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Lisbon – Copenhagen – Maastricht – Helsinki Quo vadis, VET?

Eleonora Schmid
Project Manager, Cedefop

'A move towards a European area of vocational education and training (VET)', is what the Finnish Presidency has detected in a survey among Directors General for VET earlier this year. It was brought about in 2002 by the joint effort of the EU Member States, associated and candidate countries as well as European social partner organisations to develop, modernise and improve VET in Europe (Copenhagen Process). It has made VET more visible as a driving force in Europe's endeavour to become more competitive, an ambitious goal set by the European Council in Lisbon 2000. In Copenhagen, Member States had also agreed to biennially review progress in achieving the objectives set there.

Two years ago, following an extensive review of VET's contribution to the Lisbon strategy ⁽¹⁾, Cedefop had come to a similar conclusion on the significance of the Copenhagen Process. However, efforts to develop VET needed reinforcing, in particular at national level ⁽²⁾. With the second review to be presented to the Education Ministers in Helsinki in December this year, the question is: Has progress been sufficient since 2004, when the Education Ministers committed themselves to acting on a set of common priorities at their meeting in Maastricht? What improvement can realistically be visible after two years? Which new directions can we expect?

The biggest move is fairly evident: reflections or work on national qualification frameworks and systems, sparked off by the proposal of a European Qualifications Framework (EQF). Its purpose is to make national qualifications transparent and comparable. Though controversially debated in some countries, the EQF has become a driving force at national

⁽¹⁾ Leney, T. et al. *Achieving the Lisbon goal: The contribution of VET*. Final report to the European Commission. European Commission, 2005

⁽²⁾ Tessaring, M.; Wannan, J. *Cedefop synthesis of the Maastricht study. Vocational education and training – key to the future. Lisbon-Copenhagen-Maastricht: mobilising for 2010*. Luxembourg: Office for Official Publications of the European Communities, 2004

⁽³⁾ ECTS = European credit transfer and accumulation system, http://ec.europa.eu/education/programmes/socrates/ects/index_en.html

level. It will be interesting to see if the consultation on a credit transfer system for VET, a scheme to make learning outcomes portable (similar to the ECTS ⁽³⁾ in higher education), will have a similar impact.

But how far have national VET policies advanced in the agreed priority areas since Maastricht? Country information on progress collated by Cedefop includes most of the key issues: quality assurance, educational standards focussing on learning outcomes, measures for low skilled and disadvantaged, guidance and counselling, access to (C)VET, etc. Among the themes that feature less prominently are image and attractiveness of VET, individualised pathways and progression opportunities, financing VET and teacher and trainer development. The latter is rather surprising, since quality assurance is high on the agenda and teachers and trainers are the most important change agents. How can VET be of high quality if those who make learning happen remain a 'forgotten army'?

A trend towards policy strategies and packages is evident, linking VET and employment policy measures, in particular in the New Member States. However, information on policies and measures Cedefop received from the countries, tends to be either fairly general or too technical. This makes it hard to analyse the state-of-play or to understand if VET providers, practitioners and learners are well on board. Only a few countries set quantitative or qualitative targets and have a clear view on indicators for success, which would help them assess the effectiveness of their policies.

In a field as vast and complex as VET, it is not surprising that countries plea for more time to consolidate their work on qualifications frameworks/systems and quality issues. Rather than setting new priorities, they call for maintaining the current ones.

At the same time, there is an increasing demand for more and better statistical data on VET and more evaluation and research to devise well targeted policies. This evidence, however, is difficult to find. The statistics compiled and analysed at European level are based on the national data countries had agreed to provide. The insight they give in the performance and funding of VET cannot be more detailed or accurate than the input. There is also an appeal for more VET research to underpin the conclusions derived from policy analysis.

Undoubtedly, in Helsinki the Ministers will agree to continue the work on the instruments developed at European level, (EQF, ECVET, the European network for quality assurance in VET, EUROPASS). As for the national level, hitherto neglected areas, like raising the image of VET and making it more attractive, might move to the fore. This would call for more individualised pathways and progression routes, particularly those to and within higher education, more and better guidance and counselling, reinforced workplace learning, accrediting non-formally acquired competences. It would also require better a response to labour market needs, adequate funding and financing mechanisms, quality assurance, teacher and trainer development. Getting all those on board that are involved in VET (policy makers, educational authorities, social partners, sectoral bodies, VET

providers, teachers and trainers, learners etc) and promoting an active partnership, is a prerequisite for the further success of the Copenhagen Process. A request to make better use of statistical data, in particular for improved information on financing is to be expected together with a plea for more research into VET-related issues.

Thus, we invite you to examine the issues that lie at the heart of the VET policy debate in Europe and to use this Journal as a platform to present your findings.

ICT in education: the opportunity for democratic schools?

Helen Drenoyianni

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SUMMARY

What is the future of schools and what is the role of ICT in this future? To some of us, ICTs are emblematic of contemporary discussions about educational reform; their incorporation into education offers significant improvement to the overall quality of education our children receive. For others, this improvement cannot be realised under current educational conditions. For the liberating, dynamic and emancipatory capacities of ICT use to grow, we need a different terrain, suited to a human and democratic vision for education. This article attempts to examine these two perspectives in the context of facts, figures and stories from the reality of classrooms, and to raise critical arguments about the potential role of ICT in education.

Key words

Education, reform, curriculum, information technology, teaching, learning

Introduction

In the late 1980s a broadcast discussion took place in Brazil between Seymour Papert, developer of Logo and leading figure in educational technology, and Paulo Freire, one of the world's foremost critical educators and philosophers (!). The main theme of the discussion was the 'future of school' and at the beginning of the conversation Papert suggested the existence of three stages 'in the relationship between individual and knowledge'.

