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Cedefop is a link between research, policy and practice, helping policymakers and practitioners, at all levels in the European Union, to have a clearer understanding of developments in vocational education and training and to draw conclusions for future action. It stimulates scientists and researchers to identify trends and future questions.

The journal is nevertheless independent. It has an editorial committee that evaluates articles following a double-blind procedure whereby the members of the Editorial Committee, and in particular its rapporteurs, do not know the identity of those they are evaluating and authors do not know the identity of those evaluating them. The committee is chaired by a recognised university researcher and composed of researchers as well as two Cedefop experts, an expert from the European Training Foundation (ETF) and a representative of Cedefop's Governing Board.

The *European journal of vocational training* has an editorial secretariat composed of experienced researchers.

T A B L E   O F   C O N T E N T S

European journal of vocational training

Editorial

Dear readers, dear authors,

At its plenary meeting in June 2009, Cedefop's Governing Board took the decision to cease publication of the *European journal of vocational training* (EJVT). The reasons for this decision have no bearing on the quality and value of our European journal but reflect the need for Cedefop to focus its scarce resources on a limited number of core activities, following hefty budget cuts imposed by the Council and the European Parliament on agencies' budgets.

Cedefop's activities to support European and national vocational education and training (VET) research will not stop however. Cedefop will continue to publish regular reports on European VET research, to analyse national research to produce European reviews of key research and policy issues, and to develop research projects to promote evidence-based VET and skills policy in Europe.

Research articles included in this issue of the EJVT address various topics: M. Caniëls et al. provide a practical illustration of integrating instruction strategies into an e-learning environment; A.-K. Jäppinen discusses how drop-out rates in upper secondary VET have been reduced in Finland by modifying teaching and guidance practices; R. Nickolaus et al. analyse social inequality in general and vocational education in Germany, putting their discussion into an international perspective; A. Jiménez Vivas discusses the education and professional insertion of graduates of education sciences; while V. Carioca et al. propose a model for evaluating competences of teachers and trainers to simplify recognition of their qualifications. Beside these research articles, G. Lapostolle presents a policy analysis of ongoing reforms of training of trainers in France; M. Wallenborn debates the contribution of vocational training to fighting poverty and promoting mobility in regional markets. Finally, this issue contains two case studies –

on standardisation of aeronautical maintenance qualifications in Europe (J. Haas and M. Ourtau), and pedagogical practices in entrepreneurial education (F. Seabra et al.) – as well as an opinion on use of ICT as a learning aid (L. Garcia).

The next issue of the EJVT, No 48, will be the last one. It will contain a thematic dossier on assessment, recognition and certification of informal and non-formal learning as well as three articles of a more general nature.

In closing this editorial, we should like to pay tribute to readers of the EJVT for their faithful support, to all our authors for choosing the journal to disseminate their research work, to the journal's editorial and advisory boards for their commitment as well as to all Cedefop colleagues who have been involved for more than 15 years in promoting the European VET research area through the journal.

Cedefop's EJVT editorial team

The integration of instruction strategies into an e-learning environment

Dr **Marjolein C.J. Caniëls**
Associate Professor, Open University of the Netherlands

Dr **Anke H.J. Smeets-Verstraeten**
Teacher, Hogeschool Zuyd

Keywords

Online education, distance education, e-learning, learning environment, didactics.

SUMMARY

Most e-learning environments are applications in which the teacher uploads study materials that students download. This approach to e-learning discards the fact that didactic principles should be part of a broader instruction strategy aimed at achieving certain goals. It is possible for e-learning tools to support and improve didactical principles. This paper demonstrates how several instruction strategies can be integrated successfully into an e-learning environment. Further, the paper points out the various issues that should be addressed by an e-learning application to increase workflow efficiency for all actors involved in student education. We use a newly developed e-learning environment to illustrate how e-learning tools can help in reaching these efficiency goals.

Introduction

Research by the American Ministry of Education showed that 56 % of American universities offer their education partly by means of distance learning via the Internet. Students seem to be very enthusiastic about distance education by means of e-learning, since the number of students applying for online lectures is growing rapidly (Tabs, 2003). Most e-learning environments are places where the teacher uploads study materials that students download. The e-learning environment thereby discards the many didactic principles that could be supported and improved using e-learning tools. Important didactic principles are competence-based learning and learning aimed at a practical application of theoretical insights. In particular, these didactic principles should be part of a broader instruction strategy aimed at reaching certain didactic goals in an interactive way. Further, students should be able to study, and gather knowledge at the exact moment they need it. All theoretical information and course elements should be easily accessible to a student whether at work or at home. This paper will show how instruction strategies that contain several didactic principles can be successfully integrated in an e-learning environment.

Educational institutions are under constant pressure to work in a cost-efficient way (Abbott and Doucouliagos, 2003; Moonen, 1994; Johnes, 1997). E-learning tools can help reach efficiency goals by attuning the workflow of all those involved in education. The processes of student education are various: authoring educational materials; designing courses and allocating students and teachers to them; study and communication facilities for students; and supervision, evaluation and grading by teachers. Handling all these processes and attuning them makes various demands of an e-learning environment; for instance, an option for users to reuse content parts is essential for cost-efficient authoring. Further, the possibility of testing and grading within the electronic environment leads to a decrease in administrative burden. In addition, developers of educational materials should be able to cooperate digitally and share workload, which requires excellent content management. This paper will demonstrate how a learning content management system (LCMS) can support various educational processes and those involved in them.

The general objective of this paper is to contribute to knowledge of e-learning environments, by showing the ways in which instruction

strategies can be designed to contain several didactic principles, and how these instruction strategies can be integrated in an e-learning environment. In this way we show how distance learning can make effective use of the internet and e-learning tools ([1]). We will describe how this approach to course design has been applied in a newly developed e-learning environment called Sophia. The paper will also point out the various issues that should be addressed by an e-learning application to increase workflow efficiency in student education. We will use the new e-learning environment to describe how these issues can be tackled.

The organisation of the paper is as follows. In Section 2 we show why there is a need for distance education by means of e-learning. Section 3 elaborates on ways in which didactic principles could be integrated in instruction strategies. The importance of organising the educational processes and the ways in which this can be facilitated by an LCMS is discussed in Section 4. This section also gives two examples of educational processes and shows how activities are organised for different actors in these two processes. In Section 5 preliminary results are presented from a survey of students and interviews with teachers and content developers. Section 6 presents concluding remarks.

The case for distance learning using the Internet

In the current knowledge-based economy, sharing and transferring knowledge is essential to the competitive position of firms and generating economic growth (Goldstein and Ford 2001; Welle-Strand and Thune 2003). It is generally acknowledged by firms that, to maintain their competitive position, they have to provide their employees with access to relevant training. Further, issues such as employability and flexibility are becoming increasingly important to employees as well. The competitive labour market forces employees

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([1]) Please note that distance learning does not necessarily mean that the educational material is delivered to the student via an e-learning environment, i.e. web-based education. In fact, in the early days of distance education, the interaction between students and the educational institution took place solely by means of written educational materials and mail. Similarly, e-learning does not necessarily imply distance learning. E-learning systems are perfectly capable of supporting classroom education. Actually, Blackboard - as a widely adopted e-learning environment - started as a system to assist classroom education.

to maintain and increase their level of knowledge and constantly update their competences to consolidate their positions, or acquire better ones, in the labour market (Burgess and Russell, 2003; Chute et al., 1999; Krempl, 1997).

Changes in the education demand influence the teaching methods to be employed. Traditional education methods may not suit the growing need for lifelong learning, with more portable and flexible learning methods better suiting employer and employee needs. Web-based teaching methods (as opposed to classroom-based) provide more possibilities for on-the-job and just-in-time learning (Cantoni et. al., 2004; Driscoll, 2002; Kruse, 2004; Rosenberg, 2000). Employers need their employees to be well-educated and flexible but employees cannot be out of the office for many hours or days to follow a classroom-based education programme. Web-based tools make it possible to provide the employee with appropriate study materials at the exact moment he/she faces a problem in his/her work situation. Moreover, an employee is able to study during quiet times at work. The employee can even study at home or in any other place that is suitable to him/her. Davis (2000) lists several benefits for firms when deciding on web-based teaching methods, focused on the following issues: high speed and relatively low cost of web-based methods; long geographical distance to traditional teaching institutions; globalisation of the company leads to geographically dispersed subsidiaries which should have access to the same training facilities; investments in technical infrastructure are made already; and leading-edge mentality of firms makes them want to be frontrunners in all respects, using cutting edge technology ([2]).

Whereas employers value the way in which web-based courses increase the competitive position of their firm at relatively low cost (Kruse, 2004), employees value the flexibility that web-based courses provide (Kruse, 2004; Collis, 1998). Collis (1998) reports that employees place particularly high value on '(a) not having to move from their homes and work in order to attend required sessions; (b) having flexibility within the pre-determined time frame of a course with respect to completing assignments; (c) being able to omit aspects of a course that were inconvenient or judged not directly relevant to them

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([2]) Many anecdotal reports on corporate learning (Greengard, 1998; Davy, 1998; Berger, 1998) give illustrations of successful implementation of distance learning in organisations. For an overview of the claimed benefits of distance learning in these reports, see Burgess and Russell (2003). In a scientific study, Gaines-Robinson and Robinson (1989) developed guidelines for organisations to increase the effectiveness of corporate learning.

(particularly group meetings); (d) being able to vary the amount of communication that was required of them with other students or the need to get together physically with other students or the instructor; and (e) flexibility in being able to adapt assignments better related to their workplace duties' (Collis 1998, p. 376).

However, the issue goes beyond the mere change in delivery of education from classroom-based to web-based (Baer, 1998; Parikh and Verma, 2002). The needs for just-in-time learning and general availability of education materials throughout geographically dispersed subsidiaries of a company call for a shift in didactic paradigm as well (Leidner and Jarvenpaa, 1995; De Block and Heene, 1995). Whereas, in traditional education, the teacher is the provider of knowledge, in web-based education the student should be more involved in the learning process itself. The student should become the central actor, choosing exactly those teaching materials that provide the knowledge he/she needs at a certain moment (Al-Nuaimy, Zhang and Noble 2001; Collis, 1998).

Most web-based learning tools currently available on the market ([3]) are still largely based on traditional didactic principles. It is still the teacher who provides knowledge by uploading education materials, usually in the form of articles, cases or assignments. Students can download the materials and interact with the teacher by e-mailing or contributing to discussion groups. Popular commercial systems like Blackboard and WebCT, which is currently integrated with Blackboard, are designed in this way, as well as popular open source systems like Moodle and Sakai. These systems generally include templates for discussion forums, quizzes and exercises such as multiple-choice and true/false questions. Components for document distribution, a grade book, discussion, live chat, assignment uploads, and online testing are included as well (see Wheeler, 2008, for an overview of Sakai functionality and http://www.snlonline.net/Blackboard/Blackboard%20Functionality.pdf for a brief overview of Blackboard/WebCT functionality). Teachers fill in these templates and then release them for students to use. The main objective of these systems seems to be to simplify teacher and student workflow. Important didactic principles such as just-in-time learning, competence-based learning and learning aimed at a practical application of theoretical insights are largely discarded

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([3]) For a comprehensive list of e-learning systems see http://elearning-india.com/content/blogcategory/19/38/ [cited 26.2.2008].

in such systems. Further, it is not recognised that activities such as quizzes and exercises should be part of a broader strategy that aims to fulfil a certain educational goal.

As an answer to the drawbacks of the existing applications for distance education, a new system called Sophia ([4]) was developed in the Netherlands. Sophia is an e-learning environment which supports all educational processes for students as well as for content developers, teachers and managers. Sophia provides templates for teachers, as do Moodle, Blackboard and Sakai. However, Sophia's templates provide comprehensive instruction strategies which are firmly rooted in a number of didactical principles. This goes far beyond, for instance, providing a template for multiple choice questions. In Sophia, multiple choice questions might be used as a part of a much broader instruction strategy. An instruction strategy contains a complete didactic scenario on how to teach students certain theoretical knowledge or specific competences. Education technology scientists have provided ideas on how, for example, a multiple choice test can be used as a component in a broader didactic scenario that will reach certain didactical objectives.

In the following sections, we will show how instruction strategies, and thereby didactical principles, are fully integrated into a web-based education tool.

Instruction strategies

We have argued that a web-based environment should contain comprehensive didactical strategies designed to reach certain learning objectives. In this section, we show how these instruction strategies can be integrated in a web-based system. This is illustrated with the newly developed learning environment Sophia but any other e-learning system could implement the same ideas.

The instruction strategies provide the core of the Sophia application around which several other supportive facilities are designed. Student

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[4] The Sophia e-learning environment was created in a project that was undertaken with funds from the Digital University. The Digital University is a joint initiative of 10 Dutch universities of both master and bachelor degree aims at developing e-learning content and tools and disseminating them among Dutch universities. At the end of the project, Sophia was turned into a commercial package. The Sophia e-learning environment is easily accessible from every computer around the world with internet admission, i.e. no software has to be downloaded to have access to Sophia. Sophia is ASP-based (active server page technology).

learning goes through different stages, from mastering basic and essential concepts and methods to applying this knowledge in practical situations (Gonzàlez-Castaño et al., 2001). Sophia provides online functionality supporting all these stages: diagnosing the knowledge the student already possesses; providing the student with activities that will help him/her fill knowledge gaps; providing the student with assignments on real-life case(s) and letting the student apply the theoretical knowledge to a real-life problem; testing whether the student possesses the required level of knowledge or competence. It might not be straightforward to teach and evaluate competences while using a web-based tool. In accordance with Ulrich et al. (1995), we define competence as a student's ability to handle real-life situations in a professional manner by integrating and applying knowledge, skills, insights and attitude and to reflect on the chosen approach. In a web-based application, competences can be increased, for example, by showing video fragments of real-life situations and posing questions about how such a situation should be handled.

All instruction strategies cover one or more learning stages (see Table 1). The fact that not all stages are covered by each strategy opens possibilities for blended learning. It is possible for an organisation to make a deliberate choice about the way in which each

Table 1. **Overview of instruction strategies in Sophia**

Learning stages Instruction strategies	(a) Detection of knowledge or competence gaps	(b) Acquisition of knowledge or competences	(c) Practise application of knowledge or competences	(d) Examination
1. Diagnose	x	x		
2. Diagnose and test	x	x		x
3. Combination +	x	x	x	x
4. Combination			x	x
5. Practice +	x	x	x	
6. Practice			x	
7. Exam +	x	x		x
8. Exam				x
9. Problem-based learning (PBL)	x	x		x
10. Project-based				x

learning phase is supported, either by web-based teaching or by offline methods. For example, some organisations might prefer to take the examination in a classroom environment, while all other learning phases take place online.

Note that while some instruction strategies cover an identical set of learning stages, they differ in the adopted didactic scenario. For example, instruction strategies 'diagnose and test', 'exam +' and 'problem based learning' all provide e-learning materials for several processes. Below we will explain the distinct didactic principles guiding each task type ([5]). The '+' refers to the addition of materials that detect knowledge or competence gaps and lead the student to the acquisition of knowledge or competencies. For example task types with a '+' contain a sophisticated multiple choice test which is described below the discussion of the 'diagnose' type. In fact, the '+' refers to the integration of a 'diagnose' type task in the overall structure of the task.

Task types 'diagnose' and 'diagnose and test' are rooted in an objectivist model of learning, with the annotation that the transmission of knowledge is tailor-made to the needs of the student. Tasks of this type identify the knowledge level of students using sophisticated multiple choice questions ([6]). After completing the test, the student receives advice for further study that is conditional on the mistakes made. The students are provided with knowledge on exactly those areas where they experience gaps. Course developers will usually employ diagnose tasks at the beginning of a course. Based on the knowledge gaps, the students are directed towards tasks (of other instruction strategies) that will provide them with knowledge, insights, skills and attitude on specific subjects. Diagnose tasks can be used in combination with a classroom exam, while diagnose and test tasks are specifically designed to evaluate student's level of knowledge and competence online. Diagnose and test tasks are typically used as a conclusion to an entire course.

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[5] In the design of e-learning materials authors can choose to develop a task which adopts a certain instruction strategy. Therefore, instruction strategies are also called task types.

[6] To provide sophisticated multiple choice questions, Sophia is partly integrated with Question Mark Perception (QMP). QMP is a computer-assisted assessment system which allows several distinct forms of multiple choice questions and incorporates several mechanisms for differentiated feedback. Empirical evidence indicates that simply showing students the correct answer has less effect on learning than providing elaborate feedback on the correct and incorrect elements of the given answer (Dempsey, Driscoll and Swindell, 1993). Moreover, the motivation of students is positively influenced by feedback tailor-made to the answer of the student (Ross and Morrison, 1993).

Tasks of the types 'combination +', 'combination', 'practice +', 'practice', 'exam +', and 'exam' are firmly rooted in constructivist ideas on just-in-time learning (Schoening, 1998). After detecting and filling the knowledge gaps, the student starts out with a problem relevant for a specific firm. The assignment will lead the student to both relevant theory on this problem and background information on the firm. It is up to the student to decide which information to use for solving the assignment. Students are immersed in a real world context and discover how to use certain theoretical concepts and methods. Theoretical insights are gathered at the exact moment they are needed to solve the assignment (just-in-time). 'Combination +' type tasks provide online facilities for all phases in the learning process, whereas tasks of types 'combination', 'practice +', 'practice', 'exam +', and 'exam' leave room for fulfilling one or several learning stages offline.

Finally, problem-based learning tasks and project-based tasks find their origin in a cooperative model of learning, problem-based learning (Birch, 1986; Norman, 1988; Norman and Schmidt (1992); Dolmans et al., 1994) and project-based learning (Blumenfeld et al., 1991) [7]. Tasks of these types are always integrated with offline activities. In type 9 tasks, students typically start with an online discussion on a specific case description designed to entice them into investigating problems: these discussions take place in small groups. Students ask and refine questions and debate ideas for possible solutions. This stage is concluded with identification of the gaps in collective knowledge and setting collective learning objectives, which guide a student in his/her individual self-studies (Norman and Schmidt, 1992). The self-study has to address individual knowledge gaps as well. These individual gaps are identified by an online diagnostic test. This tailored approach is system driven: no staff experts are involved. The diagnostic test determines the individual student's knowledge gaps based on the correct and incorrect answers given by the student in the test. Even the exact kind of mistake made in the diagnostic test leads to specific knowledge gap identification. As a conclusion to the self-study phase, students are subject to another diagnostic test which determines their intellectual progress. In a subsequent group session (usually in a classroom), students will communicate their ideas and findings on the collective learning

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[7] For a detailed description of the benefits of project-based learning, see Blumenfeld et al., 1991, pp. 372-372.

objectives to each other and ask new questions until, finally, all learning objectives have been reached to full satisfaction of all students. Students conclude tasks of this type with a final diagnostic test in addition to an individual assignment; the latter is graded by the teacher. In project-based tasks a similar approach is adopted. The point of departure comes from an online project-assignment which leads to an online discussion among students on how to manage the project. The final goal is to produce a certain artefact (such as a model, a report, a videotape or computer program) in a group effort. This artefact is handed in (online via the e-learning system) to a teacher who grades the end result.

From the perspective of a learning content developer, a course usually contains several tasks. Developers of e-learning materials start out by choosing an instruction strategy suitable for the specific objective they want to reach with a certain task. As we have seen above, there are at least two sides to this. First, is choosing which phases of the learning process will be supported online and which will be provided in another way (by classroom lectures, books, videos, etc.). Second, is choosing a suitable didactic approach. Once chosen, Sophia will make sure that the didactic scenario of the chosen instruction strategy is closely followed. It does this by providing the building blocks (components) for the task, which have to be filled with content materials by the developer. Therefore, the electronic environment ensures that every produced task adopts a high quality didactic approach.

Organising the workflow

In traditional education systems, each teacher develops their own materials and quality is ensured by personal control. With the shift in the role of the teacher from knowledge provider to facilitator of the learning process, organising the production of educational materials has to undergo a shift as well (Collis, 1998). An e-learning environment can simplifymanaging educational processes and increase the specialisation of actors. Therefore, process control becomes much more important than personal control. An e-learning environment can provide each actor producing education materials with sufficient tools to undertake their task. Moreover, specialisation will increase workflow efficiency for all involved in student education.

With Sophia, we created an e-learning environment that fulfils

these requirements. Three distinct features of Sophia that make sure that educational processes are streamlined are differentiation in roles to ensure specialisation benefits, content management system to foolproof the application, and opportunities for reuse of resources. Each of these features is discussed below.

Differentiation in roles

Educational institutions are under constant pressure to work in a cost-efficient way. E-learning tools can increase the efficiency of production and delivery in education by enabling different actors to specialise in their roles. Sophia distinguishes eight roles: product manager, administrator, author, moderator, supervisor, assessor, mentor and student. Each role gives access to specific possibilities and incorporates several responsibilities.

A supervisor is responsible for composing the educational programme (learning path). The supervisor can either choose an instruction strategy (or mix of strategies) that is considered useful for the course, and subsequently instruct authors to make tasks of this type, or create a learning path with already existing tasks (created by authors for another course). The latter is called reuse (we revisit this issue later). The supervisor monitors the student progress in the learning paths created by himself/herself. When the course period is over, the supervisor closes the learning path by sending students their final grade.

Authors are responsible for the creation of tasks. As mentioned in Section 2, Sophia provides an author with a limited set of building blocks to construct a task. These building blocks ensure a sensible didactic approach and pave the way for further specialisation in the authoring process. Several blocks do not require expert content knowledge to be filled, such as the inclusion of websites that are relevant for cases. This work can be executed by a (low-wage) student assistant. This specialisation within the authoring process provides opportunities for cost efficient content production, since easy tasks can be directed to lower wage content developers. The content experts can focus on filling those building blocks that require expert knowledge.

The role of the student is quite straightforward. A student visits the Sophia website and logs in with a unique login name and password. The learning paths direct students to their tasks on different subjects. Questions can be posed to the mentor. Usually, learning paths are concluded with tasks testing the competences of the student [8]: as-

sessors grade these tasks. The supervisor grades overall performance in the learning path. A student is still able to access his/her study materials after assignments have been graded but not allowed to make changes.

The mentor supports students by answering questions on the education material and uses facilities such as email and FAQ (frequently asked questions). A mentor has access to overviews of student progress, which enables him/her to focus on students that need assistance. Assessors are responsible for grading student tasks. Sophia supports assessors in a number of ways. First, assessors can make use of answer models, describing the essential elements that a correct answer contains. Second, the system assures objectivity across assessors in the grading the same assignments for different students. Depending on the task type, assessors have access to an overview of the grading behaviour (and rationale) of other assessors for a specific assignment. The moderator role is created for instruction strategies that incorporate discussion groups related to a certain subject. The moderator monitors the discussion groups, deletes improper contributions and undertakes action against contributors who abuse the system.

The roles discussed deal explicitly with educating the student; an additional role is created to organise the administration of students. The administrator can add or remove users, plus design general homepages containing information on the educational institution or the company that offers the courses. Role-specific information can also be displayed. Students/employees are welcomed to the training facility and are instructed in use of the system. Authors are instructed in the process of creating educational materials with the application. In addition, a role is created for organising the use of the system as a whole. Sophia allows organisations to use their own 'look and feel' for their courses as well as using different sets of functionalities. The product manager looks after the specific needs of institutions. This role organises and manages access by different organisations to different functionalities.

Below are two illustrations of how educational processes are organised within Sophia. The first example shows how the supervisor interacts with students on the learning path level (Figure 1):
Step 1: The supervisor creates a learning path by giving a description

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(8) This is not to deny the possibility for blended learning in the system that enables a choice for offline examination.

Figure 1. **Supervisor and student activities at learning path level**
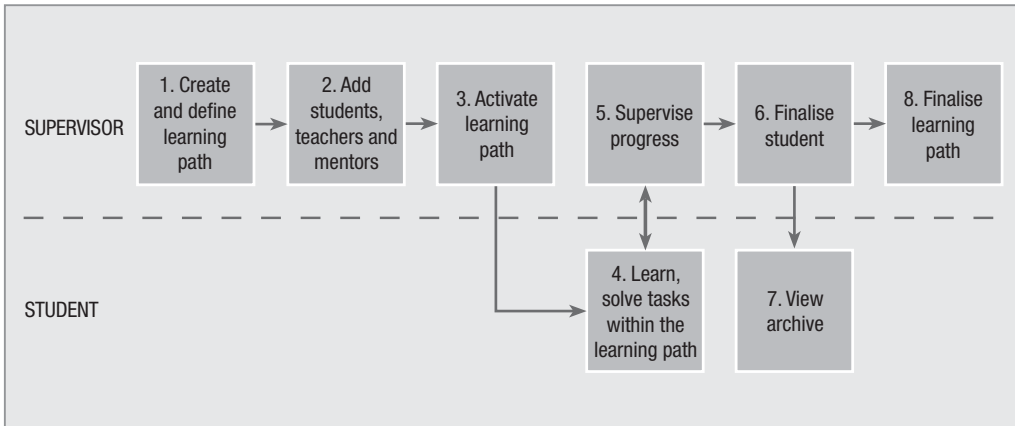
of the course, defining a start and an end date ([9]), choosing a number of tasks to be included in the course and making decisions on how the course should be assessed. In addition, the supervisor can schedule several offline tasks, for instance group meetings, class lectures or presentations.

Step 2: The supervisor determines which students can participate in the course by adding them to the learning path. Assessors and mentors are also added.

Step 3: As soon as the supervisor has included all relevant tasks and other information in the learning path, he/she will activate it. From this moment on, students have access to the course and can start solving tasks. The supervisor can continue to add new students to this course but is not allowed to adapt tasks in the course or add tasks to the course.

Step 4: The student solves the learning tasks in the course. The specific activities that have to be carried out by the student depend on the didactic model adopted for the tasks. The second example below demonstrates the activities of the student for a certain instruction strategy.

Step 5: The supervisor monitors the progress of all students: there are several overviews that assist. The supervisor can oversee which students have started working on the course.

([9]) It is also possible for the supervisor to create a learning path in which students can start and finish whenever they want to, without a deadline being set for having finished all tasks.

Furthermore, he/she can observe whether tests have been finished and what proportion of the tasks have been solved by each student. In a more detailed view, the supervisor monitors each student's answers to each assignment. A student is aware of the fact that answer behaviour can be watched; this deters him/her from filling in false answers to the questions.

Step 6: As soon as a student has completed all tasks in the learning path and his/her tasks are graded by the assessor, the supervisor finalises the learning path for this student. If all students have completed the course, the supervisor finalises the entire learning path.

Step 7: A student is able to examine overviews of all the courses he/she has completed. The student can see his/her grade for every course and take a detailed view of all the tasks and assignments completed.

The second example of workflow organisation within Sophia describes the processes between student and assessor at task level. What happens here depends on the instruction strategy chosen for a task. Figure 2 shows the activities of the student and the assessor for a task that adopts the 'combination+ task' didactic principle.

Step 1: The student reads the introduction to the task, which contains introductory notes as well as the educational goals that will be achieved when the task has been finished.

Figure 2. **Student and teacher activities at task level**
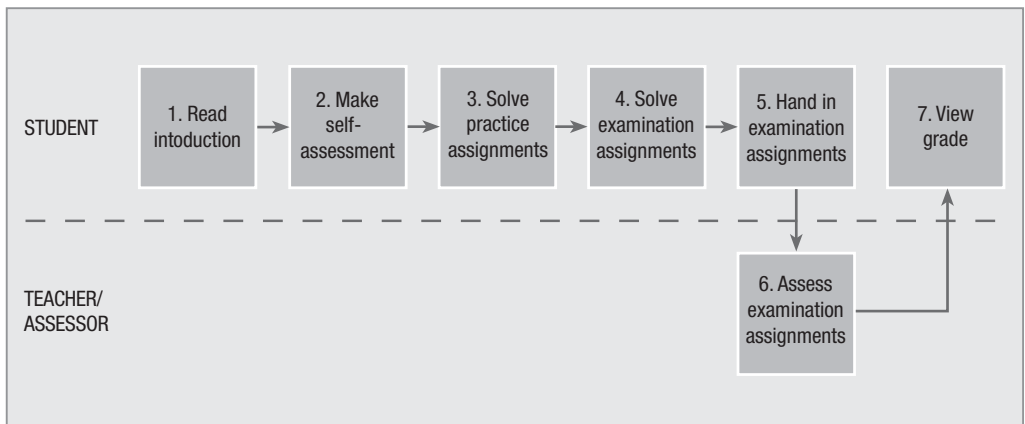
Step 2: The student assesses his/her knowledge of the subject of the task in a diagnostic test, comprising a predefined number of multiple choice questions. Immediately after answering a question, the student receives a detailed explanation of why the chosen answer was wrong or right, advice, containing a reference to a textbook paragraph, that gives further information on the subject of the question. After finishing all multiple choice questions of the self assessment, the student receives an overview of the entire test. This overview shows the test questions, the answers given by the student with the accompanying feedback and advice, and the correct answers. The student can use this overview when reviewing the literature to fill the gaps in his/her knowledge of the subject of the task. Note that the self assessment is not compulsory for the student.

Steps 3 and 4: Practice and examination assignments take the form of open questions that ask for the application of theoretical concepts to problems relevant to a specific firm. An example of such an assignment is 'Describe the marketing mix for Mercedes Benz'. To solve the problems raised in this assignment the student needs to gather knowledge on the concept 'marketing mix', gather knowledge about Mercedes Benz, and apply the theoretical knowledge of marketing mix to the case of Mercedes Benz.

The student has to gather knowledge of concepts and terms in textbooks (Sophia will have a hyperlink to a brief description of each difficult concept accompanied by a reference to a paragraph in a textbook that gives further information on the concept). Knowledge about the firm to which the problem has to be applied can come from within or outside the system. For an elementary level course, a course developer will choose to provide students with access to case information within the e-learning environment. It is important that studying case information is made enjoyable for students; this is done by including images, video fragments and hyperlinks to relevant websites in the text of the case. Evaluations show that students experience these cases as very motivating. For more elaborate course levels, a course developer can decide to let students gather case information on their own in online and offline sources. The didactic idea behind this component of this instruction

strategy is that students develop the skill to gather relevant information to solve a real-life problem.

The student fills in the solution of each assignment in a text field and he/she submits it by clicking a button. In the case of a practice assignment, the student will receive the correct answer, which he/she can compare to the submitted answer. This component of the combi task ensures that the student learns to formulate his/her solution in an effective way. Since the answer has to be put in writing, the student is forced to think it through and formulate his/her arguments effectively. In offline forms of distance education, solutions to assignments are often included at the end of the tutorial book and students generally do not solve assignments on their own before looking at the solutions provided in the tutorial. In this approach, students are not stimulated to develop writing and argumentation skills. An online course using Sophia provides an added stimulus to students who are intrinsically motivated to take the practice of their writing skills seriously, since their answering behaviour can be observed by a supervisor.

An examination assignment generally follows an approach similar to the one for practice assignments. Although examination assignments apply to a different case, they are of the same level as the practice assignments. A notable difference between practice and examination assignments is in the feedback given to the student. After submitting an answer to an examination assignment, the student does not receive the correct answer. While practice assignments are designed for educating, examination assignments have the sole purpose of testing.

Step 5: After completing the examination assignments of the course, the student hands them to the assessor (online).

Step 6: The assessor grades the assignments.

Step 7: The student is able to examine an overview of the course, see his/her grade, and all the tasks and assignments completed.

Reuse of resources

An efficient LCMS is characterised by many opportunities for reuse of objects. Objects can be resources, tasks and even entire courses (learning paths). One of the facilities that enable reuse of resources is the library where authors can store learning objects such as images, cases, websites and text files. Other authors can be granted access to certain libraries, thereby enabling them to reuse materials developed earlier. A glossary can also be reused, the object being a specific glossary term, accompanied by a description and an advice about where to find a more elaborate discussion of the term in the literature. Reuse is not limited to a single glossary item but covers entire glossaries pertaining to specific content fields. Conditional access protects content objects in Sophia against being overwritten unintentionally. Editing of objects is only allowed for authors within one content group (authoring in a specific content field). Authors of other content groups may be granted use of existing resources, but the only way for them to make adaptations is to copy the original objects to their own resource library before editing it.

Tasks can be (re)used in an unlimited number of courses. This is sensible because a task is a learning object created to fulfil a specific educational objective and one specific task could very well be useful in several different courses. A supervisor is able to compose different courses by (re)combining tasks; all tasks designed by authors within a certain content group can be used freely in learning paths. A content management system protects tasks against being rewritten (see 3.3). Entire learning paths can be reused as well, for instance for another group of students.

Content management system

Where developers of educational materials cooperate digitally and learning objects are reused, a content management system is required to manage different versions of learning objects. The content of education materials needs to be updated regularly: updating and revising learning objects implies danger of having different versions of the same object operational simultaneously. A content management system needs to assure that tasks used by students cannot be altered or removed unintentionally by other actors in the system. This issue is tackled by introducing a life-cycle for tasks ([10]). Tasks can only be edited by legitimate authors during certain phases of the life-cycle of a task.

([10]) Learning paths undergo a somewhat different, though similar life cycle with the following phases: draft, active and closed.

A task is subject to five phases. First, the author develops a task in the draft phase. As soon as this is complete, the author will label the task 'ready-for-use', the second phase of its life-cycle. An author is allowed to withdraw the task from this phase, since it has not yet been added to a course. The third phase is 'active', meaning added to a learning path and not able to be altered by authors. An addendum function allows supervisors and authors to add recent information to the tasks in this stage of the life-cycle. All students using these tasks will immediately be notified of this additional information. Large revisions of active tasks are only possible by copying an active task to the draft phase, in which the task can be revised. Once revised, the task is declared 'ready-for-use' by the author and can be included in new courses by the supervisor. However, unaltered tasks remain in circulation. The author can block an outdated task, a fourth stage in its life-cycle. Active learning paths containing a blocked task will still be operational. However, a supervisor cannot include blocked tasks in new learning paths. Only 'ready-for-use' and 'active' tasks are available for the creation of new learning paths. Blocked tasks that are not used in any courses automatically enter the final phase of their life-cycle. These 'closed' tasks are obsolete and may be deleted from the system by the author.

Survey results

The system has been partly evaluated among students, teachers and content developers. Two main topics were covered: views on the instruction strategies and views on how the workflow was organised.

The evaluation was only of the 'combination +' task, since that comprises all four learning stages: detection of knowledge or competence gaps; acquisition of knowledge or competences; application of knowledge or competences; and examination. Evaluations of the other instruction strategies are still awaited. Five students filled in a questionnaire during a course that employed 16 'combination+' type tasks. The questionnaire contained open questions on whether the students liked working with such tasks or whether they encountered problems, either content-related or technical. The overall view of these five students was that the way in which the tasks were presented was easy to understand and use. The tasks motivated them to engage in further study of the textbook

and related study materials. Students unanimously reported being very pleased to work on assignments related to practical situations that challenged them to apply their (theoretical) knowledge and competences. Hardly any technical problems were encountered.

In addition, an evaluative survey was carried out among 32 students that finished the course with the 'combination +' tasks. Seventeen students completed the questionnaire (response rate of 53.1 %) which contained mostly open questions. All students reported being pleased to work on assignments related to real-life situations, stating that the tasks 'encourage you to a structured and analytic approach of practical situations' and 'force you to think'. Several students felt that 'you learn a lot by analysing the cases' and that 'it is enjoyable to alternately read and make practical assignments'. Students reported an average score of 7.9 on a 10-point scale (10 being maximum) for course satisfaction.

Views on how the workflow was organised came from interviews with teachers and content developers. Informal discussions were held with five teachers and five content developers. On educational materials, teachers felt that the templates that were provided by the system were very helpful. They thought about the goals they wanted to achieve with a certain task and then chose a suitable instruction strategy. After that, they felt that they did not have to worry about didactics, because the system had integrated this in the templates. Content developers reported that in cases when large teams of developers are involved, it became very easy to keep track of the status of development of a course. One of the content developers was positive about being able to see at home whether the others reached milestones in the design of the course. A reported disadvantage was that the templates force a teacher to follow a certain didactic design and there is no room for alternative designs, which might also be good from a didactical point of view. A few content developers mentioned that they had alternative ideas for instruction strategies which they would like to have implemented in the system. Taken as a whole, teachers and content developers liked the ease with which materials could be distributed to students and the potential for maintenance and reuse of content. Some teachers, however, were critical on the ease of use of the system, saying that there were many buttons and the system should be simplified.

All teachers stated that the online assessment was easy to use. The electronic assessment environment gives the teacher a view of both the student's answer and the answer model. Teachers value

the fact that they do not have to search their papers for the answer model and the opinion of other teachers on similar answers. They stated that the electronic system made the grading process accurate and pleasant to do. Further, the teachers stated that the system made it possible to grade a student's performance within thirty minutes. In comparison, an average competence-oriented course at the same university has an assessment burden of one hour per student. The specific design of the course therefore reduced the regular assessment burden of a course by 50 %.

Summary and concluding remarks

In this paper, we illustrate the issues that have to be taken into consideration in the design of an effective e-learning environment. The shifting role of the teacher in web-based learning systems calls for the integration of didactic principles in instruction strategies, which in turn are part of the e-learning application, and the specialisation of all actors involved in educational processes. This will create opportunities for increasing efficiency in producing educational materials. Moreover, it is a significant advantage that an e-learning system with integrated didactics tailors the supply of educational materials to the exact need of each student, something that would be much too costly if it had to be done by content developers. Widely adopted commercial e-learning environments like Blackboard, as well as popular open source systems like Moodle and Sakai, should consider whether it would be interesting to increase their consideration of didactics and integrate it in their systems, instead of adding tools and gadgets. Only with fully-fledged instruction strategies incorporated in the learning environment is it possible for a web-based system fully to support a teacher in teaching via the Internet. This is especially true for situations in which the learning is based completely on electronic materials and where the teacher is not available face-to-face.

The first preliminary evaluations of using Sophia indicate that the system meets the goals of integrated instruction strategies and workflow management. The system is easy to use for students as well as teachers and managers in educational institutions. All users interviewed appreciate the didactic principles incorporated in the instruction strategies. The system proves to be very effective in organising educational processes such as the development of

educational materials (especially by large teams of authors), the distribution of materials to students, and the maintenance of content. Future challenges for Sophia pertain to ensuring that the system remains simple in its use. Currently the number of instruction strategies is limited to a coherent set but there is continuous pressure from content developers for an increase; the inherent risk is that the set of instruction strategies becomes too complex to manage for content developers. This would make it very hard for content developers to recognise the instruction strategy that would be most suitable to specific learning objectives.

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Get a vocation: keeping on top of studies

Reducing the drop-out rate in vocational upper secondary education and training

Aini-Kristiina Jäppinen

PhD (in Education), Adjunct Professor, Senior Researcher
Institute for Educational Research
University of Jyväskylä, Finland

SUMMARY

The Finnish Ministry of Education commissioned a study in 2006–07 on reducing the number of drop-outs, *Get a vocation – keeping on top of studies.* **The aim of the study was to establish the good practices and operating models underpinning reduction in drop-outs. The study indicates that an educational institution that fosters commitment of students to their studies acts systematically and persistently when facing challenges. It examines its operations critically. It creates a safe and caring learning environment in which certain basic principles prevail, but it is nevertheless flexible. In such educational institutions, pedagogically distributed leadership manifests itself in five key areas: management support groups, the general effectiveness of work on the curriculum, the practices of strategic plans and development work, on-the-job learning, and the multiprofessional nature of educational guidance.**

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Foreword

European business life is in constant need of a trained and skilled labour force (OECD, 2004). However, there is starting to be a severe shortage of people with good vocational skills in some sectors, already seen in Finland, and society cannot afford to lose the input of any individual. In spite of measures aimed at reducing the number of people dropping out of vocational upper secondary education and training, getting students to commit to their studies continues to be a major challenge for all providers of vocational education and training and for the entire European education policy.

Students drop out for many reasons: as a result of wrong choices, poor study results, learning difficulties, motivation or mental health problems, a crisis in the student's personal life, or transferring too early to working life, another educational institution or another educational sector. Some of those who drop out change to a more suitable study programme and some return, in time, to the studies they dropped out of: some never do.

The study on reducing dropping out, Get a vocation – keeping on top of studies, initiated by the Finnish Ministry of Education, started in September 2006 and continued until the end of August 2007. For the study, the Ministry of Education chose 14 education providers whose educational institutions had a drop-out percentage of between 4 and 8 % in 2003–04, i.e. clearly less than the Finnish average (10–20 %). The study did not analyse the reasons for dropping out; instead, the aim was to establish the good practices and operating models that underpinned successful reduction in drop-out.

The education providers included in the study were divided into three groups: six large and multidisciplinary municipal education and training consortia; four medium-size or small education providers; and four single-sector education providers. They were located around Finland in both towns and rural areas with diverse forms of business. The educational sectors included were technology and transport, business and administration, social services, health and sports, construction, culture and tourism, catering and domestic services. The education providers represented over 30 vocational schools and around 10 000 15–20-year-old students, of which the majority came directly from comprehensive school.

Engendering a sense of commitment in students to their studies and establishing a vocational identity involves many factors. Table 1 includes the fields that were assessed in establishing the good practices

behind low drop-out. The fields were identified on the basis of mainly Finnish surveys and studies on vocational education and training and management, guidance and the general development of education (Kasurinen 2004; Numminen et al. 2002; Finnish Ministry of Education 2007; Ropo et al. 2005; Stenström and Laine 2006). From these, all concepts, subjects, ideas, etc. concerning the theme of drop-out were collected and organised into five main and 15 sub-areas together with their more precise contents according to the qualitative concept analysis (Patton, 2002) (Table 1). The first two sub-areas have only one content area. The consequences of the fact will be discussed later with the presentation of results.

Approach to good practice: pedagogically distributed leadership

For the reliability of the study, it was important that all the educational institutions were studied equally and from the same perspective. However, because the municipal education and training consortia or educational institutions were located in different types of areas and were of different sizes with their own priority areas, and because their students were also different, adopting a common approach was not a simple task.

Many studies on work and learning environments increasingly stress the importance of distributed leadership and responsibility as the distinctive features of a fruitful learning environment (Bereiter, 2002; Brown and Duguid, 2002; Engeström, 2004; Hargreaves and Fink, 2006; MacBeath, 2005; Møller and Eggen, 2005; Senge et al. 2000; Spillane, 2006; Tynjälä, 2006). Therefore, vocational upper secondary education and training was examined in terms of the implementation of pedagogically distributed leadership and not by comparing the education providers.

Pedagogically distributed leadership is the ability of all the members of a community to interact well. This can be seen in management and the practical implementation of curricula and study programmes. Distributed leadership means multiple voices, flexibility and commitment. It includes negotiation, space, creation of visions in a considerate way, control based on trust, sticking one's neck out and sharing power and responsibility. Pedagogically distributed leadership means the ability to create and develop a pedagogical and organisational system and also the ability of management to

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Table 1. **Result of the item analysis: study fields**

MANAGEMENT AND ORGANISATIONAL STRUCTURE	WORK ON THE CURRICULUM	STRATEGIC PLANS AND DEVELOPMENT WORK	STRUCTURE AND PROVISION OF EDUCATION	GUIDANCE ACTIVITIES
1. Management support groups and areas of responsibility	**4. General effectiveness** - taking responsibility and commitment for the entire staff - curriculum and links with working life - curriculum and guidance activities - curriculum as an open learning environment	**7. General factors** - action and development priorities and taking responsibility - effectiveness of plans and strategies - monitoring absences - group guidance - orientation practices	**10. Forms** - structures and teaching arrangements experienced positively - group sizes - on-the-job learning	**13. Availability, supply and organisation** - connection with basic education - guidance counsellors, school social workers and school psychologists - manifestation of multiprofessional nature - contribution of subject teachers - regional aspect of guidance
2. Participants in management support groups	**5. Structural factors** - positive teaching methods and other similar functions - provision of vocational and common studies and optional studies - curriculum and using IT	**8. Evaluation and quality work** - initial assessment of the students - support measures following initial assessments - self- and peer assessment by the students - assessment of teaching - quality criteria	**11. Contents** - plans and projects - cooperation between the home and school - cooperation at the institutional level - regional cooperation - cross-administrative cooperation - multi-vocational cooperation	**14. Role and contents** - giving feedback - integrating guidance into other activities - study guidance, guidance on growth and development, career guidance - guidance for first-year students - use of information and communications technology
3. Premises and auxiliary activities - premises for teaching, accommodation and leisure time - hobby and leisure-time activities - student activities	**6. Contextual factors** - individual study plan - monitoring studies - transition point of study path from basic education to vocational upper secondary education and training - IEP - support measures following on from the above - entrepreneurship - practical nature of studies	**9. Staff development** - methodical approach; constancy and competency - pedagogical cooperation - visits to educational institutions - periods of work experience for teachers - teacher mentoring - induction of new teachers - work guidance - individual study plan for teachers	**12. Social and student-related factors** - providing information about education and its marketing - profitability and image of educational sectors - effect of working life skills requirements on dropping out - heterogeneity of students	**15. Development and evaluation** - methodical nature of guidance - provision and development of special needs teaching - guidance quality work - guidance procedures - division of work and taking responsibility in guidance - guidance priorities and resources - post-guidance

intervene or, if necessary, to refrain from intervening in the details of employee work. The most important issue is to get the entire staff and students to do the right things together and separately at the right time.

