmness: when the frame is pressed by a hand and struck with a hammer it remains safe No defects in assembling and in joints The frame should not prevent the sun light come through the window The frame outlook should be appropriate to the premises
3.3.	To the process	<ul style="list-style-type: none"> Sequence of operations should be observed Safety rules kept Correct and effective interaction within the team The team should be able to work independently The work should be objective oriented

**CORE AND ENTREPRENEURIAL SKILLS IN VOCATIONAL EDUCATION AND TRAINING
FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION**

4. Planning phase			
4.1.	Reference materials	1. Gevorkyan V.G., <i>Basics of welding</i> 2. Rybakov V. M., <i>Arc and gas welding</i> 3. Vinogradov Y.G., <i>Materiology</i>	
4.2.	Equipment required	Transformer; rectifier; electrodes and electrode-holders; cables; metal angle piece; rolled wire, enamel, leaflet with the bar outline; computer, printer	
4.3.	Calibration and setting the equipment	Check the sources of electric power supply (earthing, connection), setting the required current and tension	
4.4.	Calculation of materials required	Each small group calculates the actual consumption of the material using norms: per one frame at the size of 1500 mm x 1200 mm	
4.5.	Deciding an appropriate method and technique, sequence of operations	<ul style="list-style-type: none"> ● Identify the design appropriate to the premises using catalogues ● Weld the frame ● Make up a technological map using a computer ● Select the welding regime parameters ● Calculate consumption of materials using Excel ● Start assembling ● Weld the rolled wire against the outline ● Make final assembling (weld angles) ● Check the joints and the whole frame 	
4.6.	Sequence of activities of operations, including allocation of roles Form of work: I – individual Coop – cooperative (without leader) T – in a team (with a leader)	1. Listen to the assignment 2. Split into small groups 3. Plan your activities 4. Identify actions which can produce trauma or damage property; listen to the safety rules instruction 5. Allocate roles in small groups 6. Identify the design of the frame taking into account the type of premises, use catalogues 7. Execute the work 8. Present the outline and have it approved 9. Make up the technological map using a computer 10. Calculate the consumption of materials in Excel 11. Choose parameters of welding regime 12. Present the technological map to the teacher for checking 13. Primary assembling 14. Weld rolled wire against the outline 15. Final assembling, weld of metal angles 16. Check joints and the whole frame 17. Evaluate the frame	I Coop Coop Coop Coop I/Coop T T T T T T T T T T
4.7.	Describing situations when:	Students are given freedom to make choices and decisions at all stages except for the following indicated below. No freedom to make choices and decisions: <ul style="list-style-type: none"> ● Actions limited by safety rules ● Consultation with a teacher when it is likely that waste might be produced Instruction: <ul style="list-style-type: none"> ● Assignment ● Evaluation of the final product 	
4.8.	Checking by the teacher is needed	Knowledge of safety rules, uniform, correct use of equipment, consumption of material, the outline of the frame, technological map, effective interaction in a group, allocation of roles, evaluation of the final product against quality criteria	

5. Implementing phase										
N°	Main stages of the training activity	Kinds and sequence of teacher-student interaction	Students' activity			Joint activity of teacher and students	Teacher's activity			
			Individual	In groups	Between groups		Consulting	Facilitating	Instructing	Checking
5.1.	Planning stage	1. Instructing	+		+				+	
		2. Assignment		+					+	
		3. Splitting into groups			+			+		
5.2.	Implementation stages	1.Execution of the assignment		+			+			
		2. Making a technological map		+			+			
		3. Cutting the metal angle and rolled wire according to the appropriate size		+			+			
		4. Adjustment and correction of metal angle and rolled wire		+			+			
		5. Assembling of the frame		+			+			
		6. Checking of the size by diagonal		+			+			
		7. Welding of the rolled wire and metal angle		+			+			
5.3.	Evaluation stage	1. Checking of the joints		+	+		+			
		2. Checking of the bar against the planned parameters and design		+	+		+			
		3. Checking for firmness		+	+		+			
		4. Evaluation of the frame		+	+		+			