Stage one begins with the birth of the child, who starts to learn in a self-directed, experiential and explorative way. Later on, and within this stage, the child appears to enter a qualitatively different situation, which is

(!) Available from Internet: <http://www.papert.org/articles/freire/freirePart1.html> [cited 2.6.2006].

signified by a shift in the process of learning. Learning by exploring evolves into learning by 'finding adults who will tell you things'. 'Learning by being told' reaches its zenith in stage two, meaning in school. This is a critical moment during which the child has to stop learning and must accept the process of being taught. Learning by being taught and receiving deposits of knowledge is the ultimate and main characteristic of this dangerous and, perhaps traumatic phase which may be held responsible for destroying the instincts of many children. However, those who survive it learn a range of skills, which give them the opportunity to explore a much wider universe and to enter stage three. This last stage could be described as a return to the creative process of stage one. Learning is becoming again explorative and experiential, it is driven by the individual's needs, interests and aspirations; it is creative and is not so verbal.

Freire agreed with Papert's lucid description and analysis of these three stages. He commented that the school stage is indeed horrible and that it has been bad for many children, but he also advocated that the idea of school is both necessary and valuable. He argued that, in history, people learned before teaching and that it was precisely the realisation of the experience of learning that 'taught us to teach' and to invent the 'learning by being taught' stage. Within this invented stage, that we call school, a child is supposed to depart from the 'common knowledge and common sense' experience of the first stage and get to the systematisation of the knowledge that ensures the continuity of the search for and the production of knowledge not yet in existence. As he asked:

'How do we make the essential transition from the common knowledge and common sense to the more methodically rigorous knowledge of the sciences without the proper organisation provided by an entity specialised in this matter?'⁽²⁾

Within this line of reasoning Freire illustrated and explained his disagreement with Papert's metaphysical, as he characterised it, analysis of the inevitable end of school. According to Papert, what is wrong with schools is absolutely fundamental. He argued against their distressing effects on children's creativity, natural curiosity and intellectual power and said that the seed of change is in the children themselves, who will eventually revolt. Using a range of examples, he placed technology use at the centre of children's predicted refusal to accept the oppression of schooling. To him, the idea that technology could be used to advance school is absolutely ridiculous. Technology will not improve schools, it will actually displace them, cause them to disappear and shift completely our understanding of the entity of school (Freire and Papert, 1980s; Papert, 1996a; 1996b). Nevertheless, to Freire the challenge did not announce the end of schooling, but its reconstruction with the help of all those who survived it and escaped cognitive death by it.

⁽²⁾ Available from Internet: <http://www.papert.org/articles/freire/freirePart4.html> [cited 2.6.2006].

'[The challenge] is to change it completely and radically and to help it to give birth from a body that doesn't correspond anymore to the technological truth of the world ... to a new being as actual as technology itself ... To me, the problem we face today is the correction of the mistakes of the second stage that are not all didactic and not methodological mistakes but, indeed, ideological and political ones' (3).

Arguably, the ideas, the points and the issues raised within this exciting and interesting conversation are still in effect nowadays, as they seem to underpin contemporary debates and discussions about the need for educational reform, and the revolutionary role and value of information and communications technology (ICT) use in education. It is notable that both sides, as with both Papert and Freire, seem to agree that schools have become tyrannical bureaucratic establishments fostering a banking and depositing concept of education. Both also agree that schools should be changed, and that ICT enables new, complex and diverse ways of knowing, learning, thinking, communicating and meaning making. Nevertheless, their explanations and analyses of the modern school crisis and their proposals to deal with it, including their perceptions of the role of ICT in these proposals, are fundamentally dissimilar.

On the one hand are those who, like Papert, find technical, artificial and metaphysical solutions to deep-rooted educational problems. To this group, ICT, by itself, can trigger fundamental changes in the way teachers perceive and act upon the processes of teaching and learning. ICT represents the centre of innovative educational change and its incorporation into every aspect of education is perceived as equivalent to the enhancement of the quality, efficiency and effectiveness of education. Others, like Freire, try to understand educational problems by placing them in their appropriate cultural, ideological and political context. To this second group, educational change is not synonymous with change in teaching method, but change in the aims, the processes and the structures of the whole educational establishment. From this viewpoint, ICT is placed at the border of educational change and is conceptualised as both a theme and a tool with potentially humanising, liberating and motivating capabilities. However, these capabilities can only be realised and fulfilled within the context of a radically different school setting that follows, in theoretical and practical terms, the principles of a human and democratic vision for education.

The subsequent two sections of this paper will examine both of these viewpoints. The first part seeks to approach the rhetoric underlying the role of ICT as both a change-agent and an education-antidote, examine the socioeconomic and pedagogical assumptions of this role in relation to facts and figures from the reality of classrooms, and raise critical arguments against the idea of perceiving ICT as the totem of educational change. The second part attempts to redefine and approach afresh the role of ICT from

(3) Available from Internet: <http://www.papert.org/articles/freire/freirePart2.html> [cited 2.6.2006].

a human and democratic viewpoint; it concentrates on ICT success stories, reflecting on the liberating possibilities of ICT, which can flourish when they are embedded in progressive educational settings.

ICTs as the emblem of educational reform

We are increasingly and repeatedly told that ICTs represent a high educational priority, that their use will improve the overall quality of education our children receive, and that they are the ultimate vehicles for radical educational change and innovation. The rhetoric underlying such claims usually begins with descriptions of how society, the workplace and life itself have changed as a result of the advent, the evolution and the ubiquitous presence and utility of ICTs in nearly every sector of human activity. Technology is placed at the centre of the social, cultural and economic transformations witnessed and is represented as one of the main causes inducing these changes and transformations. As such, we are reminded and informed that ICT use generates by itself a new highly-competitive economy and high-tech society, often called the information or knowledge society, which values knowledge and information as the keystones of economic development and productivity and needs a new kind of citizen and a new kind of worker with remarkable skills, abilities and knowledge.