Pedagogically distributed leadership involves a collective learning process that includes the ability to evaluate, develop and commit

to the job and the desire to be responsible for one's own learning process and, as far as possible, the learning process of the entire school community. Pedagogically distributed leadership as a collective learning process means managing expertise and transferring it from one to another. At its most effective, pedagogically distributed leadership as a way of sharing expertise manifests itself as the production of creative solutions and the committed introduction of new good practices.

On the basis of the above, examination of the vocational upper secondary education and training chosen by the Ministry of Education focused on pedagogically distributed leadership from five perspectives: how innovative, creative, fruitful and sensitive were the structures, forms and contents of the education and studies; development of a pedagogical and organisational leadership role, and the prevalence and distribution of responsibility and taking responsibility; the appropriateness, diversity and creativity of pedagogical and organisational practices and working methods; the coherence, sophistication and organisation of pedagogical and organisational practices and working methods; and the degree of networking, interactivity and commitment of the working culture of the entire staff. These criteria come straight from the theoretical frame of pedagogically distributed leadership, presented above.

Four quality levels were created on the basis of these five perspectives, based on the SOLO-Taxonomy by Biggs and Collis (1982). The levels were modified, however, for the specific purposes of this study. All areas and contents of Table 1 were estimated by each participant according to the five criteria and put onto the four levels of pedagogically distributed leadership. A peer-estimation was available for increasing the validity of the study.

However, some of the contents were such that it was not possible to specify their quality level; example were the group size, special financing or the heterogeneity of students. They were considered in another way and have therefore been omitted from this article. The levels and their criteria are as follows:

Level 4: the action or practice was diverse, innovative, creative, rich, regular, sustainable and extremely well organised. Almost all the staff were strongly committed to the action in question and participated in all development work. The educational institution's internal and external networking was very effective and included diverse forms of cooperation. Interaction was fruitful and diverse.

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Level 3: the action or practice was diverse, regular, fairly sustainable, enriching and well organised. The staff were generally committed to the action in question and many took part in continuous development work. The educational institution was internally well networked and cooperation was smooth. Interaction was good, effective, diverse and fairly frequent.

Level 2: the action or practice was becoming regular but was nonetheless still fairly new, experimental and only fairly well organised. The staff were either partly or reluctantly committed and only some of the staff regularly took part in development work. Internal networking and cooperation were quite good and smooth but did not cover an adequate number or all the members of staff. Interaction was reasonably good, but nonetheless partly inadequate.

Level 1: the action or practice was sporadic, new or short-term, and was weakly organised. The staff were weakly committed and only a few took part in regular development work. There were shortcomings in internal networking and cooperation and cooperation was not sufficiently comprehensive. Interaction was quite weak and inadequate.

Method

Compiling the material

To establish the common practices and actions exhibiting stronger pedagogically distributed leadership, representatives of education providers first completed a questionnaire and then were interviewed. The interviews were recorded and transcribed. The questionnaire and interviews covered all sub-areas with contents (Table 1) being studied, specifically from the perspective of reducing the number of students dropping out and fostering commitment to their studies. The interviewees were individuals who had a comprehensive understanding of the activities of the municipal education and training consortium or educational institution, such as principals, education and quality managers, guidance counsellors, social workers or other individuals responsible for guidance. Many of the interviewees also worked in teaching positions. In addition, various types of document describing the activities were collected from the education providers.

Presenting the results

Although qualitative by nature, this study makes use of some quantitative features as means of levels of pedagogically distributed leadership. Therefore, the method used is of mixed-methods type (Tashakkori and Teddlie, 2003).

The results are presented using profiles evincing pedagogically distributed leadership, combined from the means of the levels. First, one main profile comprising all the sub-areas and quality levels was established for each education provider, followed by 13 separate sub-profiles of the contents of each sub-area in accordance with Table 1. (Although there were 15 sub-areas, it would not have been sensible to create a separate sub-profile of the first two because they both had only one content area.) The educational institution-level profiles were given for the education providers' own use.

The report only focused on the highest quality levels 3 and 4, which represented stronger pedagogically distributed leadership. To see which areas and contents were at these levels, and at which point there was coherence between the education providers, all the main profiles of each educational institution were first combined into one main profile. Then, the 13 separate sub-profiles were merged into one common sub-profile. The common profiles were achieved by calculating the average quality level for each sub-area and content. The average quality levels of the common profiles are expressed with an accuracy of 0.1.

Results

This article concerns the five sub-areas of stronger pedagogically distributed leadership that were distinguished from the common main profile. Their averages varied between 3.3 and 3.5. However, another finding will be presented before the profiles. In the qualitative analysis of the material, four features common to all the education providers clearly came to light. The stronger pedagogically distributed leadership revealed by the profiles is examined using these features. The features were a systematic approach and persistence, the critical examination of one's own actions, addressing particular issues one at a time, and ensuring a good atmosphere (MacBeath, 2005).

Four special features

No good practices develop of their own accord: they always have their own history. A sufficient amount of time, perseverance and

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belief in one's own actions are needed before results begin to show. The municipal education and training consortia and educational institutions studied had carried out systematic and persistent work for many years before a reduction in the number of students dropping out and a commitment to studying began to show and could be verified as concrete events or indicators.

Continuing critical self-examination and evaluation were seen in the further development of practices and actions that had proven fruitful and modification or rejection of the less desired ones. The aim was genuinely to understand what was good, what was worth developing and in what direction, what should be changed and what was worth giving up. The actions were never considered to be completely ready; there was always room for improvement.

Addressing particular themes is directly related to the two previous features. Although nearly everything was evaluated and developed to some extent, there was no attempt, to modify everything in one go. Some development areas were prioritised; others were managed with smaller inputs, or it was decided to leave them until later.

One manifestation of a good atmosphere was the emphasis on the individual consideration of students and the attempt to design tailored solutions, especially in problem cases. The idea that 'nobody is left behind' came across from the actions and practices. The attitude was not dependent on the size or resources of the education provider: everything that was possible was done. An inexplicable 'je ne sais quoi' could be sensed in the atmosphere of the institutions studied. The activities were not, of course, completely the same, as they were bound up with the characteristics of each educational institution or municipal education and training consortium (Hargreaves and Fink, 2006, p. 110). That certain 'je ne sais quoi' can be called generosity, caring, taking the time, taking responsibility, steadfastness, enthusiasm, and turning difficulties and challenges into one's own strengths and victory. It can further be added that the special 'je ne sais quoi' could often be seen as a genuine desire to be the best entity providing vocational upper secondary education and training in the region or the sector, and not just good or average in doing the task.

Profiles
As can be seen in Figure 1, five common sub-areas of stronger pedagogically distributed leadership can be distinguished from the main profile (Table 1). These form the support pillars that created the basis for designing vocational upper secondary education and

training that successfully reduced the number of drop-outs and engendered commitment in the studies. The five strong sub-areas with their averages were: management support groups and areas of responsibility (mean of the levels 3.5); general effectiveness of work on the curriculum (3.3); general practices relating to strategic plans and development work (3.3); on-the-job learning and other forms and structures of providing education (3.5); and availability, supply and organisation of guidance activities (3.3) (Jäppinen, 2007).

1. Sub-area: management support groups and areas of responsibility

The scope and sensible distribution of the areas of responsibility of the groups and teams supporting the management proved to be one of the most important areas of pedagogically distributed leadership, with an average of 3.5 (Figure 1). All the education providers received in this sub-area either quality level 3 or quality level 4. Both scores were recorded seven times each.

Figure 1. **Main profile**

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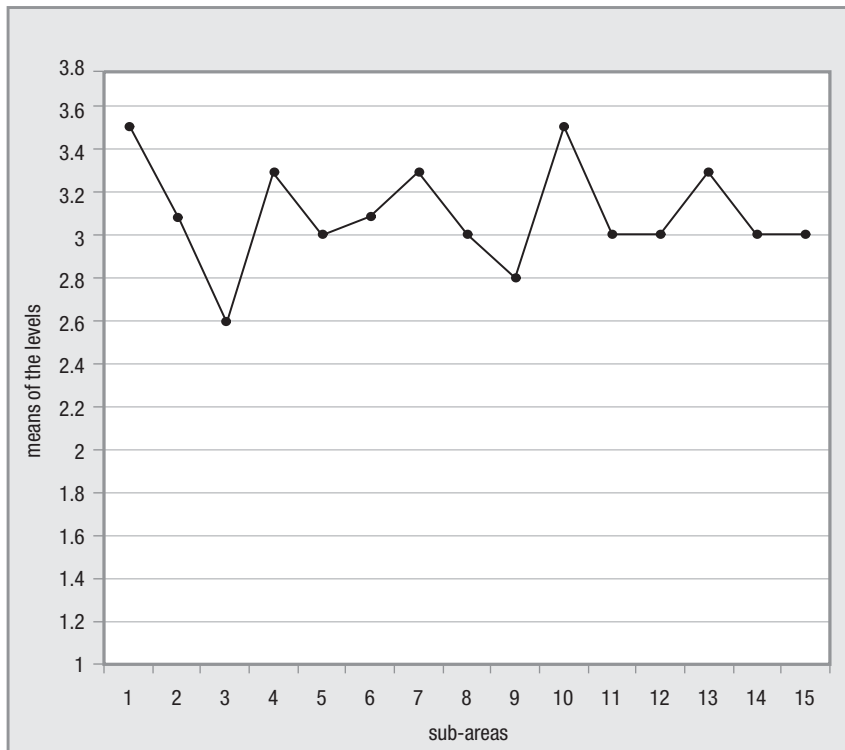
The management had a participative, developmental and evaluative grasp that emphasised effective interaction between the management and staff. There were two types of management groups or teams: decision-making bodies which were organisational tools for the management and 'doers' which were practical executors of the tasks. The groups and teams were both systematic and flexible; in addition to regular times, meetings were held, if necessary, at short notice. The groups and teams were organised down to the teacher level, and the staff carried out their tasks in accordance with mutually agreed values and principles.

A systematic approach and persistence manifested themselves as a management and organisational structure that extended from the management level to all parts of the educational institution(s) as efficient and comprehensively networked multiprofessional groups. The networks covered all the educational institutions in the municipal education and training consortium or the entire institution as comprehensively as possible. The groups and teams had clearly defined areas of responsibility and a purpose. The teachers had frequently had an involvement in setting up the groups and teams. The group members were also often members of other networks in their own educational sector as actors or experts.

Critical examination of the management and organisational structure could be seen especially in the interviews. The respondents were open and honest and avoided putting unnecessary gloss on matters. Addressing particular issues was demonstrated in the ability of the groups and teams supporting the management to handle, at a practical level, issues that were relevant to all the students and the entire staff, not just some of them. The focus was on the essential elements, without, however, forgetting the general view. The groups and teams covered all the support actions, such as student welfare services, special needs education, and student accommodation services. The management and organisational structures really worked in a good environment, and the groups and teams genuinely took matters forward. Sufficient information flowed via the teams and groups to all levels of the organisation.

4. Sub-area: general effectiveness of work on the curriculum

CONTENT 1
The general practices of work on the curriculum, i.e. carefully managed and divided work on the curriculum, proved another important

manifestation of stronger pedagogically distributed leadership. The general effectiveness of work on the curriculum received an average of 3.3 (Figure 1). Two education providers received quality level 4; six received level 3.5; five received level 3 and one received level 2.5. Figure 2 shows the averages of the stronger pedagogically distributed leadership for the contents relating to the general effectiveness of the curriculum: taking responsibility and commitment to work on the curriculum (3.4); working life and the curriculum (3.6); guidance concerning the curriculum (2.8); and open learning environments from the perspective of work on the curriculum (2.9).

A systematic approach and persistence manifested themselves as taking responsibility, both by management and the teaching staff for work on the curriculum, and as a commitment to it, with the curriculum being a tool for pedagogical management. The work was shared out among a large group of people in all parts of the institution(s).

Figure 2. **General effectiveness of work on the curriculum**

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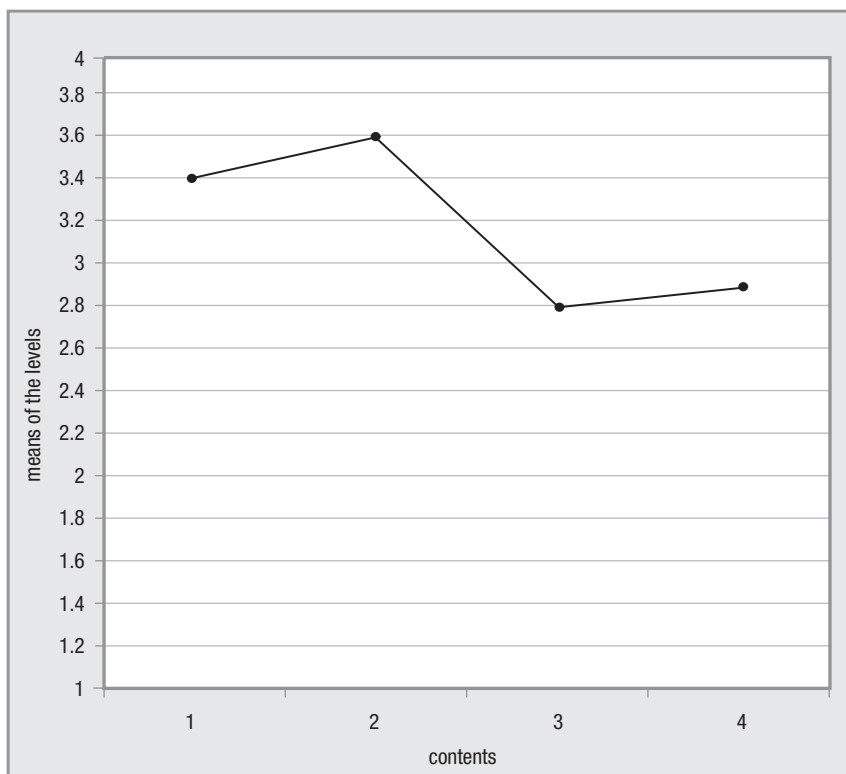
Nevertheless, it was important that someone, such as the principal, had primary responsibility. Work on the curriculum was increasingly perceived as a continuous process and not as a one-off event.

Critical self-examination was seen in honest evaluations by those with the greatest responsibility for work on the curriculum as to how the process had progressed and how the work had been experienced and received by the staff also at difficult times.

Addressing particular issues was ensured so that every member of the community was expected to know their place in the work on the curriculum. The curriculum was a genuine tool for guiding the activities of the teaching staff. It was easily accessible for all and an essential tool that harmonised teaching and brought issues into sharp focus. In some educational institutions, it was even distributed for use by the students. The involvement of the students and consideration of their opinions was also put into practice in work on the curriculum in many educational institutions.

When working in a good atmosphere, the work on the curriculum was a factor that clarified and united actions and practices. A sense of community and common effort was emphasised in work on the curriculum.

CONTENT 2

The contents of the curriculum were generally determined according to the needs of working life. The aim was to forecast changes in working life and to react to them as quickly as possible. Representatives of working life were involved in many ways in the work on the curriculum, either directly or, for example, via the management or the teachers' networks in working life. The approval of the curriculum often required a statement from representatives of working life. The networks with working life were comprehensive and diverse, and joint projects and cooperation with companies were frequent and efficient. The connections to working life safeguarded professional growth; the orientation towards working life was a factor that strongly encouraged a commitment to studying.

CONTENT 3

Guidance was implemented at the curriculum level in diverse ways, for example as guidance study units relating to vocational studies and as other guidance inputs relating to studies, such as special guidance on on-the-job learning. Guidance was also increasingly understood to be an overarching entity relating to all activities.

CONTENT 4

An open learning environment meant many things. It included extensive IT solutions, such as e-teaching, all the surrounding school and learning networks, individual and multifaceted study choices, and the consideration of various types of learning methods and styles. An open learning environment was seen in practice, for example, in flexible, extensive teaching arrangements tailored for individual needs or as educational structures. An open learning environment was frequently created through working life or other stakeholders. An open learning environment also manifested itself as an atmosphere that was accepting and supportive of the students, as a sense of community.

7. Sub-area: general practices relating to strategic plans and development work

The third strong area of pedagogically distributed leadership was general practices relating to strategic plans and development work, with an average of 3.3 (Figure 1). The contents and averages of this sub-area were: priority areas of strategic plans and development work and taking responsibility for actions and development (3.4); effectiveness of the plans and strategies in practice (3.2); monitoring absences (3.3); group guidance (3.5); and orientation practices for new students (3.3) (Figure 3). One education provider had quality level 4, six had 3.5 and seven had 3.

It is, therefore, of great importance which principles are used to design and develop the activities within vocational upper secondary education and training and how the decisions made are brought to the practical level when taking a view on absences and their monitoring, group guidance and the orientation of new students in vocational upper secondary education and training. The results of this sub-area are first examined at a general level in the light of the four special features and finally some observations are made on the more detailed contents of the sub-area, although they are closely tied to the Finnish education context.

CONTENTS 1 AND 2

A systematic approach and persistence manifested themselves in several ways: as clearly expressed values which were acted on at a practical level; as common educational objectives suitable to the educational institutions in question; as the taking of responsibility by the staff for the smooth functioning of the activities; and as the practical efficiency of the plans and strategies.

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Figure 3. **General practices of strategic plans and development work**
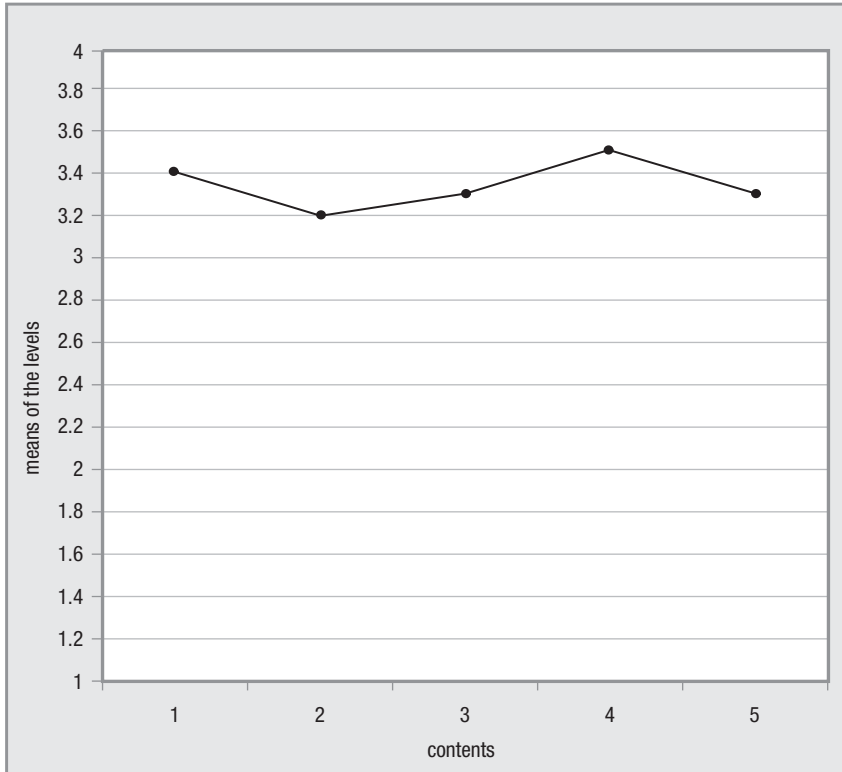
In the critical examination of one's own actions, strategic plans that were considered both good and not so good were raised. The plans and strategies were closely linked to pedagogical development. Student barometers and questionnaires were becoming one of the development tools at many institutions, used to ascertain actual changes and their direction. Clearly divided and expressed areas of responsibility had a positive impact on taking responsibility and commitment.

The institutions focused on certain areas one at a time and used resources according to which seemed essential: themes or priorities were particularly highlighted at certain times. The development work had resulted in permanent good practices. In larger organisations, the practices that had proven to be good had been distributed between the units and educational sectors.

Ensuring a good atmosphere manifested itself as the responsibility of the entire staff for education and as taking special care of the students. A sense of community and cooperation were emphasised in disseminating the plans, strategies and actions and in fostering commitment to them. The plans and strategies worked if the teaching staff and other personnel were given the opportunity to influence them: they were also suited to daily life. They were, on the one hand, based on certain permanent daily values, rules and practices, but, on the other hand, there was a willingness to adapt and change the activities flexibly according to the needs of the students.

CONTENTS 3-5
The monitoring of absences was generally assertive. Absences were quickly notified to the guardians of under-age students, many educational institutions were in the process of transferring the data to a database, and vocational and subject teachers were required to intervene in systematic absences. New and creative practices had been developed for group guidance. New student orientation practices were motivating and considered, for example, the studies of new students started a couple of days before the rest.

10. Sub-area: on-the-job learning and other forms and structures of providing education
The practices relating to the forms of the structure and provision of education were examined through certain teaching arrangements and on-the-job learning. The strength of the sub-area, which had an average of 3.5 (Figure 1), was mainly based on the extremely high 3.9 average for on-the-job learning (2) (Figure 4); for this reason the title of this section of the results was reformulated to emphasise on-the-job learning. In terms of reducing the level of drop-out and fostering a commitment to studying, the other structures and teaching arrangements considered positive also received a high average of 3.1 (1). Three providers received quality level 4, eight received 3.5 and three received 3.

CONTENT 2
On-the-job learning proved to be the most unifying factor among the various education providers and the factor that represented the strongest pedagogically distributed leadership. If the result for the work on the curriculum relating to working life, with its average of 3.5 (Figure 2), is integrated into this result, this indicates that

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focusing particularly on the connections to working life may achieve a reduction in the drop-out level and successfully foster commitment to studying.

Periods in working life had been arranged systematically. New, innovative and permanent on-the-job learning practices were created in longer-term projects and through the systematic and persistent nature of the actions. The teachers were proactive in their attitude to working life. They also tried to place students in appropriate on-the-job learning places.

Critical self-examination was not restricted to implementation of on-the-job learning, but was closely linked to strategic plans and development work on the curriculum. Efforts were made to give students as concrete and true a picture as possible of working life and of the tasks of the profession for which they were being trained.

Figure 4. **Forms of education provision**
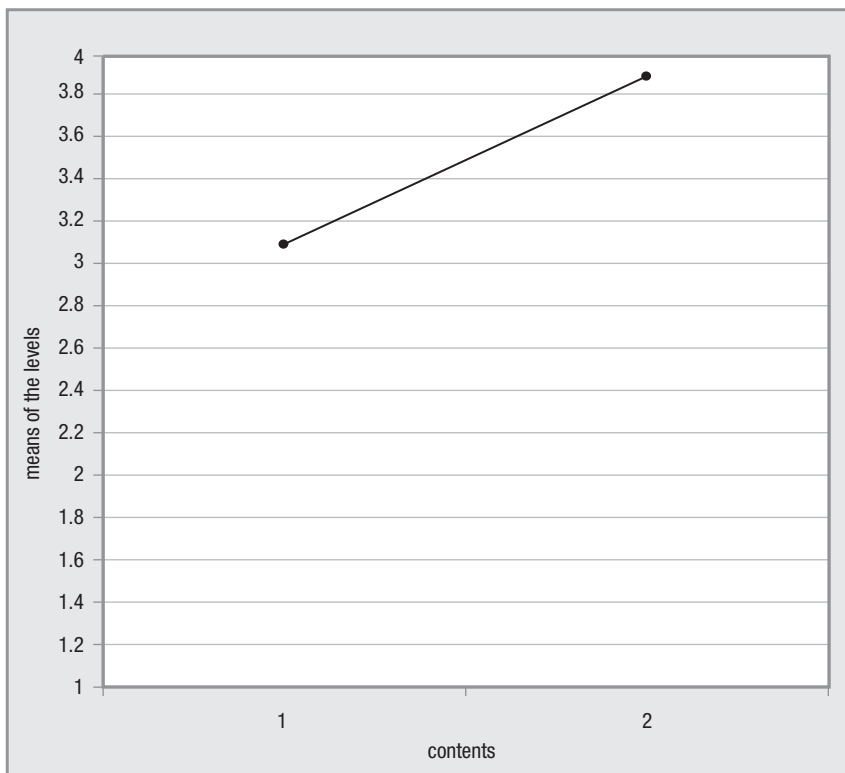
Addressing particular issues was seen in directing on-the-job learning projects at particular groups of students, such as those needing special support. It was also seen in personalisation of teaching, training of workplace counsellors and the development of cooperation with businesses. There was also emphasis on working-life-oriented working practices.

Ensuring a good atmosphere was mostly concerned with student motivation and taking into account the opinions of students. The teachers were in close contact with the students during the period of on-the-job learning, for example through visits and phone calls or by e-mail, and so demonstrated particular concern. Depending on the student's personal needs, the periods of on-the-job learning could sometimes be longer than normal, the practices allowing individual and tailored curricula. Spending time in working life was an important part of the student's own period of learning.

13. Sub-area: availability, supply and organisation of guidance activities

The availability and supply of guidance and the organisation of guidance activities received an average of 3.3 (Figure 1). This sub-area proved to be the fifth important factor for reducing the number of drop-outs and fostering a commitment to studying. The sub-area was studied through four contents: connections of guidance to basic education (3.1); multiprofessional nature of guidance (3.5); input into guidance by subject and vocational teachers; and regional guidance activities (2.9) (Figure 5). One of the education providers received quality level 4, nine received 3.5, two received 3.0, one received 2.5 and one received 2.

CONTENTS 1-2

Of the results, the multiprofessional nature of guidance should be highlighted. The smooth cooperation and networking of guidance professionals, who had many different job descriptions, proved to be the most important factor for the availability, supply and organisation of guidance. Actual guidance professionals are not the only available resource: for guidance to be sufficient and correctly targeted, input by everyone is required. The responsibility for guidance of subject and vocational teachers, and their important contribution, received increasing attention in many educational institutions.

Systematic approach and persistence related to the long-term organisation of guidance and the quality achieved even with smaller

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Figure 5. **Availability and supply of guidance and organisation of guidance activities**
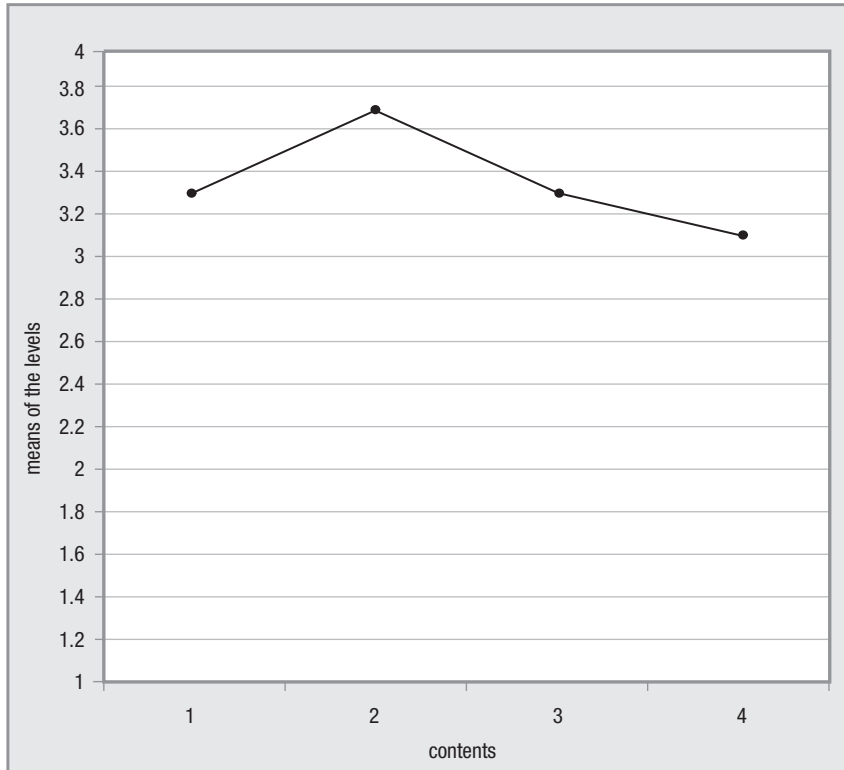
resources. The basis of multiprofessional nature of guidance was the well-functioning, networked and comprehensive student welfare group. All the members of the multiprofessional groups took responsibility for guidance within the sphere of their own expertise, meaning that the resources sufficed.

Critical self-examination featured as the continuous evaluation of the successes and challenges of guidance practices. A particular effort was focused on receiving information on the vocational training of comprehensive school guidance counsellors, which was considered problematic because much more information was provided on upper secondary level studies.

Addressing particular issues one at a time manifested itself, for example, as personal meetings, phone calls and contacts by e-mail. It also manifested itself as tailored guidance for specific students

or as solutions based on the division of tasks of those responsible for guidance. Staff responsible for guidance also systematically visited schools to inform comprehensive school children about the educational possibilities of vocational institutions.

Ensuring a good atmosphere was particularly apparent. The multiprofessional nature of guidance came across as the strong communal spirit, a safety net for students and a particular strength of the institutions. Close cooperation on guidance included scheduled transition meetings and informal discussions and contacts in connection with joint educational events.

Discussion

On the basis of the results of the Finnish study Get a vocation – keeping on top of studies, a vocational institution that fosters commitment in its students operates systematically and persistently, learning from difficult issues and responding to challenges. It examines its activities critically and adapts them, if necessary. It focuses on certain issues one at a time. It creates a safe and caring learning environment in which certain basic principles prevail, but, if required, is flexible and takes individual factors into consideration. This kind of educational institution is by no means perfect, but it has a solid aspiration continually to go forward.

The purpose of the Finnish Ministry, the task provider, was to find and disseminate the best practices which were common among vocational institutions that had succeeded in reducing their drop-out rate. This starting point limited the study, resulting in concentration on the common strengths of the institutions, not on their weaknesses, and lay aside strengths of an individual organisation. We might suppose that the issues which are not discussed in this paper (Table 1) are by no means without values: they can be strengths in some cases. However, we might draw the conclusion that the common strengths could be excellent starting points in the work to reduce the drop-out rate elsewhere.

Educational institutions that reduced the numbers dropping out and fostered commitment to studies in the students were diverse. They differed from each other in size, students, surroundings, economics, study fields, etc. They also organised their operations in very different ways, according to their teaching culture, staff expertise, etc. The institutions seemed to have, however, certain common basic features for successful activities and good practices, i.e. they exhibited stronger pedagogically distributed leadership: this means distribution

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of responsibility, expertise, power and commitment. First, these types of educational institution are managed with the aid of responsible support groups that extend to the various parts and levels of the organisation. Their members either represent all staff groups or they have close and effective connections to everyone.

Second, these educational institutions use the curriculum as a means of developing their activities. People are committed to working on the curriculum and take responsibility for it. The curriculum is genuinely a tool that assists in the development of connections to working life and guidance and broadens the learning environment.

Third, these types of educational institution invest in their strategic plans and development work: they have a clear view of where they are going. They have set values and priority areas that are implemented in practice and that the staff are willing to put themselves out for. Collective responsibility is taken for development work and activities, so plans and strategies work in practice. Absences are monitored closely and systematically and intervention is taken in real time. Emphasis is placed on group guidance and orientation practices for new students.

Fourth, these kinds of educational institution pay particular attention to on-the-job learning and its development. They ensure training for workplace instructors and provide information for the workplace, create a network of on-the-job learning places and guarantee the contents, quality and evaluation of on-the-job learning and on-the-job learning for students who need special support.

Fifth, they invest in the availability and organisation of guidance. They create active connections in guidance with the previous stage of education. These types of educational institutions use their guidance resources to the full and, if there is a shortfall, create compensating guidance practices. The guidance is multiprofessional so that everyone takes responsibility for guidance alongside actual guidance professionals. Guidance connections are also created outside the educational institution.

Society in Europe is constantly becoming more complex and unpredictable and, with these changes, teaching and learning an ever more demanding process. No long-lasting results will be achieved through quick fixes and an accelerated timetable, and it is self-evident that fostering commitment to studying and reducing the level of drop-out will require a considerable amount of time, effort and work. But it is possible for everybody, with small steps, persistently and systematically, by critically addressing particular issues one at a time, and through the support and generosity of every member of staff.

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Social inequality as an enduring phenomenon of general and vocational education

– characteristics in the Federal Republic of Germany and international perspectives

Prof. Dr. **Reinhold Nickolaus**
Director, Department of Vocational, Economic and Technical Educational Science (BWT)

Dipl.-Gwl. **Tobias Gschwendtner**
Research Assistant, Department of Vocational, Economic and Technical Educational Science (BWT)

Dr. **Bernd Geißel**
Research Assistant, Department of Vocational, Economic and Technical Educational Science (BWT)

Keywords

Social inequality and vocational education; individual educational opportunities in an international context; social selectivity in national educational systems; encouraging weaker students in vocational education; educational claims and reality

SUMMARY

This paper seeks to (1) provide an overview, from a macroanalytical perspective, of the characteristics of unequal educational opportunities within an international perspective, (2) set out problems related to social selectivity, in particular within the vocational educational system in Germany and (3) describe examples of the interaction between selection and vocational learning on the basis of empirical investigations. The intention is to illustrate the fundamental problems associated with social inequality at different levels in the educational field and to extract the correlations between selection and vocational learning.

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Preamble

Unequal educational opportunities afforded to children and young persons of differing social origins are a phenomenon that is relatively resistant to change in most countries. Despite the considerable expansion in education that has taken place in many countries over the past few decades, the highly prevalent inequality of opportunity remains a serious problem.

From an international perspective, serious national differences in access to education are immediately evident, and these are expressed in varying levels of participation in education, in educational expenditure and in the results achieved. This inequality from an international perspective is carried into national educational systems: in the Federal Republic of Germany for example, this is to be found in the educational expenditure and educational level attained in individual German Länder, and in the highly differing degrees of participation in education by different social groups within the Länder themselves. According to the comparative studies of Blossfeld and Shavit, the effects of social origin prove to be especially influential at the start of one's educational career (Blossfeld and Shavit, 1993), although they continue to act during subsequent phases, as is broadly confirmed by more recent data (see below). In addition to the studies in relation to participation in education and inequality of opportunity based on a more macroanalytical perspective, other studies have analysed inequalities in the actual teaching/learning situations. Among other things, these examine different strategies in relation to teaching and encouragement, which are relevant to the development of stronger and weaker students, and also to the skills development of students who achieve different degrees of success. There is therefore less focus on the effects of social origin on educational biography than on the development of weaker students, the greater proportion of whom come from less academic social strata.

This paper seeks to (1) provide an overview, from a macroanalytical perspective, of the characteristics of unequal educational opportunities from an international perspective, (2) set out problems related to social selectivity, in particular within the vocational educational system in Germany and (3) describe examples of the interaction between selection and vocational learning on the basis of empirical investigations. The intention is to illustrate the fundamental problems associated with social inequality at different levels in the educational field and to extract the correlations between selection and vocational learning.

Nationality and its consequences on individual educational opportunities

The analyses presented by the OECD powerfully demonstrate the effect of nationality on individual educational opportunities. This is highlighted for example by the comparative data in relation to educational achievements in individual countries, which indicate a high degree of heterogeneity despite the fact that comparisons are very difficult owing to structural differences.

The curves reproduced as examples in Fig. 1 for Italy, Finland, Poland, Ireland, Germany and France illustrate the fact that measured against the standard qualification ([1]) (International Standard Classification of Education) developed by UNESCO, in these countries, individuals have highly varying opportunities of actually attaining levels ISCED 3 or ISCED 5-7 (i.e. secondary level II or higher education degree), dependent on their nationality (Couppié and Mansuy, 2003).

Figure 1. **Proportions of 15 to 35-year-olds in leading industrial nations without higher secondary school leaving qualification (2001).**
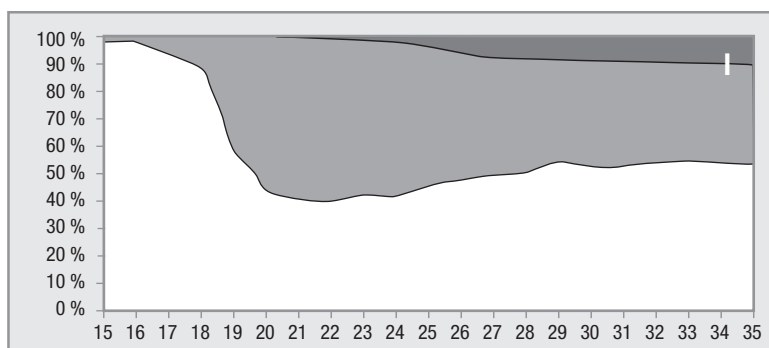
([1]) Those who have not yet attained any general or vocational education standard at secondary level II are assigned to level ISCED 0-2, level ISCED 3 includes those who have attained secondary level II but have not yet gained a higher educational degree, and level ISCED 5 to 7 includes graduates. In countries such as Germany, Switzerland and Austria, the allocations of those who have graduated at the tertiary level are viewed with a critical eye, since courses allocated in these countries to levels ISCED 3 and 4 are allocated to the higher educational level in other countries.

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| ISCED 0-2 | ISCED 3 | ISCED 5-7 |
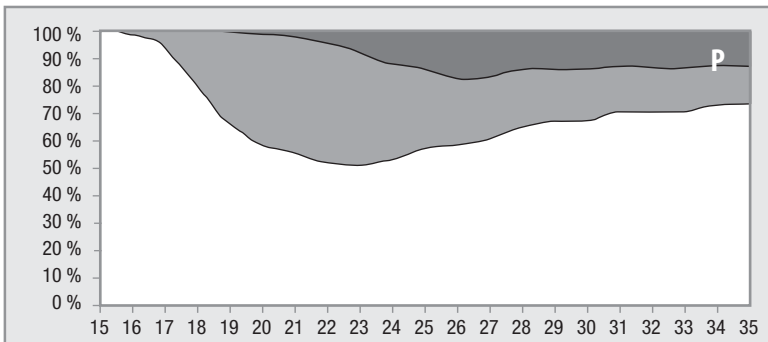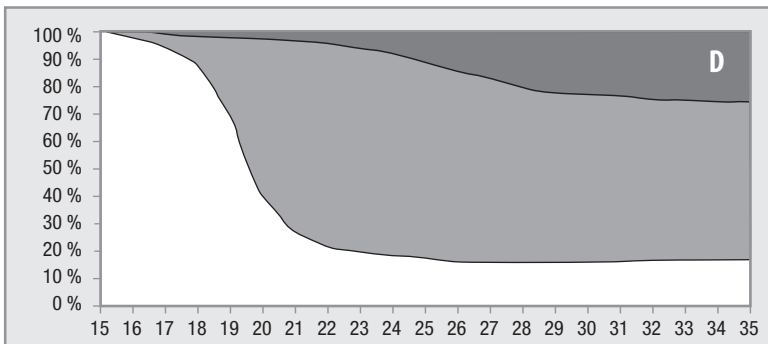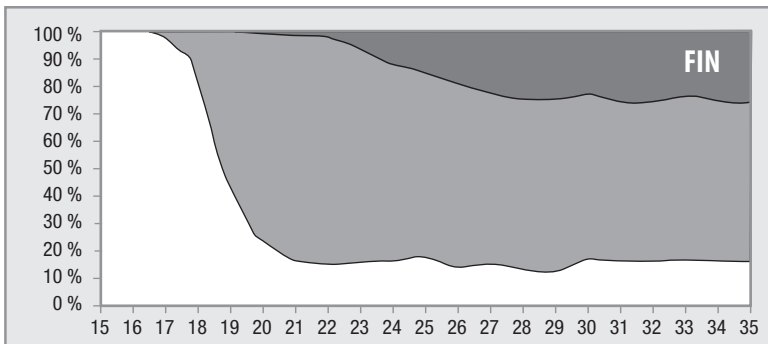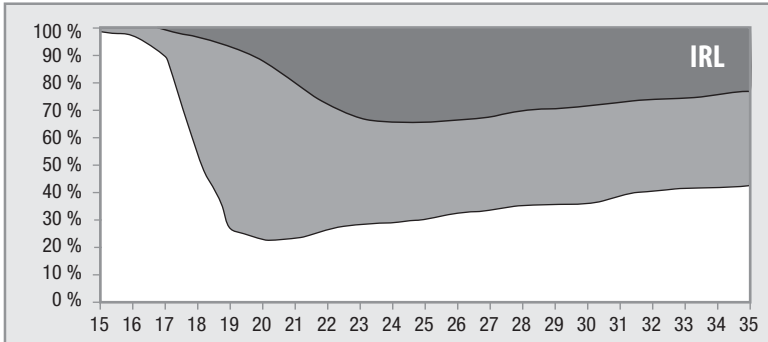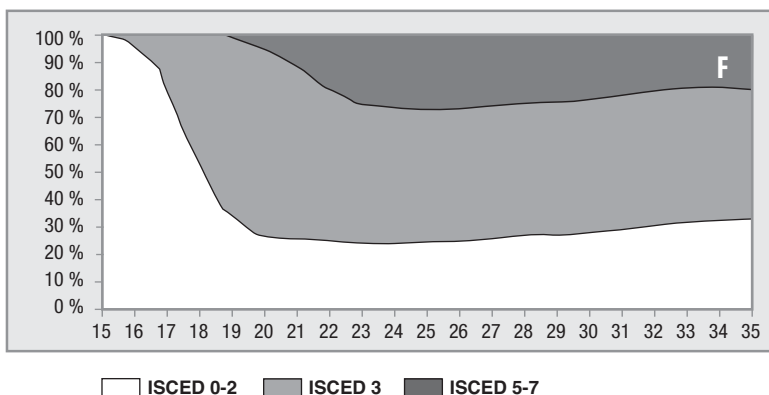
Note to aid understanding of the graphs: for every age range, the graphs break down the entire population according to educational level attained. They are based on average data and provide an impression of how a (simulated) peer group acquires its educational attainments.

Source: Couppié and Mansuy, 2003.

This phenomenon is confirmed by more recent data. As an example, the 2007 OECD education report still shows that extremely varied proportions of the population have attained tertiary and secondary qualifications in the OECD countries (see 'Education at a glance. OECD – 2006 indicators'). Within the EU, only 12 % of the population in both Slovakia and the Czech Republic have gained a higher education qualification, a very low proportion. Germany attains the average of the OECD countries at 25 %, whereas proportions in Denmark (32 %) and Sweden (35 %), for example, are much higher. Expenditure on education also varies considerably in the individual countries ([2]).

Out of the European countries, Norway, Denmark, Austria and Sweden in particular report higher than average expenditure on education per student, with educational expenditure in some of the countries in Eastern and South-Eastern Europe being well below average ('OECD, Education at a glance 2006', p. 191 et seq.), with considerably different circumstances in the primary, secondary and tertiary field. Whereas Finland, for example, which attained consistently above-average results in international studies of performance, stands at around the OECD average at all three levels for educational expenditure per student, Germany is below average at primary level, which is especially significant when it comes

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([2]) The results are based on data from 1995-1997. Couppié, Mansuy 2003 gives an overall view of the former EU countries.