6. Evaluation					
6.1.	Description of the procedure	Parameters evaluated	Self-evaluation	Evaluation by other students	Teacher's evaluation
		<ul style="list-style-type: none"> The frame fits the size of the window aperture Firmness Availability of defects in assembling and welding The frame outlook is appropriate to the premises Evaluation of the final product and input of every member of the team 	+ + + + +	+ + + + +	Selective participation in the assessment of one group in each case

7. Explanatory note for students

- a) Your assignment: to assemble and weld a window frame. You'll work with other students as a team. Your teacher will explain the quality criteria against which the final product is to be evaluated. The reference materials needed are available and if you have any questions your teacher will answer them.
- b) Skills you'll learn:
- develop the design;
 - select the material on your own;
 - choose the welding method;
 - weld the frame;
 - use the materials in a cost-effective way;
 - observe safety regulations;
 - speak clearly and accurately;
 - listen actively to the teacher and team-mates;
 - identify and obtain information needed;
 - summarise key points in information;
 - present information to others;
 - work effectively as part of a team;
 - plan and implement the action required to meet an objective;
 - identify, analyse and solve problems;
 - use a personal computer to obtain, enter, edit, process and output information and data;
 - answer questions clearly and accurately;
 - ask appropriate questions.
- c) Work procedure: you have to split into groups that will have to:
- make a design of a bar appropriate to the premises and using catalogues;
 - make a frame design;
 - plan the technological sequence of the work on the computer. Present the plan to the teacher to ensure that safety rules are observed and materials are used in a cost-effective way;
 - present and have the outline approved;
 - calculate the materials required in Microsoft Excel;
 - decide what equipment and appliances should be used;
 - choose the appropriate parameters for the given construction;
 - allocate roles so that every team member has a possibility to develop technical skills;
 - cut the materials to the appropriate size;
 - assemble and weld the details;
 - evaluate the quality of the frame against the quality criteria.
- d) Requirements to the result of your work:
- the frame fits the size of the window aperture: maximum size – when installed the bar does not damage the window frame and the aperture. Minimum size: maximum interval between the window aperture and frame: 0.5 cm;
 - firmness: when pressed with a hand or struck with a hammer it remains whole;
 - no defects in assembling and welding;
 - the frame should not prevent the sun light from coming through the window;
 - the frame outlook should be appropriate to the premises.

EUROPEAN TRAINING FOUNDATION

CORE AND ENTREPRENEURIAL SKILLS IN
VOCATIONAL EDUCATION AND TRAINING –
FROM CONCEPT AND THEORY TO PRACTICAL APPLICATION

Luxembourg: Office for Official Publications of the
European Communities

2003 – 64 pp. – 21.0 x 29.7 cm

ISBN 92-9157-350-7

BELGIQUE/BELGIË

Jean De Lannoy
 Avenue du Roi 202/Koningslaan 202
 B-1190 Bruxelles/Brussel
 Tél. (32-2) 538 43 08
 Fax (32-2) 538 08 41
 E-mail: jean.de.lannoy@infoboard.be
 URL: <http://www.jean-de-lannoy.be>

La librairie européenne/ De Europese Boekhandel

Rue de la Loi 244/Wetstraat 244
 B-1040 Bruxelles/Brussel
 Tél. (32-2) 295 26 39
 Fax (32-2) 735 08 60
 E-mail: mail@libeurop.be
 URL: <http://www.libeurop.be>

Moniteur belge/Belgisch Staatsblad

Rue de Louvain 40-42/Leuvenseweg 40-42
 B-1000 Bruxelles/Brussel
 Tél. (32-2) 552 22 11
 Fax (32-2) 511 01 84
 E-mail: eusales@just.fgov.be

DANMARK

J. H. Schultz Information A/S

Herstedvang 12
 DK-2620 Albertslund
 Tlf. (45) 43 63 23 00
 Fax (45) 43 63 19 69
 E-mail: schultz@schultz.dk
 URL: <http://www.schultz.dk>

DEUTSCHLAND

Bundesanzeiger Verlag GmbH

Vertriebsabteilung
 Amsterdamer Straße 192
 D-50735 Köln
 Tel. (49-221) 97 66 80
 Fax (49-221) 97 66 82 78
 E-Mail: vertrieb@bundesanzeiger.de
 URL: <http://www.bundesanzeiger.de>