'Technology and advanced communication have transformed the world into a global community ... In this environment, employers value job candidates, who can acquire new knowledge, learn new technologies, rapidly process information, make decisions, and communicate' (Partnership for 21st century skills, 2003, p. 6-7).

In this context, technology is treated as an autonomous entity or an outside force, similar to a natural phenomenon - if not a natural disaster - that drives society and economy. It has the power to redefine what knowledge is and what it means to be a knowledgeable person, and, as an unavoidable consequence, serves as the impetus for the redesign and reinvention of education.

The rhetoric goes on to depict public education as ineffective, often conceptualised as the transmission of knowledge to pupils. Schools do not succeed in preparing children for their future roles as citizens, workers and professionals, since they do not manage to equip them with the knowledge, skills and attitudes that will enable them to be efficient, effective and competitive in today's fast changing world. This vision of a 'product to be consumed' education and the oratory of empowering the 'pupil-consumer-future worker' necessarily leads to reconsiderations of the priorities, the means and the ends of education (Apple, 2001). Higher academic standards, more rigorous national curricula, greater use of national performance-driven testing and an emphasis on the accountability of students, teachers and schools are represented as the solutions to the economic, social, political and cultural prob-

lems devastating education (Apple, 1993; Sheldon and Biddle, 1998). Among the many recommendations made by the promoters of such actions is greater emphasis on ICT use as a symbol of modern, sophisticated and quality education and life. Apparently, the paradox underlying these proposals is that ICT is presented as both the change-agent that brings forward multiple crises and the antidote or the solution to the social, economic and education problems initiated by these crises.

'ICT fundamentally changes the way we live, learn, and work. As a result of these changes, technology tools, and the creative application of technology, have the capacity to increase the quality of people's lives by improving the effectiveness of teaching and learning, the productivity of industry and governments, and the well-being of nations' (Educational Testing Service, 2002, p. 3).

This line of reasoning raises the idea that the incorporation of ICT into every aspect of education is indeed inescapable for all those nations who wish to enhance the effectiveness of teaching and learning.

'Improving the quality of education thanks to multimedia and Internet technology is one of the priorities of European cooperation. All schools, if not all classes should be highly computerised, all teachers should be able to use the technology to enhance their working methods and all young people should be able to broaden their horizons by using it comfortably though with the necessary critical perspective. These goals are among the priority objectives for 2010 that the education and training systems of EU countries have set themselves in the follow-up to the Lisbon strategy' (Eurydice, 2004, p. 3).

The high level of expenditure and investment being made to equip educational institutions with ICT and train educators in its use, are justified through the adoption of two types of assumptions: socioeconomic and pedagogic. Socioeconomic assumptions are based on a social and economic efficiency rationale for education and promote the views that ICT use in schools will increase teacher and student productivity and will enable the preparation of a technologically empowered future workforce. ICT use can simplify and modernise administrative and managerial tasks, it can ease and improve teacher and lesson preparation, it can increase the speed and enhance the effectiveness of communication among parents, students, teachers, schools, education authorities and organisations, and make assessment more efficient through electronic testing and grading. As such, schools can profit from the productivity gains that ICT has brought to business and 'can get more work done at less cost' (Cuban, 2001, p. 13). At the same time, since technological skills and knowledge are greatly valued in the job market, guaranteeing well-paid jobs and upward social mobility, the introduction of ICT literacy lessons is a necessity. Pedagogical assumptions focus on the role that ICT can play in revolutionising teaching and learning methods. ICT use may transform education by making teaching and learning project-based, flexible, skill-focused, problem-based, individualised and child-centred. Its use can serve as a driver and a facili-

tator of radical curriculum change. It helps students become autonomous, motivated and independent learners, reinforces interaction and cooperation, enables deep understanding, provides information-rich learning environments and allows teachers to act more as tutors, supporters and guides rather than lecturers.

There is an increasing number of researchers and educators who believe that most of these assumptions, especially the socioeconomic ones, are ungrounded. To them, technology may be perceived as 'a powerful regime, enjoined by a confluence of forces alien to education' (Noble, 1998, p. 281) and represents a 'different way of applying economic logic to schools' by treating them as 'a potential market or a customer base', as well as the hotbed of 'a future customer base' (Bromley, 1998, p. 8; Apple, 1998; Cuban, 2001). Despite strong objections, the ICT rhetoric has been successful in advancing access of large populations to ICT, alarming educational communities, parents and authorities and accelerating the rate of introducing ICT in nearly every educational institution. Recent international figures illustrate that the integration of ICT lies at the heart of national educational policies and that levels of school and home computerisation are steadily rising (OECD, 2001; Eurydice, 2001). In particular, the latest Eurydice report (Eurydice, 2004), which includes empirical data from the PISA 2000 and PIRLS 2001 surveys, points out that:

- ICT is part of the compulsory curriculum of pupils in almost all European countries. In primary schools, the tendency is to treat ICT as an educational tool and in secondary education as both a tool and a subject in its own right;
- in most countries, basic training in the use of ICT for educational purposes forms part of primary and secondary teachers' initial teacher training experience;
- in the majority of European countries, the average number of pupils per computer varies between five and twenty among 15 year olds, but there are countries like Bulgaria, Greece, Portugal, and Romania, with an exceptionally high ratio that set out to reduce it. The level of school computerisation tends to mirror the level of home computerisation, but there are countries (again, Bulgaria, Greece, Portugal and Romania) in which home computers are widespread, while school facilities remain less developed.

These data might suggest that the problem of access to ICT facilities and ICT relevant experience is being slowly, but steadily, resolved. Yet, access is only one part of the problem and use of ICT and use, particularly in an innovative manner, is a totally different one. As the same Eurydice report (Eurydice, 2004) states:

- nearly half of primary school pupils report that they use ICT never or almost never at school. Frequency of computer use rises noticeably at secondary school level.
- the majority of pupils aged 9 or 10 report that the two most common computer activities at school are those related to writing using a word processor and searching for information.