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to further learning. Among the European countries for example, Norway is consistently above the OECD average and Greece and Poland below it. The inequality of educational opportunities offered to subsequent generations that is becoming evident in individual countries is unquestionably also related to some extent to the financial resources available in each country, although the nature of distinctive national preference structures appears to be just as important.

The effect of nationality on individual educational opportunities is also evident in international comparative studies (such as PISA) which show that, depending upon nationality, the opportunities for attaining a desirable level of basic skills, which are in turn extremely important for learning success in vocational education, vary, while social selectivity also varies significantly (OECD, 2007a).

Social selectivity in national educational systems

The structures of the national educational systems can be traced back to the individual qualification requirements of the employment system, which themselves underwent fundamental change during the 19th and 20th centuries. Alongside social change, growing demand for highly qualified workers was and is one of the core reasons for the ever-advancing expansion of education and the incorporation of all social classes into formalised educational processes. The opportunities offered to members of the lower social strata to participate in educational schemes are traditionally relatively unfavourable. Although the social selectivity of the educational systems varies considerably between individual countries, this phenomenon is generally observable with the OECD countries.

What is remarkable is not only the universality of the phenomenon of social inequality, but also the high degree of variation between countries. Whereas Portugal, Sweden and Finland, for example, demonstrate relatively little social selectivity, the educational systems of Belgium, Hungary, Germany and Slovakia are highly selective. Varying degrees of social selectivity are also evident from the mathematical performances of students with a migrant background, with above-average differences between students with and without a migrant background in Belgium and Germany as well as in Sweden and Switzerland (OECD 2007b, p. 104 et seq.).

Intergenerational elasticity of earnings, as a measure of both differences in the earnings levels of parents and their children as well as private return on education, are significantly different between individual countries (OECD, 2007a, p. 81). Whereas generational differences in earnings are relatively small in Italy, France, the United Kingdom and the USA, for example, they are well above average in Denmark, Norway, Finland, Australia and Canada. Although the private return on education is not directly linked to these differences in earnings, there are significant differences in the private return on education within this group of countries having relatively high intergenerational differences in earnings (ibid.).

The social selectivity of the general educational systems continues into vocational education ([3]). This is internationally well documented, not only in terms of involvement in further education, but also in terms of the vocational status attained by subsequent generations as a function of the social status of their parents (see for example European Group for Research on Equity, 2005). However, here too there are major differences between individual countries.

If one looks at countries with dual educational alternatives (which are examined more closely in Section 4 on the basis of new empirical studies) to determine how 'weaker' and 'stronger' students develop over the course of their vocational education, it is evident that far-reaching selection mechanisms come into play as early as the transition between school and vocational education. In the final analysis, students demonstrating better cognitive (and social) skills enter the more demanding vocations which especially promote personal development (Häfeli, Kraft, Schallberger, 1988; Nickolaus, Knöll, Gschwendtner, 2006; Seifried, 2006). Selection and socialisation effects reinforce one another during the course of education or, in other words: the 'haves' get more advantages (Seifried, 2006). However, these initial threshold selection processes, with their implications for individual development which are at first glance oriented towards performance criteria, are accompanied by social selection processes. Thus studies in relation to educational choice and vocational decisions that are based on value-expectancy theory show that cost/benefit considerations in relation to education are made in different ways according to social class. As an example,

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([3]) However, some studies show that vocational educational facilities mitigate educational disadvantage (see for example Preston, Greeno, 2008). In Germany for example, the vocational secondary schools prove effective in this respect (Maaz et al., 2004).

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parents from higher social classes attach relatively heavy weight to the risk of a fall in status, which may accompany a reduction in educational costs, whereas parents from lower social strata tend to overestimate educational costs (Becker, 2000; Schneider, 2004). This finding is also supported by empirical examinations of studies in relation to the theory of educational choice by Linda Gottfredson (cf. Ratschinski, 2006). Other studies document the migration background of the applicants for educational places, as a further relatively important social selection factor, based on the example of Germany (Friedrich, 2006). In market-dependent educational systems at least, considerable influence is exerted by regional and peer affiliation, which is in turn linked to economic constraints (Friedrich, 2006).

The fact that these selection mechanisms interact with educational and socialisation processes, as noted above, and that there is an inherent risk within the educational system of them reinforcing inequalities that already existed at the start of the educational process, rather than offsetting them, appears important.

Inequality/unequal encouragement during teaching

The fact that children from more educationally-deprived backgrounds sometimes enter the institutionalised education system with less favourable learning prerequisites, and generally receive less support from home, is not disputed. This raises the question of how teachers deal with heterogeneity, and whether it is possible to more or less balance out unequal initial opportunities. During classes, most teachers are confronted by varying degrees of obvious heterogeneity amongst learners. Findings indicate that this heterogeneity is greater in the field of vocational education than it is in academic education (Achtenhagen, Grubb, 2001; Schmidt, Hunter, 2004).

This heterogeneity presents a challenge to teachers, because meeting the need for adaptivity as a core quality feature of teaching in heterogeneous learning groups is difficult, and sometimes not very successful. Following on from the studies of Brophy and Good (1976) in relation to individualisation strategies of teachers, other studies in vocational educational research have examined the question of the extent to which proactive, reactive and even over-reactive teacher behaviour is encountered. Proactive teacher behaviour, which is encountered

relatively seldom, is characterised by the differential distribution of learning opportunities, which is directed towards the encouragement of those students deemed to be weaker, and may result in a reduction of the differences in performance within the class ([4]).

Over-reactive behaviour, which actually aggravates differences, is characterised by a focus on those students who are perceived to be higher performers, and in fact reflects the behaviour of around 15 % of teachers. Reactive behaviour is the most widespread, and is characterised by reactions to interaction, albeit without any specific strategy of encouragement, which also seems incapable of mitigating differences in performance. Added to this, the fact that the Pygmalion effect must be presumed to still be in operation (cf. for example Sembill, 2007), and for example causes judgements by teachers in relation to student performance assessment, in combination with relationship qualities, results in the systematic disadvantaging of 'rejected students' (ibid. p. 70 et seq.). These research results make it clear both that teachers do develop different strategies in order to avoid heterogeneity, and also that they run the risk of unnecessarily widening differences through their teaching behaviour.

By implementing more constructivistically orientated teacher/learner arrangements, it will hopefully be possible to achieve greater adaptivity in heterogeneous classes and learning groups than is possible in traditional teacher-centred teaching. The next section deals with the manner in which the performance of weaker and stronger trainees actually develops in a number of educational alternatives practised throughout Germany, measured against their prior knowledge, this being the strongest predictor of learning success.

The development of stronger and weaker trainees in dual and full-time college training courses

Data relating to the skills development of vehicle mechatronics engineers and in two electronic engineering vocations ([5]), based

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[4] Van Buer's studies for example reported a proportion of around 28 % of proactive teachers, with the greater proportion being more reactive (58 %), and 14 % actually being over-reactive (van Buer, 1990; Ziegler, 2006).

[5] These educational vocations are very popular in Germany. The majority of vehicle mechatronics engineers work in industrial technology (22 115 initial trainees in 2006), and production engineers make up the largest proportion of electronics engineers, of whom there are a total of 9 828 initial trainees in all specialist fields (BMBF, 2007).

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on three successive and related research projects, is set out below ([6]). These projects studied the question of whether better skills development can actually be demonstrated in teacher/learner arrangements that are characterised to a greater extent by self-monitoring and active teaching/learning, as is generally assumed in vocational and business teaching, rather than in more directive teacher/learner arrangements (Nickolaus, Heinzmann, Knöll, 2005; Nickolaus, Knöll, Gschwendtner, 2006; Nickolaus, Knöll, Gschwendtner, 2007). These studies clearly demonstrate that this assumption does not bear scrutiny. The question of how the subgroups of weaker and stronger students develop during the first year of training will now be examined in more detail. Allocation to the lowest and highest performance quartile in the entry test will be used to determine the subgroups, against the background that subject-specific prior knowledge is generally the strongest predictor of learning success (Helmke, Weinert, 1997).

Following the aptitude-treatment-interaction research (ATI research), the presumption was that weaker trainees benefit more from guided learning while stronger trainees benefit more from more open forms of teaching. The sought-after learning goals are also likely to produce dependencies, because more directive forms of teaching prove more beneficial in establishing specialist knowledge, whereas project-based, active learning is more beneficial for the acquisition of application-related knowledge (Weinert, 2000). Based on the assumption described above, that open forms of learning afford more opportunity for internal differentiation and thereby make it easier to meet the core quality criterion of adaptivity, it makes sense to examine the question of whether full advantage is taken of this opportunity and whether this potential is evident in the skills development of the learners. Given the results of international comparative studies (TIMSS, PISA), which are sobering as far as Germany is concerned since they lead one to assume that around 20-25 % of a year group is unable to cope with the requirements of a training course owing to inadequate basic knowledge (Baumert et al., 2001), this poses the general question of what performance developments are possible for weaker students. However, within the context of this paper, one must take account of the fact that as far as industrial technology in Germany is concerned, it is generally above-average trainees who enter the training vocations considered in this

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([6]) The projects were promoted by the German Research Association.

paper (Lehmann, Seeber, 2007; Nickolaus, Knöll, Gschwendtner, 2006). However, a substantial heterogeneity of performance must be expected within the vocations under consideration, because it is mainly general secondary school leavers who take up the electronics trade vocation under consideration, while mainly intermediate secondary school leavers are recruited in industrial electronics ([7]). A similar situation applies to vehicle mechatronics engineers. Under consideration are homogeneous company groups from the car industry which underwent a performance-based selection process, and also 'trade groups' which are taught in a full-time college situation. This latter group also included trainees who did not yet hold a subsequent contract to continue their training at specialist level.

Initial threshold selection mechanisms and their effects on the take-up of stronger and weaker trainees

Despite clearly varying between individual vocational areas, the attractiveness of the electrical vocations is relatively high. Combined with selection procedures that are specific to training vocations, this lead to marked differences in the trainee entry criteria. This applies in relation to cognitive criteria, entry motivation and also the assessment of the vocation selected as the vocation of choice, which correlates positively ($r \sim 0.2$, $p \sim 0.02$) ([8]) with entry motivation (see Nickolaus, Knöll, Gschwendtner, 2006).

There are also significant differences in relation to knowledge at entry, which is especially important as regards future learning success. In relation to declarative prior knowledge ([9]), with approximately 33 % of the maximum points score, electronics engineers achieve a value that is more than double that of electrical fitters (MVI = 14.6 % of maximum

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([7]) In trade situations, in-service training is normally undertaken full-time, although in some vocations and regions, training during the first year is undertaken in a full-time college situation with integrated workshop training. In heavy industry, at least large proportions of company training during the first year of training is conducted systematically in teaching workshops.

([8]) Among electronics engineers (industry), there are significant positive correlations between meeting the need for the vocation of choice and the introjected, identifying, intrinsic motivation and the interest; in the case of fitters (trade), the correlations are the same, but are however only significant in the case of intrinsic motivation ($r = 0.19$, sig. = 0.01).

([9]) Declarative knowledge was for example surveyed in relation to questions concerning electrical measurements/values. For example, in easy exercises only simple reproduction was required (sample exercise 1: in what groups can materials be classified in terms of their electrical characteristics?), whereas in difficult exercises, correlations had to be recognised (sample exercise 2: a conductor through which electricity is flowing becomes hot at a clamped joint. Give possible causes and state how this can be eliminated.)

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points score), with a significantly similar difference in the mean for procedural knowledge ([10]) (MVE = 22.2, SD = 16.75; MVI = 10.1, SD = 9.47) ([11]).

Figure 2. **Frequency distributions in relation to prior declarative knowledge of the vocations of electrical fitter (left) and electronics engineer (right)**

<table>
<tr><td>Electrical fitters
MEAN = 14,6
Std. Dev. = 15,615
N = 205
Percentage points score attained: prior declarative knowledge</td><td>Electronics engineers
MEAN = 33,37
Std. Dev. = 16,605
N = 160
Percentage points score attained: prior declarative knowledge</td></tr>
</table>
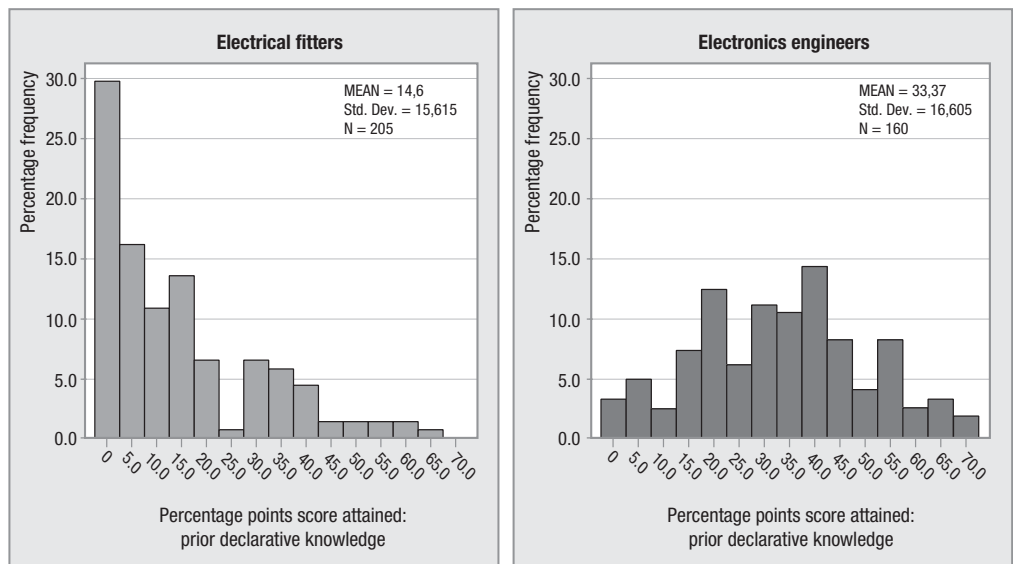
([10]) Procedural knowledge was firstly surveyed using specific tasks which required the calculation of electrical variables, and secondly, tasks were used in which the trainees had to explain the procedures they would use. In easy tasks, for example, they were asked to convert units (sample task 3: convert into the units indicated: a) length: L1=350mm=___ m; b) voltage: U=230V=___ kV; c) current: I=0.53A=___ mA). The next level of difficulty involved tasks in which for example simpler calculations had to be undertaken in a few steps, involving the use of contextual knowledge and specific process knowledge (sample task 4: what is the resistance of a copper wire with a conductor length of 24m and a conductor cross section of 1.5mm²?). At the next degree of difficulty were tasks in which solutions had to be reached in several steps, in which trainees had to use contextual and process knowledge (sample task 5: calculation of the overall resistance of a mixed circuit (resistance network) comprising 6 ohm resistances). The highest level involved tasks in which a range of contextual knowledge and several rules had to be applied in order to produce a solution in several steps (sample task 6: a trainee has rented a room and wants to roughly calculate the electricity costs (energy consumption costs) he will incur. His room is fitted with a ceiling light, a television, a refrigerator and a hot plate. What values must he calculate and how should he do it?).

([11]) The test instruments for both vocations were identical.

As shown by the frequency distributions reproduced in Fig. 2, the fitter groups include a large number of relatively weak trainees ([12]) who have very little prior knowledge upon which to build, despite the fact that the lower secondary school curriculum includes a relatively large number of exercises.

This data generally impressively confirms the assumption that, dependent on their 'level of attractiveness', the various vocations attract trainees with extremely different entry criteria. The cognitive criteria in particular differ considerably, while heterogeneity is very marked in both vocations. The fact that those who gain apprenticeships with significantly better cognitive skills also bring with them higher levels of motivation leads one to expect increasing differences in the course of future developments ([13]).

Similar effects were observed in the training vocation of vehicle mechatronics engineers, which is one of the most attractive in the field of industrial technology in Germany. This means that a significantly different 'clientele' gains the training places offered by the car industry from those who gain trade training places. The differences in mean IQ are highly significant (MVI=115.8; SD=15.9; MVT=101.9; SD=15.9); the same applies for subject-specific prior declarative and procedural knowledge (prior declarative knowledge: MVI =47.3; SD=12.0; MVT=31.4; SD=16.1; prior procedural knowledge: MVI=24.9; SD=13.4; MVT=10.0; SD=9.6).

Data in relation to mathematical skills and reading ability at the start of their training is also available for the vehicle mechatronics engineers; the same applies to a survey group of electronics engineers for energy and building services engineering comprising 203 trainees (formerly electrical fitters), who are included in a current survey that is still in progress (2008).

This data reflects the situations documented above in relation to IQ and subject-specific prior knowledge. There are thus serious differences between industrial and trade apprentices.

Since subject-specific prior knowledge, mathematical ability and reading fluency prove to be key predictors of learning success (see below), these differences are of outstanding importance.

([12]) For example, over 50 % of electrical fitter trainees gained less than 10 % of the possible points score.

([13]) The interaction between selection mechanisms ascertained in vocational socialisation research and the encouragement practices that serve to reinforce the differences (Häfeli, Kraft, Schallberger, 1988) were confirmed in this research.

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Figure 3. **Comparison of entry (skills) values (mean values, standard deviations) of two industrial technology training vocations**

	Vehicle mechatronics engineers (industry/trade) N=305	Electronics engineers for energy and building services engineering N=235	Effect sise d
IQ	**106.7** (SD=17.2)	**103.7** (SD=16.6)	**0.18** (p=0.06)
Mathematics	**11.0** (SD=2.9)	**10.1** (SD=2.9)	**0.30** (p=0.001)
Reading comprehension	**14.9** (SD=3.3)	**14.2** (SD=3.2)	**0.22** (p=0.01)

Comparison of the development of stronger and weaker trainees
The comparative data set out below originate from three surveys. The first compared stronger and weaker electrical fitters who received trade training. The second was conducted among electronics engineers who were trained in the industry. This study not only enables a comparison to be made within the vocation between strong and weak trainees, but also seeks to make a comparison with electrical fitters; as demonstrated above, the latter's entry conditions when they take up their apprenticeship are significantly worse. The third survey again involved electrical fitters, and also vehicle mechatronics engineers, some of whom are training in the trade and some in industry.

We apply successively more demanding methods of comparison:
- survey 1: we primarily use mean value comparisons based on total points scores attained;
- survey 2: some of the comparisons are based on skills levels; although theoretical principles were applied, they have not yet been the subject of Rasch scaling and were generated by item difficulty characteristics tested through regression analysis; and
- survey 3: partial use of a Rasch-scaled skills model is possible.

Survey 1: Stronger and weaker electrical fitters (trainees in the trade)

Out of the total of 205 trainees who sat the entry test, 53 were allocated to the lower quartile and 51 to the upper quartile, measured on the basis of all their prior knowledge. As anticipated, the failure rate prior to the final test at the end of the first year of train-

ing was higher among the weaker group than among the stronger group (53-30; 51-37). Also in line with expectations, the weaker group consisted mainly of lower secondary school students (with and without a school leaving certificate) (93.7 %), whereas the stronger group comprised approximately equal proportions of lower secondary school leavers and trainees with a secondary school leaving certificate (HSch: 46.6 %; RSch: 48.9 %; FH-Reife/Abitur: 4.4 %) ([14]). The IQ values also differ quite considerably (MV_{weak}= 96; MV_{strong}= 110; p= 0.00).

The weaker trainees managed to reduce the gap between themselves and the stronger group in relation to the development of declarative knowledge. At the end of the school year, around half of the weaker trainees attained more than 40 % of the prescribed points score, and based on a linear grading scale, would attain a grade of 'satisfactory' or higher. The differences in performance based on teaching method proved insignificant.

The relatively positive overall picture in relation to declarative knowledge clearly contrasts with the development in procedural knowledge, where there was a serious increase in the differences in performance. Using the same grading scale as above, only three of the weaker trainees would attain a 'satisfactory' performance. Qualitative analyses demonstrate that in relation to declarative knowledge, the weaker trainees mainly succeed in exercise types that can be successfully tackled purely through reproduction, whereas in relation to procedural knowledge, exercises that require simple algebraic transformations (conversion of equations) or the combination of several procedural stages seem to represent serious barriers to the weaker students (for more detail, see Nickolaus, Ziegler, 2005, p. 167 et seq.). The feeling of being overburdened also increased among the weaker group during the course of the first year of training, which has a knock-on effect on motivation.

Survey 2: Comparison of stronger and weaker electronics engineers (trainees in industrial enterprises)

Starting from the qualitative analyses referred to above, 2 and 4 skills levels were distinguished in relation to the subscales of declarative and procedural knowledge respectively in the second survey. As regards the development of skills levels, it is critical that the higher level was designed to represent a higher degree of

([14]) HSch = lower secondary school; RSch = secondary school; FH-Reife = leaving certificate giving access to a technical university

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complexity a) of system understanding and/or b) of the application of the rules required to tackle the exercise. Assumptions in relation to the familiarity (routine) of students with the contexts of the exercises were also used as design criteria ([15]).

Based on the distinct skills levels, it becomes even more evident that the weaker students are able to make substantial learning progress, particularly in the lower skills levels.

Specifically:

Skills level 1 of declarative knowledge (D1, lowest level, primarily reproduction, see sample exercise 1 in footnote 12):

- at this skills level, the stronger trainees already attain around 74 % of the points score in the entry test, and achieve slight improvements in the interim and final tests (83.2 %/79.6 %). The slight reduction in performance between the interim and final tests could be due to the fact that the content was dealt with quite a long time ago during the course;
- the weaker trainees attain around 34 % of the points score in the entry test and are able to increase significantly in the interim and final tests (60.8 %/59.6 %). The difference in comparison with the strong students remains significant;
- at this skills level, the teaching method is insignificant as regards the learning results among both stronger and weaker trainees.

Skills level 2 of declarative knowledge (D2, contextual knowledge, see sample exercise 2 in footnote 12):

- in this case, the strong trainees attained 20.4 % of the points scores in the entry test, and 35.7 %/39.7 % in the interim/final tests;
- with 14.6 % in the final test, the weaker students had not yet reached the same level that the stronger students had attained in the entry test. At the beginning of their training, this group proved unable to cope with this level of demand (3.7 % solution rate);
- the difference between more directively taught trainees and those taught more actively becomes successively greater, and in the final test it came out as significantly in favour of those taught directively.

Skills level 1 of procedural knowledge (P1, e.g. simple, one-stage, subject-specific mathematical operations, see sample exercise 3, footnote 13):

- at this skills level, both the strong and weak students attain high

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([15]) For more details in relation to the design of the skills model, see Nickolaus, Gschwendtner, Knöll, 2006

solution rates (91.7 %/68.3 %) in the entry test; these fall slightly for the strong students (interim test: 89.3 %, final test: 87.0 %), but rise slightly for the weak students (approx. 74 % in both tests);

- the effects of the teaching method on the skill attained cannot be ascertained.

Skills level 2 of procedural knowledge (P2, simple exercises with a few steps requiring contextual knowledge, see sample exercise 4, footnote 13):

- in this case, the strong students already attain relatively good performance levels (52.5 % solution rate), and are able to improve to 71.7 % by the interim test. No significant changes are reported by the time of the final test;
- the weaker students enter this skills level with low performances (18.4 %), but are able to achieve significant increases (interim test: 55.8 %, final test: 49.9 %);
- the effects of the teaching method also cannot be ascertained at this skills level.

Skills level 3 of procedural knowledge (P3, more complex exercises involving several steps, see sample exercise 5, footnote 13):

- although the strongest trainees attain significantly worse results than expected in the entry test at this skills level (30.5 %) than at skills level 2, they attain similar solution rates (72.5 %/69 %) in the interim and final tests as they do at skills level 2;
- the weaker trainees only attain 2.7 % in the entry test and they only increase to a limited extent in the subsequent tests: (interim test: 26.9 %, final test: 41.7 %). Measured against requirements, a significant proportion of these trainees perform insufficiently, although the difference is less marked than at skills level 2 of declarative knowledge;
- here also, the teaching method has no significant effect, although when strong, directively-taught students are compared with strong students who have been taught more actively, the latter teaching method would appear to be more successful.

Skills level 4 of procedural knowledge (P4, complex exercises with several steps requiring a range of contextual knowledge and the application of various procedural rules, see sample exercise 6, footnote 13):

- as expected, the entry performance of the strong students is lowest (entry test: 20.6 %) and remains below the 50 % mark in the subsequent tests (interim test: 40.7 %, final test: 44.0 %);
- the weaker students start at a similar level to that of skills level

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3 and achieve relatively modest increases (interim test: 17.1 %, final test: 28.3 %);

- it would appear that teaching method has a significant effect in relation to the group as a whole at the time of the interim test in favour of those taught more directively, whereas by the final test, these differences have evened out over the whole group; instead, contrary to expectations, both the stronger and weaker directively-taught students tend to benefit more than both the stronger and weaker students who are taught actively.

Overall, these surveys demonstrate that among industrial apprentices in the electrical trade who have relatively strong cognitive skills, it is the weaker trainees who primarily achieve satisfactory performances at the lower skills levels. The effects of the teaching method are no longer demonstrable on the basis of the overall scores of these trainees, contrary to the situation in relation to cognitively weaker electrical fitters. However, if one divides up the exercises by level of difficulty, then here too, contrary to expectations, those taught more directively perform better at the higher skills levels. The gaps between the stronger and weaker students can best be narrowed at the lower skills levels, whereas more evident differences are still found at the higher skills level.

If one conducts global systematic regression analyses in relation to individual skills levels, the modelling finds prior knowledge of the skills level and motivational variables in relation to situation and conditions to be virtually consistent; this includes, at skills level D2, teaching method (2.1 %). Contrary to other trends, no levelling and no parallel courses of development occur at skills level D2 during the first year of training. Even if other methods indicate no significant treatment effects ([16]) at this point, the findings do give cause to suspect that the acquisition of fundamental and contextual knowledge is better taught to the relatively strong classes of electronics engineers in directively taught classes. In contrast, univariate covariance analyses confirm the trend (p=0.07 or 0.08) that actively taught weak students at skills level P4 and actively taught students at P3 do slightly better in the final test. In variance analyses, class membership has a greater effect sise than teaching method (η2 ranges between 0.11 and 0.17, dependent on the time of measurement and skills level).

([16]) Univariate covariance analysis with the covariant of prior knowledge of the skills level.

Survey 3: Stronger and weaker vehicle mechatronics engineers and electrical fitters and an explanatory model for the skills development of the subgroups

As in the first survey of electrical fitters, significantly higher drop-out rates by the weaker students are initially found among the vehicle mechatronics engineers included in the third survey, and the reduction in the performance difference in relation to declaratory knowledge and a broader spread of procedural knowledge are confirmed. If one examines which significant factors of influence come into play as regards the development of specialist knowledge, the results differ between the weak and strong students. Among the weak vehicle mechatronics engineers, reading ability proves to be the most important factor, while among the strong students, for whom reading ability is less of a barrier, mathematical ability, prior specialist knowledge and teaching methods are important factors (Geißel, 2008; Gschwendtner, 2008; Nickolaus, Gschwendtner, Geißel, 2008). The drop-out rate among weaker electrical fitters is also significantly higher, and the pattern of an increasing breadth of performance in relation to procedural knowledge is repeated, while declarative knowledge runs more or less parallel in the subgroups of strong and weak students. Factor analyses show that the development of specialist knowledge amongst the weak students is primarily affected by their mathematical abilities and far less by motivation. Among the strong students, both mathematical skill and also the quality of the work-based training, prior knowledge and identified motivation are all explanatory factors. The stronger trainees are presumably better able to establish links between school-based and work-based training. It is also conceivable that the stronger students are given exercises that promote learning in the work context.

Practically speaking, the results may be summarised as follows:
- weaker and stronger performing trainees require different forms of encouragement;
- among weaker performing students, gaps are particularly evident in more demanding exercises, i.e. at the higher skills levels;
- the dual training method tends to be better than the full-time college-based training method, this however appears to be strongly affected by the fact that it is trainees without a subsequent technical university place who are taken on in full-time college-based training courses;
- the quality of work-based training is also relevant for the development of theoretical knowledge.

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The Rasch scaling undertaken for the vehicle mechatronics engineers at the time of the final test produces a one-dimensional scaling (i.e. declarative and procedural knowledge are not shown as separate dimensions) with four levels.

The graph below compares the performances of the trade trainees and those from the car industry at the time of the final test. This shows that the greater proportion of the trade apprentices (full-time students) ([17]) only attain skills level 1, while the trainees from the car industry (part-time students) attain skills level 2 on average.

Figure 4. **Skills levels of full-time and part-time students**
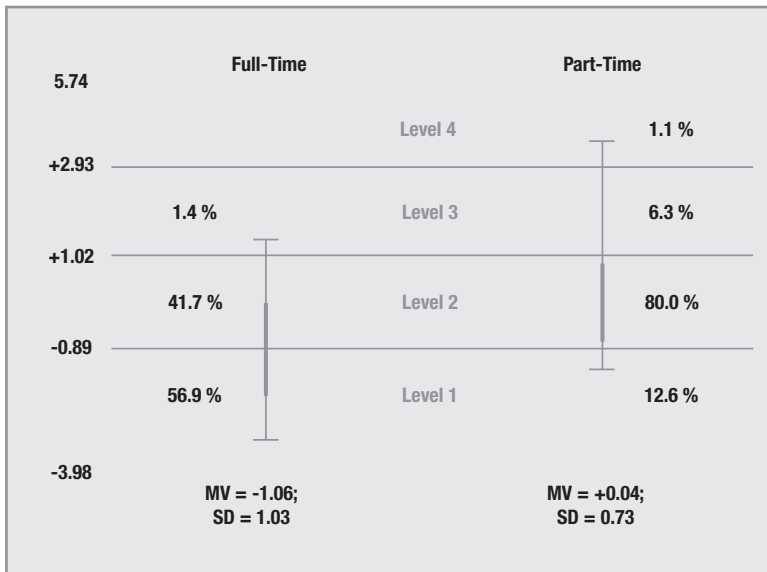
In concrete terms, 56.9 % of trade apprentices attain level 1, 41.7 % level 2 and only two subjects attain level 3. Among the industrial apprentices, 12.6 % stay at level 1, 80 % reach level 2, 6.3 % level 3 and one subject attains level 4.

Measured against the curricular standards, which include level 4, all the trainees are actually below requirements, which is probably primarily due to the excessively high standards set in the curricula.

([17]) In many vocations and regions of Germany, the trainees from small businesses are trained in full-time colleges during their first year of training. Training is only truly dual as from the second year of training.

Summary

This paper demonstrates that the opportunities offered to individuals to participate in training/vocational training depend on nationality, regional and social origin, teaching methods, and additional class characteristics and the strategies of teachers to deal with heterogeneity. The data in relation to the development of weaker students shows that serious deficits persist, particularly in relation to more demanding exercises. The interaction between selection, educational and socialisation processes appears to increase rather than diminish the differences between high-performing and low-performing students. Since prior knowledge is a key predictor of further learning development and inadequate basic skills prove to be a barrier, vocational training will in future increasingly be required to at least help to mitigate the problems through relevant remedial programmes.

It is noticeable that according to the results of our survey, the 'constructive turnaround' that is at least discussed in many countries, with its emphasis on self-directed and active learning, is not meeting the high expectations. Possible causes include:
- domain-specific features (in the field of industrial technology), since the findings in the commercial field are in line with expectations;
- the fact that the survey relates to basic training, during which basic knowledge must initially be established, on the basis of which the anticipated effects may possibly be achieved at the specialist level;
- the pre-existing cognitive levels of the learners, since our surveys also indicate that the performance development of the cognitively stronger industrial trainees is less dependent on method-related decisions; and
- the quality of implementation of the method-related arrangements.

Further analyses (Nickolaus, Gschwendtner, Knöll, 2006) show that, in particular, the insufficient ability of weaker trainees to adapt and the excessive demands made on them have negative effects on their performance development. Account must also be taken of the fact that studies conducted internationally on the effects of decisions in relation to method produced at least on average somewhat modest measurable effects, and that directive instruction proves very beneficial, in comparison with other teaching methods, for large teaching groups and weaker students (cf. e.g. Brophy, Good, 1986). In this context, the finding made by Shulman (1982), namely that directive instruction does not, as frequently assumed,

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conceptualise learners as passive recipients of knowledge (ibid. p. 97 et seq.), appears to be important. In fact, this method entails the instructor setting reasonable learning targets, dividing the material into manageable and appropriate learning units, conveying the necessary knowledge or generating it through dialogue, setting exercises of differing levels of difficulty, ensuring adequate practice, supporting as necessary and monitoring the individual learning progress in a spirit of encouragement (cf. Weinert 1996, p. 30). In the vocational field, there is only a modest amount of research available on this topic, even internationally (Achtenhagen, Grubb, 2001). Achtenhagen and Grubb state in summary: 'The competencies required by changes in work often require instruction that integrates both academic and vocational competencies, work-based learning, and more constructivist and system-oriented teaching in place of the didactic, sequential, skills-centred methods that have dominated in the past' (cf. ibid., p. 631).

As regards topics associated with social selectivity, the findings do not lead to the assumption that the currently preferred didactic concepts of self-directed and active learning are also an especially good means of encouraging weaker students during standard teaching. The stronger students appear to benefit most from this method of teaching/learning. The development of weaker students generally remains unsatisfactory. It is not certain to what extent this is also reflected in the long term in their vocational performance, since the data from the life study (lives up to early adulthood) show that social origin constitutes an important predictor not only of educational level attained, but also for the transition into vocational positions (Fend, 2006; Preston, Green, 2008). In summary, at least for the slice of reality examined here, it is evident that the cognitive differences that exist when students enter the educational system are not substantially mitigated.

It is worth noting that discrimination against women still exists in vocational education and in the employment system, despite having by now been overcome in the German general educational system (Fend 2006, in particular pp. 274-276). Among the OECD member countries, Germany reports a well above-average wage differential between men and women (OECD 2007, p. 79). In Germany, men are more likely than women to progress further during the course of their lives (Fend, 2006). Although this may also apply to the survey group examined here, which comprises mainly men, no empirical data is available on the subject.

When compared at international level, we consider it interesting to note that in Germany, in periods of time when it is difficult to make the transition to training in the vocations surveyed, the stronger trainees are more often found in the dual forms of education than in the full-time college-based forms of the first year of training, so that the proportions are completely the reverse of the situation in France, for example. This may primarily be the result of the better opportunities in Germany to move from in-work training to dual training alternatives.

Finally, what are the consequences of the survey results? In our opinion, provisions need to be made in order to better support the weaker students in their development, which presupposes both better diagnostics and also better teacher training. This needs to be accompanied by the allocation of necessary resources for support programmes. Particularly among the weaker students, the promotion of reading skills would appear to be an important starting point. These students also need more support or guidance and appear to require more individual attention. The primary use of teaching/learning arrangements that feature self-direction and active learning may only be justifiable for this group provided they remain adaptable. Generally speaking, our results indicate that the preferred methods currently used in the basic education in regard to industrial technology are seriously lacking in legitimacy.

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Training and labour market integration of education science graduates

Dr **Amparo Jiménez Vivas**
Full Professor of Educational and Vocational Diagnosis
Faculty of Education Sciences, Pontifical University of Salamanca, Spain

SUMMARY

The aim of the research behind this article is to identify the relationships that must exist between university training and the social and occupational environment. One of the many functions that derive from the university-society relationship is to train students to carry out certain professions. As a result, the analysis of the labour market integration of graduates from one university and the definition of their skills becomes a quality indicator of this relationship and one of the pillars that define the list of qualifications within the European Higher Education Area.

We therefore look at a range of variables connected with information on professional opportunities, the satisfaction of job expectations, the relationship between university training and professional performance and the assessment of personal, intellectual, vocational and other training received on education science degree courses.

Introduction

The findings from two studies ([1]) and others with similar characteristics conducted by various experts and universities, have allowed us to draw a series of conclusions that are of interest to the university community, given the changes that the European Higher Education Area demands (see the proposals of the Tuning pilot project). These conclusions attempt to shed light on the social and professional integration of university graduates in order to develop one of the key functions of higher education: training students to carry out professions appropriate to the skills, needs and demands of the current labour market.

As a result, we believe that the social and professional integration of university graduates and their assessment of the training received are clear quality indicators of the university training (Molero, 2002; Parra, 2003; Aneca, 2004; Jiménez et al., 2007). These quality indicators can then serve as a source of systematic and rigorous information for improving both the institution itself and the understanding of new social requirements.

Thus, to achieve a quality education and guide the design of syllabuses towards European convergence, it is vital to assess the factors that determine the choice of studies by university students, the extent to which the profile demanded by the labour market and the characteristics of each degree course correspond and the correlation between the graduate and the occupational environment. To this end, tracking the progress of university graduates has formed a vital part and focus of our research, allowing us to identify the routes and circumstances involved in their integration into the labour market.

As Carrascosa and Molero (2002, p. 238) point out, 'information and empirical evidence are needed to back up and guide the development of opinions within both the university community and society. Research needs to be carried out on the university and

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[1] (2006-07): 'Análisis de perfiles profesionales y competencias tanto genéricas como específicas de las titulaciones de CC. de la Educación' [Analysis of occupational profiles and generic and specific skills of education science graduates]. Financed by the Regional Government of Castille and Leon, Ref: PO04/05 (Spain);
(2003-05): 'Diagnóstico formativo e inserción laboral de los titulados en CC. de la Educación; estudio comparativo entre titulados hombre y mujeres' [Diagnosis of training and labour market integration of education science graduates; comparative study of male and female graduates]. Financed by the European Social Fund through the Community EQUAL Initiative in Spain under the decision of 16 November 2001.

not just on the effectiveness and efficiency within the system, but also on its capacity to respond to the needs of society and those of the people it trains. These needs are not limited to obtaining a qualification, but also include specific guidance on labour market integration and the development of further training processes'.

Furthermore, bearing in mind the personal perspective of students, the integration of university graduates is a complex and multifaceted phenomenon that must be rigorously analysed, given that it not only forms one of the most critical moments in the development of an individual's career, but also, whereas 'in previous decades, a graduate's future seemed assured and was also linked with high social status and income, nowadays we are living in a climate of uncertainty as regards the relevance and value of a degree' (Gaio Alves, 2005, p. 30).

What is more, of all the university graduates, the two groups that find it most difficult to fully and adequately enter into working life are women and graduates in the humanities, particularly education sciences. These are the two groups that interest us and that must particularly benefit from vocational guidance and research plans and strategies.

Therefore, we need to understand the situation of education science graduates in terms of their opportunities for entering into working life, so that we can propose specific vocational guidance actions and plans. We need to analyse their level of labour market integration, their reasons for choosing to pursue these studies, their assessments of the study courses, and so on. As a result, we hope to provide guidance to the students who are pursuing these studies today and to the university itself, so that it can improve and adapt its syllabuses to the needs of society and to the requirements of European convergence.

Method

Due to its nature, our research covers different aspects of the university training and subsequent labour market integration processes, as well as the development of the university's vocational guidance strategies and tools that are available to students. Our aim is to arrive at an understanding (skills, expectations, assessments, etc.) of the current situation of education science graduates that may be useful in the search for vocational guidance solutions and the

development of the universityvocational guidance actions, as well as syllabuses in the European Higher Education Area that can be generally applied to other degree courses.

We therefore felt that the best way to examine the ideas raised and to analyse the results was to adopt a methodological pluralist approach. This approach, which is used and developed in the studies and research carried out by most experts in the field, allows a rigorous understanding of a complex situation in which assessments, expectations and interests must be diagnosed.

From an empirical-analytical perspective, we achieved the necessary objectivity and reliability in order to explain and predict the phenomena studied. We did this by using a questionnaire that was specifically designed to produce a quantitative assessment so that we could then apply the results to other degree courses, students and universities. However, a multitude of subjective factors can affect such a complex process as labour market integration and vocational guidance. Therefore, we had to give our research an interpretive humanistic focus when analysing the data, by concentrating on the intentions and meanings behind the human actions and seeking a general understanding of the situations and people.

Based on these premises, the empirical processing of the analysed data is divided into two main parts.

First, we assessed aspects relating to the university and further training received by the subjects of our sample, with an emphasis on their assessment of the training received at the university in relation to its usefulness for their labour market integration. We regard this assessment as a quality indicator of the university, given that the former students surveyed had had enough time to enter the labour market and understand its mechanisms. One of the many indicators for assessing the quality of university training would derive from graduates expressing their satisfaction with such training and their assertion that it was conducive to their subsequent full labour market integration.

In the same section and as another indicator of quality higher education, the assessments by former students of the work skills they possessed at the end of their studies serves to identify those aspects that must be strengthened in relation to previous findings on market demands and employability factors. If those surveyed declare that they finished their studies lacking in certain skills necessary for labour market integration, this must entail the improvement of the training in those skills.

The second section consists of a series of objective data on the integration process of the subjects, which identified the tools used in the job search process, the level of employability of the sample, the difficulties encountered when integrating into the market and the type of integration. We considered full labour market integration to be when a subject is employed in a profession pertaining to the degree studied and with a stable employment contract. In this section, we also analysed some more subjective data related to the integration process, such as the factors that influence the obtainment of employment and job satisfaction. We also wanted to discover the circumstances of those subjects who were not working at the time of the survey, to find out whether they had chosen not to work or were unemployed and actively seeking work.

These two sections determined the study objectives, which may be described as follows:

1. Study the academic and occupational profile of education science degree courses (pedagogy, psychopedagogy and community education).

2. Analyse the match between the university training received and the fields of work in which education science graduates are employed. In this case, our representative sample consisted of education science graduates (pedagogy, psychopedagogy and community education) from the Pontifical University of Salamanca (UPSA). We did not include teacher training students in our sample as their relationship to employment (in terms of defining occupational profiles, general and specific skills and jobs to be performed) is very direct and leaves little room for doubt.

3. Analyse the assessments made by graduates of the aforesaid degree courses about the training they received during their time at university.

4. Use the research results to assist the structuring of syllabuses for new degree courses, so that they are conducive to the social and professional integration of students who pursue education studies in the near future.

As a result, the surveyed population consisted of graduates from the three degree courses run by the Faculty of Education Sciences at the Pontifical University of Salamanca: pedagogy, psychopedagogy and community education, who completed their studies between the 1997/1998 and 2002/2003 academic years. It was essential that all subjects had passed all the modules and earned all the credits in their syllabus.

The period selected was of key importance, as the graduates had already had sufficient time to access the labour market with a certain degree of stability. In addition, the choice of the six academic years in that period corresponded with the introduction of the psychopedagogy degree course at the faculty, from which the first class of students graduated in 1997.

As a result, the total surveyed population consisted of 906 former students and, eliminating those who could not be located during our field work exercise, this gave us a real sample of 446 subjects to whom we sent questionnaires and from whom 248 responses were received.

The following tables and graphs contain some of the characteristics of the data-producing sample in terms of gender (Table 1), degree course followed (Table 2), year of graduation (Table 3), average age (Graph 1) and university entrance grade (Graph 2). This data, which is consistent and representative of the population, reveals significant characteristics about the surveyed subjects and allow the results to be generalised to other similar situations.