ΕΛΛΑΔΑ/GREECE

G. C. Eleftheroudakis SA

International Bookstore
 Panepistimiou 17
 GR-10564 Athina
 Tel. (30-1) 331 41 30/1/2/3/4/5
 Fax (30-1) 325 84 99
 F mail: elebooks@net.gr
 URL: <http://elebooks@hellasnet.gr>

ESPAÑA

Boletín Oficial del Estado

Tratalgar, 27
 E-28071 Madrid
 Tel. (34) 915 38 21 11 (libros)
 913 84 17 15 (suscripción)
 Fax (34) 915 38 21 21 (libros),
 913 84 17 14 (suscripción)
 E-mail: clientes@com.boe.es
 URL: <http://www.boe.es>

Mundi Prensa Libros, SA

Castelló, 37
 E-28001 Madrid
 Tel. (34) 914 36 37 00
 Fax (34) 915 75 39 98
 E-mail: libreria@mundiprensa.es
 URL: <http://www.mundiprensa.com>

FRANCE

Journal officiel

Service des publications des CE
 26, rue Desaix
 F-75727 Paris Cedex 15
 Tél. (33) 140 58 77 31
 Fax (33) 140 58 77 00
 E-mail: europublications@journal-officiel.gouv.fr
 URL: <http://www.journal-officiel.gouv.fr>

IRELAND

Alan Hanna's Bookshop

270 Lower Rathmines Road
 Dublin 6
 Tel. (353-1) 496 73 98
 Fax (353-1) 496 02 28
 E-mail: hanna@iol.ie

ITALIA

Licosa SpA

Via Duca di Calabria, 1/1
 Casella postale 552
 I-50125 Firenze
 Tel. (39) 055 64 83 1
 Fax (39) 055 64 12 57
 E-mail: licosa@licosa.com
 URL: <http://www.licosa.com>

LUXEMBOURG

Messageries du livre S.A.R.L.

5, rue Raiffeisen
 L-2411 Luxembourg
 Tel. (352) 40 10 20
 Fax (352) 49 06 61
 E-mail: mail@mdl.lu
 URL: <http://www.mdl.lu>

NETERLAND

SDU Servicecentrum Uitgevers

Christoffel Plantijnstraat 2
 Postbus 20014
 2500 EA Den Haag
 Tel. (31-70) 378 98 80
 Fax (31-70) 378 97 83
 E-mail: sdu@sdu.nl
 URL: <http://www.sdu.nl>

PORTUGAL

Distribuidora de Livros Bertrand Ld.ª

Grupo Bertrand, SA
 Rua das Terras dos Vales, 4-A
 Apartado 80037
 P-2700 Amadora
 Tel. (351) 214 95 87 87
 Fax (351) 214 96 02 55
 E-mail: dlb@ip.pt

Imprensa Nacional-Casa da Moeda, SA

Sector de Publicações Oficiais
 Rua da Escola Politécnica, 135
 P-1250-100 Lisboa Codex
 Tel. (351) 213 94 57 00
 Fax (351) 213 94 57 50
 E-mail: spoce@incm.pt
 URL: <http://www.incm.pt>

SUOMI/FINLAND

Akateeminen Kirjakauppa/ Akademiska Bokhandeln

Keskuskatu 1/Centralgatan 1
 PL/PB 128
 FIN-00101 Helsinki/Helsingfors
 P./tfn (358-9) 121 44 18
 F./fax (358-9) 121 44 35
 Sähköposti: sps@akateeminen.com
 URL: <http://www.akateeminen.com>

SVERIGE

BTJ AB

Traktorvägen 11-13
 S-221 82 Lund
 Tlf. (46-46) 18 00 00
 Fax (46-46) 30 79 47
 E-post: btjeu-pub@btj.se
 URL: <http://www.btj.se>

UNITED KINGDOM

The Stationery Office Ltd

Customer Services
 PO Box 29
 Norwich NR3 1GN
 Tel. (44) 870 60 05-522
 Fax (44) 870 60 05-533
 E-mail: book.orders@theso.co.uk
 URL: <http://www.itsofficial.net>