Regarding increased frequency of ICT use among those aged 15, most secondary schools treat ICT as a separate subject, while writing and searching for information are not the innovative uses that most ICT promoters envisioned. In fact, there is a growing body of academic research which, for the majority of schools, draws a rather disappointing picture of classroom ICT use and appears to recognise the existence of a wide gap between access, use and quality use of ICT in schools (Murphy and Beggs, 2003; Reynolds et al, 2003; Kozma, 2003; Zhao et al, 2002; Cuban, 2001; Williams et al, 2000; Pelgrum and Anderson, 1999; Cuban, 1999). The outcomes of Cuban's study of Silicon Valley schools (Cuban, 2001) are typical of similar findings reported by several educational researchers in Europe and other parts of the world:

- compared to the past, students and teachers had far more access to ICTs in both homes and schools. However, classroom use of ICT continued to be unequal and infrequent. More than half of teachers did not use computers in their classrooms and less than 5 % of students reported that they had significant technological experiences at school;
- the majority of teachers did not blend ICT use into their curricular practices. Less than 5 % of teachers integrated use of ICT into the teaching of school subjects. Most ICT users perceived computer activities as enrichment or a valuable add-on and most students' use was peripheral to their principal learning tasks. Students' use was limited to completing assignments, searching and finding information in CD-ROMs and the Internet, while teachers' use was mainly restricted to planning and preparing for teaching, communicating with peers and parents and carrying out administrative tasks;
- most teachers thought of students' increased access to information as 'a phenomenal enhancement to their teaching' (Cuban, 2001, p. 94), but the changes brought by ICT use were incremental and related to communicational and administrative tasks. No revolution has taken place as a consequence of technology use and 'the overwhelming majority of teachers employed the technology to sustain existing patterns of teaching, rather than to innovate' (Cuban, 2001, p. 134).

In response to such findings, some researchers and educators appear to offer a 'slow revolution' or 'slow evolution' explanation, while others tend to emphasise the conditions of successful and innovative technology use. Yet, almost all propose extension of heavy promotion and considerable investment in terms of training provision, software development and purchase of equipment (Eurydice, 2004; Reynolds, et al., 2003; Kozma, 2003; OECD, 2001; Zhao et al, 2002; Cuban, 2001; Scheuermann, 2002).

The majority of the explanations offered cause confusion. As they concentrate on the level of teachers, students and school equipment, they define both the educational problem and the solution to it in a way that serves given needs, values, ideas and outcomes. To Papert, for example, findings like the ones mentioned above are illustrative of how the reform that sets out to change school is, in the end, changed by school. According

to him, the school is a 'living organism', which naturally 'resists the reform by appropriating or assimilating it to its own structures' and 'by doing so, it defuses the reformers and sometimes manages to take in something of what they are proposing' (Papert, 1996a; 1996b). If this is so, the solution lies within school's replacement with a different kind of structure.

It has always been true that new educational technologies are charged with remarkable pedagogical properties and dispositions and are often represented as the solutions to all education's ills. In reality, educational media and tools can only strengthen, further and reinforce established educational goals, curriculum contents and methods (Tsiakalos, 2002). Since this is what they are expected to do, their use will normally be assimilated into current educational practices and structures.

However, new technologies are created as a consequence of scientific advance. Even though they may have their own in-built assets and characteristics, they cannot become autonomous or be understood in isolation from the broader and more powerful social, economic, and political contexts and dynamics (Bromley, 1998; Apple, 1998). As their educational use becomes assimilated, it also mirrors, and to a certain degree influences, contemporary socioeconomic problems and prevailing educational conditions. Consequently, the incorporation and use of ICT in education may, for instance, reflect:

- the centralisation of official educational purposes and goals and the rigidity of school curricula;
- the multidisciplinary nature of content organisation and the dominant epistemological, economic and ideological beliefs about subject knowledge;
- the most traditional, conservative and unimaginative approaches to teaching and learning;
- the effects of a process, often called deskilling, which echoes teachers' separation from the conception of teaching and learning tasks and the reduction of their role to an executing one.

ICT use may, as well, influence the deskilling process further through the ubiquitous presence of pre-packaged electronic materials and resources. It may reveal the increasing overload and the intensification of teachers' work and stress it even more by being a significant add-on skill that they have to learn how to use. Finally, ICT use may illuminate class, racial and gender inequalities and, through the notion of a digital divide, it may also affect social divisions by making them deeper and stronger.

Consequently, the following question could come to mind: If this is all that the new, transformative and revolutionary ICT brings to education, then why should one bother with it?

The brighter side of ICT use in education

The negative view of the introduction and use of ICT in education is not the only one possible. Success stories seem to point out a variety of alternative and progressive possibilities:

'Michael, an 8 year old boy, could hardly read and write. He often hit hard, smacked and beat other children in and out of class. One day, after an incident of serious injury, Michael confessed to his teacher that he had been very angry for a long time. He was not seeing enough of his father, who lived far away from him and his mother. His teacher showed him how to use e-mail at school, to send to and receive messages from his father. In six months, Michael became a fluent reader and a capable writer.

Within the context of a project on secure energy connections, students of a disadvantaged region in Sao Paolo, visit the archive of a well-known newspaper to do some research. They discover that most of the news articles published about their community were related to violence, poverty, drug dealers, fires due to illegal energy connections and accidents. Everyone left the place upset, sad and disappointed about the public image of their community, and the media representation of their lives, worth and values. They felt that most people would consider them as just a bunch of bums from shantytowns. They decided to respond in a powerful way. If the press was not fair to their community, they would make their own school newspaper, to show people all the good things that happen there. Using digital technology they designed and produced their publication and even made an economic viability analysis. Their newspaper was also supplemented with a special issue on illegal and insecure energy connections, which have been the cause of fires, black-outs and a number of deaths in the community. By publishing information and pictures of safe and unsafe connections, they could inform people and help them in making their home connections more secure. (Summarised extract from Blistein and Cavallo, 2002).