The information was gathered using questionnaires specifically designed for each degree course under study. This tool, prepared using validity and objectivity criteria as listed in Appendix 1 (Information about the preparation of the tools), consists of 41 questions divided

Table 1. **Distribution of sample by gender**

Gender	Percentage
Female	75.8 %
Male	24.2 %

Table 2. **Distribution of sample by degree course**

Degree course			
	Pedagogy	Comm. ed.	Phychopedagogy
Graduates	46	63	139

Table 3. **Distribution of sample by graduation year**

Graduation year						
	97/98	98/99	99/00	00/01	01/02	02/03
Graduates	23	34	50	56	50	35

Graph 1. **Average age of sample**

Typical deviation = 3.64
Average = 29
N = 152.00
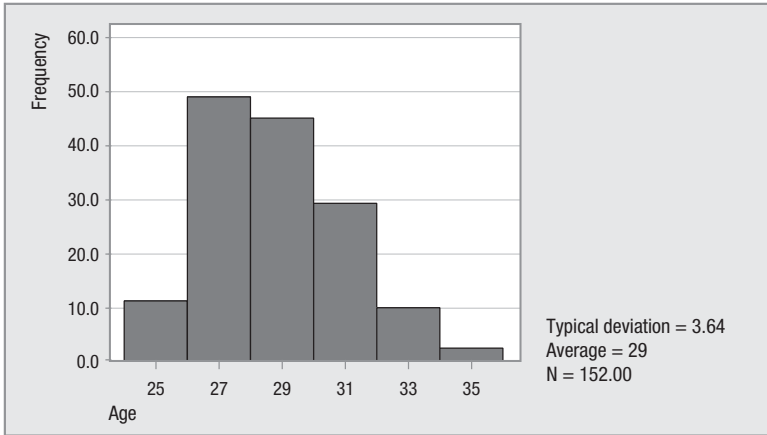
Graph 2. **Distribution of sample according to university entrance grade**
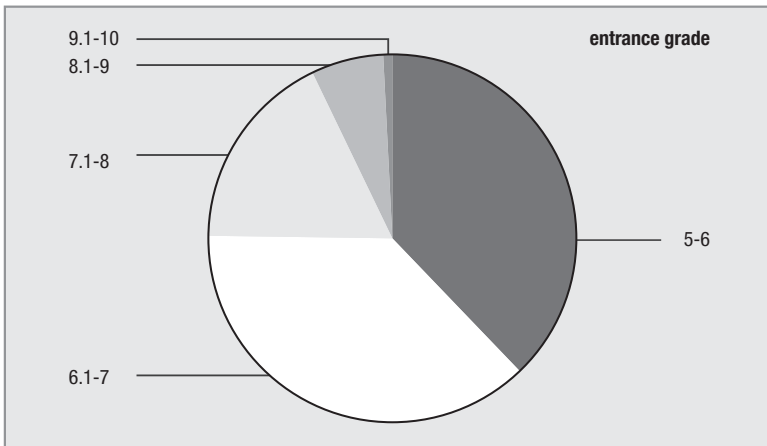
into three sections that analyse a range of variables. The first section covers the personal and academic characteristics of the person responding to the questionnaire; the second section refers to the university training received; and the third section covers the process of entering into working life.

To gather the information, the questionnaire was sent in three separate mailings, with a one month interval between each, to the agents involved in the research. The survey respondents returned the questionnaire to the original sender in a prepaid envelope.

Results

Aspects relating to the university and further training

Students' reasons for choosing degree course

The reasons why students decide to follow a particular degree course within Education Sciences can impact upon their subsequent academic and professional results. Of the sample of graduates we surveyed, 45 % chose their course for primarily 'vocational' reasons. Given the difficulties these people will encounter when it comes to accessing the labour market in these areas, it is logical that their motivation for studying this course would be vocational and therefore this result was expected. The second reason most commonly cited by graduates (36.2 %) was to expand their training and range of studies; in other words, to 'continue their training'. This particularly applied to the psychopedagogy course and those cases where pedagogy was studied at postgraduate level, as, given that these are higher education studies, the aim of students was to expand their Teacher Training or Community Education qualifications with a view to improving their opportunites in the labour market.

Thus, by degree course, it was mainly the community education graduates who selected 'vocation' as the primary reason for their studies, whereas, the psychopedagogy and pedagogy students selected 'continue training' as their main reason, as shown in the table below (Table 4).

Table 4. **Reasons for choosing degree course**

	Pedagogy	Community education	Psycho-pedagogy	Total
Vocation	23.30 %	63.0 %	43.7 %	45.4 %
Proximity	3.30 %	0.0 %	0.0 %	0.6 %
By chance	20.0 %	17.4 %	0.0 %	8.6 %
Professional opportunities	3.30 %	10.9 %	1.1 %	4.3 %
Social prestige	0.00 %	2.2 %	1.1 %	0.6 %
Family	0.00 %	0.0 %	1.1 %	1.2 %
To continue training	46.7 %	6.5 %	48.3 %	36.2 %
Other	3.30 %	0.0 %	4.6 %	3.1 %

Assessment of university training received

With regard to the ex-students' assessment of the university training received, we first had to explore the relationship between training and employment; then we had to investigate the assessments of the training and its impact on personal, professional and cultural development; and finally we analysed some of the basic qualities of the university studies.

In order to clearly and rigorously interpret the responses concerning the link between university training and the social and professional environment, we dichotomised the response scale by combining, on the one hand, the 'totally disagree' and 'disagree' responses, considering them both as negative values and, on the other hand, the 'agree' and 'totally agree' responses, considering them both as positive values.

As a result, a majority of 65.6 % of former students thought that, when they completed their studies, they had sufficient information about their occupational opportunities.

A lower proportion of ex-students felt that they had satisfied the employment expectations they had whilst studying, at 54 % compared with 46 % who did not agree with this statement. Bearing in mind that the study population had had sufficient time to successfully integrate into the labour market, the percentage of former students who felt they had not met their expectations was high. This coincides with the difficulties these students face when trying to find a job appropriate to their degree course.

The proportion of former students who agreed that their university training had adequately prepared them to work in a job related to their degree course was 56.3 %; an almost equal proportion disagreed with this statement (43.7 %). The proportion of former students who felt that the course contents had helped them access employment was also very close to the proportion who did not agree with this statement. Specifically, 50.3 % thought that the course content had helped them to access employment compared with 49.7 % who thought this was not the case.

With regard to the practical side of the course, a majority of around 70 % thought that this had been useful to their labour market integration and 65.6 % also felt that, thanks to this practical element, they discovered new occupational profiles relating to the studied course.

One of the highest satisfaction ratings was for the general assessment of the Pontifical University of Salamanca, with more

than 85 % of those surveyed saying they would go back to study at the same university. What's more, a majority of former students (73.7 %) would go back to study the same course and nearly 80 % of students said they were generally satisfied with their university training.

The following table (Table 5) displays this data, which can be interpreted as telling us that, generally, Education Science graduates from the Pontifical University of Salamanca are satisfied with the training they received, although the assessment of some points reveals areas for improvement, specifically the need to match course

Table 5. **Student opinions on the usefulness of their university training**

%	Totally disagree	disagree	total	Agree	Totally agree	total
a. On completing my studies, I had adequate information about my professional opportunities	6.2	28.2	34.4	50.3	15.3	65.6
b. In terms of employment, I have met the expectations that I had whilst studying	12.3	33.7	46.0	36.2	17.8	54.0
c. My university training prepared me to carry out a job connected with my degree course	7.0	36.7	43.7	43.0	13.3	56.3
d. The course content helped me to access employment	7.4	42.3	49.7	39.3	11.0	50.3
e. The practical side of the course was useful for my integration into the labour market	6.7	26.5	33.2	37.4	29.4	66.8
f. The practical side helped me to discover new occupational profiles	7.4	27.0	34.4	42.3	23.3	65.6
g. Would I go back to study at the same university?	6.1	8.7	14.8	47.2	38.0	85.2
h. Would I choose the same course?	8.6	17.7	26.3	34.4	39.3	73.7
i. I am satisfied with my university training	3.1	16.7	19.8	57.4	22.8	80.2

content more closely to market demands and the need to improve these students's opportunities with a view to their labour market integration and their conditions of employability.

This coincides with the responses of the former students to another three questions that assess the training received at the university in three areas: personal, cultural or intellectual and vocational. Whereas the assessment of personal and cultural training was very high, with almost 90 % of former students believing that the training they received in these two areas was good or very good, when assessing the vocational training received, the proportion considering this as good or very good dropped to 63.8 % (Table 6). This data again indicates the need for improving the quality of the university in terms of the objective of training professionals who can easily integrate into the labour market.

Table 6. **Student opinions on the type of university training received**

%	Very Poor	Poor	total	Good	Very Good	total
a. Personal training	1.2	9.3	10.5	65.3	24.2	89.5
b. Cultural/intellectual Training	0.6	11.6	12.2	71.8	16.0	87.8
c. Vocational training	1.8	34.4	36.2	57.1	6.7	63.8

Although a majority considered that the university training received was good or very good in all three areas: personal, cultural and vocational, 36.2 % of former students considered that the vocational training received was poor or very poor. This figure is high enough to be considered when making improvements to the quality of the university.

The third question, aimed at obtaining more information about the assessments of the graduates, measures seven basic qualities of university training.

In this way, we discovered that 92 % of those surveyed thought the training they received at university was quite or very theoretical: this being the quality that, according to students, most characterised the training they received, given that the other qualities did not receive such a high percentage.

When assessing whether the training was critical, a majority of 59.2 % thought that it was only slightly or very slightly critical.

The proportion who thought that the training received was only slightly or very slightly scientific was higher, with a total of 66.7 % former students considering that they could not qualify their training as scientific. This was therefore the quality that least defined the university training received in Education Sciences.

Among the other qualities analysed, we discovered that, for a majority, the training received could be regarded as active (63.8 %), useful (69 %), complete (62.4 %) and up-to-date (75.9 %). Although these are majority percentages, it must be borne in mind that a significant number (36.2 %) of former students considered their training as only slightly or very slightly active; that 31 % felt the training received was only slightly or very slightly useful; that 37.6 % felt it was only slightly or very slightly complete; and that 24.2 % regarded it as only slightly or very slightly up-to-date, all of these qualities being fundamental to high-quality university training (Table 7).

Table 7. **Opinion on the qualities of the university training received**

%	Very slightly	Slightly	total	Quite	Very	total
a. Theoretical	1.2	6.8	8.0	58.0	34.0	92.0
b. Critical	6.2	53.0	59.2	35.2	5.6	40.8
c. Scientific	10.5	56.2	66.7	30.8	2.5	33.3
d. Active	6.1	30.1	36.2	49.1	14.7	63.8
e. Useful	3.7	27.3	31.0	56.0	13.0	69.0
f. Complete	4.3	33.3	37.6	56.8	5.6	62.4
g. Up-to-date	2.5	21.7	24.2	57.8	18.0	75.8

This data gives us numerous pointers about the direction that must be taken to improve university training. This training must become increasingly critical, scientific and dynamic, if it is to be useful when entering working life.

Another factor that can affect opinions about the training received at university is the success with which former students have integrated into the labour market. It may be expected that those who have stable jobs appropriate to the course studied and who are satisfied with their work will give a better assessment of the training they

received than those graduates who are in unstable jobs that bear no relevance to their degree course or those who are unemployed.

Data on further training

As we have seen, further training is one of the most important factors for improving a graduate's chances of being employed. To measure the professional success of our graduates, we needed to consider the possibility that this success was due to the further training received, either during or after their time as students at the university.

Information about the graduates' further training was divided into two parts:

(a) Further training undertaken at the same time as the university training. This covered the courses and activities that supplemented the university studies and were pursued at the same time as the degree course, distinguishing between courses connected with education, language courses, IT courses and other activities. The graduates in this survey followed specific courses on Education rather than IT or language courses. The data showed that more than 66 % of former students followed Education-related courses during their degree course. However, only a meagre 10 % studied languages and just over 16 % studied IT.

(b) Further training undertaken after university training. This covered courses and other activities, such as a new university degree course or a master's degree or the preparation of a doctoral thesis, all of which help increase the chances of employment. Once again, the highest percentage was for Education-related courses, which more than 70 % of the subjects followed.

At the same time we must highlight the number of students who, after finishing their degree course, started another one. More than 30 % of former students opted to do this, which will undoubtedly increase their chances of employment in areas where they need to improve their competitiveness on the market. Generally, the courses chosen as a second option were also in the Education Science field. This coincides with the data relating to the reasons why students chose their university course, which in many cases was due to an interest in expanding their previous training.

On the other hand, the percentage of graduates studying for a doctorate was only 10 %. Due to the specific nature of this activity, doctorate courses are mainly followed by those people who want to steer their working life towards research and university teaching.

The number of students who opted to enrol for a Master's degree after completing their studies was somewhat higher, at just over 20 %. This is still not particularly high if we consider that it increases one's chances of employment, as, for a Master's, the university graduate specialises in a specific field within their own field and thereby defines their occupational profile. On the other hand, the investment of time and money required to do a Master's degree could explain why the percentage of graduates who do this is not particularly high.

With regard to the study of languages and IT, it seems that graduates realise the importance of these subjects on completing their university studies and so the percentage of people studying them then increases, with the proportion studying IT rising to more than 30 % and the figure for languages increasing to 23 %.

To summarise the above, we present some of the analysed data as follows:

In conclusion, we can say that the further training most in demand are education-related courses, which have been undertaken by

Table 8. **Further training undertaken during the degree course**

%	Total	
	Studied	Not studied
Education-related courses	66.5	33.5
Languages	9.9	90.1
IT	16.8	83.2

Table 9. **Further training undertaken since the degree course**

%	Total	
	Studied	Not studied
Another degree course	31.7	68.3
Doctorate	10.6	89.4
Master's degree	22.4	77.6
IT	31.1	68.9
Languages	23.0	77.0
Education-related courses	72.0	28.0

most of the former students at some time in their academic or professional life.

When analysing labour market integration, we felt it would be interesting for the survey to explore how this further training affects the professional opportunities of Education science graduates: in other words, does further training improve labour market integration or, on the contrary, does this training have no effect at all on the transition process from studies to work?

Data on skills and competences

To interpret the data concerning the skills and competences graduates felt they possessed on completing their studies and what they currently possess, it was important to once again dichotomise the results, by combining the 'very few' and 'few' responses, considering both as negative values, meaning that former students *did or do not* possess these skills, and by combining the 'some' and 'many' responses, considering these as positive values, meaning that former students *did or do* possess these skills.

We first present the results relating to the level of the skills that graduates claimed they had acquired during their university studies and possessed on completion thereof.

As can be seen in Table 10, almost all students (95.6 %) declared that, on completing their studies, they had good teamworking and integrating skills (92.4 %). These two skills are essential for education science graduates when carrying out a job aimed at and for people and so it is very positive that the graduates themselves considered that, on completing their studies, they were capable of working in a team, of integrating people and being tolerant.

In addition, teamwork is one of the skills that employers value most. Due to the changing and dynamic society in which we live, another valuable capacity when entering the labour market is the ability to adapt to new situations. Most of the former Education Science students from UPSA declared that, on completing their studies, they possessed this skill (73.5 %); they also declared that they had a good problem-solving capacity (73.2 %), the capacity to innovate and be creative (72.7 %) and the ability to gather information independently (70.9 %). All these skills are highly valued in a rapidly-changing market that needs dynamic and independent people who can tackle the different work situations and dynamics that arise.

On the other hand, two skills that are more specific to educational work produced lower values: 67.3 % of former students considered

Table 10. **Skills possessed on completing the university studies**

%	Very Few	Few	total	Some	Many	total
Educational planning	5.0	37.5	42.5	46.9	10.6	57.5
Teaching methods and resources	5.7	36.1	41.8	48.7	9.5	58.2
Command of new educational technologies	13.2	54.1	67.3	27.0	5.7	32.7
Independent information gathering	3.2	25.9	29.1	51.9	19.0	70.9
Adaptation to new situations	1.3	25.2	26.5	55.1	18.4	73.5
Problem solving	1.3	25.6	26.9	42.3	23.3	73.2
Skill at integrating people	0.0	7.6	7.6	57.0	35.4	92.4
Teamwork	0.0	4.4	4.4	54.3	41.3	95.6
Oral communication	8.1	43.1	51.2	35.6	13.2	48.8
Written communication	1.3	16.9	18.2	58.1	23.7	81.8
Creative and innovational ability	1.9	25.5	27.3	52.8	19.9	72.7

that, on completing their studies, they did not have a good command of new educational technologies, which are currently highly valued and necessary resources in teaching and educational work. With regards to oral communication skills, it must seriously be taken into account that 51.2 % of graduates declared that, on completing their studies, they were poor at oral expression, which is an essential element of educational work. This data is useful for improving the quality of the university, as they offer pointers to some of the weaknesses that can be improved.

Aspects relating to labour market integration
Data on level of employability
This section will provide information on the graduates' level of employability based on two indicators:
- percentage of students who have worked at some point;
- percentage of students who are working at the time of the survey.

   For the first indicator, the data showed a high percentage of graduates who have worked at some point, with only 6.2 % declaring that they have never worked.

In addition to this information, another requirement that is necessary if we are to talk of the full labour market integration of university graduates, is whether their jobs directly relate to the degree course followed, whether they are connected in any way with education, even though they are not directly related to the degree course, or whether they have no connection at all with the Education Science courses.

On this important issue, the gathered data indicates that 37.6 % of all students have performed jobs directly related to their degree course; 36.9 % have performed jobs that are connected in some way to their studies and 25.5 % have held jobs that were not at all connected with the degree course studied.

· Another of the most important pieces of information in this survey as a whole is the proportion of graduates who were working at the time of the survey. The figures showed that 80.4 % were working when the survey was carried out.

Characteristics of the labour market integration process
To discover the characteristics of the labour market integration process for education science graduates from UPSA, we must examine the data concerning the:
· time taken to find their current job;
· time spent in that job;
· sector in which they are working: whether public or private;
· type of contract.

This set of objective data will clarify the conditions of the integration, so that we can establish whether or not there is full labour market integration.

As regards the time taken to find their current job, a majority of 40.5 % of ex-students took under six months to find a job, whereas, at the other extreme, 14.3 % had not found work within two years of completing their studies. This data is qualified by the data on job stability. In our case, we consider it important to highlight that just over half of our students do not achieve job stability after two years of work (Table 11). We believe it is important to point out that this data is not specific to the work and job profiles connected with Education Science. If we look at this same type of survey carried out in relation to other degree courses, the results are the same. We therefore believe that this instability is a characteristic of our labour market and not exclusive to the degree courses under study.

Table 11. **Time taken to find current job and job stability**

%	Find job	Stability
Less than 6 months	40.5	20.8
Between 6 months and 1 year	22.2	10.0
Between 1 and 2 years	23.0	14.6
More than 2 years	14.3	54.6

At the same time, we thought it would be interesting to find out whether former students were working in the public or private sector. In this case, it is important to highlight that 60.9 % of graduates were working in the private sector, compared with 39.1 %in the public sector, which they had accessed, mostly, through competitive examinations.

Finally, there is another final piece of information that allows us to determine whether or not we are talking about full labour market integration: that is the type of contract. A permanent, full-time contract offers certain guarantees of stability, which means that we can talk about full integration. However, the types of contract used in our labour market are many and varied and in many cases combine the type of contract (permanent, temporary, work experience, etc.) with the number of working hours (full-time or part-time). Thus, the data on the type of contract our graduates hold is given in the following table (Table 12).

From this we can see that full-time contracts predominate, accounting for almost 60 % of those surveyed, of which 39.9 % having a permanent contract. On the other hand, we consider it important to point out that 6.6 % of graduates are self-employed. We believe that this option, which is generally unknown to and little valued by Education Science graduates, is an important working method for the future. What is more, by looking in more detail at the assessments from those ex-students who opted for self-employment, we discover that they feel empowered to implement innovative ideas in education, provided that they have support and, from their working experience, they indicate that there are many and varied work opportunities in the field of education: we highlight the educational services enterprises that provide support for extracurricular activities in ordinary educational establishments, consultancy firms providing advice to

labour organisations, educational advisory enterprises (particularly on issues of multimedia and interactive material development), psychopedagogical and vocational guidance firms, etc.

This data shows the importance that universities must attribute to the development of entrepreneurial, leadership and self-employment skills among our students.

To sum up, we can say that virtually all the education science graduates found work within a maximum of two years after completing their studies and that this work was related to the degree course studied (psychopedagogy, pedagogy or community education) for 75 % of the sample.

The majority took no more than six months to find a job and spent more than two years in the same. They work mostly in the private sector and have primarily full-time permanent contracts, followed by full-time temporary contracts.

Table 12. **Type of contract**

%	Total
Full-time permanent contract	39.2
Part-time permanent contract	7.7
Full-time temporary contract	21.5
Part-time temporary contract	9.2
Training or work experience	1.5
Employed without contract	4.6
Self-employed	6.9
Work and service	9.2

Conclusions

The analysis of the labour market integration of university graduates is one of the most useful tools for assessing the effectiveness of higher education. It is not regarded as a simple quality indicator, but as a complex reality influenced by both personal and social factors.

The results of such an analysis must be taken into account when improving the syllabuses of the different Faculties, as they can bring the university and the demands of the labour market closer together.

Therefore, the analysis of labour market integration impacts on all areas of the university training process, not only because it provides the information needed to guide the training and occupational choices of the students, but also because it informs enterprises about the occupational profiles existing within a degree course. At the same time, with regard to society in general, it helps optimise the human resources of the population and satisfy society's needs for appropriately trained and skilled professionals.

This article has analysed labour market integration processes and their correlation with university training based on the assessments from education science graduates (pedagogy, psychopedagogy and community education) of the Pontifical University of Salamanca (Spain). These students are regarded as representative of highly feminised degree courses with difficulties in matching training to employment.

The data described throughout this document has led to a series of conclusions that respond to the set objectives. We therefore believe that this data must be taken into account when deciding on the syllabuses of these degree courses in the EHEA.

We draw the following general conclusions:

1. The current labour market demands many skills and occupational profiles specific to education science degree courses, but the lack of knowledge among enterprises means that the number of contracts is still not adequate. A closer relationship needs to be established between the university and employers and this type of course also needs to be encouraged, by clearly defining the skills taught and demanding specific areas of action.

2. If the job opportunities for education science degree courses are improved, then the working conditions of female university graduates, who for various social and cultural reasons dominate in this field, will also be improved.

3. For education science degree courses to be more highly valued, the quality of university training relating to labour market integration must be improved. According to the graduates, the university training they received was not sufficiently critical or active and they do not feel that it was totally useful or complete. Therefore, improvements should be made in these areas. With regard to skills, university studies in this area must concentrate more on the command of new educational technologies and the ability to communicate orally, both of which are basic skills for working in education.

4. The university must encourage students to pursue further training, both during and on completion of their studies, which will provide them with more opportunities for practical work experience. In this case, as with other university degree courses, graduates indicate that it is vital to inculcate an interest in training on two fundamental factors of employability: languages and IT.

5. The university must also undertake to establish effective channels of communication between enterprises and its students, systematically tracking their professional careers once they complete their university training. This tracking will serve, among other things, to provide information that may guide the careers of future students.

6. On the other hand, we have also determined that, despite certain limitations, the time it takes for education science graduates to find employment is no longer than that for other university graduates. At the same time, this labour market integration tends to be in line with their expectations (connected with their occupational profiles) and holds guarantees of stability in many cases.

As a final conclusion, we want to highlight that the findings presented herein are intended to respond to the demands of a world in which the supply of a high-quality education and the fight for equal opportunities continue to be two of its main challenges.

We consider that, in order to successfully develop an education that is appropriate to the changing society in which we live, particularly within the European Higher Education Area, young university graduates must be offered suitable support for their full integration into the labour market. We stress the need to develop vocational guidance strategies for education professionals who are frequently forgotten, despite the fact that their educational profiles responding to the current requirements of enterprises.

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ANNEX 1
Information about the preparation of the tools

The questionnaire preparation process can be summarised as follows:

1. To prepare the questions, the scales previously developed by authors and universities in pursuit of similar objectives were reviewed, such as those developed by the following universities: Polytechnic Universities of Catalonia, Valencia and Madrid; Universities of Jaén, Granada, UNED, Rey Juan Carlos I, Carlos III de Madrid, Basque Country, Miguel Hernández de Elche, Murcia, Oviedo, Zaragoza and Córdoba; Autonomous University of Barcelona, and Pontifical University of Salamanca. Having performed this review and, as there was no scale that exactly responded to the research objectives, we took some of the questions from each scale, using them as a source of ideas to generate our own questionnaire.

2. The questionnaires contained different types of question and different types of response scales, with those that best responded to the research objectives applied to each question, although we did try to harmonise them as far as possible to assist completion by the survey respondents. Thus, for sets of questions that measure the opinion of those surveyed or their attitude towards certain aspects, we used ordered response categories ranging from one extreme to the other and on occasions expressing consent (agree-disagree), quality (poor-good) or quantity (very-slightly). We kept the same order of presentation for the response options of all the questions: from less to more. The quantity of response options per question was the same, with four options. This decision was due to the fact that it was important for the research that those surveyed chose one position or the other. When an odd number is used, the intermediate item is neutral. However, when the number is even, the person surveyed is forced to choose between agreement or disagreement, which is what was important to us in this case.

3. To ensure that the content of the questionnaires was valid, in addition to the aforementioned review of the literature, we consulted experts of both statistics and labour market integration, who gave their opinion on the appropriateness of each question to the established variables. We then produced the first

questionnaires, which were piloted (pre-tested) amongst a small group of people. For this purpose, we selected two groups of subjects with similar characteristics to those people who would comprise the target sample of our survey. In general, completing the questionnaire did not pose any particular difficulties to any of the people who participated in the process. However, they did point out that questions with a particular type of response did seem to be interspersed with questions of another type, which complicated the task of answering the questions. To solve this problem, we combined questions and restructured the questionnaire so that it was easier and faster to complete. With regard to each of the questions, certain points were observed that had to be changed in order to improve the final questionnaire.

4. New questionnaires were produced and tested among a pilot sample of final-year Pedagogy and Psychopedagogy students. We gave them the questionnaires and then asked the group about the following aspects:
   - opinion on the time needed to complete the questionnaire;
   - difficulty in completing the questionnaire;
   - understanding of each of the questions asked;
   - questions not appropriate to their situation;
   - general assessment of the questionnaire.

5. In addition, the pretest served for making an empirical analysis of the scale questions, using the alpha (α) coefficient of Lee J. Cronbach as an index to measure the internal consistency. An alpha coefficient of 0.8101 was obtained.

Based on the suggestions stemming from this process, we constructed the final questionnaire. Given that the questionnaire would be completed by graduates of the three degree courses at the Faculty of Education Sciences: pedagogy, community education and psychopedagogy, we produced three very similar models, but with some differences as necessary for the purpose of the analysis.

Model for evaluating teacher and trainer competences

Vito Carioca, Clara Rodrigues, Sandra Saúde
Escola Superior de Educação de Beja

Alain Kokosowski
Centre International d'Études Pédagogiques

Katja Harich
Univation Institute

Kristiina Sau-Ek
Tallinn University

Nicole Georgogianni
Hellenic Regional Development Centre

Samuel Levy
Centre de Ressources et d'Initiatives pour l'International

Sandra Speer
Univation Institute

Terence Pugh
EntenteUK

SUMMARY

A lack of common criteria for comparing education and training systems makes it difficult to recognise qualifications and competences acquired in different environments and levels of training. A valid basis for defining a framework for evaluating professional performance in European educational and training contexts must therefore be established.
In this context, the TEVAL project presents a proposal for an evaluation model applied to teaching and training competences. The model is based on a common competence framework and on a holistic concept of the theoretical principles that justify the evaluation process, bearing in mind professional development and system regulation – the Close Evaluation Model.

Introduction

Evaluating professional performance by means of a common framework will offer greater assurance of the value of the work of professionals in all national contexts. In the field of education and training, teacher and trainer evaluation should provide credible and useful information for developing professionals and the system, without being restricted to describing, quantifying and classifying performance.

It is at this point that the TEVAL ([1]) project becomes relevant in defining an evaluation framework for:
(a) teachers in primary and secondary education;
(b) teachers in vocational training schools and courses;
(c) trainers in various areas who work for a training institution (such as training centres);
(d) technical trainers in the workplace who work for a company (for example, in industry, commerce or services).

During the first phase of the project, the research team carried out a transnational analysis of current evaluation procedures in the national contexts of participating countries – Portugal, Germany, Estonia, France, Greece and the United Kingdom. That study recognised that, despite the European objectives enshrined by the European Council in the Work Programme for Education and Training (2002), teachers and trainers are often seen as remote professional groups, and that evaluation is mainly carried out under national regulations in a manner that differs substantially between one context and another.

The conclusions confirmed the need to establish a common basis for evaluating professionals that will add value to the career paths of Europeans in terms of:
(a) consolidating the European project;

([1]) The Leonardo da Vinci pilot project known as TEVAL – Evaluation Model for Teaching and Training Competences – was developed (2005-2007) by a partnership of expert evaluation institutions from six European countries: the Instituto Politécnico de Beja/Escola Superior de Educação de Beja (Scientific Coordinator of the Project) (Portugal), Univation Institute (Germany), EntenteUK (United Kingdom), Centre International d'Études Pédagogiques (France), Tallinn University (Estonia) and the Hellenic Regional Development Centre (Greece).

In this context, the research partnership proposed to develop a set of common European principles for evaluating teachers and trainers, who are seen as a single professional group involved in the personal, social and vocational development of other people and who thus have similar needs in terms of competences. Further information can be obtained at http://www.teval-ii.eu/

(b) promoting transnational employability and mobility;

(c) transferring good practice between contexts.

The evaluation model was therefore based on the following assumptions:

(a) Teachers and trainers are currently undergoing a process of professionalisation that is changing their roles and responsibilities and consequently the professional competences required.

(b) Teachers and trainers constitute a professional group which is united by the objectives of their activities in the light of the concept of lifelong learning and which makes a fundamental contribution towards achieving the European objectives defined in the Lisbon Strategy. A range of documentation has been produced and promoted by various European bodies (Cedefop, 2002b; European Commission, 2003, 2005a,b; European Council, 2004; Schratz, 2005) which link the harmonisation and unification of education and training systems and suggest the implementation of common principles and criteria in various areas, including teaching and training competences and qualifications. Under the concept of lifelong learning, teachers and trainers share the same fundamental objectives in their activities – promoting the acquisition and development of competences throughout learners' lives.

Against this background, the TEVAL project has defined an approach to evaluation that is adapted to teaching and training competences within a common framework, and that is at the same time flexible towards the specifics of each context in which those competences are applied.

This approach, backed up by the data collected by the research team on the limitations and opportunities of evaluation systems implemented in the European context (TEVAL, 2006a), is defined on the basis of a range of basic principles, namely:

(a) evaluation should be considered essentially as an instrument for learning at the service of professional development, yet it should at the same time provide the information necessary for regulating the education and training system;

(b) teachers and trainers should be the main agents and actors in the evaluation and decision-making process;

(c) the evaluation should include various strategies and methodologies of self- and hetero-evaluation;

(d) applying the above principles means that the evaluation process should take place at the level which is closest to the professional activity.

With the aim of establishing evaluation assumptions in a model of criteria and procedures for recognising professional competences, the research team started out by focusing on the content of what the profession of teacher/trainer is considered to be.

This article considers the process of close evaluation of teacher and trainer competences, bearing in mind their common professionalisation. Certain theoretical considerations on the purpose of evaluating these professionals are therefore first presented, taking the implications of the professionalisation process into account. The model constructed during the TEVAL project is then described, in response to teaching and training competence needs.

Teachers and trainers as professionals

Once seen as an art (based on intuition and improvisation) and later as a technique (application of methods best suited to various situations), the practice of teaching and training currently tends to be defined in terms of the combined and organised competences that constitute a profession.

'In summary, while it is accepted that good teaching reflects artistry as much as technique, the fact remains that there is little that policy can do to develop artistry. Regarding teachers as workers limits our view of the kind of educational opportunities that can encourage the development of teachers and the kind of education that they need to cater to the multiple demands of preparing the younger generations to live as contributing members of society … These metaphors are inadequate to meet the new demands which teachers are facing … By definition, professionals can introduce highly specialised expertise to solve complex problems, and yet historically 'teaching has fallen short of the status of profession' (Walling and Lewis, 2000) … In order (...) to meet the demands of our times, teachers need to be prepared, perceived and treated as professionals' (Villegas-Reimers, 2003, p. 38).

The process of professionalisation can be defined, on the one hand, in terms of new competences to be acquired (professionalism [2])

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[2] Professionalism is understood to be the application of a range of competences that characterise the performance profile of these professionals. In practice, professionalism is demonstrated by active engagement and by putting into practice techniques, processes, aptitudes and knowledge directly related to the tasks and functions that characterise the profession.

and, on the other, in terms of the development of professional identity (professionality ([3])).

According to Le Boterf (2005), the process of constructing competences depends on the image that people have of themselves, revealing the interaction between their emotions and aspects of identity and their professional performance.

It is therefore the interaction between different kinds of competences that makes it possible to define and construct the professional practice of teachers/trainers, i.e. their professionalism.

Being competent means being able to deliberately mobilise a combination of competences in order to manage a range of professional situations. Such mobilisation does not refer simply to execution but to construction; it means moving from knowledge to action by reconstructing that knowledge. This is a value-added process that is not based simply on transferring theories (or elements of such theories) into the work context in an analytical way. On the contrary, the professional should produce competences (Le Boterf, 2003).

Professional competences of teachers and trainers

Teachers and trainers operate in a range of professional situations that can be defined according to the areas in which they engage. Discussion and reflection among the TEVAL experts, supported by external consultants, defined the following four main areas of impact of teacher and trainer engagement:

(a) learning space (the place in which the pedagogical relationship occurs between teacher/trainer and learners);

(b) organisation (the system of the institution as a learning organisation);

(c) community/society (their role in changing social processes and in developing local communities);

(d) professional (action with respect to their own learning and professional development process).

([3]) Professionality is a range of identifying elements that describe attitudes, values, beliefs and codes of conduct associated with a profession. These elements describe the way of becoming and being – both in the immediate context and in the long term – a fully-fledged professional, both individually and as part of society.

In each of these areas, professionals need to demonstrate certain key competences. It is their command of a range of competences in their various areas of engagement that characterises the professionalism of the teacher/trainer.

Areas in which teachers and trainers engage

In order to obtain a framework for defining professional competences, the research team formed discussion and literature review groups for each area of engagement. Each group defined a range of principal competences that teachers and trainers should consider in their actions in that area, together with the respective descriptors. These are not defined as operational indicators for evaluating competences,

Figure 1. **Areas in which teachers and trainers engage (TEVAL, 2006)**
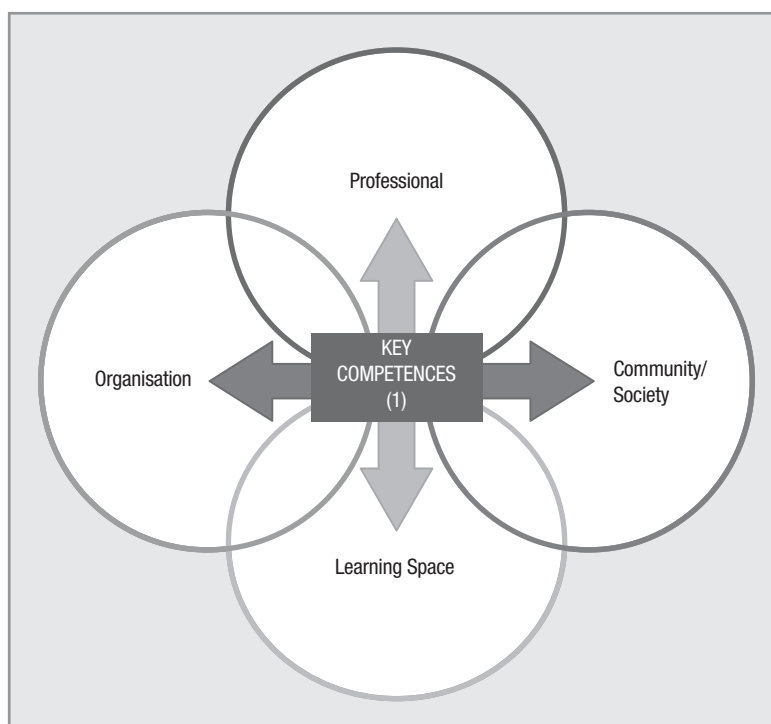
(1) These refer to the main areas of competence, as explained below and as shown in the Common Competence Framework.

Source: TEVAL, 2006b.

given that during the development of the evaluation model, they will evolve into professional development objectives in individual and contextual terms, giving rise to personal professional profiles.

The result of this work is presented in Table 1 in the form of the Common Competence Framework for Teachers and Trainers, which comprises one of the main criteria for generating the proposed evaluation model.

The European scope of the Project required another element to be considered in terms of teacher and trainer professionalisation: the paradigm associated with the knowledge society, characterised by constant change and renewal of activities and people. In this light,

Table 1. **Common competence framework for teachers and trainers**

Area of Engagement	Principal Competences	Descriptors
Learning space (⁴)	Technical-scientific competences	Have a theoretical and cognitive knowledge of subjects Understand the interactions and relationships between disciplines Have a knowledge of pedagogical methodologies Have a knowledge of the education and training system Have a knowledge of the principles of science and research
	Pedagogical-didactic competences	Know how to communicate Promote learning opportunities Develop learning plans, actions and resources Prepare and manage the learning environment Formulate material in order to make it understandable to others Understand the ethical, intellectual, emotional, social and physical development of the target groups Manage learner behaviour and discipline Deal with heterogeneous learning styles and needs Plan and draw up training/education curriculums
	Diagnostic competences	Be conversant with, select and utilise evaluation models Apply adapted evaluation procedures Evaluate learner progress Evaluate the effectiveness of learning actions Communicate the results of the evaluation Develop valid classification procedures

(⁴) The learning space is where the pedagogical relationship takes place between teacher/trainer and student/trainee. This could be the classroom in the case of a teacher, or the learner's place of work in the case of a trainer in the workplace.

Area of Engagement	Principal Competences	Descriptors
Organisation (5)	Participation competences	Cooperate and act in a teamwork environment Engage in, be available for and take an interest in organisational initiatives and activities Participate in work groups Support the decision-making process
	Relational competences	Exchange information and emotions Establish and promote close contacts among and between professionals and their target public Understand the system of values, beliefs and rituals that exist in the institution Share leadership Be aware of and sensitive to peoples' differences
	Competences for realising the educational project	Understand and commit to the project Utilise institutional and personal resources to achieve project objectives Plan, implement and evaluate, in accordance with objectives Critically analyse and change the project
	Organisational development competences	Take a proactive approach to training, seeking methods of professional enrichment Update and change practices, demonstrating that professional development adds value to organisational development Be critical and question the operation of the organisation and their role in it Find solutions and ways of applying them Generate development partnerships
Community	Community awareness	Understand the socio-cultural context of their actions Combine community aspects with the teaching process Reflect upon the community factors that influence learning Recognise the learning needs of the context
	Collaboration and Interaction	Look for learning potential, needs and opportunities in the social environment Work with different people and institutions Propose and negotiate work plans Promote broad negotiation and shared decision-making Consider feedback from collaborators
	Community development competences	Get involved in research and development projects Identify the roles and responsibilities of others in supporting learners Reflect upon their own engagement in the community Generate partnerships and promote joint solutions

(5) The organisational scope always refers to the institution promoting and receiving the learning actions: schools and training centres are examples of organisations in this context.

Area of Engagement	Principal Competences	Descriptors
The professional	**To account for their own professional practices**	Analyse their own psycho-sociological type Inform peers about their engagement, pedagogical training and understanding of projects Evaluate the impact of their practices on learners, the organisation and the community Identify internal and external factors influencing their performance
	Strategic intelligence	Update their academic and didactic knowledge Assimilate new training instruments and methods Participate in professional development programmes Update methods and processes of monitoring, tutoring and guidance Utilise information and communication technology (ICT), particularly the Internet
	Working for and in a multicultural context	Participate in exchange programmes Familiarise themselves with the socio-cultural systems and frameworks of different countries Support learners in their role as multicultural citizens Engage with the multicultural nature of the European dimension of education and training
	Contribution to the profession	Get involved in the process of professionalisation in learning and training activities Collaborate with the professional community Contribute to the success of the profession and reinforce its status
	Ethical and deontological competences	Apply ethical responsibilities as a teacher/trainer Be aware of and promote respect for professional rights Understand the impact of their values, beliefs and experiences on learners and learning Investigate the deontology of education and training

Source: TEVAL, 2006b.

teachers and trainers need to be aware of their new competences in their role of applying the measures and reformulations that may arise in the panorama of the integrated education and training system. European policies recognise the need to adapt systems for accrediting and recognising the competences of education and training professionals, one of the basic assumptions being that these professionals can promote lifelong learning as a key process in human development.

Based on these assumptions, it was deemed necessary to define a range of key competences for teachers and trainers as participants in achieving European Union objectives. These will complement the

aforementioned Common Competence Framework and will apply in the contexts in which these professionals operate. The following table presents the competences required for the *Europeanisation* of education and training systems.

Table 2. **Competences of trainers and vocational training bodies resulting from the European strategic guidelines**

Area of Engagement	Principal Competences	Descriptors
Knowledge society	**Be thoroughly familiar with the functioning of the knowledge society and with the promotion of experience**	Be familiar with: (a) the knowledge society (b) European policies (c) national and sectoral employment systems (d) national and European vocational training systems (e) training policies and plans Put into practice: (a) research-action methodology (b) evaluation of capacities and competences (c) use and planning of competence management (d) quantitative and qualitative studies
	Be thoroughly familiar with the functioning of learning organisations and methods of knowledge management	Be familiar with: (a) vocational training systems and bodies (b) learning organisations (c) competence management and knowledge management (d) quality systems in companies and training centres Put into practice: (a) organisational change methodologies (b) construction and consolidation of partnerships and work networks (c) quality management methodology (d) knowledge management methodology
	Be thoroughly familiar with the principles of drawing up and planning training courses	Be familiar with: (a) vocational teaching methodologies (b) production and diversification of vocational competences (c) vocational guidance (d) modularisation, individualisation and guidance Put into practice: (a) construction of routes to professionalisation (b) diagnosis, evaluation and counselling (c) self-training (d) private classes

Area of Engagement	Principal Competences	Descriptors
Knowledge society	**Be thoroughly familiar with the principal processes of promoting lifelong learning**	Be familiar with: (a) assessing actors' involvement in the lifelong learning process (b) experience and learning acquired through work situations (learning by doing/learning by using) (c) prioritising entrepreneurial behaviour (d) increasing mobility and employability (e) development of ICT practices Put into practice: (a) recognition and accreditation of experiential learning (b) transfer of knowledge between generations (c) roject management (d) e-learning (e) management of group activities

Source: TEVAL, 2006b.

The close evaluation model

Starting from the Common Competence Framework, the TEVAL project team has developed an evaluation model based on the concept of close evaluation, which brings the basic principles and assumptions together. Close evaluation involves approaching the items for evaluation on the basis of the actual context in which they are produced and bearing in mind the conditions for that production.

Close evaluation has the following characteristics:

(a) it occurs at the closest possible level to the teacher/trainer (school, subject group, course team, training centre, department, etc.), thereby allowing the teacher/trainer to participate effectively and productively in the evaluation process;

(b) the evaluator is not an examiner but cooperates with the professional in his or her development, bearing in mind the importance of cooperation for changing behaviour and practice (Day, 1999);

(c) the evaluator looks at the professional's real work and at the actual achievement of the objectives proposed, not only in terms of whether they have been achieved, but also in terms of how this was done and what difficulties/obstacles were overcome in order to do so;

(d) it covers various dimensions of the professional behaviour of the teacher/trainer (professionalism), which should follow qualitative parameters;

(e) it enables individual feedback in the short term, thereby helping to change professional practices more quickly;

(f) changing work contexts are taken into consideration;

(g) the training area is linked to the work space and time, giving meaning to the daily effects of training and generating a 'training' dynamic (Correia, 1992; Pain, 1990, cited in Silva, 2002, p.135);

(h) decisions are shared and agreed, giving rise to a fairer system;

(i) it is carried out through a continuous process.

In the model proposed, teachers/trainers are evaluated through processes of self- and hetero-evaluation, the resulting data being analysed in discussion and formative evaluation groups. Cooperation and dialogue are maintained between the evaluator and the subject, at the level of the institutions in which they work. The evaluation task is monitored by a discussion group that aims to understand the complexity of the situations, develop alternative action and broaden perspectives by putting ways of thinking into context and altering actions (Silva, 2002).