ISLAND

Bokabud Larusar Blöndal

Skólavörðustíg, 2
 IS-101 Reykjavík
 Tel. (354) 552 55 40
 Fax (354) 552 55 60
 E-mail: bokabud@simnet.is

SCHWEIZ/SUISSE/SVIZZERA

Euro Info Center Schweiz

c/o OSEC Business Network Switzerland
 Stangfenbachstraße 85
 PF 492
 CH-8035 Zürich
 Tel. (41-1) 385 53 15
 Fax (41-1) 385 54 11
 E-mail: eics@osec.ch
 URL: <http://www.osec.ch/eics>

BĂLGARIA

Europress Euromedia Ltd

59, blvd Vitosha
 BG-1000 Sofia
 Tel. (359-2) 980 37 66
 Fax (359-2) 980 42 30
 E-mail: milena@mbox.oi.bg
 URL: <http://www.europress.bg>

CYPRUS

Cyprus Chamber of Commerce and Industry

PO Box 21455
 CY-1509 Nicosia
 Tel. (357-2) 88 97 52
 Fax (357-2) 66 10 44
 E-mail: demetrap@ccci.org.cy

EESTI

Eesti Kaubandus-Tööstuskoda

(Estonian Chamber of Commerce and Industry)
 Toom-Kooli 17
 EE-10130 Tallinn
 Tel. (372) 646 02 44
 Fax (372) 646 02 45
 E-mail: erinfo@koda.ee
 URL: <http://www.koda.ee>

HRVATSKA

Mediatrade Ltd

Pavla Hatza 1
 HR-10000 Zagreb
 Tel. (385-1) 481 94 11
 Fax (385-1) 481 94 11

MAGYARORSZÁG

Euro Info Service

Szt. István krt.12
 III emelet 1/A
 PO Box 1039
 H-1137 Budapest
 Tel. (36-1) 329 21 70
 Fax (36-1) 349 20 53
 E-mail: euroinfo@euroinfo.hu
 URL: <http://www.euroinfo.hu>

MALTA

Miller Distributors Ltd

Malta International Airport
 PO Box 25
 Luqa LQA 05
 Tel. (356) 66 44 88
 Fax (356) 67 67 99
 E-mail: gwinth@usa.net

NORGE

Swets Blackwell AS

Hans Nielsen Hauges gt. 39
 Boks 4901 Nydalen
 N-0423 Oslo
 Tel. (47) 23 40 00 00
 Fax (47) 23 40 00 01
 E-mail: info@no.swetsblackwell.com
 URL: <http://www.swetsblackwell.com/no>

POLSKA

Ars Polona

Krakowskie Przedmiescie 7
 Skr. pocztowa 1001
 PL-00-950 Warszawa
 Tel. (48-22) 826 12 01
 Fax (48-22) 826 62 40
 E-mail: books119@arspolona.com.pl

ROMÂNIA

Euromedia

Str.Dionisie Lupu nr. 65, sector 1
 RO 70184 Bucuresti
 Tel. (40-1) 315 44 03
 Fax (40-1) 312 96 16
 E-mail: euromedia@mailcity.com

SLOVAKIA

Centrum VTI SR

Nám. Slobody, 19
 SK-81223 Bratislava
 Tel. (421-7) 54 41 83 64
 Fax (421-7) 54 41 83 64
 E-mail: europ@ttb1.slk.stuba.sk
 URL: <http://www.slk.stuba.sk>

SLOVENIJA

GV Založba

Dunajska cesta 5
 SLO-1000 Ljubljana
 Tel. (386) 613 09 1804
 Fax (386) 613 09 1805
 E-mail: europ@gvestnik.si
 URL: <http://www.gvzaloza.si>

TÜRKİYE

Dünya Infotel AS

100, Yil Mahallesi 34440
 TR-80050 Bagcilar-Istanbul
 Tel. (90-212) 629 46 89
 Fax (90-212) 629 46 27
 E-mail: aktuel.info@dunya.com

ARGENTINA

World Publications SA

Av. Cordoba 1877
 C1120 AAA Buenos Aires
 Tel. (54-11) 48 15 81 56
 Fax (54-11) 48 15 81 56
 E-mail: wpbooks@inlovia.com.ar
 URL: <http://www.wpbooks.com.ar>