These and hundreds of other stories, disseminated in books, articles and the Web, seem to tell a different story about educational computing. They represent the projection of the hopes and visions of a considerable number of researchers, parents and educators, who see in ICT 'a space to breathe' and 'a chance for liberating the learner, democratising and humanising the school'. Within this vision, ICTs are perceived as a collection of powerful cultural artefacts, pleasurable gadgets and intellectual tools, which support collective work, can motivate the most inert and discouraged learners, enable the disadvantaged to access learning and 'participate actively in the production of culture by creating their own cultural forms and engaging in discussions of public issues' (Kellner, 2000, p. 206). Liberating use of ICT both at home and school makes better and makes possible a range of intrinsically enjoyable human activities, such as development of ideas and construction of things, expression in multi-modal and multi-semiotic ways, interaction in critical, challenging and sometimes pro-

voking ways, and creating meaning through communication, questioning and inquiry.

With these metaphors in mind, many ICT promoters repeatedly predict that the incorporation of ICT will eventually pose significant challenges to education. Success stories, they say, such as the ones previously described, will stimulate reflections about pedagogy and trigger discussions about the role of school and the role of teachers. As a consequence, ICT will act as a catalyst in teachers' pedagogical thoughts and beliefs; it will disturb established routines and provide the incentive for a radical shift to progressive teaching and learning practices. Unfortunately, this revolutionary vision has yet to be realised. Even though the interest in debating and discussing the transformative role of ICT in education has grown exponentially, little has changed in the reality of the majority of classrooms; this is because it is not only teachers that need to change, but the whole educational establishment. Bromley's lucid description of this necessity is characteristic:

'Although isolated success stories are sure to crop up even under current conditions, like weeds in the cracks of the status quo, by themselves they are unlikely to have much lasting effect. For these growths to flourish into a thriving patchwork of alternative practices, it will be necessary to modify the terrain' (Bromley, 1998, p. 22).

Without a doubt, the emancipatory view of ICT use can only be realised in the context of alternative educational settings, which:

- value autonomy, flexibility, and diversity,
- build education on students' needs, interests and aspirations,
- encourage understanding, reflection and analysis,
- involve interdisciplinary and integrated curricula designs and practices,
- follow project-based, child-centred, holistic, anti-racist, experiential and participatory approaches to teaching and learning.

So, what exactly does a progressive educational setting look like with respect to ICT? The controversial and deeply rooted differences between the following two episodes can serve as an avenue for stimulating reflection on this issue.

Episode 1: As the students come into class today, one boy shouts out, 'Are we going to the lab today?' The teacher answers, 'We've got those sheets again and the tapes ...'. Invariably, when hearing that it was a worksheet day, students would start to grumble, one rather loudly, 'that man's so unexciting,' 'I hate this, this is boring,' 'do we have to do this all the time?' 'I cannot stand this class,' 'this isn't computer class, this is worksheets ... what do we learn, nothing ... how to push a button' (referring to the tape recorder). One student turned to one of us and referring to the worksheets, complained, 'We know this stuff already, maybe not these fancy words ... but we know this stuff'. Although the students complained about the tapes and the worksheets, they did not disrupt the class routine ... Their attitudes were for the most part ignored or made light of by the teachers, who appeared to regard a certain amount of negativism and complaining

as typical adolescent behaviour in school. (Extract from Apple and Jungck, 1998, p. 144).

Episode 2: Over the years of our operation, older teenagers, particularly teenage males, have been difficult to recruit. A fair number would drop in, have an initial experience, and drop out again. We puzzled over this: the standard applications like word-processing or graphics did not make it, even as an employment skill; the simulation games apparently weren't exciting enough. We had a little luck with cartooning for a while, but when we wouldn't allow them to create porn, that too palled. Our greatest success to date has come with the advent of multimedia.

Two or three teens ... came up with the idea of creating a kind of electronic Harlem directory. It started with a subway map and some text about what to find in the area of each station (and what to avoid), along with some scanned pictures of the location. This idea caught on, and the initial group has now expanded well beyond our expectations. The project, too, has grown. Named by its creators *What's Homey about Harlem*, has become more than an annotated subway map. It now shows where each of them lives. It has pictures of their families and friends and of favoured spots in their neighbourhoods. Some have used a camcorder to do live interviews and have incorporated segments of their videos in the directory. Each person works on the elements they find most rewarding. All learn the processes of integrating their work into a single multimedia database. And best of all, they keep coming back and bringing others with them'. (Extract from Stone, 1998, pp. 189-190).

Both episodes appear to share modest similarities and a variety of differences. First, they are both taking place in settings with a purpose to educate; as such, the main actors involved are teachers and students. Second, in both incidents the educational goal is common. It is concerned with the development of computer literacy skills. However, each setting defines it differently, and in turn these diverse definitions are being translated into contradictory teaching and learning approaches.

In the case of Episode 1, computer literacy is perceived as an academic subject of an encyclopaedic nature with its own content knowledge that has to be covered and be deposited into pupils' minds. So, a 10-day computer literacy unit was planned, which because of organisational pressures, consisted of two filmstrips, a prepackaged commercial curriculum containing tape-recorded lessons and corresponding worksheets. As the extract provided reveals, students' dissatisfaction, anger and disengagement were evident. Most of the time they were required to sit quietly in a class and listen to lesson recordings transmitting information about the history of computing, the way computers operate, description of input and output devices, features of programming in BASIC and effects of computers on society. Three out of the ten days of the unit students used the computer lab and these were the most enjoyable ones, whereas the final day they were given a short answer test for assessment purposes.