The whole evaluation process is defined in accordance with the guiding principles of the evaluation of professionalism, and the concept of close evaluation continues to form the bedrock of the process. The model therefore proposes a progressive and continuous line from the level closest to the professional to the decision-making and political level regulating the whole system.

The scheme proposed provides an answer to the challenges of a) professional development, and b) system regulation, which arise in the process of evaluating professionals. The first challenge is resolved by ensuring constructive feedback between the professional and the formative evaluation group. The second is addressed by means of a system for transferring information between the different levels of the system, starting from the context that is closest and most real (see Figure 2).

In implementing the model, each teacher/trainer passes through the following phases of evaluation:

(a) establishment of a Personal Professional Profile (PPP);

(b) evaluation sessions;

(c) information gathering and portfolio construction;

(d) presentation and discussion of the portfolio in the formative evaluation group;

(e) portfolio revision.

The starting point for successfully carrying out the evaluation process is the establishment of the PPP. The profile should cover

Table 2. **Functional diagram of the close evaluation model**
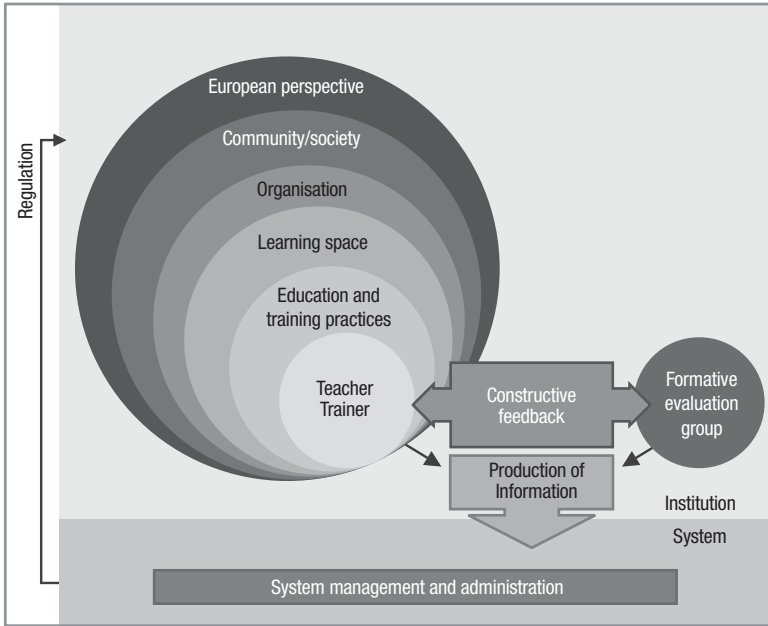
Source: TEVAL, 2006b.

the principal competences defined for each area of engagement (as set out in Tables 1 and 2). In accordance with this structure, the professional, together with the formative evaluators, should define the individual performance objectives for the period corresponding to the evaluation process. Since the professionals participate in establishing their Personal Professional Profile (PPP), their commitment to that profile increases, as does their responsibility for carrying it through in the best possible way. In the subsequent evaluation stages the professional is monitored by the formative evaluation group that is set up within the organisation, the members of which are responsible for collaborating with the teacher/trainer in improving his or her professional practices.

The fifth phase – portfolio revision – is when the individual concerned revises the information in their portfolio in the light of the previous discussion in the formative evaluation group. The objective is to produce a more consistent portfolio which can subsequently be used by evaluators at different decision-making levels in the education and training system, and which clearly demonstrates the professional's achievements.

Bearing in mind that the principal objective of the evaluation is to promote professional development, various evaluators from the professional's work context should participate in the process. In addition, self-evaluation provides teachers/trainers with a perspective on their work.

The group of formative evaluators may include:

(a) the teacher/trainer to be evaluated;

(b) an administrator from the school/training centre;

(c) two or three colleagues from the school/training centre, preferably from the same department (depending on the type and size of the organisation);

(d) an external evaluator (this can be a teacher/trainer from another education and training organisation or from a company; this external participant will ensure that the group has an unbiased viewpoint);

(e) a learner or trainee who represents a teacher/trainer's class.

The formative evaluators should function as a support group: in the meetings, the teacher/trainer being evaluated presents – orally and/or using to documents or other material (including in digital and other formats) – his or her perspective on the work carried out. The group constructively criticises the work, allowing the teacher/trainer to identify his or her needs and helping them to overcome difficulties and improve practices.

The evaluation meetings should take place in the teacher/trainer's workplace. The group should meet as often as necessary to discuss the work and take decisions on its validity. In these sessions the professional reports on his or her performance and discusses ways of better achieving the objectives set out in their Personal Professional Profile. The teacher/trainer receives advice and guidance on his or her daily work from the formative evaluation group.

The group should consider the various education and training competences. The use of various sources of information on the teacher's performance will allow a more precise and comprehensive evaluation.

The teacher/trainer will prepare different types of data for presentation in the evaluation sessions. The information chosen must provide evidence of his or her competences in the course of events, situations, initiatives and difficulties that have arisen in the tasks in which they are involved. Each professional may choose the types of instrument to be used to provide evidence of their professionalism. The set of instruments concerned will comprise their Personal Evaluation Portfolio (PEP).

The portfolio will be evaluated by comparing it with the objectives proposed in the PPP for the evaluation period. In order to ensure an objective approach to the professional competences demonstrated during the period, each PPP objective must be evaluated by analysing the evidence that demonstrates its achievement and which is included in the PEP. Once all the evaluators have formed an opinion on the portfolio, they must discuss it and arrive at a consensus on its value.

The principal results of the evaluation process will be useful for improving the overall quality of organisations (schools and training bodies) and the education and training system. The results will enable needs to be identified and will point to changes for the better. This is where the individual evaluation process becomes relevant to the development of the professional group and the education and training system.

For example, an awareness of the competences of teachers and trainers in the context of their work can provide information to administrative and political bodies on:

(a) the initial training needs of this professional group;

(b) the need for continuing training and technical training;

(c) curriculum organisation;

(d) teacher and trainer recruitment;

(e) teaching and learning climate of the organisation;

(f) 'true' profile of this professional group;

(g) strengths and weaknesses of the system.

Final considerations

An analysis of the needs and potential of teacher and trainer evaluation systems in Europe shows that the TEVAL project offers an evaluation model that goes beyond the evaluation of teacher and trainer performance.

The Close Evaluation Model proposes that teachers and trainers should be evaluated on their professionalism, i.e. on their capacity to mobilise a range of key competences so as to respond to situations and problems arising during their work. In our view, these professionals need to commit themselves to their work objectives, and in order for this to happen they need to understand themselves and to be understood as the principal actors in and constructors of their profession.

In view of the need to validate the model that has been constructed, the objective of the next stage of the project will be to conduct a

transnational survey of the main target public and beneficiaries of the model in order to obtain information on its validity and suggestions for its revision.

In addition, and allowing for the differences in the evaluation cultures that co-exist in Europe, the proposed model is seen as a valid contribution to evaluation research, providing a basis for observing and promoting professionalism, both individual and group, in the light of a common competence framework. In real terms, the partnership firmly believes that the close evaluation strategy is a useful instrument for professional development insofar as it will:

(a) promote discussion and contact between peers;

(b) allow feedback to be obtained and given;

(c) optimise training methods;

(d) stimulate the development of solutions to ensure the success of the organisation;

(e) stimulate self-evaluation and awareness of the potential of teachers and trainers as professionals.

Some questions may be raised about the close evaluation process. It should be noted that the assumptions underpinning the model mean that organisations should function as real learning systems in which information is shared and transparent, since close evaluation is always a negotiated process in which there is agreement with and commitment to the process, instruments and methodologies. This also raises the difficulty many professionals may have in carrying out the process, which means that everyone involved needs to be trained to apply the principles and the process, rather than the instruments.

A further limitation of the evaluation model is the lack of definition of parameters to guarantee the quality of the results obtained and the establishment of an ethical code for evaluation, in accordance with recognised standards .

In view of these recommendations for the future development of the model, after it has been revised and validated it will help to make the different evaluation processes employed in Europe more homogeneous and will thus help to reinforce the evaluation culture among professionals.

List of abbreviations

ICT	Information and communication technology
OECD	Organisation for Economic Cooperation and Development
PEP	Personal Evaluation Portfolio
PPP	Personal Professional Profile
TEVAL	Evaluation Model for Teaching and Training Practice Competences
Unesco	United Nations Educational, Scientific and Cultural Organization

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'Training the trainers' of teachers in France: assessment and outlook

Guy Lapostolle

Senior lecturer in education at the Burgundy university institute of teacher training (IUFM), which is attached to the IREDU, UMR CNRS 5225, Université de Bourgogne

SUMMARY

With the creation of IUFMs (university institutes of teacher training) in the 1990s, the training of teacher trainers in France has become a fundamental part of the renewal of teacher training. It is seen as a fundamental lever for the IUFMs to achieve the tasks and goals entrusted to them: training teachers who need to accommodate the new demands of their profession. To do this, the IUFMs have established 'trainer training programmes'. A closer look at these programmes reveals that a professionalisation of trainers has begun which is giving the IUFMs a stronger role in working towards achieving the goals set. However, some current reforms seem to be questioning the future of this professionalisation and, beyond that, the place and role that the IUFMs will play both in training teachers as well as in the universities in which they have just been integrated.

At the beginning of the 1990s, the creation of IUFMs (university institutes of teacher training) in France showed a determination to take account of the developments in the teaching profession and to centre the training of all teachers in a single institution. Primary-school teachers used to be trained in an *École normale* after successfully completing a DEUG (general university studies diploma) at a university. Teachers at vocational secondary schools received training in an *École normale nationale d'apprentissage* (ENNA) after attending a vocational training institution and in many cases after also acquiring some professional experience. Secondary-school teachers were first trained at university until they received their *licence* (three-year Bachelor's degree) and then in a *Centre pédagogique régional* (CPR) if they were successful in the competitive recruitment process run by the Ministry of Education. The creation of IUFMs reinforced the academic aspect of primary teacher training, as much meeting their demands for an enhanced recognition of their status – they would now need to complete a Bachelor's degree – as reacting to the implications of the democratisation of secondary-school teaching. As nowadays almost all pupils continue their education beyond primary school, it seemed inappropriate for these teachers to be trained in more than century old *écoles normales,* which fell outside the scope of university education. Soon ENNA schools were also abolished and vocational secondary-school teachers would also receive their training at IUFMs. Secondary-school teachers were faced with pupils from increasingly heterogeneous backgrounds and with a continuing problem of school failure rates. Subject-specific education received in a university and a one-year work placement alongside classes in a CPR no longer seemed to meet the demands of the job; a 'professionalisation' of their training was necessary. The creation of IUFMs responded to the issues raised by the developments in the teaching profession.

It was therefore essential to also tackle the issues concerning teacher trainers. In this new environment, these trainers would also need to address the requirements defined by the State for the teaching profession. To enable the trainers to adapt to these developments, consideration was given to renewing the framework, methods and content of their training programmes. Gradually an institution, or a long-term structure, called 'trainer training' was established within each IUFM. The content of this institution can be found in a 'trainer training programme' which is drawn up each year by a manager who aims to identify the trainers' training needs.

In general, the proposals of the manager, often a policy officer or deputy director, are submitted to the decision-making bodies of the IUFM and are subject to approval by the State under the four-year contracts which link the IUFM to the State. The training programme is made up of subject-specific elements (epistemological, pedagogical, etc), and activities which respond to the issues raised by training: developing tools and designing elements of the training course (tracking sheets for student teachers, methods and ways of supporting in-class training, professional writings, reflexive analysis of practices, etc). Future-orientated educational activities (reflection and/or proposals on how to handle pupils in difficulty, managing of classes, etc), general know-how regarding the biggest issues raised in education and ICTE training activities, etc. are also included in the programme. This list is non-exhaustive and changes over time and with each IUFM, since they are relatively free to choose the content of their training programmes.

However, in general terms the place and the legitimacy of this 'trainer training' institution within the IUFMs is still being questioned. How far can it be said to have established itself as an essential institution within these IUFMs? While the position of the institution is recognised by the State – it is in the four-year contracts signed by the State and the IUFMs – we need to ask how they benefit the trainers. Does the training programme content meet their expectations? What is taken into account in drawing up the content? Is the content consistent enough to encourage the development of a professional identity for the trainer? A number of academic works and experts' reports on the subject of teacher training make it very clear that one of the major problems in 'training the trainers' concerns their professionalisation. However, some recent or planned institutional reforms may have a major impact on this institution, particularly the new requirements of the State as employer regarding the teachers it recruits ([1]) and the 'universitisation' of the IUFMs. This neologism refers to the developments in the institutional relations between IUFMs and universities, and more particularly to the fact that teachers will soon need to have a professional Master's degree. It is the effect of these institutional changes on the trainer training programmes that we would like to examine in order to assess the impact they may have on the professional identity of trainers and on what researchers are calling, albeit somewhat cautiously, an 'ongoing process of professionalisation'.

([1]) Order of 19 December 2006 'Specifications of teacher training in IUFMs'.

We will begin by highlighting a few of the issues that led to the creation of this trainer training institution. We will show that it now claims a place as a legitimate institution because it supports the renewal of teacher training and also contributes to the professionalisation of trainers, which has been influenced in part by the sociology of professions. We will then show that behind the apparently eclectic proposed content of training courses lies a coherence which could help to develop a trainer identity. Thirdly, we will show that the development of this identity is emblematic of the role that IUFMs play in teacher training and that it will need to evolve with the current reforms. Lastly, we will show that the place and role of trainer training in the new environment created by the reforms will shed light on the position that IUFMs hold now that they are integrated in universities.

Trainer training: an institution questioned and legitimised by the concept of 'professionalisation'

Studies and recommendations on training teacher trainers have generally been based on the realisation that the teaching profession was changing. Teachers needed to be better equipped to deal with increasingly heterogeneous groups of pupils, to fight against a persistent level of academic failure and, from the mid-1980s, to participate in managing schools that were gaining more autonomy. Since the roles of these teachers were changing, their trainers needed to change as well. By the end of the 1980s, the desire to introduce changes in the occupations of teacher and teacher trainer had begun to take form and expanded with the preparatory work on the IUFMS and their eventual establishment. Soon 'training the trainers' was to become an institution that would have a vital role and place in the reform of teacher training.

However, teacher training and trainer training were to be called into question more broadly. The changes in the tasks assigned to teachers were no longer the only aspect to be considered in terms of the developments that this profession would undergo. The general acceptance of the concept of 'professionalisation', introduced by the sociology of professions, which was gaining ground in academic circles, may have changed and may still be changing the way we look

at the developments envisaged for these professions. This concept calls for the problems addressed by the studies relating to teacher training and trainer training to be redefined. The trainer training programme, which struggled to emerge before the early 1990s, now appears to have attained genuine legitimacy. The concept of 'professionalisation' seems to be both strengthening the legitimacy of the institution while also questioning it and shaping it.

The recognition of an institution

In tracing the history of teacher training, Antoine Prost (1999) shows how it became clear soon after the Second World War that the training needed to be completely reformed. He cites for example the Langevin-Wallon Plan (1947) which, while it was never implemented, went on to inspire future proposals for reform. Prost attaches great importance in particular to the ideas promoted during the Amiens conference in 1968, which based this need for reform on pedagogical objectives. 'Transforming teaching methods and styles to adapt them to a new type of client and new duties' became the underlying theme of future developments. However, before the 1990s, teacher training would only experience minor changes while trainer training would struggle to find a practical application. Marie-Laure Viaud (2007) states that 'objectively, teacher training had long been needed', but points out, with reference to various works (Lallez, 1982; Pelpel, 1996; Leselbaum, 1989) that this intention would remain a dead letter for quite some time. Although trainer training for primary school teachers underwent remarkable experiments, it was not officially mandatory nor was it really encouraged or standardised. Initiatives taken by the MAFPENs ([2]) (Academic missions for the training of National Education staff), which were created following the Peretti report (1982), aimed to develop continuing training for teachers and for trainers who are pedagogical advisers, but they appear to have been only 'sporadic, short-term and lacking in coherence' (Viaud, 2007). ENNAs, which were recognised as pioneers in pedagogical research (Borne, Laurent, 1990), and which were able to reconcile 'technical culture and humanism' in teacher training, could have inspired schools and various institutes for teacher training, but the poor public image of the 'technical' aspect presented a major obstacle to the dissemination of their experience (Terral, 2002). Thus, these studies appear to show that while trainer training had

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([2]) MAFPENs were abolished in 1998 and the IUFMs took over their role.

had some success, before the 1990s the position it held and the role it played were not what academics, experts and educational policy-makers were hoping for.

The Bancel report (1989), which paved the way for the reform of teacher training and for the creation of IUFMs, was an important step in the process leading to the creation and standardisation of trainer training as it exists today. In this report, the trainer training programme provided by IUFMs represented the keystone of the planned changes because the authors were well aware that it was not enough to create or to transform an institution for a reform to have the anticipated effects. The players within this institution must also take on board the issues which led to its creation, since they are the ones who will ultimately provide the teacher training. The report did not envisage a particular status for these trainers, but it emphasised their importance in the renewal process. 'While it does not seem desirable to create a public service body devoted entirely to IUFM trainers, the professional nature of the activity of trainers within the IUFMs must be affirmed and clearly defined.' IUFMs soon adopted these recommendations and endeavoured to put in place the institution of 'training for trainers'. All IUFMs would offer a trainer training programme.

A survey of the 2007-2008 training programmes of seven IUFMs in the North-East region of France (Reims, Dijon, Amiens, Besançon, Nancy, Lille, Strasbourg) ([3]) produced a number of findings which demonstrate the foothold this institution has gained. The number of hours scheduled in the training programmes represents on average around a fiftieth of the hours managed by the IUFMs; the other hours are devoted to the training of school teachers, secondary teachers, vocational secondary school teachers, primary educational guidance counsellors and specialised teachers, and to continuing education. For example, the trainer training programme at the Dijon IUFM accounts for just over a thousand hours out of a total of approximately fifty thousand hours; at the Nancy IUFM it accounts for one thousand two hundred hours out of approximately seventy-six thousand hours, at the Amiens IUFM one thousand hours out of approximately twenty thousand hours and in Strasbourg one thousand five hundred hours out of sixty-two thousand hours in total. However, the work that the IUFMs are doing involves more than just the number of hours dedicated to training courses.

([3]) Survey carried out in 2007 by the author as the coordinator of trainer training programmes for the North-East region.

The IUFMs are organised within geographical areas so that they can pool their resources, sharing their human resources and 'good practices'. Training programmes are put in place at area level and summer schools are organised each year which focus on a topic that brings together the trainers within the same area. The IUFMs also allow their trainers to take part in training activities organised by other bodies such as the INRP (National Institute for Pedagogical Research). Pooling human resources and 'good practices' also reduces costs. Activities can be provided at regional level for trainers interested in the same course but who are too few for their IUFM to provide the programme. The pooling of resources is part of a rational management effort, since the activities organised – whether training programmes at the IUFM level or regional level or even summer schools – represent a relatively high number of hours. However, the cost of these hours only accounts for part of the dedicated budget.

In addition to these hours, the cost of the accompanying logistics for the activities must also be taken into consideration. IUFMs are responsible for covering the costs of travel, accommodation and, where applicable, meals for the trainers who are targeted by these activities. But the trainers are usually spread geographically across several *départements,* and sometimes far from where the training is taking place. For a course lasting only a few hours twenty or so trainers may need to travel tens or even hundreds of kilometres. While the logistical cost is difficult to quantify, IUFM directors insist that it is essential to monitor these incidental, but nonetheless real and significant costs when training programmes are being drawn up. In addition, it should be mentioned that some IUFMs reduce the workload (in number of hours worked) of trainers who participate in training sessions, even if they do not meet the exact conditions laid down by the decree relating to work schedule arrangements for teaching staff [4].

Gilles Baillat, the Vice-President of the CDIUFM (Conference of IUFM directors), confirms, that for him, the work done is what we would expect of trainers. He points out that trainer training programmes are 'at the heart of the CDIUFM's concerns' [5]. The time devoted to examining and discussing trainer training shows how important each IUFM director deems it to be, and the conference of directors also reinforces this support.

[4] Ministerial Decree No 2000-552 of 16 June 2000 provides for working schedule arrangements for teachers wishing to enrol in postgraduate training courses or to prepare for competitive recruitment examinations for teacher-researchers.

[5] Interview on 7 May 2008 with Gilles Baillat, Vice-President of the CDIUM.

In summary, these indicators of the work done by the IUFMs and the statement by the Vice-President of the CDIUFM demonstrate that the IUFMs attach great importance to this institution. They have clear ambitions in the area of trainer training and they are deploying the resources to put it into practice.

An institution questioned and legitimised by the concept of 'professionalisation'

The position given to trainer training is based on a realisation that provided the IUFMs with the justification needed for the work they were doing: the fact that trainers need to have specific skills which are different from those of teachers. The preamble to the trainer training programme at the Rouen IUFM expresses this realisation quite clearly: 'Being a teacher trainer is a complex occupation which goes well beyond the simple transposition of the occupation of teacher and requires new trainers to acquire specific skills and knowledge, while experienced trainers need to give continual thought to the development of the concept of training and to the various activities in which they are involved' ([6]). Thus awareness and recognition of the specific needs of the occupation of trainer appear to be necessary to justify the efforts made. But if the need to train trainers can be justified by developments in the teaching profession and the specific nature of the occupation of trainer, it also gains legitimacy from the concept of professionalisation.

This concept takes account of the needs set out above, but it places them in a broader context. It questions the factors which underlie the construction of a profession and the necessary conditions for this profession to develop. If we refer to the works of Dubar and Triper (1998), but without going into such exhaustive detail, we can establish that there are two easily identifiable factors which determine the desire to transform an occupation into a profession, and that two conditions are also necessary to bring about this evolution.

These two factors are, first, the tendency for people who practise the same occupation to have the same set of values, standards and rules for the purposes of 'subjective identification', and second, the desire for recognition, partly driven by the need to protect their interests on the employment market. IUFM trainers, especially primary and secondary school teachers, have good reason to be aware of these issues if only because their status is no different from the teachers

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([6]) http://www.rouen.iufm.fr/ppf/pgene.htm [29.05.2008]

they train. Teacher-researchers are more easily identified in terms of their status. This argument, however minor it may seem, is nonetheless one of the factors which explain why, at the time when IUFMs were integrated into the university system ([7]), primary and secondary school teachers were particularly concerned, especially about their representation in the CEVU (Council for university studies and student life). It was important for these teachers to be able to identify themselves in a set of values, standards and rules while defending their recognition in the new environment they were entering.

The two conditions referred to in the works of Dubar and Triper (1998) are reflected in the need for any profession to be based on a culture common to all its members and in the need to base this profession on formalised and transmissible knowledge. This second condition is illustrated in Triper and Dubar (1998) by the work of Merton (1957) who showed that American doctors became 'professionalised' when their university training transformed empirical knowledge acquired through experience into scientific knowledge acquired academically and evaluated formally and unequivocally. It appears that trainer training within the IUFMs is all about this desire to put in place a common culture and to promote formalised knowledge as the basis for a potential profession of trainer. The search for a common culture is partly to do with the tensions felt within all modern professional training programmes today. Put simply, this tension boils down to the difficulty in correlating values, standards and rules which for some relate to a world of theoretical and academic knowledge and for others relate to a practical world. It is in the interrelations between these two worlds that a common culture can be created. The attempt to establish formalised and transmissible knowledge is based on the need to link the knowledge and questions associated with these two worlds. It is this link which enables science to shape its research by taking account of what is real and which enables practice to be questioned and debated and to find answers using the concepts and knowledge developed by science. For trainers, the problem is exactly the same. For those close to the ground, it is a question of moving from the status of a 'handyman' to that of an 'engineer', as Lévi-Strauss (1962) suggests, and for those from the academic sphere it is a question of ensuring

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([7]) The integration of IUFMs into the university system is provided for by the Framework and Programme Law for the future of schools, No 2005-380 of 23 April 2005, which was published in the French Official Journal.

that their knowledge questions and informs actual practice. While the establishment of formalised and transmissible knowledge is a condition for raising an *occupation* to the status of a *profession*, it is also at the heart of the problems facing trainer training, both from the point of view of those questioning its effectiveness and from the point of view of those trying to affirm its legitimacy.

The fact that this concept of 'professionalisation', taken from the sociology of professions, has now entered the common language of the protagonists in trainer training is without doubt the most revealing sign that they have taken on board the requirements it involves. It no longer relates purely to the academic sphere. Most of the managers and political actors working within or outside the IUFMs now use the term, as we can see from the name of the trainer training programme at the Rouen IUFM, for example, which refers to 'a development plan for the professionalisation of trainers'.

Thus the sociology of professions, while questioning the factors and conditions involved in the emergence of a teacher trainer training programme, appears to support the activities of the IUFMs. While the concept of professionalisation still encompasses the issue of the specific skills that trainers must master, it also reinforces the legitimacy of the search for a common culture and for formalised and transmissible knowledge. However, it remains to be seen just how far we have come in the process of professionalising trainers. An analysis of the content of training programmes may give us some insight into the effects that trainer training may have had on this process.

Behind the eclectic content of training courses, there are signs of coherence capable of forming the basis for a profession

The diversity of subjects covered in training programmes is linked to the diverse nature of the trainers involved in teacher training. Although these programmes have an eclectic character, this should not, however, mask the fact that the programming of their content is fairly coherent. It seems that there are a certain number of umbrella subjects and training mechanisms in these programmes which give this institution a coherence capable of encouraging the formation of a training profession. A common culture seems to be being established and knowledge has been or is being formalised, suggesting that the process of professionalisation has really begun.

From the diversity of trainers to the eclectic content of training

Academic studies of teacher trainers generally come to the same conclusion: that it is currently impossible to talk about a professional identity for the teacher trainer. Vincent Lang (2002) talks about a 'composite world' for IUFM trainers. He shows that numerous divisions are preventing the establishment of a single identity for the trainer. The wide differences in status, by staff group and category (senior lecturers, secondary-school teachers, primary-school teachers, etc.), the differences in workload, the different institutions from which they come (*écoles normales*, regional teacher centres (*Centres pédagogiques régionaux*), universities, high schools, etc.), and the diverse professional cultures (researchers, educational advisers, teachers, etc.) are all obstacles to the construction of a trainer identity, without which the profession will not be recognised (Dubar, 1991). Marguerite Altet, Léopold Paquay and Philippe Perrenoud (2002) wonder whether a real profession exists and what conditions would be needed for it to be established. For these authors, training the trainers is one way to take this ongoing professionalisation further. It can also provide information on the progress of the professionalisation process, provided that training programmes are examined from a particular point of view.

An analysis of the 2007-08 training programmes of the seven IUFMs (Reims, Dijon, Amiens, Besançon, Nancy, Lille, Strasbourg) in North-East France initially leads us to the same conclusion reached by the authors cited earlier: that the training programmes display an eclectic character that undermines the very foundations of a trainer identity. While about 40 % of the programmed activities are open to a 'general audience', 60 % deal with trainers' specific requirements and are intended for 'selected audiences', such as subject trainers undergoing training in didactics, and in-school trainers training in methods of supporting student teachers, etc. These activities targeting 'selected audiences' seem to be necessary in that trainers' training needs are linked to the specific tasks for which they are responsible. Moreover, this specificity is particularly desirable since it is often directly reflected in the quality of knowledge and know-how passed on to the teachers. Indeed, a general inspectorate report (Borne, Laurent, 1990) published during the trial period preceding the establishment of IUFMs throughout the country mentioned that newly recruited 'educational science' graduates would not be expected to deal with all pedagogical problems, given that the field

of educational science covers specialist research in disciplines such as psychology, sociology and history. The report called for the teaching to be better divided among the trainers, in particular by adapting their specialised knowledge to the requirements of the occupation of teacher. This perhaps justifies the fact that certain training activities are targeted according to the specific duties of the trainers. Nevertheless, given their eclectic nature, these activities do not seem likely to produce training that would contribute to the creation of a culture common to all trainers, and hence to establishing a professional identity for the trainer. However, a different reading of these programmes might lead us to take a more optimistic view of the programmed activities.

Elements of coherence seen as signs of ongoing professionalisation

Many activities, just under half of those programmed, are open to the general audience of trainers. These activities give different trainers the opportunity to meet and are calculated to reinforce the establishment of a common culture. When in-school trainers take part alongside subject trainers or human and social sciences teachers in discussing a given subject, or where they work together on drawing up the basic principles of didactic engineering, the problems specific to their particular duties feed into each another. When primary trainers and secondary trainers work together, this is a first step towards better mutual understanding, and a stronger link between the two sectors is thereby established. In-school trainers working with teacher-researchers are able to adopt their conceptual frameworks to help them problematise the questions they face in the context of their work. These conceptual or methodological frameworks can help them to deal with issues that often make them feel uneasy and to which they therefore find it difficult to find appropriate responses. As for the teacher-researchers, they can focus their research on problems firmly rooted in the reality of practice. In this way, the activities directed at all the trainers help to strengthen the process that the Caspar report (1992) hoped for when it talked about 'a cross-fertilisation between trainers'. This fertilisation would also form the basis for a common culture essential to the process of professionalisation.

A survey carried out at the Burgundy IUFM ([8]) shows that trainers are aware of this need for 'cross-fertilisation'. The survey, conducted

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([8]) Survey carried out by Guy Lapostolle and Sophie Genelot, Burgundy IUFM.

prior to the drawing-up of the training programme for 2008-2009 among 200 trainers at the Burgundy IUFM by means of questionnaires asking about their training needs and by decentralised interviews in the IUFM's four centres, identifies what their aspirations are. Although the trainers generally talked about specific needs connected with their role and work, more than a third of them wanted to work together on common themes. They wanted to pool their efforts in order to improve their performance of their occupation. There was a clear demand for training that would help to establish a common culture. It remains to be seen how the institution will respond to these aspirations.

Without claiming to be exhaustive, some of the findings suggest that the majority of the seven IUFMs studied are taking measures to encourage the development of a common culture. One of the first elements corroborating this idea is something we mentioned earlier: the fact that nearly 50 % of the scheduled activities in the training programme are open to a general audience. Of course, it could be pointed out that a certain number of trainers are often excluded from these training events, particularly associate trainers, who are employed by the State and only perform some of their duties in the IUFMs. However, according to what was said in the interviews, because of certain material constraints – specifically academic inspections in the case of primary teachers and headmasters in the case of secondary teachers – the State as employer is unable, given the strict management of human resources, to release teachers wishing to take part in the activities provided. Furthermore, it seems that teacher-researchers, although they are happy to supervise training activities, are reluctant to come and be trained themselves in these activities. Their participation is, admittedly, difficult to quantify, but their lack of interest can often be detected in what they say. Their main argument is that in the university tradition, scientific research is supposed to complement teaching.

Nevertheless, the fact is that many activities are open to all trainers and they allow different categories or bodies of trainers to come together. That being so, it is the training mechanisms that have been introduced, perhaps as much as the opening of activities to different audiences, that appear to be promoting discussion with a view to establishing a common culture. Evidence of this can be found in the replies to questions about how the trainers wanted to work: think-tanks or working parties, which generally involve several days devoted to a single subject, and which allow time

for occasional informal discussions without this always having to result immediately in the production of teaching tools, are what the trainers overwhelmingly wanted. This response suggests the desire to look at questions together, to focus on the specific role and duties assigned to different trainers and to compare them in order to harmonise teacher training as a whole. It appears that the construction of a common culture needs to go through this type of process, although it is difficult to prove whether it is directly effective. What is lost in terms of direct effectiveness, however, particularly when training activities do not result in the production of teaching tools, is probably gained in terms of the coherence of training as a whole. That is in any case what the IUFMs, who place importance in this type of process, are counting on.

Further evidence of the determination of IUFMs to establish a common culture for trainers is the large scope allowed in training programmes for the training of 'new trainers'. The majority of training programmes offered by the 31 IUFMs in France include a section on training for new trainers. The replacement of the first trainers from different backgrounds – *écoles normales,* inspectorate, university – by new trainers has led to the organisation of training for them which is designed to give them the skills they need for the job. The course content for new trainers has certain common features that suggest that the knowledge transmitted forms a body that could serve as the basis for a genuine training profession. This knowledge relates to the subjects taught, knowledge of the organisation and administration of the IUFMs, knowledge of teacher training programmes, and procedures for the recruitment and permanent appointment of trained teachers by the State. This knowledge or know-how also involves thinking about and developing the tools the trainer needs for the job: the requirements for training adults and supporting student teachers in class or in analysing their practice are areas that are broadly represented in the activities for new trainers. Although this content shows that the IUFMs attach genuine importance to establishing a common culture for trainers, it also suggests that a certain amount of formal knowledge, or in some cases knowledge that is still being formalised, has been developed since the IUFMs were set up. This formal knowledge, or knowledge that is still being formalised, represents a necessary, not to say fundamental, condition for the recognition of a profession (Dubar, Triper, 1998).

These few conclusions about the content of trainer training programmes suggest therefore that a process of professionalisation

has begun. Although different sociologists have very different views on a 'canonical' definition of a profession, the consensus seems to be that for a profession to be recognised as such, there should exist a form of identity based on a common culture and a body of formal and transmissible knowledge. However, it is worth noting that this culture and knowledge are extremely dependent on the historical and political circumstances in which they are shaped. A certain number of institutional reforms currently taking place are likely to encourage their development, which will have an effect on the professional identity of trainers and beyond that on the role to be played and the position to be taken by the IUFMs in teacher training within the university into which they have just been integrated.

Consequences of the new reforms on the professionalisation of teacher-trainers

The reforms on which the State has embarked – whether it be the integration of the IUFMs into universities ([9]), the recruitment of teachers at master's degree level, the publication of the requirements for teacher training or the new methods of teacher recruitment ([10]) – are bound to have an effect on the configurations that trainer training might take. These configurations will identify the role and the place that the IUFMs will assume in teacher training. The IUFMs, integrated into universities that are becoming increasingly independent of the State ([11]), and needing to respond to the requirements that the State as employer sets for recruiting teachers, will have to change the way they operate, without losing sight of the tasks they have been given. One of their chief tasks, training teachers, relies above all on the attempt to link theory and practice or, more precisely, the results of academic findings and practical requirements. And it is on trainers who need to be trained to do this that the IUFMs rely. Providing training for these trainers and working on their professionalisation form part of their efforts to meet this objective. In this section, we will look at various possible scenarios both for the evolution of trainer training and the future of the IUFMs.

([9]) Framework and Programme Law on the future of schools No 2005-380 of 23 April 2005, published in the French Official Journal.
([10]) Order of 19 December 2006, *op. cit.*
([11]) Universities (Freedoms and Responsibilities) Act, *op. cit.*

The place and the role of IUFMs in master's degrees

One of the forthcoming reforms whose effects we will try to anticipate, will lead to the recruitment of teachers who have attained the higher (master's) degree level. President Nicolas Sarkozy, anxious to comply with the EU recommendations – particularly those in the Bologna and Lisbon processes – transposed in the Framework and Programme Law on the future of schools ([12]), sent a mission statement to the Minister for National Education, Xavier Darcos, in July 2007 asking him to institute master's degrees. He wrote: 'You will, together with the Minister for Higher Education and Research, ensure that university institutes for teacher training provide teachers with the tools they actually need to do their job […] Teacher training must last five years and be recognised with the award of a master's degree' ([13]). At the same time, the President invited Valérie Pécresse, the Minister for Higher Education and Research, and Xavier Darcos to start discussions with the CDIUFM (Conference of IUFM directors), university rectors and the trade unions. For the latter, this 'masterisation' was a cause for concern as well as hope about the future of teacher training, trainers and the IUFMs.

The introduction of a master's degree for teachers requires them to meet a combination of conditions that threaten to put the IUFMs and some of their trainers in a difficult position. Among other things, it involves a requirement that not all IUFMs will be able to satisfy. In order to be accredited by the State (under the four-year contracts between universities or IUFMs and the State), a master's degree must be supported by an approved research team. However, according to the latest CDIUFM estimates ([14]), only half of IUFMs are supported by or associated with such research teams. A considerable number of UFRs (Training and Research Departments), which make up the greater part of universities, rely on approved teams, and many of them have begun to introduce master's degrees that they will be submitting to the State for accreditation ([15]). Students who were previously preparing for competitive recruitment by the

([12]) Framework and Programme Law on the future of schools No 2005-380 of 23 April 2005.
([13]) Mission statement for the Minister for Education, Xavier Darcos, of 5 July 2007, http://www.fcpe34.org/article.php3?id_article=2188 (cited 03.03.2008).
([14]) Conversation on 7 May 2008 with Gilles Baillat, Vice-President of the CDIUFM.
([15]) An analysis of applications for the accreditation of master's degrees to be submitted to the State by UFRs for 2009 shows two types of degree: 'subject-specific' master's degrees with teaching as a specialism, and a multi-disciplinary master's degree orientated towards teaching and training.

State education system (*Éducation nationale*) fell outside the scope of the master's degrees offered by the UFRs, and by introducing these new degrees or integrating professional options into their existing master's degrees, the UFRs will now be able to retain their student numbers. If, in 50 % of cases, the IUFMs are going to have to collaborate with these UFRs in order to create new professional master's degrees or to offer professional options in their existing (often subject-specific) master's degrees, they will be unable to create them for themselves. A form of partnership between the IUFMs and the UFRs is therefore needed. However, it seems that the CDIUFM is showing signs of mistrust about this partnership, which it wants to be 'genuine' ([16]).

The same fears are shared by the trainers. During the first stage, the preparation of a draft of the degree, these trainers sometimes felt that they were being kept at arm's length. A senior lecturer at the Créteil IUFM whom we interviewed during the survey we conducted among a number of trainers described it as follows: 'There is a lack of information [...] Trainers feel that they are being kept at arm's length from the creation of the master's degrees [...] even if they are sometimes themselves to blame for being excluded from the process because they are busy with other tasks such as drawing up training programmes, discussing new programmes, and so on'. It should be noted that this 'feeling of exclusion' is particularly severe in the Créteil IUFM, since the UFRs that have taken responsibility for the master's degrees belong to four different universities, even though the Créteil IUFM is integrated into only one of them. The same respondent also voiced longer-term fears: 'IUFM trainers will mostly be confined to the 'professional section' of the master's degree [...] the range of activity of the IUFMs is being reduced'. However, Gilles Baillat offers a slightly more optimistic reading of the situation: 'Not having all the necessary resources, the IUFMs had already devolved the essentially subject-specific training of secondary-school teachers to the UFRs and they were already responsible for the professional aspects of this training'. From our point of view, this seems to be corroborated in the was that students are prepared for secondary-school competitive examinations, since professional training in the first year has been reduced to a minimum, as the examination papers are essentially based on subject-specific knowledge. On the other hand, this analysis seems a less accurate

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([16]) CDIUFM, Opinion of the committee monitoring master's-level degrees, 22.02.2008.

reflection of the situation for the trainee teachers that the second-year students become, since the professional section of their training is more important. The fact that these trainees are mainly trained by the IUFMs means that a common and relatively standard professional training can be provided for all teachers, whatever their subject, whereas the introduction of a second year of a master's degree in different UFRs runs the risk of diluting the coherence that the IUFMs were attempting to put in place. However, Gilles Baillat offers a more optimistic reading here too: 'The creation of master's degrees remains under the control of the State, since it is the State that accredits these degrees […] And it is not in the State's interest to see a profusion of master's degrees, for reasons of consistency and good management […] It is determined to retain control of teacher training. This is particularly evident from the fact that when it integrated the IUFMs into more autonomous universities, it took steps to ensure that the teachers it intends to recruit have the right skills. It has set stricter recruitment conditions ([17]) for them. For example, it has excluded IUFM lecturers from primary EQP (Professional Qualification Examination – *Examens de qualification professionnelle*) boards and has entrusted these to State Education Service personnel. Stipulating the skills required for teachers to be appointed to a permanent post also demonstrates this desire to control recruitment more strictly at a time when training is less controlled […] The State does not intend to exclude IUFMs from this type of teacher training, but it has the scope to do so by exploiting the accreditation of master's degrees'. The feeling of exclusion among IUFM trainers during the creation of the master's degrees does seem to reflect a certain reality. However, this feeling is also fed by the fear that the IUFMs will lose their power over teacher training in favour of the universities, which are known to be anxious to retain their student numbers, particularly at the master's level. What is happening here is actually a battle between the IUFMs and the UFRs to protect their own interests. The State, meanwhile, if we accept Gilles Baillat's arguments, appears to be both a good manager and basing its decisions on a broader interest. Moreover, again according to Gilles Baillat, there is probably no reason why it should deprive teacher training of the know-how that the IUFMs have shown they have.

([17]) Order of 19 December 2006, 'Specifications for teacher training in IUFMs'.

Besides, the IUFMs which have an approved research team or are associated with one are going to be creating their own master's degrees. And where many of them do not have the necessary resources to offer master's degrees in all subjects, they will be creating more general professional master's degrees. This is the case with the Reims IUFM, for example, which has created its own master's degree, intended for future primary-school teachers and education advisers, and which has joined forces with other UFRs to create master's degrees that are more subject-specific, intended for secondary-school teachers. In this case, it seems that a genuine partnership has been formed.

There is still some doubt, however, about the reform of competitive recruitment examinations for teachers, particularly secondary-school teachers. Teachers could sit these examinations before obtaining their master's degree, which would be required to validate the examination. If the content of the examinations is based, as is currently the case, on strongly subject-specific or academic content, the professional training that the IUFMs were trying to put in place, that is to say, training that simultaneously combines theory and practice, risks being consigned to oblivion. After receiving adequate academic and subject-specific training required to sit the competitive examinations, new teachers would be trained in a type of 'mentoring' system by experienced teachers from the time of their entry into the profession. As Patrick Baranger, President of the CDIUFM reports, 'the mentoring system already exists; new permanent appointees have four weeks' training a year and are monitored by a mentor. The mentoring system should be seen as complementary training, as adaptation to the job, and certainly not as a substitute for professional training, which is an integral part of the master's degree' [18]. What Baranger seems to fear, if the competitive examinations mainly evaluated academic and subject-specific knowledge, is that the professional training that the IUFMs were trying to introduce would disappear, and that this would take the training of secondary-school teachers back to the *status quo ante*. Theoretical training and practical on-site training would again be separated. If this were to happen, the IUFMs would have a reduced position and role, since academic training would be provided by the UFRs and professional training by teachers on site.

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[18] *Aef info*, 29 June 2008: 'Introduction of a master's degree for teacher training: Xavier Darcos was to report to the Council of Ministers in mid-June'.

To sum up, the responsibility given to universities and the IUFMs to introduce these master's degrees is producing very different perceptions of the process. Every case is different and depends, *inter alia*, on the contracts that were concluded when the IUFMs were integrated into the universities, and also on good relations between the decision-making bodies of the universities and those of the IUFMs. Some IUFMs, such as the Burgundy IUFM, have taken the precaution of having it spelled out in their integration contract that no decision concerning teacher training can be taken without seeking their opinion. The nature of the relations between the parties as the process develops will also be important. In the last resort, the State will decide, by accrediting or not accrediting the master's degrees. However, the content that the State decides to give to the tests for the competitive examinations will remain decisive in determining the place and role that the IUFMs have in these degrees.

The future for trainers

From the staff point of view, teacher-researchers seem on the whole to have less of a feeling of exclusion from the process of creating the master's degrees. This is not always the case with secondary or primary trainers who, although represented on the governing boards of the IUFMs, and also quite frequently on university CEVUs, now see their 'official status' being changed in the master's degrees. They see themselves becoming 'professionals' associated with the training provided as part of the master's degrees. It seems that all hope of the unity which seemed to be emerging in the process of professionalisation is vanishing. The term 'trainer' which was becoming widespread in academic literature and had to a certain extent become official, since it was found even in official State documents, is being completely undermined. Are we now likely to see the appearance of 'academics' trained through research, as is the university tradition, on the one hand, and on the other professionals, primary-school teachers, senior trainers and education advisers, and secondary-school teachers, trainee-teacher trainers, whose training is traditionally not provided by universities? This is a whole new question concerning trainer training. Given that one of its essential functions was to develop a common culture and pass on formalised knowledge, will it find the arguments and support it needs in this new configuration for it to be able to continue?