AUSTRALIA

Hunter Publications

PO Box 404
 Abbotsford, Victoria 3067
 Tel. (61-3) 94 17 53 81
 Fax (61-3) 94 19 71 54
 E-mail: jpdavies@ozemail.com.au

BRESIL

Livraria Camões

Rua Bittencourt da Silva, 12 C
 CEP
 20043-900 Rio de Janeiro
 Tel. (55-21) 262 47 76
 Fax (55-21) 262 47 76
 E-mail: livraria.camoes@incm.com.br
 URL: <http://www.incm.com.br>

CANADA

Les éditions La Liberté Inc.

3020, chemin Sainte-Foy
 Sainte-Foy, Québec G1X 3V6
 Tel. (1-418) 658 37 63
 Fax (1-800) 567 54 49
 E-mail: liberte@mediom.qc.ca

Renouf Publishing Co. Ltd

5369 Chemin Canotek Road, Unit 1
 Ottawa, Ontario K1J 9J3
 Tel. (1-613) 745 26 65
 Fax (1-613) 745 76 60
 E-mail: order.dept@renoufbooks.com
 URL: <http://www.renoufbooks.com>

EGYPT

The Middle East Observer

41 Sherif Street
 Cairo
 Tel. (20-2) 392 69 19
 Fax (20-2) 393 97 32
 E-mail: inquiry@meobserver.com
 URL: <http://www.meobserver.com.eg>

MALAYSIA

EBIC Malaysia

Suite 45.02, Level 45
 Plaza MBf (Letter Box 45)
 8 Jalan Yap Kwan Seng
 50450 Kuala Lumpur
 Tel. (60-3) 21 62 92 98
 Fax (60-3) 21 62 81 98
 E-mail: ebic@tm.net.my

MÉXICO

Mundi Prensa México, SA de CV

Rio Pánuco, 141
 Colonia Cuauhtémoc
 MX-06500 México, DF
 Tel. (52-5) 533 56 58
 Fax (52-5) 514 67 99
 E-mail: 101545.2361@compuserve.com

SOUTH AFRICA

Eurochamber of Commerce in South Africa

PO Box 781/38
 2145 Sandton
 Tel. (27-11) 884 39 52
 Fax (27-11) 883 55 73
 F mail: info@eurochamber.co.za

SOUTH KOREA

The European Union Chamber of Commerce in Korea

5th Fl, The Shilla Hotel
 202, Jangchung-dong 2 Ga, Chung-ku
 Seoul 100-392
 Tel. (82-2) 27 53 5631/4
 Fax (82-2) 22 53-5635/6
 E-mail: eucock@eucock.org
 URL: <http://www.eucock.org>

SRI LANKA

EBIC Sri Lanka

Trans Asia Hotel
 115 Sir Chittampalam
 A. Gardiner Mawatha
 Colombo 2
 Tel. (94-1) 074 71 50 78
 Fax (94-1) 44 87 79
 E-mail: ebic@slinet.lk

T'AI-WAN

Tycoon Information Inc

PO Box 81-466
 105 Taipei
 Tel. (886-2) 87 12 88 86
 Fax (886-2) 87 12 47 47
 E-mail: euitupe@ms21.hinet.net

UNITED STATES OF AMERICA

Berman Associates

4611-F Assembly Drive
 Lanham MD 20706-4391
 Tel. (1-800) 274 44 47 (toll free telephone)
 Fax (1-800) 865 34 50 (toll free fax)
 E-mail: query@berman.com
 URL: <http://www.berman.com>

ANDERE LÄNDER OTHER COUNTRIES AUTRES PAYS

Bitte wenden Sie sich an ein Büro Ihrer
 Wahl/Please contact the sales office of
 your choice/Veuillez vous adresser au
 bureau de vente de votre choix

Office for Official Publications of the European
 Communities
 2, rue Mercier
 L-2985 Luxembourg
 Tel. (352) 29 29-42455
 Fax (352) 29 29-42758
 E-mail: info-info-opoce@cec.eu.int
 URL: publications.eu.int