Episode 2 takes place in an informal educational setting, which is a com-

munity computer centre. In this case, computer literacy is seen as a collection of knowledge and skills that one may choose to obtain and develop if he/she finds a personal meaning to it. This collection is not predetermined, but personally constructed, and, consequently, there are no standards and objectives to be met, no testing and examining, no lectures and textbooks, no tape-recorders or worksheets, and no teachers to supervise students as they go through subject matter. It is a discursive location where people come on a voluntary basis to master technology as a personal tool, because they want to and because they feel they might be able to learn something valuable for their lives. As a consequence, visitors and participants choose and have complete control over what to learn about digital technology and how to learn it. Staff teachers are there to help people identify what is that they want to learn and support them in achieving it.

Many of the structures and processes of the school described in Episode 1 represent one of the most unimaginative models of education, that has been repeatedly and severely criticised for making school an out-of-date establishment and an oppressive organism that wastes young people's lives, consumes their creativity and, by definition, excludes the most vulnerable ones from the adventurous, exploratory and pleasurable experience of learning. In contrast, many of the attributes of a community computer centre, as already seen in several projects involving ICTs and focusing on community development and empowerment (Dillon, 2002), are inherently comparable to the characteristics of a human and democratic school. Within an experiential environment, an attempt is being made to adapt the teaching process to the needs and the interests of individual learners, as well as help them experience collaboration towards common goals. As a result, everyone is entitled to participate and no one is excluded. Respect for difference and diversity is evident and free flow of ideas is greatly valued. Homogeneity is not a necessity, as the curriculum 'is not part of a selective tradition or someone's vision of legitimate knowledge' (Apple, 1993), but it is what participants make of it through their personal choices, which obviously reflect their personal and community needs, histories and cultures.

Apparently, this line of reasoning does not promote the idea that schools should become community centres, but it is significant to add that schools should act as 'learning centres' (Halfpap, 2001). As a consequence, they can learn a lot from the informal character, the freedom enjoyed, the collective capacity and the participating attributes of a community centre. Within the context of a human and democratic education, the role of ICT can be described as two-fold:

- ICT is by itself an interesting and important educational theme, one of the necessary 'keys' for 'unlocking' understanding and participating in the world;
- use of ICT tools can enhance, promote and extend the practices of a human and democratic educational setting.

In particular, the appreciation, critical analysis and reflective consider-

ation of the changing technological landscape of the economy and the cultural, social and educational implications brought about by the use of ICTs in human activity may be regarded as issues of considerable importance. Awareness of ICT involvement in the construction of power and consideration of the exclusions and oppressions introduced by its use may enable understanding of larger social problems that arise in the course of students' individual and collective lives and may help them foster the development of a more humane technological future.

In this context, ICT literacy is enhanced with a strong critical dimension, which calls for students' scepticism and puts constantly into question technological suppositions and discourses. In addition to this aspect, ICT literacy may be considered as part of a range of multiple critical literacies (Drenoyianni and Mylona, 2004), which require students to 'read' their cultural and social worlds and 'write' their own contribution to them.

'Surely education should attend to the new multimedia culture and teach how to read and interact with new computer and multimedia environments as part of new forms of multiple literacy. Such an effort would be part of a new critical pedagogy that attempts to empower individuals critically, so that they can analyse and criticise the emerging technoculture, as well as participate in its cultural forums and sites' (Kellner, 2000, p. 211).

As a result, ICT literacy may develop through experimentation and exploration as students engage in critically processing, analysing, interpreting, communicating and evaluating words, images, videos, sounds and multimedia contents. But it may also develop through spontaneous play and free investigation of the technological possibilities available in the course of collaborative projects.

'Two fifth-graders, Monalisa and Gleidiane, were not so excited about Lego, but they liked arts and photography a lot. Monalisa painted a picture in the first day. Then they began exploring the other arts materials, making small figures and miniature furniture in clay. They decided to build a house to put their furniture inside, doing a little claymation. They were extremely happy with it, but I had a concern: their house had nothing technological. There were no robotics, no programming, no digital stuff. We care about those technologies because they open up many possibilities that conventional materials do not allow. I was tempted to give some ideas about how to integrate robotics into the house, but it was clear to me that it would be an imposition from my part. However, something else happened: two other girls, Mauriza and Edilene had the idea of adding some robotics to the house, like an automatic front door and timers for the lights, so that the house would save energy. The original creators of the house continued together with them for a couple of hours, but then decided to leave and do more painting ... That illustrates that having a multiplicity of expressive tools and a convivial space opens up new possibilities for real collaborative work. The fruitful collaboration between the 'architect-girls' and the 'engineer-girls' was one example of the synergy that can take place in such environments. Neither group gave

away their ownership of the idea and the project, but kindly agreed to share the credit for a collective work, to which each one contributed their own interests. That is, in fact, how adults work on projects, but very uncommon in school' (Extract from Blikstein and Cavallo, 2002).

This incident brings us to the second major role that ICT can play in a human and democratic educational setting. There is no doubt that ICT use can extend, further and promote human and democratic practices, experiences and structures by offering students and teachers a multiple set of media and tools for expression, interaction, creation, reflection, analysis, construction, communication and creating meaning. In this respect, digital technology is used whenever there is a meaningful purpose for it, when students choose to use it and find it is the best possible tool or medium at hand. Within this line of thinking, constructive, dynamic and expressive technologies, in addition to enabling collaborative, research-based and child-centred ways of approaching teaching and learning, can provide access to controversial contents, contradictory cultures, diverse ideas, values and genders. This enhances and broadens students' window to their universe. They enable students to explore and understand their own social, cultural and historical geographies in comparison to those of other people. Finally, and perhaps even more importantly, digital technologies enable creation, production and dissemination of the students' own contents, knowledge constructions and projections of the world.