According to Giles Baillat, it seems that the resources made available are for the moment not under threat, particularly now that

the IUFMs have been integrated into the universities as 'Schools'. These Schools have genuine freedom in the budget choices they can make, even though it is the university's governing council that votes on and ratifies the budgets of its constituent bodies. The commitment of IUFMs to trainer training suggests that they will do what they can to preserve it. Gilles Baillat even thinks that this institution could be extended to other UFRs. He mentioned that a number of UFR directors have already contacted him to request IUFM expertise in the teaching field. Universities have for a number of years now had to deal with the wave of democratisation that secondary education experienced earlier. What is more, the Fillon Act has set a target that 50 % of a single age group should obtain a higher-education diploma. Universities will in all likelihood have to work very hard to provide the teaching to respond to this demand from the State. Virtually all teaching unions are demanding that the State should provide the teaching resources needed to limit the drop-out rate in the first year of higher education, and the State has recently taken some measures along those lines, notably the 'Successful degree' (*Réussite en licence*) plan, which earmarked EUR 30 million from 2008 to reform degree courses [19]. It therefore seems that the IUFMs might in this context become the preferred partners of the UFRs in this context, particularly in helping teacher-researchers in their teaching tasks. This would be a way to expand trainer training.

Another possibility also seems to be opening up in the field of trainer training, in the form of 'master's degrees in the training of teacher trainers'. Some universities have already embarked on this experiment (Viaud, 2007). Several factors explain why these degrees would be useful. First, because teachers are to be recruited with master's degrees, it is difficult to imagine their trainers not also being recruited with the same level of qualification. A number of trainers who have come from primary and secondary teaching, and also associate trainers, particularly those who do work full-time at the IUFMs, do not hold master's degrees. Even though they could, in the context of the master's degrees that are to be introduced, claim legitimacy from the fact that they would become 'professionals' alongside graduates, it would still be appropriate for them to have a master's degree. As Marie-Laure Viaud (2007) says, the distinction between graduates, professionals and students in the context of

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[19] Letter from Valérie Pécresse, Minister for Higher Education and Research, the *Réussite en licence plan*, 15 January 2008, Ministry of National Education.

these master's degrees is less important than in other forms of professional training: graduates who teach on these courses have often been professionals, the professionals are teachers, and the students themselves are very often already professionals. We can see in this context why having a master's degree can confer a certain legitimacy on in-school trainers, if only because it brings transparency to a system where it can be difficult to distinguish people's backgrounds. The second reason why it seems appropriate to create master's degrees concerns the uses made of educational research, and particularly the problems it is having in breaking into the field of teaching and professional teacher training. Reports (Prost, 2001; Caspar, 2002) that called for the better integration of educational research in training for teachers and also for their trainers, are now seeing the establishment of the right conditions for their recommendations to be followed. Master's degrees in the training of teacher trainers can be a forum for some educational research, but also a place where the results of this research can be disseminated.

However, there are still certain obstacles to the development of these master's degrees. To mention just two that we feel are very significant, there is the fact that these training courses are very demanding and difficult for those already working to attend, and the fact that degrees offer no guarantee of being recruited as a trainer. However, the IUFMs are in virtually all cases partners with which the universities have maintained good relations in order to ensure that these 'master's degrees in the training of teacher trainers' are successful (Viaud, 2007).

It is clear from these various scenarios that trainer training can take various forms, and it seems fairly certain that the IUFMs will be able to continue with their trainer training programmes in the short term. Some indicators suggest that universities, which will probably still be facing a massive influx of students, seem to be interested in using the IUFMs' expertise, particularly if they intend to train teachers. As for master's degrees in the training of teacher trainers, these depend on accreditation by the State and it seems difficult for now to see them becoming widespread. Even if they were to become more popular, they do not seem to be competing with the training programmes introduced by the IUFMs, which are also intended to provide continuing training for trainers.

Be that as it may, in all the scenarios envisaged, it appears that the IUFMs could be the universities' preferred partners in

bringing teacher training up to master's degree level. They will be particularly well placed to fulfil their task of training teachers and teacher trainers, since the State itself will see them as its preferred partners in meeting its downstream requirements as regards teacher recruitment, as well as its upstream requirements, by ensuring that they are genuine partners for universities in delivering the master's degrees to future teachers.

Conclusion

The training of teacher trainers has long been a central concern for academics, experts and politicians responsible for the development of teacher training. It seems that, with the creation of the IUFMs, it has won a position and a role that are recognised by all protagonists in teacher training, including the State. The desire to 'professionalise' these trainers, influenced by the sociology of professions, has without doubt helped to redefine the problems underlying their training and to shape the content of that training. A common culture and formalised and transmissible knowledge have emerged. These constitute the necessary conditions for the process of professionalisation envisaged by sociologists, which also meets the initial objective of the founders of the IUFMs: to accord a fundamental importance to teacher trainers. A process of 'professionalisation' of trainers has probably developed in spite of the obstacles it has encountered, particularly to do with the different types of trainers. This professionalisation of trainers has met and continues to meet the IUFMs' aim of training teachers in a context that, put briefly, links theory with practice.

The ongoing and future institutional reforms will undoubtedly change certain aspects of teacher training. Trainer training, seen as a fundamental lever for developing teacher training, is likely to undergo changes to its form and content. In the different scenarios that we have envisaged, there seem to be reasons why it should continue. Some prospective studies even suggest that it could serve as an inspiration for universities, which may need to change the ways they transmit knowledge. Nevertheless, the legitimacy won by trainer training in the IUFMs, which is broadly emblematic of the legitimacy of the IUFMs themselves, still largely depends on the direction taken by the State. The State is able to control the accreditation of master's degrees, and if there is a conflict between the UFRs and IUFMs, which will both be determined to wield power

over teacher training, it holds the real power to decide, thanks to its control over the accreditation. Besides, the State remains the employer, and it is the State that determines the conditions for recruiting and appointing teachers to permanent posts. It will decide on the content of the competitive examinations, which will allow it to control the professional dimension of the training that future teachers receive. The importance given to the academic and subject-specific dimensions in the examination papers and that given to training by 'mentoring' will be decisive for the future of the IUFMs and their trainers. If the mentoring system again becomes a method of training that follows on from academic and subject-specific training as a separate entity, there will be few reasons for retaining the IUFMs and their concept of professional training for teachers.

It is the definition of competitive recruitment examinations and the methods for appointing teachers, far more, perhaps, than the choice of one type of teacher over another, that will show the value that the State attaches to the work of the IUFMs. It will in any case demonstrate to what extent the State recognises the professional nature of the work of the trainers in these IUFMs.

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The impact of vocational education on poverty reduction, quality assurance and mobility on regional labour markets – selected EU-funded schemes

Dr **Manfred Wallenborn**
Senior expert in vocational education
European Training Foundation (ETF)

SUMMARY

Vocational education can serve to promote social stability and sustainable economic and social development. The European Union (EU) strategically employs a range of vocational educational schemes to attain these overriding goals. Topical points of focus are selected in line with requirements in the individual partner countries or regions. However, during scheme planning and implementation, flexible and problem-oriented approaches by which partners retain responsibility, while also having the opportunity to participate in learning processes, are of equal importance. This approach produces realistic assessments of the possible effects of interventions in the form of international cooperation. Flexible procedures and fixed-term schemes subject to limited financial input provide a vital basis for such learning processes, which improve partners' capacity to act in preparation for far-reaching political decisions with regard to innovative changes and fundamental reforms in qualification systems.

Introduction

The European Union (EU) and its specialist agencies provide support to the EU's neighbouring countries and a group of developing countries as they reform their vocational educational systems. The principal aim here is to improve the internal effectiveness and efficiency of the existing systems. With a view to promoting lifelong learning, transitions between general and vocational training and between the qualification system and employment must also be improved. Vocational education must be conceptualised and (in some cases) redesigned within the context of the overall educational system and the changing requirements of the labour markets.

The EU offers a number of different forms of cooperation: its involvement in budgetary financing is complemented by technical cooperation and consultation during the elaboration and introduction of relevant schemes designed to reform the vocational education system. Consulting services specifically developed to meet the needs of the individual countries initiate, *inter alia*, forms of technical cooperation which support the partners during the preparation of tender invitations for EU-funded projects. However, in terms of content, the concepts must be based on the strategic planning considerations of those responsible as regards the problems associated with the vocational qualification systems in the countries concerned, which also take sufficient account of individual national and regional conditions. The pure transfer of knowledge is just as undesirable as the external initiation of reform processes, because firstly – given the national conditions of the available qualification systems – abstract knowledge cannot be readily used, and secondly, concepts must be based upon a democratically legitimised political decision-making processes and ownership if they are to contribute to the introduction of lasting reforms.

Smaller projects ([1]) with manageable terms and limited budgets can initiate important learning processes and support subsequent political decision-making processes: local pilot measures and associated programmes comprising visits to specialist organisations within Europe and its neighbouring countries help initiate the development of innovative and strategic alternatives for the reform of vocational

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([1]) This paper describes three such projects, which have been implemented by the European Training Foundation.

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educational systems and support their ultimate implementation in the
respective context – insofar as the necessary intent exists/evolves.
Such European projects exist in virtually all areas of vocational
education; they play a key role in the current international debate
concerning the development of strategies aimed at realigning
qualification systems. They include:
- Skills Development for Poverty Reduction (SDPR),
- National qualifications frameworks (NQF),
- human resources migration and development,
- Entrepreneurship Learning,
- social integration through qualification,
- recognition of skills gained through informal learning processes
  etc.

Manageable projects in these areas make it possible to tackle the
ever-growing gulf between pure political consulting and the resultant
implementation problems in subsequent projects in the field of
development cooperation (DC), for example. Such small schemes
are also capable of preparing possible EU follow-up projects.

Alongside these topics, which are vocational in the narrow sense,
other aspects will be important in the future: labour market infor-
mation systems (labour market analyses, vocational guidance and
recruitment services) will play a greater role in all partner countries,
and consequently also in European cooperation services. Topics
range from the adaptation of statistical survey methods to European
standards (e.g. to measure unemployment) to the increased ori-
entation of national vocational guidance systems towards modern
lifelong learning principles. All this will take place against the back-
ground of effective Flexicurity approaches ([2]) in the EU, which are
responsible – in Denmark and Sweden, for example – for greater
mobility on the labour market and the necessary willingness to be
mobile (Eurofound, 2007, p. 25).

In capacity building terms, all these schemes contribute towards
potential EU enlargement, and also towards regional cooperation
with the EU's neighbours. This will be explained later in concrete
terms, using the examples of selected projects.

([2]) Flexicurity approaches combine flexible forms of legal employment options (such
as fixed term contracts) involving the advancement of the unemployed (in terms of
qualification) in a manner that is both targeted and tailored in such a way as to
enhance personal competence.

EU instruments

The EU's method of grouping its directly and indirectly neighbouring regions differs from the OECD's DAC criteria (Development Assistance Committee). This was principally due to geopolitical and strategic considerations in relation to future EU enlargement. The Commission defined three instruments, which are of direct relevance to working with the partner countries and which, much like the regional and sector-focussed approach in English, German and Swedish development cooperation, for example, set out clear framework conditions as regards content. In this respect, a distinction must be made between the following:
· Instrument for Development Cooperation (DCI),
· European Neighbourhood and Partnership Instrument (ENPI),
· IInstrument for Pre-Accession Assistance (IPA).

Within the context of the sector-specific approach and the institutional tasks and competences, all three instruments must be applied to the needs of each partner country's vocational qualification system in a consensual and ownership-based manner. In order to achieve this, European specialist organisations/agencies must provide the consulting services required to introduce the three instruments and guarantee their effective application.

DCI supports countries in Central Asia in their human resources development strategies through the reform-based establishment of more efficient qualification systems. These countries aim to sustainably promote their economic and social development through the qualification of the skilled workers required for this purpose, and thereby establish national structures that will reduce the migration of many qualified skilled workers – in particular to Kazakhstan, Russia and Ukraine – for reasons related to labour and income, or will entirely prevent such migration in the long term. The DCI is aimed at a number of Central Asia's traditional developing countries, which are also of increasing significance in bilateral DC. When the German EU Presidency ended in June 2007, the German Foreign Minister strongly emphasised the important role of vocational education in this development process.

The ENPI is aimed at the EU's neighbouring countries whose accession is not on the agenda. The instrument is used by a range of countries, from the Russian Federation and Ukraine to Morocco. It is thus geared towards a number of developing countries in the MEDA/MENA region (Middle and Near East and North African

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countries). In principle, however, it covers all the countries bordering the Mediterranean and also the republics in the Caucasus.

The IPA instrument contributes in particular towards the EU enlargement process and is aimed at accession candidate countries such as Turkey, Croatia and Macedonia, and at potential candidate countries in the Balkans. Cooperation based on this instrument contributes towards the modernisation of the general and vocational educational systems and towards a reform of the existing labour market information systems. However, one project also investigates the motives of migrants, their skills profiles and the resultant effects and requirements with regard to vocational qualification systems – also with a view to promoting social integration in the Balkans, a sensitive region in security policy terms.

The schemes/projects

Against the background of EU policies and the three instruments, the projects give preference to strategies that have strong ties to the EU's history, establishment and enlargement process. The principal patterns of action employed in the context of cooperation between partners comprise regional cooperation, peer learning, policy learning, political consulting and network formation. This paper will present some projects in the fields of migration, poverty reduction and take a look at contributions towards national quali-fication profiles. The projects were selected because – in addition to technical schemes within the vocational educational sector in the narrower sense – they highlight the significant contribution of vocational qualification processes to overriding economic and social goals (economic growth and social stability).

In this context, the directive maxim applies that countries can only achieve closer relations with or membership of the EU by inde-pendently defining national development bottlenecks and identifying appropriate solutions (ownership and personal responsibility). In this context, practical learning processes during the introduction of innovative schemes are very important. 'Policy learning' within the context of the experience gained from schemes with fixed terms and budgets is an instrument that replaces the previously stand-ard approaches of merely transferring know-how and replicating solutions already developed by advanced countries. Systematic and dialogue-based learning within the context of well-considered

project experience can help meet national requirements for action and reform in a partner-oriented manner. Such learning processes are generally preceded by large-scale cooperation schemes (involving technical cooperation). Without such learning processes, institutional developments that constitute key criteria for reforms and for the application of and adherence to EU standards would not be possible within the scope of the IPA instrument.

For this reason, it is essential that the political elite and other relevant stakeholders are informed about innovations in education and training and also in a position/willing to implement them in an EU-compatible manner. The (further) development of human resources in preparation for institutional reforms through learning processes therefore becomes a key factor in institutional performance.

The strategies and learning processes referred to above play an important part in the three projects to be presented in this paper: only partners who are sufficiently well informed of the likely advantages and disadvantages of systemic innovations in vocational education will endeavour to implement these innovations coherently and on the basis of a proper mandate.

Skills Development for Poverty Reduction (SDPR)
Vocational mobility in Central Asia is closely related to migration. 10 % of the population of Tajikistan alone lives in neighbouring countries (Jonson, 2006) According to the Swiss Federal Office for Migration (www.bfm.admin.ch), approx. 117 million people worldwide live outside their native country, of which 17 million are refugees. The vast majority of Central Asians migrate as a result of the disastrous employment situation in their native countries, which are still unable to offer them and their families satisfactory economic and social prospects following the breakup of the Soviet Union. By contrast, even within the enlarged EU, only 5 % give transnational mobility any thought at all, and an even smaller proportion actually put their plans into action (Eurofound, 2007, p. 14 et seq.).

Kazakhstan, Kyrgyzstan and Tajikistan have begun working together in the field of poverty reduction within the scope of an EU-funded project spanning several years (2006 to 2008). The project was motivated by the fact that, during the transition to a market economy, these countries require support not only in the towns, but also in their rural areas. Coupled with this, the dissolution of the Soviet-style rural production conditions based primarily on division of labour has made many former qualifications redundant.

Furthermore, the decades of political socialisation are still hindering the development of new entrepreneurial thought patterns, which are particularly essential for small agricultural producers to market and sell their own produce.

The problems associated with rural areas and their development – which is in part training-based – are once again featuring prominently in development policy debate, following years of virtually systematic neglect. In its most recent report in 2008, the World Bank referred to the relevance of rural areas in the context of poverty reduction and social stability. However, similar EU schemes have already been providing aid to rural areas in the Central Asian countries for two years, as the breakup of the Communist economic system has again afforded such areas special and sustained strategic importance as regards the stability of entire regions. Stabilising these areas can help reduce internal migration to larger towns and abroad, which is an important prerequisite for promoting regionally balanced economic and social development.

Given this situation, rural vocational college centres have an important strategic function in conveying sustainable skills. However, they require support: their skills services, which are only minimally demand-oriented and often still rooted in the former socialist context, must be adapted to the current situation. Elements that have been lacking to date include both appropriate insights and a different kind of institutional remit, which is needs-based and which has its foundations in the capacity building of these educational institutions (consulting, continuing training, promotion of participative institutional changes, etc.). The problem in rural areas has been exacerbated by both national and international migratory movements, with many households run by women because the men have moved away to take advantage of employment demand in other countries.

Migration has primarily involved the most highly qualified workers. Women in particular are thus confronted with the question of how and with what skills they can better secure their rural living in the future. This is compounded by the knowledge that the labour markets in rural areas will not be recruiting large numbers of additional regular employees in the foreseeable future.

As a result, rural projects in all three countries have a dual purpose: (female) target groups receive further training, with the aim of using their newly acquired skills in the manufacture marketable products. To achieve this, however, rehabilitation services in rural colleges are vital. Capacity building at the three rural pilot colleges in the

aforementioned countries involved and still involves services such as consulting, training local managers and teachers, peer learning among the Central Asian partners and targeted coaching during visits programmes to Europe.

The scheme consciously incorporates all the services offered by other bilateral donors, with a view to establishing networks. It is clear that training designed to consolidate rural livelihoods under market economic conditions cannot be attained solely in the classrooms of rural skills centres, but must consciously involve the entire living space and realm of experience of rural target groups (Atchoarena and Gasperini, 2003). To this end, the beneficiary target groups must acquire practice-oriented skills on cultivated land and farms, i.e. in their real environments.

National qualifications frameworks (NQF)

This scheme (running from 2005 to 2008) involves the Central Asian countries of Kazakhstan, Kyrgyzstan and Tajikistan and is subject to extremely heterogeneous conditions. All these countries take the view that compatible qualifications frameworks offer major advantages both at national level and with regard to regional cooperation. On a pilot-project basis, all three countries have agreed to develop a graded qualifications system comprising building-block like modules in the economically important vocational field of tourism. The initial conditions of the individual countries differ considerably in terms of gaining access to the global economy and achieving better economic and social development. Its natural resources provide Kazakhstan in particular with an additional advantage over the other countries, while a very unfavourable start as an independent nation (due to the civil war) slowed down Tajikistan's development momentum.

The relatively fast pace of exploitation of available natural resources and the need for the country to achieve strong qualification-based economic development makes decision-makers in Kazakhstan receptive to innovation in vocational education. Vocational skills attainment is seen as an integral component of successful economic and social development in both functional and strategic terms. This includes the ambitious attempt to direct and combine vocational skills into a qualifications framework that seeks to promote vocational mobility by ensuring that skills remain comparable.

Tajikistan, which has lost a good proportion of its qualified workforce through migration, has fallen behind the other two countries in terms of developing the necessary reform momentum. After the Ministry

of Education assumed responsibility for vocational education, the requisite increases in financial and material resources failed to materialise. As a result there have been only minimal advances in the resource-intensive development of national qualifications and vocational profiles within the scope of the pilot scheme (in the vocational field of tourism) – a criticism that has recently been expressed on an increasingly frequent basis in the context of developing countries.

This trend is confirmed not only by impressions gained during periods spent in Tajikistan, but also by the results of the regular peer reviews between the countries in question. These reviews are conducted by experts who are responsible for the same areas in the countries involved. The aim of this instrument is to consciously promote specialist exchange and regional cooperation between these countries and to enhance their capacity to learn from one another. The reviews conducted to date clearly demonstrate the variation in development tempos in each country, which results from the variable and regionally fluctuating institutional performance in the partner countries.

The effects of migration

The European Commission places great importance on the migration project (running during 2006 and 2007). With a view to providing policy consulting, fundamental reasons for the migration behaviour of the EU's neighbouring countries are being researched: empirical studies relating to the (potential) migration behaviour of workers were conducted in Albania, Egypt, Moldavia and Tunisia. Field studies were conducted, based on up to 2 000 interviews per country, half with potential migrants and half with returning migrants.

A number of EU Directorates (Foreign Affairs, Enlargement, Justice etc.) require these findings in order to develop a more coherent EU immigration policy in the medium term which they can recommend to Member States. To date, Member States are approaching new EU Members and neighbouring countries as the requirements of their labour market situation dictate. At present, in view of its own employment problems, Germany is broadly refusing employment-motivated migration from Eastern Europe. In contrast, Ireland and England needed workers and thus pursued a very liberal policy. Other countries take a very selective approach. The EU has set itself the goal of combating illegal migration, aiming instead to promote legal mobility and to obtain information about migration associated

with the ageing EU population by means of secure data. In addition, migration management in cooperation with the individual partner countries must be based on verified statements. However, one fact has already become clear and is of great significance to EU-funded poverty reduction strategies with regard to the future elaboration of related rules: 'Mobility of low-skilled workers has a greater impact on poverty reduction in the sending countries than mobility of the high skilled' (OECD, 2007).

This leads back to the overriding question of the problem and causation correlations associated with migration: Is migration a question that can primarily and in the narrow sense be promoted/ triggered by vocational education and qualification regulations, or are the employment policy considerations of the political elite in the target countries and people's beliefs associated with maximising their income ultimately at the root of the complex issues related to migration? At the moment, for example, Tunisia is recommending fixed term mobility for highly qualified manpower at university level, because for the foreseeable future there are insufficient employment opportunities in the country itself. In Egypt, a relatively high number of academics resulted in relatively low salaries for university graduates, who only found employment in the inflated state sector (World Bank, 2008), with the result that many are willing to migrate. Migration is a complex social phenomenon which can always be viewed from two perspectives depending on the interests involved (similarly to economic analyses): on the one hand, expenses (or disadvantages) and, on the other, income (or advantages).

New regulatory criteria in the field of vocational education such as qualifications frameworks would appear to be, *inter alia*, a reaction to migration movements, the complex social causes of which lie primarily in economic and social spheres. This is not exclusively poverty-based migration, but also includes entirely legal migration, which involves optimising personal vocational prospects within a broader economic geographical framework. In addition, such qualifications frameworks counterbalance private education providers' more commercially-driven methods of conveying skills and will therefore produce a levelling effect in Europe with regard to the large range of different products available with the same outcomes and lead to co-existence between private and public education providers.

The fact that many (developing) countries are overstretched when it comes to the design of such frameworks will be an issue that will increasingly come to the fore in European and bilateral vocational

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education cooperation (BBZ). Furthermore, an unmistakable trend towards creating blueprints for European approaches is pushing fundamental questions related to vocational learning into the background (Grootings, 2007). Evident problems associated with the partner countries' vocational education systems (inadequate opportunities to apply acquired qualifications to an actual employment situation, absence of consistent and incentivising HRD strategy for teaching and training personnel, the use of traditional teaching methods and examination methods, etc.) are also eclipsed in the face of the National qualifications framework, which is clearly seen as the main problem-solver. This made it all the more important to put institutional willingness and the capacity to configure such qualifications frameworks to the test in project partnerships.

Such regulatory criteria would also offer the advantage that, if properly configured, they would facilitate assessment of the qualifications of migrants from neighbouring countries, and help resolve problems associated with the brain drain in the sending countries (which undeniably exists) by means of development and a purpose-designed returners programme. In particular, somewhat underqualified migrants, who have had a palpable impact on poverty reduction, could use their new vocational experiences and knowledge to contribute towards the transfer of knowledge and skills in the sending countries.

Initial scheme results

All the projects described above, with the exception of the scheme related to migration, are still in progress, although their terms have already been extended. The results of the two projects still running are therefore not definitive. The provisional nature of the stages completed (and even those not completed) will undoubtedly result in further project adaptations, in particular if the adjustments to the ongoing course of the project produce systemic consequences for vocational education. Such adaptations come about as a result of the interests of the partners involved; these interests are incorporated over the course of the project in question and in some cases change as a result of learning achieved throughout the process. This momentum cannot be reflected *a priori* in the planning tools of development cooperation projects, such as Logical Framework. During a scheme's preparatory phase, this approach comprises creating a matrix that

combines the project goals, associated activities, indicators and assumptions concerning the general framework.

On the basis of (interim) findings, it is not sufficient to merely discuss experiences and outcomes in partnership with the institutions involved and define any changes to strategies concerning joint action. At this point at the latest, there must also be reflection at the point of interface between interventions into other systems (Willke, 1996) concerning realistically achievable outcomes and topics arising in recent debates in relation to various aspects, including:

- vocational qualification approaches within the context of recent contributions towards poverty reduction (recent examples being DFID, 2007 and ETF, 2006). At present this goal-setting is not up-to-date in many multilateral and bilateral schemes, in spite of the fact that the MDG (Millennium Development Goals) form the basis for virtually all the development cooperation schemes and vocational education's special significance within the context of economic and social development goals (Wallenborn, 2007);
- objections that have barely been documented in literature to date but which are increasingly raised by experts in development cooperation. These concern the question as to whether complex regulatory criteria such as national qualifications frameworks do not in fact overburden many partners in less developed countries or effectively amount to a new export of systems which cannot be sustained in the medium term in many countries owing to inadequate resources.

The figures relating to transnational migration within the EU and the results of the migration project from the EU's four neighbouring countries demonstrate that work-related (circular) migration processes must be interpreted within a complex network of the causes and interests involved in the countries of origin and the host countries. The interests of the migrants on regional labour markets only gain full significance against this background, and do not necessarily correspond to the interests of the political elite in the countries in question. Instead of appraising the function of national/regional qualifications frameworks in terms of quality assurance and potential EU compatibility, some experts tend more to assess them in a rather sceptical manner, in spite of the fact that they pave the way for further migration of skilled workers to other countries requiring a boost to their workforce. 'Certifiable migration', based on qualifications frameworks, is obviously easier to manage and control in the host countries.

The political efforts of those responsible (in the Balkans, for example) are directed instead at encouraging the return of qualified skilled workers, in the interests of their own economy's needs and stability. In emerging countries such as Montenegro, labour market studies are already highlighting an increasing shortage of skilled workers at various levels in tourism, industry and health (Ministry of Health, Labour and Social Welfare, 2007). Current preparations for a national qualifications framework are thus viewed as the result of national macroeconomic calculations, rather than being in the interests of the working population, who are willing to be mobile.

Skills Development for Poverty Reduction (SDPR)

Alongside the social plight of the rural population in the countries of Central Asia, an additional matter was taken into consideration during project planning and in discussions with those responsible in the countries in question. The following question was posed with a view to implementing systemic reforms: Can rural skills centres play a meaningful role in poverty reduction through vocational qualification? This would mean making more efficient use of existing vocational educational structures in these areas than has been the case to date. Up until now, such qualification programmes have generally been implemented at local level by non-governmental organisations (NGOs), who offer a fair number of bespoke, target group-oriented qualification programmes that are tailored to local requirements. However, they create parallel structures to existing services and institutions. Furthermore, it is important to consider how the use of existing structures impacts schemes associated with Community Based Approaches and what systemic changes may need to be introduced into the vocational qualification system.

In Central Asia, a certain level of willingness to experiment is apparent in relation to systemic changes to vocational education. In Tajikistan, for example, responsibility for the vocational college centres offering initial vocational training was transferred from the Ministry of Employment to the Ministry of Education, which is already responsible for the higher vocational education skills centres. Five further centres were assigned to the Ministry of Employment for further adult training. Against this background, the current poverty reduction project is still unreservedly welcomed. It is viewed as something of an experimental phase with integrated Policy Learning content with the aim of determining a more precise functional definition of centres for initial vocational qualification in the future and possibly enabling the target group-oriented qualification of poor population groups.

Since the EU-funded programmes offered to date by colleges in the area of non-formal training content aimed at (female) adults have produced good results, these activities are being monitored very closely by those responsible at local and national level. The training programmes enabled the participants (who included many women) to make good progress in the manufacture of marketable products and thereby earn additional income. The impending peer reviews must therefore consider the possibility of making more intensive use of the infrastructure of rural vocational colleges for such community schemes in addition to their regular standard initial training services (which also require restructuring). These approaches deal with the entire environment and vocational college centres come to realise by means of an ongoing learning process that they are only one component within a local network comprising a range of other players, such as extension services, organised farmers, cattle breeders and business-promoting institutions, along with the local authorities.

In Kyrgyzstan it was possible to arrange for students on qualification courses to have access to the existing network of a regional bank for microloans. The pilot vocational college took very concrete steps to put into practice its realisation that, for the purposes of local economic promotion, it is only one component within a more complex network of agencies offering a range of services to poor population groups. The students on the informal courses were thus also systematically and very successfully trained to prepare relevant business plans as a criterion for obtaining a loan.

At systemic level, the most important interim result to date has been the fact that it is possible to combine standardised traditional vocational qualification services and flexible services designed to convey appropriate skills to the target group in traditional educational institutions, at relatively low cost in terms of continuing training measures for the college directors and teaching staff. This institutional further development of pilot vocational colleges constituted the most significant external, EU-funded contribution. It is now the task of domestic decision-makers not only to adopt a favourable attitude towards the pursuit of such activities, but also to systematically develop them in order to make rural vocational colleges as the new norm.

National qualifications framework (NQF)
This scheme does not aim to develop a coherent and all-encompassing national qualifications framework for all vocational fields. The intention

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was rather to single out a vocational field (tourism) with considerable economic potential. With regard to this field, the partners:

- can be made aware not only of the advantages, but also of the significant expense associated with the development of descriptors and the classification of skills. This will enable experts in the region to better judge the considerable resources necessary to developing such regulatory criteria;
- will grasp the need for ownership and hence participation of representatives from the principal social groups in such frameworks;
- will take due account of regional coordination as a prerequisite for worker mobility.

The project could be the preparatory phase for the comprehensive introduction of a National qualifications framework covering all vocational fields. During its term, the scheme gives national experts at various functional levels of the qualifications system an idea of what the establishment of a National qualifications framework would involve for them. These jointly agreed project goals and strategies have already enabled the creation of the principal vocational profiles for the tourism sector at various qualification levels. During this development process, the individual methodical stages were again examined at a meta-level and appropriate descriptors were agreed. Each of the countries involved now has a platform where social partners can conduct an appropriate dialogue in relation to further development.

In Kazakhstan, this process also culminated in another EU scheme in 2006, which involved working together with local skilled workers to develop four other vocational fields of strategic relevance to the local economy (construction, transport, metal and food production), taking a competence-based approach to incorporate these fields into a qualifications framework. In countries such as Kyrgyzstan and Tajikistan, the progress achieved in the pilot sector of tourism is expected to continue to exist independently alongside other skills training services. Both these countries have learnt that the establishment of a comprehensive qualifications framework requires greater resources than are currently available to them.

Given the actual circumstances, this cannot be seen as a poor result. The responsible vocational educational institutions are still extremely weak and understaffed. External assistance is urgently required simply to update the curricula. However, Policy Learning Processes made those responsible aware of the effort involved

in the development of qualifications frameworks. Drawing the realistic conclusion that variously designed and (partially) updated vocational educational services will continue to exist more or less heterogeneously alongside one another for the foreseeable future represents an important realisation on the part of these countries vis-à-vis their institutional capability ([3]) and the lack of coherence of their structures and institutional potential compared with those of external donors. With this in mind, the main interim result is significant: even traditional structures can be used for vocational educational innovation without incurring significant expense. Institutions can absorb these structures with relative ease and they also contribute towards poverty reduction (see the poverty reduction project).

Qualifications frameworks represent a huge expense for weaker countries in Central Asia. On the one hand they must take account of the latest technological developments; on the other, they must strike a balance between staying up to date with rapid advances in technology and meeting the related skills requirements in order to create productive processes. As a rule, such know-how is not available at local level in countries such as Tajikistan and Kyrgyzstan. The partners should decide on a case-by-case basis the extent to which they commission adaptations externally or transfer responsibility for meeting these qualification requirements to the companies that are seeking the skilled workers in order to expand production. No clear trend is evident either in practice or within the context of international debate. This fact must also be communicated openly to the partners within the context of their institutional conditions.

Migration

Transfers made by migrants to their countries of origin represent an important economic factor. This was noted for the first time in Central America, where the associated statistics were recorded in detail: every year, the 'remesas' (remittances) of El Salvador nationals in the United States provide El Salvador with a positive foreign trade balance. In Albania, such funds account for 13.5 % of gross domestic product (UNDP, 2006). In 2003, transfers made by migrants totalled around 93 billion dollars, i.e. one and a half times more than official development aid (*D + C*, 2004).The basic

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([3]) In Tajikistan, for example, the Ministry of Education's specialist department for the entire national vocational education system only has a workforce of 13.

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findings ([4]) concerning the potential migrants (1) and the returning
workers (2) surveyed during the study are set out below:

(1) There are initial indications that migrants today are increasingly
    qualified and that unqualified workers are having greater difficulty
    finding employment in other countries due to the fact that global
    technology is advancing at an ever faster pace (Bardak, 2006,
    p. 47). This scheme's initial findings confirm this trend: although
    the qualifications requested of potential migrants fall into all
    ISCED classifications, we are now seeing a significant accumu-
    lation and a trend towards middle and higher-end qualifications.
    According to the findings of the surveys, migration is not, *per
    se*, motivated by the desire to enhance one's qualifications in
    the target country.

    The typical migrant is male (although the proportion of women
    has increased slightly) and generally falls within the age range of
    18 to 24 in the four countries involved (Albania, Moldavia, Egypt
    and Tunisia). 98 % of potential migrants from Albania, for exam-
    ple, state the EU as their goal, a fact which further explains the
    European Commission's keen interest in the project results and
    recommendations. The greatest motivation factor for migrants is
    to improve their own standard of living, even if they already hold
    a relatively good qualification and a job in their native country.
    Almost every second person in the four sending countries (Albania
    44.3 %, Moldavia 44.2 %, Egypt 47.3 % and Tunisia 63.3 %) is
    seriously considering migration, which demonstrates exactly what
    a burning issue it is for the EU. A good half of these potential
    migrants were unemployed, namely 54.8 %, 49.3 %, 56.8 % and
    49.3 % (countries cited in the same order as above).

(2) Only 16.5 % of the returned migrants (from Albania, for example)
    acquired more skills during their period outside their native country
    (in Moldavia: 5.1 %; Egypt: 9.0 %; yet in Tunisia: 28 %), although
    in the case of Albania, 94.6 % were self-employed or only worked
    on demand. This indicates that the employment relationships
    involved were generally informal and in some cases precarious
    (Moldavia 85 %, Egypt 79.7 % and Tunisia 87.2 %).

    Most of the migrants return between the ages of 35 to 40
    (irrespective of their native country) and tend to have low to mid-
    range qualifications. In the case of Albania, they spent an average

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([4]) All the findings of the studies conducted in the four countries are available at http://www.
    etf.europa.eu/web.nsf/opennews/CCAFEE00C6254AF5C12573DB003CC3C7_
    EN?OpenDocument –

of 5.2 years abroad. They find a new job relatively quickly following their return. Of those questioned in the survey, a total of 74.3 % were back in employment. Their main reasons for returning were related to family, or they were expelled from the host country or their residence permit expired. Few of those questioned took advantage of any returners' programmes. Those involved appear to see migration and dealing with it as their own personal problem which does not affect society. Consequently, the vast majority of returners admitted that they had only partially integrated into society, or had not integrated at all (Albania 62.1 %, Moldavia 66.2 %, Egypt 81.3 % and Tunisia 76.3 %).

A few conclusions may be drawn from the above:

- migration is primarily triggered by economic factors. An economic and political situation that promotes employment, combined with qualification programmes, is most likely to prevent migration and is more effective than all other sector policies;
- While vocational education (and its regulatory criteria) is an extremely important variable, it is only one of many variables associated with the complex economic and social phenomenon of 'migration'. This social phenomenon comes into the equation for various interest groups from very different perspectives. Therefore, as regards vocational skills, medium-term pragmatic adaptations to national or regional requirements are more likely than long-term solutions, and entry quotas can be related on a pro rata basis to certain qualification levels. Thus, a thorough comparison of the equivalence of qualifications enables better migration management;
- if there are no legal migration opportunities, then illegal employment in the target country is almost bound to increase, along with exploitative forms of work;
- improved employment opportunities, combined with associated programmes for returners, provide the greatest incentive to return;
- according to statements of those planning to leave, they are neither prepared for migration nor offered any returner programmes; they have to calculate the risks themselves, and are exposed to unpredictable social consequences;
- the question of the recognition of vocational qualifications both during migration and upon return is as yet unresolved and may not necessarily be in the interests of the sending country;
- the latter makes it extremely difficult to quantify potential surpluses

of migratory workers or possible shortages of skilled migratory workers.

The initial findings of a study entitled *Social inclusion of ethnic groups in the western Balkans through education and training*, conducted in the Balkans by the company Promeso on behalf of the EU, document the underlying causes that give rise to migration, which projects at the traditional intervention level (in vocational education or other sectors) can do little to tackle. These include:

- absence or inadequacy of rules preventing racism and discrimination in the educational system of these countries;
- resistance from companies during recruitment vis-à-vis other ethnic groups and prejudice in the workplace;
- chronic lack of resources in some Balkan States, which do not (cannot) support or adequately support marginalised groups etc.

In these circumstances, the personal needs of individuals will remain the motive force behind the migration of workers to prosperous European regions. The three reasons listed above are the result of both attitudes and experiences in relation to other social and ethnic groups acquired during socialisation, and often traumatic experiences and a disinclination to deal with the recent past in the Balkans, further entrenching these resentments.

Prospects

Poverty reduction in rural areas

In two of the schemes described, the partners require continuity beyond the originally agreed terms. These decisions were made on the basis of the institutionalised learning loops (peer reviews involving all partner countries and national seminars for experts and decision makers) within the projects. This applies to the scheme designed to reduce poverty through vocational skills in Central Asia and the extension of the scheme designed to promote the development of national qualifications frameworks. December 2008 has since been announced as the end date for these projects. The migration project will conclude with the processing of relevant data and the drafting of a final report.

To date, the qualification programmes associated with poverty reduction for rural target groups have not yet drawn any sustained systemic conclusions in the countries involved (Kazakhstan,

Kyrgyzstan and Tajikistan). This means that the responsible Ministry of Education does not yet consider such skills services to be one of its core tasks and is not, therefore, arranging for such services to be established on a systematic institutional basis. This may be due to the project's duration – only three years to date – and the rationale according to which it proceeds. In the initial stages, it was important to arrange for national experts to design and implement skills programmes to meet specific needs and target groups, and to qualify the existing vocational colleges to undertake such additional tasks (capacity building). Only if programmes produce unequivocally positive results among the ultimate beneficiaries and if there is demonstrable practical benefit to additional job and income opportunities is there reason to systemically integrate such further education programmes into existing structures as an informal service. The willingness already expressed by politicians to introduce poverty reduction measures such as education/vocational education across the whole of Central Asia could be effectively implemented in this way.

In this process, the singular operational rationale (Luhmann, 2000) of systems such as Ministries of Education can become the greatest obstacle to systemic innovation. Their highly formalised set-up and procedural structures, inward-looking bureaucratic methods and highly traditional perception concerning the range of their own responsibilities and those of others prevent innovation at structural level, even in the case of informal services and beyond the typical clientele of Ministries of Education. A fundamental decision will have to be taken regarding the extent to which new tasks can be assigned to vocational colleges by ordinance and how seriously the political intent documented in the strategy papers adopted by individual countries should be taken.

In addition, only rehabilitated vocational educational institutions, which have, for example, participated in relevant advanced education programmes and coaching events, are able to design and implement such practice-oriented programmes tailored to the needs of target groups. Offering services for adults did not previously fall within these colleges' remit. The introduction and consolidation of such specific services in traditional vocational college centres within the scope of community approaches to poverty reduction (Castel Branco, 2006) must become the subject of more in depth discussion with regional and national decision-makers during the remaining phase of the project. To this end, further events will be held, which will guarantee

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regional exchange, enable continued learning and bring the quality of the programmes and systemic consequences to the fore. There is still a knowledge deficit here, even within international debate: 'The best way to introduce choice in rural [education] systems within resource-constrained developing is not fully known.' (Hanushek und Wössmann, 2007).

Against this background, it is once again clear how important learning processes are over the course of a project, as a prerequisite for reforms in rural vocational education, which must additionally promote the formation of local networks, with other donors, extension services and local community development approaches.

National qualifications frameworks (NQF)

The gradual establishment of a (partial) qualifications framework in Central Asia, the course of which is variable, involves the risk of encountering a stagnant environment in some countries (DFID, 2007, p. 78). While framework rules are a very important step towards the creation of adequately functioning (qualification) systems, they can only have a limited effect on these systems' internal productive and performance-oriented momentum. They frequently govern and codify precisely those elements that are otherwise subject to the interest-driven momentum of various groups within educational and training systems.

Such dynamic developments are more typical of (broadly) company-based initial and further training systems which are constantly faced with the task of establishing a new but rule-compliant balance of different interests (production and qualification requirements) in reaction to the prevailing technology-driven production momentum. This applies not only in the case of traditional dual or cooperative approaches, but also with regard to 'learnership systems' in other regions (see Smith, 2005). Such adaptations provide the opportunity for further innovation and the ongoing reconciliation of learning processes and contents with the demands of the world of work. Experience demonstrates that within college-based vocational training services, regulations associated with established qualifications frequently fall into patterns that are resistant to innovation and gradually become disconnected from technical progress.

In future it will be essential for dialogue with the national project partners to focus more intensively on the development of qualifications frameworks from the cost/benefit aspect rather than merely in terms of aspects related to quality and innovative capacity. The EU financed

80 % of the costly qualifications frameworks in South Africa (Young, 2005, p. 29). How can smaller countries in Central Asia ever hope to raise such amounts in a sustainable manner that assures quality? Where can one find the local experts to design these complex regulatory criteria? 'How poorer countries without a significant set of formal sector employers are likely to pay for a QF without donor subvention remains unclear' (Mc Grath, 2007). Debate on the subject of the implementation of qualifications frameworks – as a contribution towards quality assurance in developing countries, *inter alia* – was always associated with a certain degree of missionary zeal. It appeared that the time had finally come to replace traditional, unsuccessful methods of cooperation in vocational education with approaches directed more towards (learning) outcomes. In the current schemes, forms of policy learning were very important, in spite of the fact that they clearly show the partners the relatively high expense associated with such regulatory criteria.

Other problems arise alongside the fact that in such qualifications frameworks focused on learning outcomes (more output than input-oriented), the possible absence of a formally structured vocational qualifications system constitutes the 'new system export'. These problems must be incorporated into the project via policy learning during debates and study periods in the countries involved and in Europe: skilled workers and multipliers are not sufficiently capable of sustaining the defined quality of the vocational qualification programmes in South Africa or elsewhere. This is an HRD dimension of which local and external donors lose sight as a result of their extensive work on national qualifications frameworks. Uniformity remains paradoxical and heterogeneous if it only exists in regulations and ordinances and cannot be sustained in a coherent manner on a day-to-day basis for a variety of different reasons (lack of competences, interest-based rejection of reforms, shortage of resources, failure to materialise, etc.). Regulations are and remain only as good as the experts who make good use of them to a greater or lesser extent on the basis of their own competences (see Hanushek and Wössman, 2007, p. 78). This maxim can be applied to the debate with decision makers in Central Asia.