Ironically, one must admit that the many liberating and creative capabilities of ICT use have already been realised by a significant number of children around the world. These are the kids and the teens, who talk about themselves and their lives through their own pages published on the Web, who interact, communicate and create virtual communities and brotherhoods by playing games, by participating in discussion groups and chat rooms, who gain valuable, and not only technical, skills and knowledge by just playing with digital contents and equipment and browsing the worlds of technology. Nevertheless, two things need to be pointed out with respect to these children's experiences:

- these are the experiences of a group of children, not of all children;
- most of what these children do, learn, make, and experience with ICT tools does not take place inside school, but outside of it.

This line of reasoning, coupled with the school stories of tape-recorded computer literacy lessons, may lead some of us to conclude that ICT will revolutionise education by causing schools to disappear. To others, the sad story of computer class students is a reminder of how useless can ICT use be when embedded in the practices and structures of a tyrannical and rigid educational establishment. Hopefully, there are other stories too. These are the stories of children like Michael, architect and engineer girls, students from Sao Paolo and teens from Harlem, which encourage us to keep warm the hope and the vision that ICT use in education represents a unique opportunity for school revitalisation, a remarkable chance for human and democratic education.

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Work identities in comparative perspectives: the role of national and sectoral context variables

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SUMMARY

New normative ideas about flexibility, employability and lifelong learning are shifting labour market requirements as they induce flexible employment patterns and new skilling needs. While the model of a typical progressive career based on possession of a particular set of (occupational) skills has been largely undermined, employees are increasingly challenged to secure their employability by constantly adjusting their skills profiles and manage their own individualised careers. Such trends increasingly affect workers at all skills levels in both production and service sectors. Several indicators and studies support the hypothesis that a new entrepreneurial type of worker, characterised by individualised sets of skills, internalised control mechanisms and the prioritisation of transferable over technical skills, will gradually become the new prototype highly desired by managers and human resources development experts. Based on findings of the 5th EU framework project '*Vocational identity, flexibility and mobility in the European labour market*', this paper argues that most employees in Europe at intermediate skills level are lacking the resources and capacities to fulfil the requirements of potentially developing into an entrepreneurial type of employee. The focus of this paper is the extent to which different national and sectoral contexts can create a supportive or an adverse environment for employees to develop the ability to deal with great changes at work.

Key words

Vocational identity, flexibility, work concepts, vocational training, career orientation, professional development

Introduction

Work identities vary in both the intensity with which they are held and the significance individuals ascribe to them (¹). They may or may not be of great significance to an individual and they change in their meaning for the individual over the life course and the personal occupational trajectory (Heinz, 2003). As work identities are subject to change and adaptation, they are highly dynamic and dependent on a variety of factors and conditions (Brown, 1997). Still, the concept of work identity can provide a useful means of understanding how individuals relate to their working life and project their future professional development. Further, the theory of work-related socialisation assumes that work identities play a decisive role in helping individuals to define professional orientation and to develop work attachment and commitment (Heinz, 1995; 2002).

While work continues to remain a formative element of the overall identity of an individual, it also constitutes a medium for personal self-realisation and the implementation of biographic intentions and interests. Thus, work in its institutionalised form not only serves social reproduction purposes in a materialistic form, but it also has a vital function in its role as an identity- and sense-giving purpose throughout the life course (Hoff et al., 1985). In addition, work and employment represent one of the key links for conveying social relations. Being integrated into a work context and/or pursuing an occupational specialisation is a major source of the feeling of one's own value, and the means by which someone presents himself to the outside world (Goffman, 1969).

The dynamics between identity formation and the integration into work contexts are certainly changing as employees in Europe are increasingly challenged to meet demands for flexibility and mobility at work (FAME consortium 2003, Kirpal 2004a). Responding to continuous changes at work not only affects employees' professional orientations and career patterns, but also requires that individuals develop specific learning and work attitudes that enable them to engage actively (and positively) in work processes to ensure their successful integration into different work settings and the labour market as a whole. Work identities can help to foster this integration process.

However, internalised work identities can also restrict people in their flexibility by confining them to certain professional roles and preventing them from developing broader occupational orientations (Loogma et al.,

(¹) The term 'work identity' makes reference to any kind of identity formation processes that develop through the interaction between the individual and the work context, including vocational education and training. Essentially, vocational, occupational or professional identity can be used as synonyms, but each of these terms may more specifically refer to certain features or a specific concept of work. For example, occupational identity may be more applicable to labour markets and work concepts that are structured along occupations, whereas professional identity is typically used in connection with the so-called professions. Work identity is supposed to be the most inclusive terminology in this context.

2004). The dynamics between developing strong work identities and being able to respond to new flexibility paradigms and changing work demands has been the research focus of the 5th EU framework project *Vocational identity, flexibility and mobility in the European labour market (FAME)*. How individuals develop certain mechanisms and patterns of strategic action in order to deal with those dynamics has been at the heart of several publications in connection with this research project that involved partners from the Czech Republic, Estonia, France, Germany, Greece, Spain and the United Kingdom (UK) (Brown, 2004; Brown et. al., 2004; Dif, 2004; Marhuenda et al., 2004). This article, however, does not so much discuss individual strategies, but shifts the focus of attention to the structural embedding of work identities by looking at how different national and sectoral contexts may influence identity formation at work. The role of vocational education and training (systems) is being looked at more closely as a mechanism at institutional level that connects work-related socialisation with labour market developments. Discussing the role of vocational training in different contexts will help to understand the interdependence between institutional structures, occupational socialisation and the formation of work identities.

Work concepts and employment arrangements vary considerably between European countries and sectors. As employees develop their work identities in the framework of different national and sectoral contexts, we can expect great diversity in how they are being equipped and prepared to handle changes at work and shifting skills requirements. The following paper highlights some of these differentiations by synthesising research findings from the above project.