In addition, studies on the introduction of national qualifications frameworks in developing countries spread anything but unbridled optimism (World Bank, 2004, p. 81). Attempts at implementation are described as 'excessively complex, too ambitious and as top-down strategies'. This is compounded by the objection that local

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partners may not be in a position to both develop and adapt such complex regulatory criteria using their own resources. In this context it is thus unsurprising that more traditional 'solutions' are brought back into the debate: qualifications systems that rely on the skills of their well-trained teachers and trainers in the spirit of 'trust' or 'decentralised culture of trust' (Sahlberg, 2007) do not need to be defined right down to the last detail as regards processes, methods and responsibilities of examining bodies etc. Competence-based, decentralised contextual steering and the responsible, autonomous configuration of qualified teaching staff in innovative learning arrangements is more important than processes and methods within qualifications frameworks that are defined right down to the last detail, a fact that is of equal relevance to both industrialised and developing countries (see World Bank, 2008).

Such approaches entail delegating competence on the basis of trust and – to a greater or lesser extent – qualifications to those experts who remain primarily responsible for good quality vocational education (Cedefop, 2007), i.e. thoroughly qualified trainers and teachers. This is a fact that recent bilateral and multilateral cooperation in vocational education appears to have forgotten in view of the prevailing 'Mainstream national qualifications framework'. It should also be noted that experts have once again started to debate and take an extremely positive view towards traditional approaches such as the English apprenticeship scheme with a view to its usability in the globalised world (see Vickerstaff, 2007) and are increasingly recommending the broader application of insight gained from positive experiences within the context of corporate-backed qualifications processes (Giule et al., 2007).

This leads to the paradox that interventions aimed at systemic improvements (such as the establishment of national qualifications frameworks) would appear to be most difficult to realise in those places where the national vocational educational systems are extremely fragile and not very coherent, i.e. places which in fact have the greatest need for external aid but which lack the basis of a certain organisational and institutional capacity on the part of the partners. A number of donors already established this fact in other regions and countries, albeit with comparably fragile structures in the responsible ministries (see World Bank, 2004).

International cooperation, which always has a somewhat artificial feel because it already works with structures it aims to establish elsewhere, will lead to a new imbalance of existing and external

resources for cooperation in less developed countries with (educational) systems that lack their own effective and efficient momentum, a circumstance that may be described as systemic imbalance. Consequently a precarious 'balance' is structurally predetermined, which results in a palpable impact on the outcomes of the cooperative scheme (of donors and recipients) in the field of vocational education. Static, low-resourced and relatively undynamic vocational (qualifications) systems also wish to be 'left in peace' (Willke, 1996). Their operational momentum does not permit unilateral and excessively resourced interventions. This applies both:

• in terms of temporary contemporaneity of the donors and recipients during (hopefully successful) joint capacity building by domestic organisations during the scheme, or;

• with respect to abruptly changing conditions when donors cease to provide resources at the end of the scheme

because once introduced, structures such as national qualifications frameworks must be updated in a targeted and competent manner. At present it would appear that work to design such frameworks in weaker countries has started with the 'roof' of the vocational educational system rather than its foundations: even in Germany a comprehensive definition of vocational education did not exist until the Vocational Educational Act in 1969, centuries after it had actually come into existence. Prior to this definitive legislative codification, there was already a great deal of practical experience, which must still be examined in order to determine the usability of certain innovations in the partner countries. With its NQF approach in Central Asia, the European scheme described here is not seeking to contribute to an apodictic and premature introduction of such systemic innovations. Its goal is the generation of national skills through learning processes in manageable schemes, on the basis of which the partners themselves must then reach a decision on the introduction of such reforms.

More efficient systems in many IPA countries or emerging countries in the Third World already have the necessary functional configuration and procedural structures which are capable, as a rule, of more efficiently utilising targeted and precisely defined contributions from donors. Paradoxically, 'strong' systems are more aware of their own weaknesses and have a cognitive range which is codified and supported internally by the organisation, encompassing functional solutions for adequately defined bottlenecks that are theoretically possible and practical but are also achievable and realisable. The

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intake capacity that is specific to individual organisations is thus able
to cope well with payments from donors, and must unquestionably
be assessed differently in Kazakhstan than in its neighbouring
partner countries of Tajikistan and Kyrgyzstan.

At present there is little chance that comprehensive systemic
reforms involving additional expense will be implemented in
weaker partner lands. Ambitious goals bear little relation to the
resources actually available to achieve a basic, modest level of
sustainability after the scheme ends. Only one maxim currently
applies: fundamental improvement of the quality of the existing
approaches by building upon the available structures and optimising
their efficiency without additional input of resources, albeit at the
cost of a certain heterogeneity and divergence among vocational
educational services at the same educational level. Central Asia
would not, therefore, be the only region in the world to have this
heterogeneity (see Wallenborn, 2000).

The existing structures can be improved with relatively little
impact on expenses through, *inter alia*, further training of teachers
and trainers, selective cooperation with companies, (which a view
to possible systemisation), the introduction of new teaching and
learning methods and the reduction in the number of vocational
qualification institutions whose function leans towards the retention of
young persons, but which thereby tie up resources that are needed
in other qualification centres. The introduction of appropriate human
resources development measures (placements for teachers within
companies), the moderate implementation of new management
methods for the meso-level of qualification institutions and the raising
of funds from one's own resources represent other measures with
relatively little outlay, which can improve the efficiency of vocational
education.

Herein lies the true scope for meaningful cooperation between
donors and recipients, which can be justified in terms of intervention
theory by a greater probability of sustained success. The following
still applies: 'The main problem lies in the fact that complex systems
consisting of very many interactive components cannot, in principle,
be purposefully controlled because their momentum is not linear and
their development trajectories cannot therefore be pre-calculated'
(Singer, 2004). Thus interventions by donors will need to adjust their
sometimes excessively ambitious goals downwards.

Such views expressed in modern arguments relating to system
theory are again (constructivistically) augmented by complex inter-

cultural relationships in the practice of international cooperation in vocational education, and are therefore based on a special type of 'double contingency' (Luhmann, 1984), i.e. a development logic that cannot be defined in detail in advance. Policy learning processes are therefore also events whose outcome is uncertain. Consistent development logics are not found either methodologically in flowline-shaped logical frameworks or during pragmatic cooperation, which is always subject to a certain lack of transparency concerning its defining interests. A theoretically grounded but pragmatically-oriented modesty on the part of donors and the realistic assessment of opportunities for intervention into third-party systems are likely to produce the best results, even as regards the populations of the partner countries.

In addition, a conceptually more concisely worded new modesty in relation to the possible and realistic potential for change of (qualification) systems contributes towards:

• the development of practical assessments in relation to international cooperation schemes in the face of increasing complexity and greater confusion in global society and consequently;

• the ability to counter serious critics of the relative ineffectiveness of international cooperation to date (Easterly, 2006) with more cogent arguments and positive examples.

Our partners and the populations of the countries with which we cooperate deserve this.

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Vocational training and European standardisation of qualifications: the case of aircraft maintenance

Dr. **Joachim Haas**
Researcher, CEREQ (Centre for Qualifications Research) / LIRHE (Inter-disciplinary Research Laboratory into Human Resources and Employment) Social Sciences Department, Toulouse I University

Maurice Ourtau
Research engineer, CNRS (National Centre for Scientific Research) / LIRHE, Social Sciences Department, Toulouse I University

SUMMARY

Initiatives to standardise the conditions for practising certain regulated activities are being taken at European level, particularly in light of the free movement of people and the recognition of qualifications in Member States. This paper looks at the introduction of European licences for aircraft maintenance engineers. It follows an in-depth analysis of the process for the construction and application of these standards, and is an attempt to define the real motivation behind these special initiatives. It reports on how Community provisions which, in many respects, conflict with national structural characteristics in the area of qualification construction and management, are being transposed.

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Introduction

An increasing number of initiatives have been introduced in the area of educational cooperation in Europe since the end of the 1990s. In the case of higher education, one of the things the Bologna process aims to achieve is a common three-cycle structure (Bachelor, Master, Doctorate) for curricula and the consolidation of a credit transfer system. Measures have been taken in the area of vocational training aimed at obtaining transparency between qualification levels (the EQF project ([1])) and the mutual recognition of vocational training units (the ECVET project ([2])).

These measures are basically attempting to create a European area of cross-border recognition of qualifications but without having to harmonise the qualification systems. In fact, the 1992 European Treaty expressly prohibited any EU policy aimed at educational standardisation.

At the same time, we are seeing two types of initiative in Europe aimed at just this harmonisation, and in particular the standardisation of training content. One of the initiatives introduced by France during its Presidency of the European Union (in 2000) is a pilot project to create two European professional qualifications in the automotive and hotel industries. These new qualifications are characterised by common core training content (Asseraf, 2004). The diplomas, validated by each country participating in the project, will continue to be national diplomas, although their creators remain optimistic that they will be recognised on the labour markets in the various European countries. Included in the European Leonardo programme under the title 'Sustainable professionalisation', this approach has been extended to other business sectors.

A second move towards the European standardisation of qualifications involves 'vocational qualifications' which will from now on be required in order to practise certain regulated trades. At the moment these basically involve qualifications in the transport sector: seafarers, the Community railway network and civil aviation ([3]).

([1]) European Qualifications Framework: Cf. Working document of the European Commission *Towards a European qualifications framework for lifelong learning,* Brussels, 8/7/2005, SEC(2005) 957.

([2]) European Credits for Vocational Education and Training

([3]) Directive 2001/25/EC concerning 'seafarers.' Directive 91/440/EEC concerning the 'certification' of train drivers operating locomotives. Regulation No 2042/2003/EC relating to aeronautical maintenance, one of the activities regulated in the field of civil aviation.

This paper examines the latter initiative, and focuses on describing the particular case of the European standardisation of vocational qualifications for aircraft maintenance personnel. This was the subject of an in-depth analysis (Haas et al., 2006) during research conducted on behalf of the French Ministry of Education, which was concerned about the impact of this initiative on its national training and qualification system. The aim of our paper is to present selected observations from this case study, relating to European cooperation in the area of vocational training. These observations cover the reasons for European cooperation, the implementation of a training approval system and the mutual perception of national training-qualification systems.

The issues examined in this research, which includes a comparison between three countries (Germany, France and the United Kingdom) in the area of the relationship between training and employment, are drawn from work on the societal effect (Maurice et al., 1982), and the work of Soskice and Hanke (1997) on the existence of national 'regimes' peculiar to individual countries. For these authors, the existence of a particular national structural cohesion between the vocational, organisational and educational spheres means that each country has its own approach when making adjustments.

The methodology used in our research is based on an exploratory, comparative, qualitative and historical approach (see the box entitled 'The methodology used').

Following a brief overview of the system studied and its characteristics in relation to other European initiatives in the qualifications field, the paper analyses the reasoning behind the European standardisation of qualifications for aircraft engineers. The third section examines how the new European regulations are being implemented in each of the three countries selected, the problems associated with their individual national characteristics and the key role played by confidence in the international recognition of qualifications.

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The methodology used

The research revealed the lack, at least in the case of France and Germany, of public debate and comments on the European construction of aircraft maintenance qualifications (the *Parts* system, see below). The paucity of directly usable information available in this particular instance first meant that a database drawn from documentary research needed to be set up first. This research very largely involved mainly English-language literature: circulars and background documentation for standards, various reports issued by aircraft surveillance agencies (the National Civil Aviation Authority in the United Kingdom and the Joint Aviation Authorities) comments in the specialist press, parliamentary debates in the United Kingdom, etc. Initial processing of the data enabled us to identify the main issues for analysis, to prepare for the field investigations and to produce questionnaires.

Twenty semi-directive interviews were subsequently conducted over the course of 2005 and 2006 with experts representing the organisations affected by the implementation of the new European regulations in each of the three countries. The interviews were conducted using questionnaires sent to the interviewees in advance, which comprised two large sets of questions concerning the major debate that informed the negotiations about the development of the regulation and the role played by stakeholders, and the solutions expected to be adopted for its national implementation and associated problems. Many of the experts questioned were retired 'veterans' (the negotiations on the qualifications concerned took place between 1989 and 1997).

In addition to these interviews, the authors regularly monitored and analysed exchanges on this subject in the specialist forums for aircraft engineers* who sometimes asked their own questions.

* http://groups.google.com/group/fr.rec.aviation/ [04-04-2008]
  http://www.rcoco.com
  http://www.pprune.org
  http://www.airmech.co.uk
  http://www.airliners.de
  http://www.flugzeugforum.de

The Part System: a set of European regulations for aircraft maintenance

The common system governing aircraft maintenance qualifications was developed by the JAA (Joint Aviation Authorities) in the 1990s. It was implemented by countries in the first decade of the 21st century, under the direction of the new European Aviation Safety Agency (EASA) ([4]).

The system comprises three regulations which set out the requirements relating to maintenance organisations ('Part-145'), training ('Part-66') and training organisations ('Part-147'). ([5])

• 'Part-145' sets out the methods for the organisation and operation of maintenance organisations. In particular, it ensures that the infrastructure allows suitable vocational experience to be gained. 'Part-145' came into force in 1994.

• 'Part-66' defines the requirements for the awarding of qualifications to engineers responsible for issuing Release to Service certificates (CRS) for aircraft and aircraft components ([6]). It establishes a licence (in the sense of 'permit') system for this purpose which comprises a three-tier structure: licences A, B and C, corresponding to line maintenance mechanics, line maintenance technicians and base maintenance engineers. Each licence corresponds to specific training content, specialist subject areas and amounts of experience. The European regulation was adopted in June 1997 following negotiations that began in the late 1980s.

[4] The EASA is a European Community agency tasked with assisting the Commission in the harmonisation of air safety regulations. The Agency organises theme-based working groups with representatives from the Member States (national, civil and military aviation authorities). Once provisions have been voted on and adopted, the resulting texts are submitted to the European Commission. Once established as European regulations, the provisions have to be transposed into national regulations. The EASA is charged with monitoring this transposition and ensuring compliance with the rules.

[5] The three regulations form part of Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks. The regulation was published in the Official Journal of the European Union No L 315 of 28/11/2003, p. 1-165.

[6] This approval authorises the engineer to 'release' the aircraft or a component or appliance following maintenance, in other words, approve its being put back into service. The act of releasing consists of a signature confirming that maintenance operations have been correctly completed. This declaration forms part of the international requirements for the operation of aircraft.

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Since the system was introduced (in October 2006) the holding of a suitable Part-66 licence has been compulsory for all European CRS personnel ([7]). This professional group now comprises approximately 100 000 individuals (EASA, 2007), i.e. 40 % of all maintenance staff. The remaining 60 % are mainly unqualified technical personnel who undertake maintenance operations under supervision.

• 'Part-147' sets out operating rules for the training organisations authorised to deliver training in compliance with Part-66 and award qualifications to candidates. This system also came into force in 2006.

Part-66 forms the focus of our paper, although the methods for its implementation overlap with the other two regulations, 145 and 147.

The Part-66 'European vocational certificate'

The core training content and basic examinations, as key elements of the licence set out by Part-66, are 100 % standardised. The European Agency (EASA) ensures that any national variations are eliminated. Candidates without equivalent experience must undergo 2 400 hours of training i.e. two years of full-time theory and practice to obtain a basic B licence (technician). This training must be supplemented by lengthy on-the-job experience in maintenance work (at least two years) followed by additional specialist training on the aircraft components assigned (type training).

The aircraft maintenance licence is the prototype of a European vocational qualification system currently used in regulated activities in the transport sector (train drivers, aircraft pilots, seafarers, etc.) This type of qualification differs in various ways from the European vocational diplomas referred to in the introduction to this article:

• educational system versus profession: whereas the approximation of diplomas at European level is being orchestrated by representatives from the educational authorities, the European harmonisation of qualifications such as in aircraft maintenance is based on negotiations with representatives from the profession (in this case the European aviation authorities assisted by national and European professional bodies);

• national control versus European control: European qualifications fall outside the framework of national sovereignty and its system

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([7]) Although a licence is now required for assignment to 'CRS' jobs, the employer is still responsible for selecting such staff from amongst eligible candidates in its organisation.

of negotiated development. Major decisions are debated and taken by a European professional organisation (for example, the EASA), while the national authorities are responsible for the introduction, monitoring and day-to-day management of the system. They are audited regularly by the European Agency;

- amalgamation versus new model: unlike the development of European diplomas, the core content in European certificates is not the sum of national individual requirements, but an original combination of a selection of elements derived from industry practices and practices in countries with a certification tradition, but also elements derived from new ideas;

- subsidiarity versus single regulation: unlike European diplomas, the management of European qualifications is not based on the principle of subsidiarity. Apart from national differences in the minimum educational and professional experience necessary to apply for the qualification tests, the system is organised in a highly standardised manner: the core content and the qualification methods (compulsory multiple-choice questions), the qualifications obtained and the experience needed for the required authorisations can be awarded are all standardised;

- voluntary versus compulsory recognition: the European qualification will now be a requirement when applying for jobs in the area of activity concerned (a CRS job in the case of aircraft maintenance). National professional supervisory firms and bodies must therefore automatically recognise the qualifications concerned irrespective of the country where they have been obtained. This obligation does not apply in the case of European professional diplomas.

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The organisations surveyed

Germany

BIBB (Bundesinstitut für Berufsbildung), the Federal Institute for Vocational Education.

LBA (Luftfahrtbundesamt), German Civil Aviation Authority.

BPvL (Bundesverband der Prüfer von Luftfahrtgerät), Association of Aircraft Equipment Testers.

VL (Vereinigung Luftfahrt), employee association in the air transport sector.
A training officer from a 'Part-145' certified aircraft maintenance organisation.

France

DGAC (Direction générale de l'aviation civile), French Civil Aviation Authority.

GSAC (Groupement pour la sécurité de l'aviation civile), Civil Aviation Safety and Inspection Agency.

Ministry of National Education:

• DGESCO (Direction générale de l'enseignement scolaire), heads of the aviation professional advisory sub-committee;

• a 'Part-147' training organisation preparing for Part-66 certification.

AFI (Air France Industrie), a company that has 'Part-145' maintenance organisations and a 'Part-147' school.

FNAM (Fédération nationale de l'aviation marchande), National Commercial Air Transportation Federation (employers' association).

SNMSAC (Syndicat national des mécaniciens au sol de l'aviation civile) National Trade Union of Civil Aviation Ground Mechanics.

CGT (Confédération générale du travail, section Transports aérien), General Confederation of Labour, Air Transport Section(trade union).

United Kingdom

CAA (Civil Aviation Authority).

QCA (Qualifications and curriculum authority), responsible for the recognition of training delivered in England.

ALAE (Association of Licensed Aircraft Engineers).

SEMTA (Sector Skills Council: Science, Engineering and Manufacturing Technologies Alliance).

Europe

EASA (European Aviation Safety Agency).

Global

AEI (Aircraft engineers international), international federation of associations and trade unions for aircraft engineers.

Why have European standardisation of qualifications?

Research conducted on the negotiation of the Parts and the implementation of the regulations in the three countries selected produces a number of sometimes unexpected findings. We will focus here, first, on the awarding of qualifications to individuals as a key element in the existence of an extended maintenance market, and, second, on the severe restrictions that are placed on the principle of subsidiarity in the area of training in order to guarantee the quality of the services provided in a sector where issues of safety are crucial.

Obstacles associated with European heterogeneity in certification methods

During the post-war period, Europe saw the 'balkanisation' of the qualifications required to become an engineer entitled to issue release to service certificates. Although the technical requirements of maintenance jobs were identical in every country, the requirements in terms of qualifications varied greatly. Concerning methods of certification, for example, the regulations in some countries such as Germany and the United Kingdom required firms to appoint to release to service engineer posts only candidates with a national licence specific to the jobs in question. Other countries such as France did not have individual qualification, relying instead on qualifying training and work experience gained within a company audited by the National Civil Aviation Authority, which was authorised to accredit companies (Haas, 2006). A lot of companies used a hybrid system; exemption from the national air code as regards the licence requirement for release to service posts had to be negotiated by companies with the National Authority. Considerable differences were also evident in the professional background of the pool of candidates. In some countries, such as France and Germany, the candidate pool basically comprised young people with vocational training qualifications (in aircraft maintenance or associated specialisations). In several other countries, such as the United Kingdom, maintenance engineers were usually former military personnel who had undergone re-training. Further differences related to the specialisations required, the minimum age, required experience, examination methods and knowledge of English.

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Contrary to the reasons frequently put forward to justify the standardisation of individual qualifications at EU level, (ensuring freedom of establishment and facilitating the movement of labour), the key aim in the case of aircraft maintenance was, according to our analysis, to facilitate the commercialisation of services in which safety is of critical importance. Numerous air transport companies started to show a great deal of interest in sub-contracting their maintenance work, particularly the demanding technical inspections requiring considerable investment in infrastructure. C-Check work, which must be carried out approximately every 18 months, takes between one and two weeks. D-Checks involve fully dismantling and reassembling the aircraft, which requires one to two months' work and is carried out every five to eight years. Other companies wanted to take advantage of this move towards outsourcing to change their maintenance operations from cost centres into profit centres.

The cost savings expected from outsourcing or specialisation requires a broad European market, similar to the internal market in the USA, for example. Outsourcing is only beneficial if the maintenance service providers can make economies of scale by having a sufficient number of contracts. This means dealing with foreign clients. Conversely, the sub-contracting of maintenance is only cost-effective and time-saving if the company can assign this work to companies subject to the competition of an extended, and therefore Europe-wide, market. According to the figures for 2006, Europe accounts for approximately a third of the world market in civil aircraft maintenance, calculated at USD 41 billion ([8]).

One major obstacle was getting in the way: the wide variation in the national regulations in force. Aircraft maintenance is deemed to be an activity in which safety is of critical importance (comparable to some areas of the chemical, nuclear, military and health industries) and which requires compliance with national regulations and supervision by national aviation authorities. In order for maintenance activities to be accredited, the authorities require work to be carried out in accordance with national standards: technical regulations, quality systems covering the maintenance organisation's organisational structure and obligations with regard to the qualifications of its personnel.

In the absence of common standards, transparency and/or confidence, the transnational recognition of qualifications – and hence

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([8]) Frost & Sullivan study (http://www.aerospace.frost.com [04-04-2008]).

maintenance work – was sometimes subject to high transaction costs. This greatly inhibited the maintenance business and exchanges of this type were difficult to establish ([9]). A consensus therefore emerged: standards in Europe had to be harmonised. The process began with the standardisation of the technical requirements for maintenance, and continued with the standardisation of the quality systems of maintenance organisations (Part-145). Harmonisation of the skills profile of engineers authorised to issue release into service certificates had not yet taken place: this was the Part-66 work analysed in this paper.

Licence versus company accreditation, ensuring that engineers have the required experience
Our research into the debates held during the drafting of the maintenance qualification regulations revealed a disagreement concerning the best institutional method for ensuring a high level of qualifications. Should a personnel licensing system or a training system managed by specially accredited companies be introduced? Should personnel authorised to issue release into service certificates therefore have a standardised European (individual) licence or merely a certificate issued by his company (company accreditation)?

The system in which training is managed by companies was backed by France, which had been developing such a system since the post-war period. This model offers certain advantages compared with the licence system. It enables the supervisory authority to transfer some of the regulatory burden and monitoring costs to companies. It gives companies greater scope: the training creates skill profiles particular to the company which, unlike the licensing system, does not need external approval for its appointed 'release into service' engineers. Engineers merely have to attend an approved in-house training centre to certify that they have the basic skills.

At the same time, a large number of national aviation authorities, airlines and trade unions in the rest of Europe did not accept that training in companies in an accreditation system would be able to resist economic pressures. They stressed the guarantees that the economic independence of a licence system would provide. The

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([9]) This tension can be seen in the expansion of the volume of aircraft maintenance services bought by airlines in Europe. In 1994, prior to the complete harmonisation of the technical, organisational and qualification regulations, these purchases stood at USD 3 billion (*Flight International,* February 1995). Twelve years later, after harmonisation, this figure stood at USD 10 billion (Frost & Sullivan, 2007).

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position of the International Federation of Transport Workers ITF (1997) was representative of this position: 'Aircraft maintenance engineers should be subject to a national licensing system, with the privileges of the licence being conferred on the individual and not on the maintenance organisation. The absence of a licence managed by the State removes one of the most effective controls against downward economic pressure.'

As the air transport market is very cyclical in nature, there is a risk that during periods of strong recovery, maintenance companies might be tempted to quickly increase their numbers of authorised personnel and shorten preparation periods (in-house training, classroom time, experience) for engineers entitled to issue release into service certificates. When activity drops off, they may be tempted to cut spending on training and qualifying classroom time. This expenditure item is one of the few that can withstand such variability; many other areas of spending are outside the control of management, since they are set by regulations or the market.

In brief, in a company accreditation system, the quality of in-house training would be too vulnerable to economic pressures. The resulting risks mean that one of the basic reasons why it is agreed that skills profiles should be harmonised – that it promotes and extends the maintenance service business at European level – is not met. The risk of poor service quality due to inadequate skills is deemed to be so high that foreign companies and their respective National Authorities would not recognise maintenance work carried out by companies under the accreditation system.

In the end, following a political compromise between the Civil Aviation Authorities and the European Union, it was the licence system that was adopted. The EU proposed the creation of a specialist agency (the EASA) which would make it easier to achieve two major goals: more effective standardisation of aeronautical regulations and allowing the European aviation industry to compete with its North American counterpart. In return, the Civil Aviation Authorities (including in France) accepted the licence system, as demanded by the European Commission in its ongoing fight to create a common area of simplified transnational recognition of qualifications.

The way in which the Authorities were organised at European level, as a sort of 'club' (its decisions had to be unanimous) without any significant organisational infrastructure (there was no real monitoring of the implementation of its decisions), hindered initiatives

to develop and standardise technical regulations in particular, which still varied considerably.

Consequently, European aircraft manufacturers (of which a large number were based in France) were at a disadvantage because they had to produce several variations on a single aircraft for various countries and adopt multiple and expensive procedures in order to obtain certifications.

Another consequence of this organisational weakness in Europe was the risk of domination by the United States in the area of international air regulation. Its government preferred to enter directly into bilateral agreements with European countries instead of contracting with the European club of air authorities.

The implementation of the European regulation in the three countries studied

Three aspects of the transposition of the European regulation in the three countries considered deserve particular attention: the mechanism by which credits are grafted onto national training, and restrictions associated with the cultural dimension.

The issuing of credits for national training

The European regulation allows the complete or partial approval of existing national vocational training provided that the Civil Aviation Authority makes the recognition system public and can successfully justify it to the EASA. The option to grant credits, as set out in the Part system, should allow flexible integration of the regulation in the very varied national training systems in operation in Europe. It also has definite advantages in terms of costs, for example, because licences may now be obtained more quickly now that Part-66 modules are incorporated in structured training cycles in Part-147 accredited organisations, which considerably reduces the amount of experience required for the awarding of the basic licence ([10]). The fact that training is often organised as part of an apprenticeship scheme also offers savings for companies, which pay apprentices less than their ordinary employees. Finally, by facilitating faster

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([10]) Training in an accredited Part-147 centre reduces the amount of experience required to obtain a B licence (technician) by three years (two years' experience instead of the five years required for an independent leaner).

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growth in the supply of licensed engineers, the credit system helps to reduce stresses in the labour market (some countries were at risk of labour shortages) ([11]) and keep a lid on rising costs.

The national solutions adopted for the implementation of this regulation in the three countries studied (Haas et al., 2006) differed between Germany and France, on the one hand, which largely relied on their initial training systems, and the United Kingdom, which based the credit system on a small number of specialist aeronautical training centres already recognised (accredited) by the British Authority.

In France, the State retained control of the training provision in this specialist market, adapting its own training/certification while retaining their dual foundational and vocational purpose. One of the features of initial vocational training in France is that it is included in the general education and training system at various levels. All vocational training at a given level therefore includes several general training modules, preparing for continuation at the level immediately above, where appropriate. The elements of the European standard were grafted onto existing national training provision in this specialist area (*certificat d'aptitude professionnelle* for a mechanic's A licence, vocational Baccalaureate for an aircraft maintenance technician's B licence) when the diploma was reviewed and the core training content adjusted in the joint advisory bodies. In the case of the B licence, the content of the aeronautical vocational Baccalaureate covers approximately half of the corresponding European core content. The strong tradition in France of delegating training tasks to the school system is borne out by the fact that the National Civil Aviation Authority made the Ministry of Education responsible for implementing the basic training for the new licences ([12]).

In Germany, the solution adopted was the result of a compromise based on the convergence of the interests of the two stakeholders, the national education administrators and the Civil Aviation Authority, in safeguarding the dual system in the aircraft maintenance sector (Haas et al., 2007). This convergence of interests explains the main features of Part-66 in this country:

([11]) Cf. debates in the British Parliament: Department for Transport, *Report of the inter-departmental working group on the training of aircraft maintenance engineers,* March 2003.

([12]) This Ministry had already delegated specialists in the aeronautical field to assist representatives from the DGAC (the Civil Aviation Directorate) when the regulations were being negotiated and developed.

- 87 % of the content (measured in hours of lessons) of the B licence training is validated by dual training focused on aircraft maintenance ([13]); this validation limits the duration of the additional training required to sit for the B licence examinations to 10 weeks (300 hours);
- two dozen associated dual training courses are partially validated: car, motorbike and naval mechanic; agricultural engineer; bodywork; production engineering-machining; boiler work; tooling; micro-technology; mechatronics; industrial maintenance; electro-mechanical engineering; electronics engineers (industrial, telecoms, energy, etc.).

This solution preserves both the identity and benefits of the national dual training system for aircraft engineers. With its 4 500 hours of theory and practice (including only 2 100 hours of preparation for the basic B1 licence examination), dual training prepares individuals for a wider range of jobs in the aeronautical industry, either in construction or maintenance. Furthermore, the dual licence also entitles access to higher level training in the industry, that of a 'Techniker.'

In the United Kingdom, politicians had decided that the development and introduction of solutions was the responsibility of those working in the training market. Since the 1980s, successive governments have left it to stakeholders in the market in question to find solutions for themselves. Three types of stakeholder have come to the fore in transposing the European regulation;

- accredited Part-147 specialist schools, generally private, that have the expertise in this area and deliver training courses for any component covered by the European regulation;
- since 2001, Foundation degrees have offered two-year basic training leading to a B licence, and to a possible Bachelor's degree at the end of three years;
- Further Education Colleges offer vocational aeronautical training, though this is not credit-based; it merely prepares students for the qualification tests organised by the Authority.

The public authorities confine themselves to providing financial support for the adaptations. The reason why it has only been possible in the UK to make the necessary adaptations to national structures, approved by the Civil Aviation Authority, at the Higher Education Level (the Foundation degree at Kingston University) is

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([13]) What is covered in France and Germany by basic Part-66 training credits cannot be compared because of the dual purpose of the French diplomas (see above), which ensures that part of the core training content is devoted to general training subjects.

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because vocational training providers at secondary level were not able to satisfy the accreditation requirements due to the high level of investment required for establishing highly-specialised training aimed at very few candidates.

The influence of national cultures on the ways in which the regulations are implemented

With regard to the actual transposition of European regulations, our research shows that France was slower than the other two countries. Its two neighbours commenced converting existing national licences from the end of the 1990s at the instigation of their holders, who were concerned that their qualifications should not be devalued. Whereas the Aviation Authorities in the other two countries were already running a licence system, the French Civil Aviation Authority had to introduce an entirely new organisation dedicated to the issuing and managing of licences, which had not existed under the previous accreditation system. As a reason for France's delay in transposing European directives, this is definitely closer to the truth than those which blame it on marked national 'arrogance,' (Falkner et al., 2005). Rather than a feeling that the previous national situation was better, it is the distance between the concepts of the two reference models which explains the delay in implementing the new Part regulations. The rate at which they have been catching up since 2002 is confirmation of France's capacity to react, once the process was initiated.

Confidence, a key element for effective recognition of qualifications and certifications

Our research amongst those involved in implementing the European regulations confirmed the importance of a key element in the EU approach to the recognition of diplomas and certificates: confidence in the quality of the educational organisations and the training delivered (Cedefop; Coles et al., 2005). What people said during our interviews suggests that this is far from being the case, despite the introduction of European certification.

The question whether the European regulation results in a reduction in the level of knowledge compared with the old national systems, was raised on a number of occasions by the parties concerned in the three countries. This shows that there is some degree of suspicion, with several countries (particularly those with a strong aeronautical tradition) even doubting whether there is full

compliance with this regulation. One interviewee referred to the emergence of a 'grey area' in the implementation of the regulation in certain countries, particularly as a result of training centres not satisfying the quality criteria (absence of up-to-date teaching materials, for example), a lack of rigour in audits, or even illegal practices by certain training establishments simply to ensure rapid success in obtaining a licence.

Everyone thinks they are losing out, for several reasons. One reason is due to the fact that a country may believe its national certification system prior to the European regulation offered greater guarantees than the new arrangements, and that the concessions which it has been required to make allow scope for quality requirements to not be met.

A second reason relates to the ways in which national solutions for recognising the qualifications of personnel already in post were negotiated. As the issuing of release for service certificates is a regulated activity, the national certification of personnel already in post (known as the 'grandfathers') had to be converted according to the terms of the new European licence. This conversion meant that restricted European licences had to be issued in each country; the right to undertake the work did not change, but was not as comprehensive as the rights accorded by the new European licence. For example, unlike a large number of national licences, the new European licence gives engineers the right to work on electrical systems. The 'grandfathers' had to undergo additional training and a familiarisation period to remove the restrictions imposed as part of the conversion. To remove these restrictions, each country negotiated special provisions with the European Authority, with reference to the pre-existing national training and certification systems. Unfortunately, according to our interviewees, the bilaterally-negotiated solutions were not sufficiently publicised, nor were the methods for monitoring their implementation specified, which would have made everyone feel as though they were in the same boat. The result is that everyone tends to criticise the perceived differences as being concessions granted to one or other Member State for a the transition period and/or because of its starting point.

This problem of the lack of trust stems more fundamentally from the fact that each country finds it difficult to assess/evaluate/compare the varying training and experience (including basic training) required of individuals under the previous national systems of other Member States.

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The respective positioning of training courses is still a more general problem that is encountered when national certifications are compared. One of the goals of the introduction of a European framework for vocational certifications ([14]) is precisely to 'create a relationship of trust in the relating of certifications across countries and professional sectors.' Although this framework is currently being implemented under provisions relating to higher education, it is obvious that it has a much more general scope, particularly with regard to European regulations concerning regulated trades/activities, such as aircraft maintenance.

Conclusion

The movement to standardise qualifications at European level has so far only been seen in higher education, based on the BMD system, and in the harmonisation of academic qualifications for the liberal professions. Less well-known initiatives were taken first with the European vocational diplomas and, more recently, with the creation of European vocational certificates in regulated activities such as aircraft maintenance, which has been analysed in this paper.

As well as presenting and defining the characteristics of this particular form of standardisation, compared with what came before it, our attention focused on the real reasons for the decision to develop European standards in the sector studied. This is an activity that has long been regulated, in which the issues of safety and quality have always been the chief concern in each Member State of the European Union. Our interviewees acknowledged that pre-existing national regulations under a licence or accreditation system, as existed in France, had demonstrated their effectiveness.

Improving conditions to promote greater international mobility of staff, a reason often given for Community initiatives in training and certification, did not seem to be the real reason for creating a unified European licence. Following analysis, it became apparent that creating the licence was first and foremost a response to economic and commercial concerns. The introduction of a Europe-wide market for aircraft maintenance services required the harmonisation of regulations, including those applicable to employee qualifications, leading to a reduction in transaction costs.

([14]) Working document of the European Commission: *Towards a European framework of vocational certifications for lifelong learning. Brussels*, 8 July 2005.

Analysis of the ways in which Community regulations are being applied in aircraft maintenance in each of the three countries indicates that the fundamental characteristics of the national systems have been preserved. The influence of the national structures on the solutions chosen and the traditional distribution of roles between those involved in their development can clearly be seen: the heavy influence of the State in France, the key role of sectoral professionals and organisations in Germany ('private governments'), the position accorded to the market in the United Kingdom, these are the main features of the typical regulation systems in each of the three countries. The predictions made concerning the existence of national structural consistencies between the vocational, organisational and educational sectors are therefore confirmed as far as this particular transposition is concerned.

Although the measures required to transpose European decisions encourage Member States to share information, there is still a long way to go before the goal of mutual trust can be reached, nor is it a foregone conclusion, contrary to what is sometimes said, beyond the fact that European regulations and directives are binding as legal tools (Bouder, 2005).

One of our interviewees summed up the situation well: 'one of the main obstacles to a broad European system is getting countries that are defending sometimes hard-won territory (i.e. their autonomy) to accept regulations issued by a body which does not have any territory or country, and a system which is not attached to any other.' This exactly reflects Annie Vinokur's analysis (2005) of why countries are reluctant to accept constraints imposed by 'denationalised experts' in the absence of any real incentives in return.

The European Commission is very well aware of this situation and has taken steps to counter this feeling of submission and facilitate transparency. The development, at the request of the Heads of State, with voluntary participation based on a 'bottom up' approach this time, of a European framework for vocational certifications should contribute to this goal.

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Student comments and reflections on business contexts – A teaching tool

Fernando Miguel Seabra
Graduate in Business Organisation and Management, Master in Business
Administration, currently preparing a doctorate in Management
Member of the CICE – *Centro de Investigação em Ciências Empresariais*
[Business Research Centre] at the ESCE, *Instituto Politécnico de Setúbal,*
Portugal

Jorge José Martins Rodrigues
Graduate in Business Organisation and Management, Master in Business
Administration, PhD in Management
Member of the CISCAL – ISCAL Research Centre (Higher Institute of
Accounting and Administration), Lisbon, Portugal

Maria Teresa Costa
Graduate in Tourist Company Management, Master in management, currently
preparing a doctorate in Management.
Member of the CITIS – Research Centre for Tourism, Innovation and Services,
Universidade Lusíada, Portugal

SUMMARY

**Students of business administration in polytechnic higher education are
faced with management content that can present specific difficulties when
it refers to organisational contexts with which they are generally unfamiliar.
This paper examines the way in which a learning and assessment method-
ology aimed at promoting 'proximity' to subjects and course content can be
put into practice through the use of a context that is 'familiar to students':
business and economics news in the media. By performing a critical analy-
sis of a news item in the media, students select and apply the content of
the course they are studying to a real event. In parallel to presenting the
results obtained using the methodology concerned (student performance
and mark obtained), student perception of this active methodology will also
be analysed. The conclusion will focus on ways of adapting the teaching of
management to students' particular interests and knowledge.**

Introduction

The teaching of structural aspects of global management as part of business administration courses in higher education provided by Polytechnic institutes in Portugal faces a significant obstacle: the relative unpreparedness of students to reflect upon an area with which they are unfamiliar. Most students on such courses have not yet had any first-hand experience of organisational situations which allow them to interpret the course content in the light of professional experience ([1]).

This difficulty naturally encourages active teaching methodologies which are designed to overcome such obstacles. This is the backdrop to a variety of different teaching experiences, such as:

· work in a real setting, such as student placements in host organisations, through which students put into practice a learning methodology involving analyses, either of documents or through direct observation (Seabra et al, 2006; Seabra and Costa, 2006);

· public seminars and classes at which the participating organisations recount their experiences in certain fields or areas of activity (Seabra et al., 2005) ([2]).

This paper will focus on a teaching experience conducted to help students to make a 'personal reading' of the course content they had been taught, based on their own research carried out in work groups.

Using the media in a classroom setting is a strategy which is implemented at many different levels of teaching in several different fields. This paper seeks to analyse how this strategy was put into practice in the teaching of Management Principles in a Portuguese higher education establishment, and the respective consequences in terms of performance and results obtained. Student perceptions of this teaching experience will also be examined.

The aim was to get students to comment critically on a news item published in the media and bring together the content taught on the course and the content of the news item. Students were given

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[1] In this context different ways should be found to allow students to experience new situations (Castling, 1996).

[2] A number of different proposals help to overcome specific learning problems faced by students who have recently entered polytechnic higher education in Portugal. In the field of business, for example, these include the use of the 'portfolio' teaching tool (Carrasco et al., 2005).

the opportunity to decode the course content as it is structured within the curriculum and re-encode it in such a way as to reflect their perception of the relevant areas, focusing on real cases, both Portuguese and international.

This paper aims to test the validity of the teaching methodology involved in studying management topics in a higher education establishment, placing the 'learner' at the centre (European Commission, 2001), its validity in terms of developing students' critical faculties (fundamental to the ability to 'learn to learn') and the results achieved in terms of marks obtained.

The following hypotheses will be examined:
* H1: A critical commentary on a media news item is a valid exercise in studying management topics in polytechnic higher education;
* H2: A critical commentary on a media news item helps to develop students' critical faculties.

This paper consists of seven sections. The introduction is followed by the theoretical framework (section 2) and the learning context into which this experience fits (section 3). Section 4 presents the assignment and its aims, while section 5 describes student perception. The conclusions of the study and proposed applications are given under section 6, and avenues for future research are suggested in section 7.

Theoretical background

The Bologna Declaration generated a quantum leap in cooperation between the various national higher education systems, giving rise to a dynamic process that has prompted a series of reforms (Santos, 2002) to help young people to access the job market. This process requires teaching/learning methodologies that can provide cross-cutting capabilities and skills, such as intellectual development, learning to learn, problem-solving, intercommunication, leadership, innovation, teamwork and adapting to change, among others (Santos, 2002), either through self-learning or experience-based learning. It acknowledges that learning goals can be reached in alternative ways, with the student at the centre. Stress must therefore be placed on active, cooperative and participatory learning methodologies which are geared towards problem-solving (Chin and Chia, 2004), and which create a learning environment conducive to the development

of cross-cutting capabilities and skills (European Commission, 2001). The aim is to equip students with proactive attitudes to allow them to live and work in a changing society, helping them to build new knowledge and skills throughout their professional career (Pires, 2007). The development of this problem-solving attitude helps to promote a proactive and positive outlook, since most people are born with a tendency for enterprise (albeit not in business processes), and these are skills which must be developed by training and education (Davies, 2006), using innovative pedagogy (European Commission, 2001).

The aim of the teaching methodology set out in the Management Principles course is therefore to enable future graduates to solve problems within their training field, to gather, select and interpret the relevant information and to develop skills allowing them to learn throughout their lives with a high degree of autonomy, as laid down in the requirements for classification as a graduate of a particular area of education (Decree-Law 74/06 of 24 March 2006).

In addition to vocational training, higher education in general and polytechnic education in particular must foster the capacity to reflect, providing students with the initiative to criticise the complex circumstances of the many facets of contemporary life:

> '*The emergence of a public opinion linking the workings of the political, economic, regional and scientific spheres is vital to safeguarding the general interest. Citizens must not merely be informed but must be enlightened, so that they have the capacity to act, to participate actively in the policy agenda.*' (Ambrósio, 2006, p. 80).

The aim is thus to foster a concern among students to be constantly aware of prevailing local, national and global realities by means of training not only in technical areas but also in citizenship, or in other words, higher education should produce '... *Portuguese people capable of acting with confidence and creativity in a constantly changing world*' (Quesado, 2006, p.107).

The purpose of a critical commentary on media news items related in some way to the content of their courses is to develop a proactive approach and cross-cutting skills in resolving real problems in accordance with a student-centred learning approach. Analysing different news items covering a broad spectrum of subjects and business, economic and contextual situations will prepare students for the many different informal learning situations that occur in a variety of social settings (Nyhan et al., 2004), and will motivate

them to take an interest in situations which, though possibly far-removed from their everyday lives, may nonetheless correspond to contexts they must be aware of as citizens if they are to reflect on and engage with them.

Using the media as a source of news for comment offers students an endless supply of subjects for analysis, covering a plethora of social, environmental, political, cultural and other aspects that cut across economic and business issues.

Learning context

The Escola Superior de Ciências Empresariais (ESCE) ([3]) is one of the five schools making up the Instituto Politécnico de Setúbal in Portugal. The Management Principles course (or, more recently, Introduction to Management) is taught in the odd semester of the first year on all six ESCE undergraduate courses. The subject aims to teach students to understand the fundamental principles of managing organisations. The course provides an overview of the organisation as an entity related to the various 'stakeholders'. Students must therefore take on certain views of responsibility founded on the ethics of the entrepreneur and the manager. The assessment system was based on three tools: a) an individual written exam; b) group work; c) a critical commentary on a media news item. The two continuous assessment assignments, (b) and (c), were structured to allow the process to favour active learning methodologies ([4]).

Assignment and aims

This paper examines how the critical commentary on a media news item (section c – part 3) is put into practice. This assignment requires students to make a critical commentary on a syllabus-

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([3]) Set up in December 1994 with the following aims: to teach, research and develop Business Studies, ennobling mankind, and promoting the development of the Setúbal region and the country as a whole by means of business courses. It is located in the Setúbal peninsula and is a focal point for students from the surrounding area who wish to study business.

([4]) This therefore meets the need to contemplate a broad range of teaching methodologies: '*no teaching/learning method is, in itself, better than any other. As everyone learns in a different way (and at a different rate), the main rule is to use alternative and above all varied teaching methods*' (Belbute, 2006, p.41).

related business or economics media news item related to the course content and the issues associated with it, and was carried out during the odd semester of the 2006/2007 academic year.

Students were allowed to choose any aspect of what they were taught in the practical or theoretical classes as the topic associated to the news item (5), and thus had to look for an item that referred to an event related directly to the topic chosen.

The aim was for students to comment on the news item from a critical perspective, making use of their knowledge of the respective course content. The critical approach is justified by the fact that any document, irrespective of its content, is never neutral and never portrays the issue it aims to address in an impartial fashion. It will always have been produced by someone who had a purpose in mind, who was guided by certain criteria, and who must have had to select the information they considered to be relevant from a wide variety of items (Pinto, 1995).

The media used were essentially newspapers and magazines, on paper or online. The news item had to be topical, corresponding to the teaching period, and had to be covered exclusively by each work group, which means that once a group had commented on it, it could not be used by other groups. The aim of the group work is twofold: in addition to learning per se, task or problem-based group work requires students to work with other people, play a social role and assume responsibilities (Postic, 1995).

As students are free to choose both the course topic and the news item on which to comment, it goes without saying that the topic and the news item may indicate the work group's area of greatest interest within the course content. The justification for the freedom to choose the news item and topic lies in the fact that this task, rather than just another academic assessment exercise, is also intended to be an opportunity to question deep-rooted attitudes, behaviour and ideas and to create the conditions for a possible change in such attitudes, linking the analysis to the students' experience (Pinto, 1995). In the light of the above, undertaking an assignment with these characteristics in teaching an introduction to business will

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(5) This involves conjugating the expository method, traditionally used in theoretical classes, and autonomous research practices developed by students. The aim is to exploit the advantages of the expository method whilst overcoming its disadvantages, opening the way towards research prepared beforehand in the classroom through a structured presentation of the course content. Teachers will thus be responsible for *'…presenting students with a prior overview of the topics, simultaneously saving them time in their search for aspects on which to focus'.* (Carvalho, 1995, p. 570).

help students to reinforce the '*key qualifications/key competences*' set out by Nyhan (2002):

- This kind of research work, leading students to establish the necessary link between information published in the media and the course content, is considered to enable them to develop their capacity to understand how certain actions or events fit into a broader context: '*This person therefore needs to have a helicopter view of the organisation and have a mental model of how the different parts of the system interrelate*' (Nyhan, 2002, p. 244).

- The work constitutes a challenge that will stimulate the process of collecting information additional to that in the news and foster contact between students and teaching staff as the former seek further clarification on the information provided in the classroom. In other words, it will oblige students to bring the elements required to perform new tasks together: '*People who are personally effective in their working lives have the ability to organise themselves to respond to any task they are called upon to do. They bring all their skills and resources together and apply them to meet a specific situation*' (Nyhan, 2002, p. 245).

- Analysing a real situation that has occurred in a specific context will enable students to bring both 'formal knowledge' and 'practical knowledge' together. Theoretical knowledge will underpin an analysis of the situation described in the news item and the formulation of a critical judgement on that specific context: '*The holistic nature of key competences entails an integration of formal and practical knowledge in responding to specific contexts*' (Nyhan, 2002, p. 245).

The results set out in this paper are based on an analysis of 39 critical commentaries on media news items, produced by 145 students (section 4), and an analysis of the survey conducted with 369 students who participated in the assignment (section 5). The 39 pieces analysed for this paper represent a sample from all the student assignments carried out.

Reference will be made to the topics on which students commented, the results considered and the analysis of the success of the assignments.

Topics commented on by students

The assignments carried out cover a wide variety of basic subject points. In some cases students focused on one particular point,

while in others they analysed several. The assignments can be classified into the following areas: Managers; Relations between companies and society; Social Responsibility and Ethics([6]); Planning; General Management; General Issues. An exhaustive analysis of the assignments examined is given in Seabra et al. (2007).

Results observed

The 39 assignments analysed as part of this study, produced by a total of 145 students, were examined according to the following assessment criteria([7]):

1. Match between the news item (and associated issues) and the topic chosen– matching of the news item (AN)
2. Conceptual framework of the information collected, bearing in mind what is taught in the classroom (EC)
3. Structured reasoning (RE)
4. Critical faculties (CC)

The matching of the news item to the subject chosen was taken to mean the students' ability to choose an item allowing them to contextualise the content of the Management Principles course and, at the same time, enabling them to make an interesting observation on the information collected. As far as the conceptual framework of the information collected was concerned, students were expected to develop a theoretical framework in line with the topic chosen, respecting the concepts presented in the classroom. Structured reasoning was taken to mean the students' capacity to receive, analyse and process the information in the news item they had chosen in an analytical, logical and summary way. The assessment therefore focused on how they broke the news item down into parts to enable it to be analysed, relating the parts to make it easier to understand their logic and subsequently to summarise and assimilate the topics examined. Critical faculties were assessed according to whether students presented a personal view allowing them to propose action concerning the grounds of the observations they had made.

([6]) A detailed analysis of the ethical perceptions of students who recently entered higher education and their interest in the social responsibility of organisations is given in Jorge et al. (2007).

([7]) This assessment was made after students had been awarded marks for their work. Rather than being discretionary, the assessment of whether the news item did or did not match the course content was based on the formal programme of the Management Principles course, which had been handed out to students.

   Students experienced no difficulty in matching the news item to
the topic chosen (100 %). Better results were expected in terms
of the conceptual framework of the information, however (61.5 %
were considered favourable). Certain difficulties were observed in
the theoretical approach to the concepts taught in the classroom.
The groups that did not demonstrate structured reasoning through
a capacity to analyse, apply logic and summarise represented
35.9 % of the total. The authors feel that this shortcoming can be
overcome throughout students' academic life by encouraging the
use of active and innovative methodologies. A total of 35.9 % of
students showed some difficulty in terms of critical faculties. The
authors feel that teaching staff face a challenge in developing
active and innovative methodologies to foster the development of
this faculty.

Analysis of student success
It was felt to be pertinent to analyse student success in the light of
the teachers' assessment of their critical commentary on news items.
Success was taken to mean whether students achieved a pass mark
in this particular assignment, which was assessed by the teachers
of the practical classes and marked on a scale of 0 to 20. Of the

Graph 1. **Results of the analysis of the 39 assignments
produced under this study.**
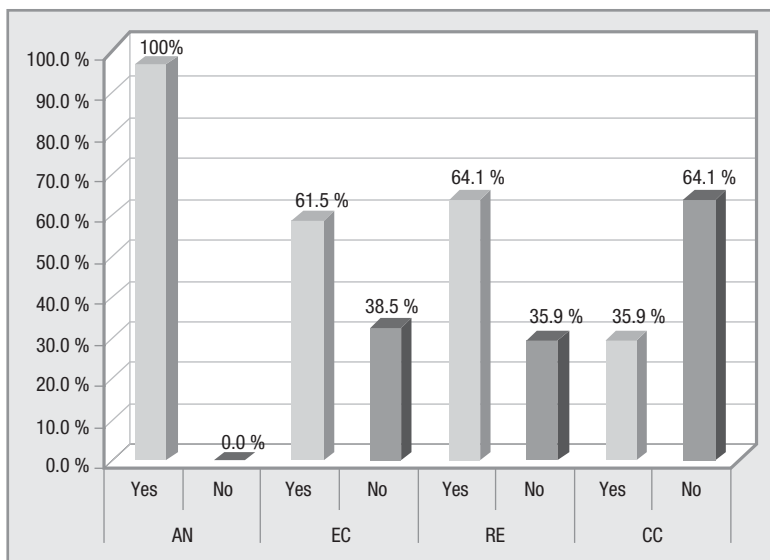
39 group assignments under observation in this paper (covering 145 students), the success rate in this assessment tool was 95.4 % ([8]). An analysis of Graph 2 shows that the modal class among these 39 assignments was 14 (for 25 % of the assignments) ([9]).

Graph 2. **Classification by work groups.**
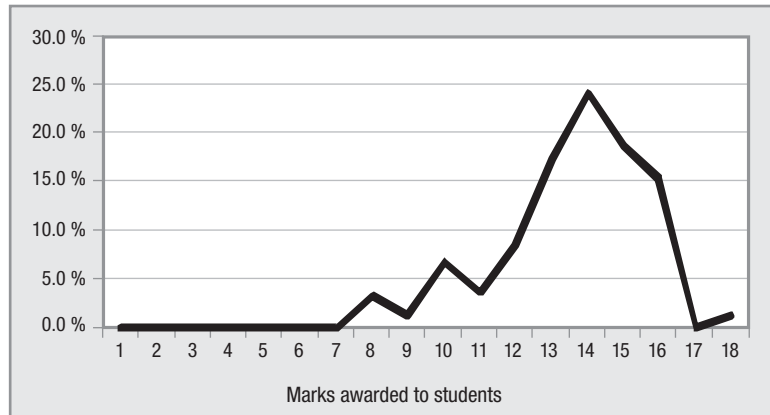
Student perception

In order to understand student perception of the application of the teaching tool concerned, 369 students who carried out the corresponding assignment were surveyed ([10]). The survey provided individual responses, as work groups were not asked to respond ([11]).

([8]) To achieve a pass in the subject, students also had to obtain positive results in the other assessment criteria mentioned above, the analysis of which is beyond the scope of this article.

([9]) The 'base' classification reflected in this graph, awarded by the teacher of the practical class to which the group belonged, was common to all group members, though when different members performed differently, the teacher was able to award different marks to students in the same group.

([10]) The survey was carried out in February 2007 among students assessed by means of this tool as part of the continuous assessment of the Management Principles course. Responses were treated confidentially and could not be traced to the respondent in any way.

([11]) The application of the survey at individual level was justified by the need to determine how this active teaching method is interpreted by each student surveyed. Active methods may favour students who are better prepared for carrying out searches or for working in groups, whilst 'marginalising' students who are less well prepared. The risk of applying a methodology that includes some and excludes others – an elitist methodology according to Perrenoud (2001) – necessitates an individual assessment of the tool itself.

The survey consisted of three parts: i) topic chosen and source of the news item; ii) choice of the news item; iii) the commentary on the news item.

Part one confirmed that many basic principles of the subject were covered (already mentioned under section 4.1). Part two asked students how much difficulty they had in finding news items to comment on and the main causes of the difficulty, and the reasons why they chose the topic. Part three asked students about the difficulties they encountered in performing the assignment, and how appropriate it was to assessing knowledge and learning. Students were also asked about the satisfaction provided by performing this work.

Topic chosen and source of news item

The topics on which students worked were categorised into fourteen groups. The most common were 'Management and Managers' (26.5 %), 'Social Responsibility' (26 %) and 'Entrepreneurship' (10.3 %). The remaining 34.5 % were divided among different topics, as shown in Graph 3.

Graph 3. **Frequency of topics chosen by students**

Frequency	Decision-making	Competiveness	Universities	Management theories	Motivation & perfomance	Logistics	Change management & innovation	Organisation	Strategic planning	External setting	Other subjects	Entrepreneurship	Social-responsibility	Management & managers
	3	5	5	6	7	14	15	19	19	20	24	38	96	98
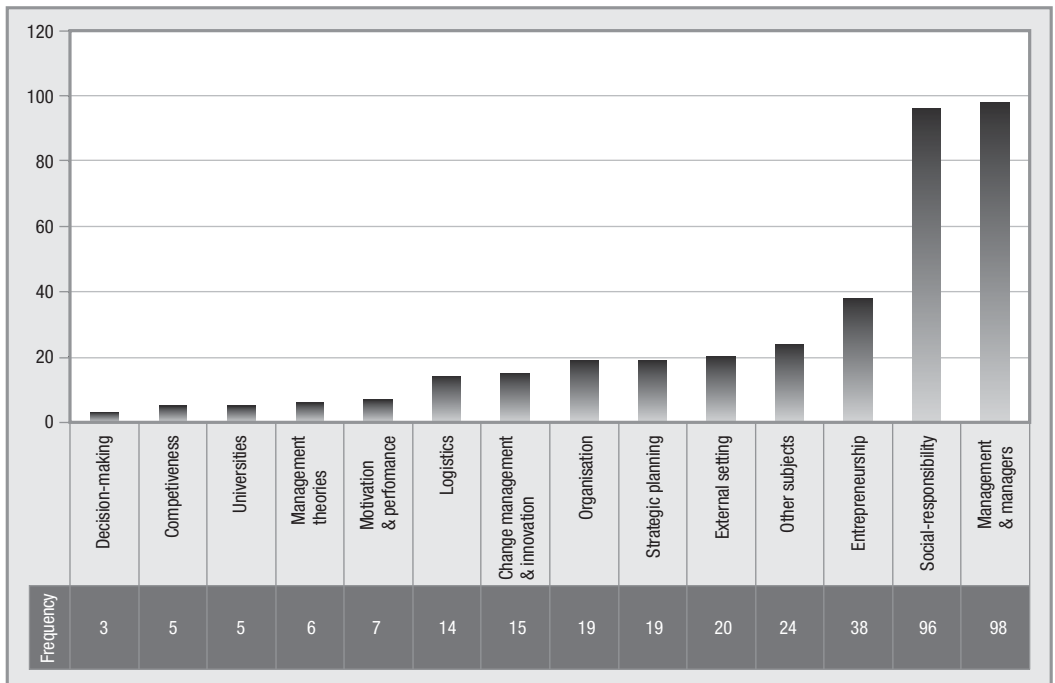
Newspapers (44.4 %) and the Internet (37.4 %) were the most common sources of the news items supporting the assessment tool under analysis. The other sources represented 18.2 %, as shown in Graph 4.

Graph 4. **Number of responses per source**

Source	Interview	Other sources	Magazines	Internet	Newspaper
	11	27	29	138	164
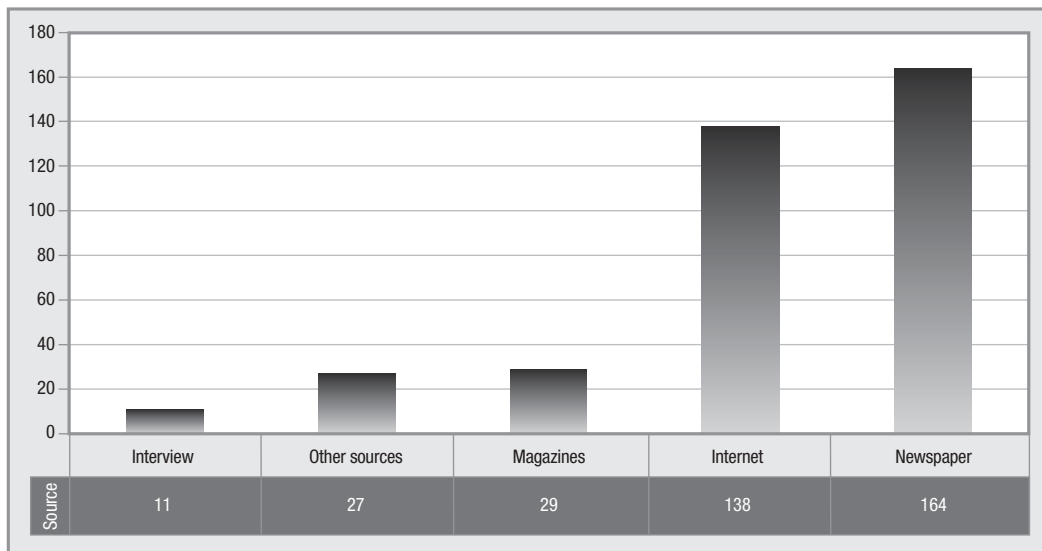
Choice of news item and commentary

The questions in Table 1 (Annex) were used in relation to 'Choice of news item'.

The 368 [sic] respondents considered the average difficulty encountered in finding a news item for comment to be 'reasonable' (3.1). As regards the degree of importance attributed to the reasons for choosing the topic, a number of factors came into play. The most common reason was its relevance to the course (328 students), with an average score of 2.5 (between 'important' and 'reasonably important'). The least common was ease in finding the news item due to its frequency in the media (296 students).

Graph 5 analyses the number of responses obtained for each degree of importance, for each reason indicated. It should be noted here that a high number of students (125) mentioned 'topic related to the course' as the main reason for their choice, attributing a classification of 1 (most important).

Graph 5. **Reasons for choosing a topic**

	Topic related to the course	Most common topic referred to in news item	Course topic	Current topic
1st Degree of importance	125	20	84	78
2nd Degree of importance	53	60	82	93
3rd Degree of importance	60	76	65	57
4th Degree of importance	43	77	49	46
5th Degree of importance	48	29	42	49
6th Degree of importance	0	35	0	0
Left blank	40	72	47	46
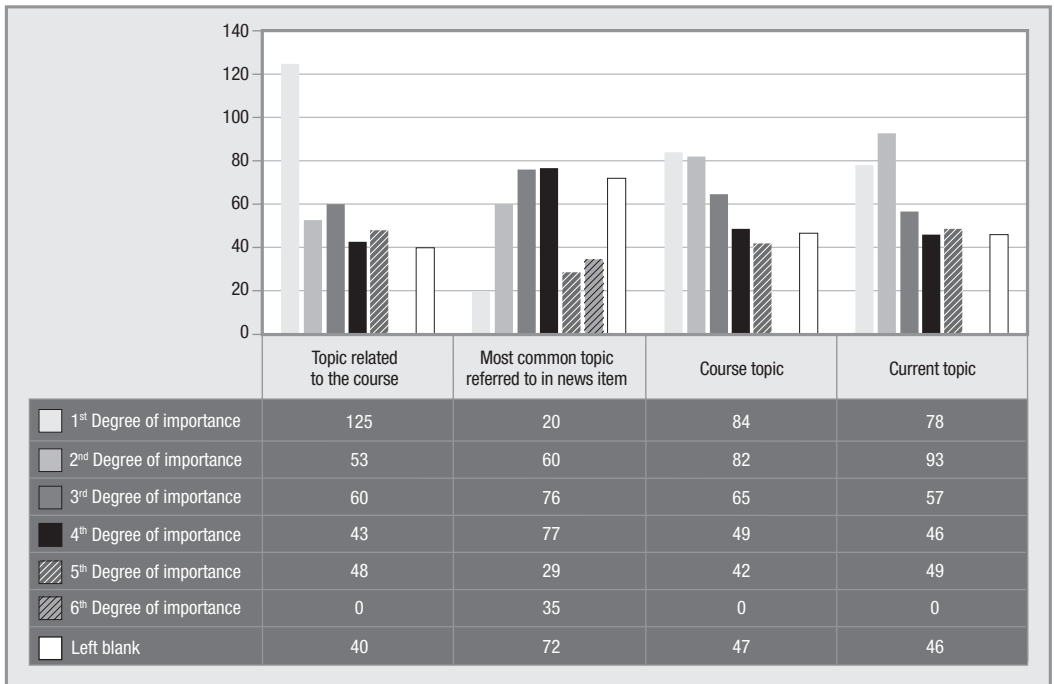
The 'Commentary on the news item' questions are listed in Table 2 (annex).

On average, students spent 8.8 hours preparing the critical commentary.

The average degree of difficulty perceived in performing the assignment was 'reasonable' (2.8).

On average, the greatest difficulties encountered in performing the assignment were: commenting on the news item in a critical way (2.8) and relating it to the subject-matter taught (2.9). For this question, the number of responses obtained in each degree of difficulty experienced in preparing the commentary was analysed (Graph 6). Although 'Finding the news item' scored second most difficult on average (3.1), it did in fact obtain the most responses (82) classifying it as the most difficult aspect (1, the highest).

Graph 6. **Degree of difficulty in preparing the commentary**

	Finding the news item	Relating the news item	Matching the news item	Commenting on news item	Searching for information
1st Degree of importance	82	56	39	68	23
2nd Degree of importance	46	74	79	87	51
3rd Degree of importance	65	82	102	88	83
4th Degree of importance	52	75	77	59	83
5th Degree of importance	93	61	29	45	84
Left blank	31	21	43	22	45
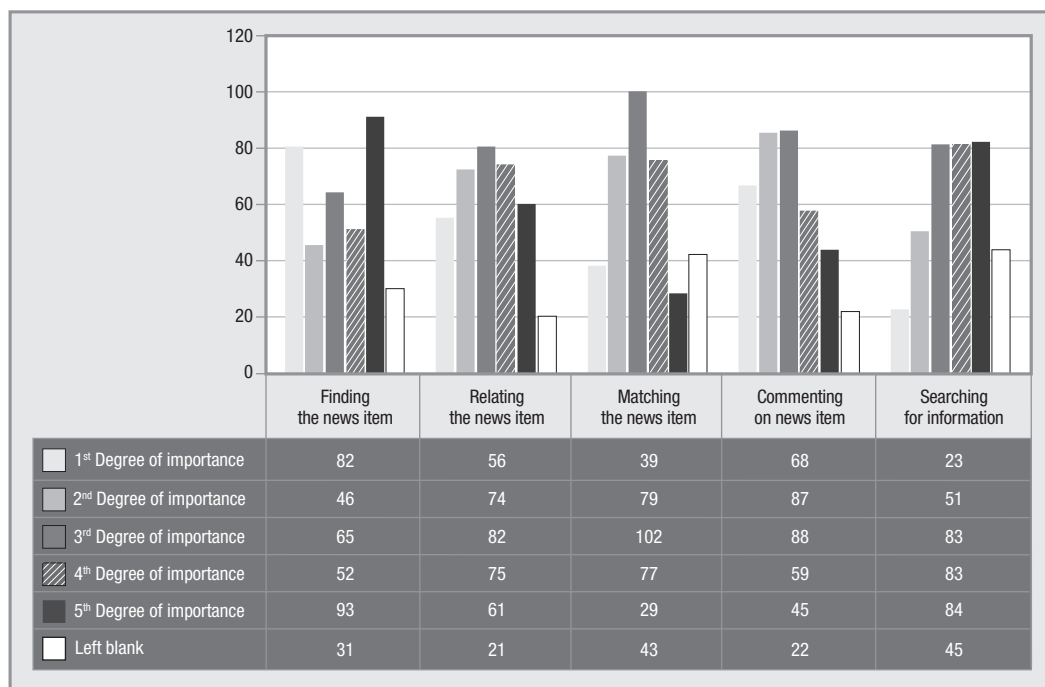
When asked to what extent the assignment was appropriate to the system for assessing knowledge and learning (questions 4 and 5), most students considered that it was very appropriate (average of 3.7 and 3.8 respectively).

When asked whether the critical commentary should be replaced by another assessment tool, 9.6 % of students (35 in all) felt that it should. The remainder (90.4 %) felt that it should not. This group felt that the weight of this assignment in the overall continuous assessment classification (20 %) was appropriate (average response of 2.3).

On average, students were satisfied (3.6) with the work handed in to the teacher. Some 52 % of respondents (192 students) were satisfied with the work they carried out while 36 % were reasonably satisfied (133 students), as shown in Graph 7.

Graph 7. **Degree of satisfaction with work**

	Very dissatisfied	Dissatisfied	Resonably dissatisfied	Satisfied	Very satisfied	No reply
No of students	4	15	133	192	22	3
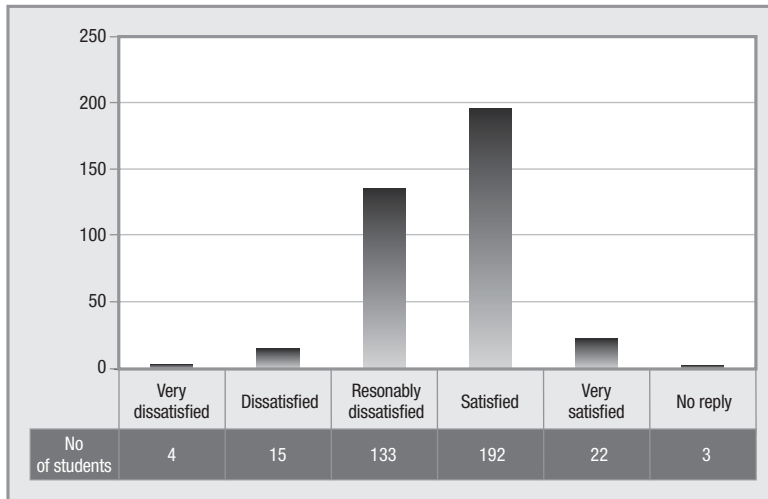
Conclusions and proposals for application

The analysis of the 39 critical commentary assignments on media news items concerning economics/business and associated issues, taking into account the survey responses of the 369 students who carried out the assignment, identifies the following characteristics of this teaching tool:

- students covered a wide variety of relevant points of the course programme with the news items selected and commentaries made;
- some groups analysed news items that were directly related to their members' particular interests (e.g. organisational leaders in sport);
- according to the news item selected, some groups covered topics related to the course programme, supporting them with others that were not directly involved;
- this tool is applied to good effect by students;
- greater attention should be paid to students' critical faculties in future assignments;
- the profile of students' interests shows a concentration on various topics and course content, which could represent an interest in working on a wide range of such content, or may reveal a certain difficulty in analysing a specific topic in depth.

It follows from these characteristics that this teaching tool makes it possible to:

- reconcile the interests and experiences of students with the course content;
- cover a wide variety of course content.

It should also be added that the very nature of this teaching tool leads some students to read media with which they are not very familiar.

The conclusions outlined suggest that a media-based research tool should be used in the following situations:

i) Students who are not very familiar with the course content.

It should not be forgotten that students are more familiar with certain subjects because of their previous education. In the case of Management Principles, many students had never come into contact either with the business world or with management-related subjects. This is confirmed by the number who supported the use of this active teaching tool for assessment purposes.

ii) When students' autonomous research is an important element for learning.

Online information and search engines are useful tools that help students to identify practical examples concerning the subject-matter taught. Students find it relatively easy to carry out their own research thanks to their familiarity with the new information technologies.

The link between the information collected by students and its analysis in the light of the theoretical knowledge taught in the class-room may encourage them to overcome the 'barrier' of not having any previous 'real' contact with the contexts taught in theoretical classes using the expository method. Information collected as part of a group and other tasks performed by students in the course of their assignment will foster proactiveness and an ability to search for the information required to respond to the specific circumstances of each new challenge.

In terms of confirming the research hypotheses set out, it follows that:

H1: A critical commentary on a media news item is a valid exercise in studying management topics in polytechnic higher education. The hypothesis is confirmed;

H2: A critical commentary on a media news item helps to develop students' critical faculties. The hypothesis is not confirmed.

To achieve hypothesis 2, the development of a critical outlook among students may be supported by different teaching approaches through which learners are exposed to a broader range of formal, non-formal and informal learning activity (European Commission, 2001). Certain difficulties in transferring knowledge between various contexts may therefore be overcome as avenues for future research are explored.

Despite the limitations highlighted, a critical commentary on a news item as a formal learning mechanism represents something of an interface between the teaching aims and learners' particular expectations and interests. This will be a preferred teaching/learning/ evaluation method when working with a large heterogeneous group. This characteristic is especially important when initiatives such as training courses, field work or projects shared between teaching establishments and organisations/companies become very difficult to put into practice due to the number of students involved.

Avenues for future research

In connection with using teaching tools with the characteristics of the one analysed in this paper, it will be important to study mechanisms that foster students' critical faculties in greater depth. It must be stressed that one of the greatest difficulties encountered by students was to comment on the news items in a critical way.

It is a fundamental principle that the presenting of students' assignments in the classroom and the resulting discussion open to the whole class will help to hone their critical faculties.

Other teaching tools may be used to value the informal learning that students experience in activities related to work, family or leisure (European Commission, 2001). Students can embark upon a formal learning process based on problems identified in other contexts, such as work (working students), family (economic and social dimensions) and in associations (participation in groups, sports clubs or cultural associations). The examination of problems identified beforehand in these contexts and their link with the course content could help to improve students' key competences.

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Annex

Table 1. **Choosing the news item**

	N	Mode	Mean	Pattern Deflection
1 - How difficult is it to find the news item on which to write the commentary? **Scale from 1 to 5, where 1 means very difficult, 2 difficult, 3 reasonable, 4 easy and 5 very easy**	368	3	3.1	0.7
2 - What importance is attributed by students to the following reasons for choosing the topic: **Scale from 1 to 5 where 1 means most important and 5 means least important**				
2.1 - Topic related to the course;	328	1	2.5	1.5
2.2 - Topic most frequently referred to in the media and easiest to find;	296	4	3.5	1.4
2.3 - Topic related to the point in the curriculum that aroused the most interest;	321	1	2.6	1.4
2.4 - Current nature of the topic.	322	2	2.7	1.4

Table 2. **Commentary**

	N	Mode	Mean	Pattern Deflection
1 - On average, how many hours did you work?	359	6	8.8	8.8
2 - How difficult did you find the assignment? **Scale from 1 to 5, where 1 means very difficult, 2 difficult, 3 reasonable, 4 easy and 5 very easy.**	368	3	2.8	0.6
3 - What difficulties did you encounter in the commentary on the news item under the following points: **Scale from 1 to 5, where 1 means very difficult, 2 difficult, 3 reasonable, 4 easy and very easy**				
3.1 - Finding the news item;	337	5	3.1	1.5
3.2 - Relating the news item to the subject-matter taught in the classroom;	347	3	3.0	1.3
3.3 - Fitting the news item into the subject taught;	325	3	2.9	1.1
3.4 - Commenting on the news item in a critical way;	346	3	2.8	1.3
3.5 - Researching information related to the news item.	323	3	3.5	1.2
4 - To what extent is this tool appropriate to assessing knowledge? **Scale from 1 to 5, where 1 means very inappropriate, 2 inappropriate , 3 appropriate, 4 fairly appropriate and 5 very appropriate .**	368	4	3.7	0.7
5 - To what extent is this tool appropriate to learning? **Scale from 1 to 5, where 1 means very inappropriate , 2 inappropriate , 3 appropriate, 4 fairly appropriate and 5 very appropriate.**	368	4	3.8	0.6

	N	Mode	Mean	Pattern Deflection
6 - Should the critical commentary be replaced by some other element of assessment?	Yes: 9.6 %	No: 90.4 %		
6.1 - If you replied no, is the 20 % assigned to continuous assessment in your mark appropriate? **Scale from 1 to 3, where 1 means 'should have less weight', 2 is appropriate and 3 'should have greater weight'.**	330	2	2.3	0.5
7 - How satisfied are you with the work you handed in to your teacher? **Scale from 1 to 5 where 1 means very dissatisfied, 2 dissatisfied, 3 reasonably satisfied, 4 satisfied and 5 very satisfied.**	365	4	3.6	0.7

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When this paper was submitted to the European journal of vocational training, the authors were teaching the curricular unit on 'Management Principles' at the ESCE. The co-author Jorge Rodrigues was in charge of that subject at the time.

The possibility of illusion in the production of knowledge

Luis Garcia

IT trainer and trainer of trainers since 1994. Currently collaborator as External Trainer of the Vocational Training Centre of Tomar, Portugal.

Keywords

Manipulation, training, education, learning, communication, computer

SUMMARY

Information and communication technologies – ICTs – have become a defining feature in the vocabulary of 21st century education and training. The major question now is not when and how they will be introduced into the education system, but what impact the manipulation inherent in their use will have on the resulting production of knowledge.

The added value of ICTs for learning lies in the revolution they bring about by speeding up and guiding access to syllabuses from the moment users realise how manipulative they can be.

Introduction

The Matrix trilogy is considered to be a masterpiece of modern cinema which, despite its commercial bent, raises troubling questions on such wide-ranging issues as the exercise of power and freedom, notions of illusion and reality, religious belief, or simply the status quo. All this is then complemented by the amazing plot: no sooner does it close some gaps than it immediately opens others, which are left to the interpretation of the message-receiver, in this case the fan or spectator.

The Wachowski brothers' Matrix series frequently stands out as a revolutionary example because of the technical and commercial values of the films, though they raise issues of the construction of reality and on how thin the line is that separates us from manipulation in the simplest areas of daily life. What appears to be and what is, at least in a way that we commonly refer to as reality, encapsulates or may encapsulate a mystery as great as any that could be imagined; in a way that we are reluctant to admit, what we take for granted may be no more than a reference framework that we have simply been taught not to question.

In the films the Matrix is an intelligent machine that enslaves and keeps humanity under control through virtual reality, while using it as a weapon in a parasitic relationship that gives machines the power to manipulate the imaginary everyday existence of millions of beings who thus live a life which is not theirs. In our reality, the enslavement and manipulation of the population is not very distant from this metaphor: just remember the Salazar regime to appreciate the role of football, for example, as an antidepressant prescribed systematically to the population.

Let us stop to reflect on this point: are we so distant now from those days? The most relevant question would then be: 'To what extent are we manipulated? To what extent do the media deliver a predefined message and construct our reality and our knowledge, without our conscious knowledge but possibly with our unconscious consent?'.

For another example, from much earlier than Portugal's April 1974 revolution, let us go back to Roman times. 'Occupy thyself with few things if thou wouldst be tranquil. For the greatest part of what we say and do being unnecessary, if a man takes this away, he will have more leisure and less uneasiness. Accordingly on every

occasion a man should ask himself: Is this one of the unnecessary things?' (Marcus Aurelius ([1]), Roman Emperor).

But would Marcus Aurelius himself, in imparting this advice, not to some extent be manipulating the receivers of his message? Consciously or unconsciously, all communication is liable to manipulate, but the difference lies in allowing the receiver to realise whether he or she is being manipulated or not.

A problem for the production of knowledge in connection with ICTs

The objective of this paper is a critical analysis on information and communication technologies – ICTs – and their integration into education, or to what extent schools benefit from the use of ICTs. Our collective imagery points to a rich set of viewpoints that may vary according to the target age-group, or, as we shall see (and not only from a time perspective), that may depend on what can be obtained from these technological tools. Criticism is easy. 'Do we like it?'. Let us formulate an answer and consider the object of our attention alone. A new question is soon raised, however: the pleasure will have to be justified (adapted from T.S. Eliot).

The advent of ICTs has generated much discussion on how they can make a major contribution to the renewal and/or sustained extension of the production of knowledge, starting from the assumption that they offer a considerable number of information-rich resources, in terms of both quantity and flexibility. Quite suddenly, having or not having access can influence – if not decisively then indisputably – a (any?) path it is intended to beat towards a source of knowledge.

In this context the personal computer (PC) becomes exceptionally important since it allows extrapolation from the traditional information theory-recommended model of sender-message-receiver. Contrary to traditional means of communication – radio, cinema, the press and television – the PC makes it possible to break away from the unidirectional way in which the sender 'posts' the message to the receiver.

([1]) The meditations of Marcus Aurelius, Book 4.

Because increasing use is being made of ICTs in the teaching/learning process, whether in the classroom or via distance learning, we need to think about the role both of the educator – whether trainer, teacher or tutor – and of the learner, whether trainee or pupil.

Returning to the Matrix metaphor, it is the educator's responsibility to play the role of architect but also of oracle in a responsible and ethical manner, so that learners can in some way feel that they are 'the one'. In this way they can also play their role, far from the special effect-laden images of a straight-to-video Hollywood movie, and much closer to the 0 and 1 that represent their (our?) reality in the teaching/learning process. This they can achieve by using the medium as a two-way channel, playing the role of liberator; and, together with the educator, they can thus put into effect the process of liberation begun with the educator.

Assessment, a range of technological resources and the instruction manual in Chinese

It would be correct to say that the PC has reached the classroom and is here to stay. I believe very few people will deny that, not because theirs is a world of certainties, but because nowadays we agree that no-one would have the nerve to laugh again at a kid with glasses and dandruff whose company's goal over 20 years ago was 'a computer in every home' (and Microsoft software on every computer?).

We have very conveniently (and probably simplistically) made use of the term PC. We would put forward another word that could include the mobile phone (why not?), the PDA, the MP3 reader and goodness knows what else. We could very consistently venture to use 'device', but while it may seem very undemocratic (may the reader forgive us), we will, without any Marxist connotations, continue to use the term PC ([2]).

Having resolved the problem of the name and focusing now on the content, even if we too were somewhere within the Matrix, we would have to agree on one point: the resources offered to the educator are truly abundant. Faced with the huge potential choice, will a little be left for manipulation? Or, on the contrary, facing a world bursting with ways out, who will take the first step: the educator,

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([2]) PC is the acronym for Communist Party in Portuguese.

the learner or the machine? And if they do take it, will this not from the outset be a manipulative act?

Our aim is to question whether educators can continue to ignore ICTs in delivering their classes, though not forgetting that they should not be seen as a centre of interest. It seems that having accepted ICTs, educators can adapt the way they use them to their teaching aims. Or could it be that the technological aspect of ICTs, which can raise doubts in potential users, militates in favour of great leaps forward? We would not say that all the manuals are in Chinese. What we would say, however, is that sometimes a great deal of their content in Portuguese might look like Chinese to teachers who are new users. We agree that the best resource will continue to be the educator. In the final analysis, it seems logical that when teacher and technology are placed on the scales, the former will carry the greater weight. In the battle of the Ps, we suggest, the P of pedagogue will prevail over the P of PC.

Related work, the teacher, the blue pill and the red pill

At the beginning of the Matrix trilogy, the Wachowski brothers introduce Neo, 'the one', who is placed in a position in which he has to choose between two different coloured pills, one blue and the other red. This is no less than the decision between staying in the Matrix or waking up to reality. For better or for worse, 'the one' finally makes his choice. The strange thing lies in the cycle this choice seems to close, bringing to mind a computer programming control structure which, through carelessness or deliberately, closes an 'infinite' loop, or a tendency towards exhaustive repetition.

The power of ICTs lies in the (manipulative?) choice they can offer 'the one' of concern to us, the learner, a situation similar to that experienced by Neo at the beginning of the story. With the educator's help, learners can then progress freely, though they can be manipulated, which suggests to us that the educator must be seen as a liberator of the learner's knowledge. The educator must exercise this liberating power democratically so that learners can progress from question to question, accumulating their answers and, who knows, raising new questions that set them off on a learning cycle. Contrary to tradition, this is nowadays known unequivocally as lifelong learning, which is so receptive to cycles.

The arrival of hypertext dramatically freed us from the shackles of the sequential knowledge imposed by the academic model and left us closer to an effectively free knowledge in a learner-chosen path. Each learner would start from the same point but would be free to move in whatever direction they wanted. And, when necessary, it would be the educator's responsibility to take learners from the same point by fostering the production of knowledge through a sensation of déjà vu (as in the Matrix) or, who knows, by joining a new path more appropriate to the educational needs perceived by the educator and felt by the learner.

ICTs have increased the speed of knowledge, as it were. Educators or learners can access information in greater quantities and/or at greater speeds, and can also be bombarded with additional information that adds nothing to the intended area of study. One thing seems clear, however: the speed the learner can be subjected to increases seductively, in equal proportion to the development of the technology. The way this speed will be administered is yet another challenge to educators, who must remain sure of their choice, even if, by virtue of their position, it influences the learner's progress. For better or for worse, educators will also have to make their choice here.

Conclusion

Main contributions or 1 classroom = 1 learner x 1 PC
The title of this section suddenly almost resembles an adaptation of Bill Gates' famous phrase: 'A computer in every home…'. In the same way we would also venture to say that it seems like a rather utopian title, even if we are experiencing a 'technology shock' – whatever that may be. Not that it is not tempting to dare to challenge the technological currents flowing through the country, but very simply we do not wish to and will not give them primacy over what it really makes sense to look at, which in the final analysis would be the individual: learner, educator or (why not?), the fully entitled citizen.

Seymour Papert wrote a not very Matrix-like article in this respect that nevertheless introduces an idea which I think is outstanding (Papert, 1996). The article begins with a metaphor involving a small country, Foobar, in which a sophisticated society of poets, philosophers and scientists has developed with a very special

particular feature: writing does not exist, and the entire society is based on the use of oral expression. As in any good story, one day it occurs to more imaginative educators to introduce pencils and paper as the dawn of a new era in Foobar's schools. The debate begins, sceptics shake their heads and the radicals suggest that all educators and learners should be provided with pencils and paper, and that the education system should close down for six months while everyone adapts to the new technology. In the end, Foobar's wise politicians come up with a more cautious strategy. A pad of paper and a pencil will gradually be placed in every classroom so that learners and educators, irrespective of how much money they have, can come into contact with the new technology, and meanwhile Foobar's educational psychologists will measure its impact on the teaching and learning processes.

We believe it is accurate but also debatable to claim that ICTs are advantageous for anyone involved in education. Nevertheless, we simultaneously have to agree that they represent a threat which is just as great as their potential. As in Papert's strange story, ICTs should be seen as integrating rather than differentiating elements, when seen for example in monetary terms. We know that 'poor learners' must be given the same opportunities as 'rich learners', and it will suffice to look at the figures in reports published by UMIC, the Portuguese knowledge society agency (to mention Portugal alone), to see that while this is not impossible at the moment, it is extremely difficult (OSIC, 2005).

So are ICTs the wrong resource to introduce into the education system? We think not. We trust the technology. We trust the teachers and we trust the learners, in the same way that we trust the ICT statistics that place us on a par with countries like Greece, at the tail-end of a classification that is still led by the United States. Meanwhile, access to knowledge remains highly undemocratic. We would probably vote for Foobar's politicians, and we would give schools the necessary technological tools for them to be gradually introduced and analysed unobtrusively to gauge the advantages of their applicability.

Future contributions: if the future of ICTs were optimistic

How about giving those involved the power to choose between a return to the Matrix (slavery?), or immersion in the reality of Zion (a free city, even though subsumed in a world of shadows, hidden from the attacks of Matrix machines)? In all probability, any educator

will say that it will be heavily dependent on what access is provided to the network of networks, to their space on Hi5 (web-based social network), to their list of contacts on MSN (messenger service in Windows) or – at the speed at which social networks seem to develop – to any space at all. That is the problem of speed, which is something we have not yet understood.

Let us reflect on the dichotomy of trends we are led to consider: some that recommend unabashed development of the link between schools and ICTs, and others, more conservative, that view the process with suspicion, cautiously demanding time, analyses and many impact studies.

For better or for worse, learners and perhaps even some (if not many) educators are already somewhere deep inside the Matrix. This is because the Internet has inexorably given fresh impetus to a concept of communication that was never found in more traditional media such as the 'box that changed the world'. The message no longer flows in a single direction, but alternates between sender and receiver, generating feedback which is capable in itself of producing a new form of knowledge.

While discussing the here and now of ICTs, we discuss whether they should or should not help educators and learners, who are already connected through this technology in a way that school television never connected teachers and pupils in the past. The language used in this 'world' has begun to vary from forms of jargon to a would-be pseudo-language; I know, for example, that I found it difficult to understand that 'peculiar' can also be spelt 'pekuliah'.

The Matrix is still connected. 'the one' does not exist, because in essence we are all 'the one'. We can all do amazing things with ICTs, but nevertheless, as in the epilogue to the trilogy when the oracle asks the architect about the people who want out of the Matrix, the architect's answer seems to be appropriate here for those who will or will not adopt ICTs in schools: those who want out will be freed.

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