Methods

Work identities develop in the course of complex negotiation processes at the interface between personal resources, attitudes and values on the one hand, and work processes and settings on the other hand. They manifest themselves in the interplay between individual dispositions and structural conditions of the work context. In terms of the structural conditions, the project tried to take account of national economies, sectors/occupations and the company environment. Those were regarded as independent variables that create different kinds of restrictions and opportunities to which employees are challenged to respond. For example, the national vocational education and training system, sector-specific patterns of employment in terms of working hours, salary levels and demands on flexibility, and particular occupational traditions influence how specific work settings evolve. At the same time companies shape employees' immediate working environment as they respond to macro-level requirements by adjusting, for example, their organisational structure, job profiles and recruitment policies. In addition, they may actively try to shape work-related identities and

attitudes of employees through their human resources and recruitment policies (FAME Consortium, 2003).

While the first project phase consisted of a literature review to clarify how concepts of work and work identities are nationally and historically embedded in the respective partner countries (Laske, 2001a), the sectoral and company-specific context variables were assessed through an empirical investigation with managers and representatives of human resources departments conducted in 2001 and 2002. The objective of those interviews was to assess an organisational perspective and employers' expectations of employees' learning and work attitudes. The focus was on exploring structural conditions that would specify organisational structures, work profiles and skilling needs, and how managers assess changes at work (in terms of flexibility, mobility, work organisation, working conditions and recruitment policies) that have occurred during the last decade. Interview questions also related to how managers experience and value employees' capacity to deal with those changes and how this might affect employees' work attitude and identity formation at work.

The project applied semi-structured interviews that were based on common interview guidelines and evaluation criteria and complemented with case study methods. To account for varying structures of work organisation and settings, the research covered various occupations across five contrasting sectors and seven different national economies as well as small, medium and large (including multinational) companies (see figure 1 for detail). The combination of countries represented different cultural, socio-economic and political embeddings of work concepts and occupations. The core partners, Estonia, France, Germany, Spain and the UK, conducted large sample interviews, each involving at least seven companies per sector (N=132). The Czech Republic and Greece assumed the role of critical observers, contrasting the research findings of the core partners with results from small-sample empirical investigations.

The guiding principle behind sector selection was diversity, to represent

Figure 1: Overview of the investigated sectors in each partner country

		Sectors of investigation					
		Metal/ engineering	Timber and furniture	Health care (²)	Telecomm.(²)	IT sector (²)	Tourism
Partner country	Estonia		x	x		x	
	France	x		x	x	(x)	
	Germany	x		x	x	x	
	Spain	x		x			x
	UK	x		x	x	x	
	Czech Rep. (¹)				(x)	x	x
	Greece (¹)						x

(¹) Czech Republic and Greece conducted small-sample empirical research.

(²) Samples in telecommunications and Information technology (IT) comprised many 'overlapping' cases due to an increasing move of firms towards providing integrated telecom and IT services.

different occupational traditions and work settings, on the one hand, and different dynamics and challenges in terms of flexibility and mobility, on the other. This article synthesises the results from the literature review and the empirical investigation with managers and representatives of human resources departments, looking more closely at the 'independent variables' of work identity formation. The dependent variables, the kinds of strategies that employees develop to deal with great changes at work and how this affects their levels of identification with work (or their employer) can only briefly be touched upon in the framework of this article. Results from interviews with over 500 employees at intermediate skills level that analyse in detail employees' patterns of adjustments are published elsewhere (see above).

National contexts: the historical-cultural embedding of work identities

Work concepts are defined differently in different European countries and, consequently, vocational training systems assume different functions in how they respond to labour market demands and skills developments. When looking at France and Germany, for example, we find a relatively stable continuing development of occupational structures and closely related vocational training systems. Occupational employment arrangements and training systems are geared towards responding to emerging labour market demands as training structures and vocational tracks are constantly being adjusted.

In Germany, the concept of *Beruf* has, over centuries, shaped occupational identities, attaching them to the prestige of vocational preparation, qualification standards and professional norms and ethics. Having its origin in the medieval age, this concept has also influenced other parts of continental Europe, establishing a strong connection between skills acquisition and occupational labour markets. In this context, the socialising function of apprenticeships (traditionally in crafts and trade) and vocational education and training played a central role for work-related identity formation processes (Laske, 2001b). As the basis of the dual training system, the concept of *Beruf* still presents the dominant organisational principle for vocational education and training and labour markets in Germany, largely defining skills requirements and adjustments (Greinert, 1997). Initial vocational training continues to play a strong role for socialising young people into acquiring an occupational specialisation, which is linked closely to belonging to certain professional communities through occupationally defined categories with which individuals identify.

Through this system, the relative position of the vocational track, as opposed to the academic route, has traditionally been very strong in Germany, much stronger than in other countries (Lane, 1988; Cantor, 1989). Indeed,

even with very little cross-transfer into, for example, universities, not only was apprenticeship training highly regarded, but there were (for young men, at least) plenty of opportunities for progression in employment and to obtain further technical or supervisory qualifications (Sauter, 1995). However, with the academic route having become more popular during the last two decades, there are great concerns that the status of the vocational track could suffer (Nijhof et al., 2002; Stenström et al., 2000; OECD, 1998). These concerns are linked to the collapse of the virtual guarantee of progression into well-paid, skilled permanent employment, with prospects of further progression, for a sizeable proportion of the apprentice cohort. Reuling (1998) argues that the combination of training for an occupation and training through an occupation is a particular strength of the German system. If the link with progression in employment is broken, then that makes highly specialised vocational education a riskier proposition.

France also has strong occupational traditions and work ethics. At the same time, France is pursuing the incorporation of flexible, diversified vocational training schemes. In the early 1970s a continuing vocational training (CVT) system was introduced as an instrument to promote employee flexibility, learning and professional development by assuming work tasks of higher levels of qualification and responsibility. Designed to complement initial vocational education, the French CVT system aims at promoting access to further learning and training for workers of all skills levels to combat exclusion effects generated through the French formal education system and to foster the accreditation of work-related learning (Dif, 1999; Michelet, 1999). Through this system, French employees are entitled to pursue self-directed learning, usually in the form of training projects financed through the employer's compulsory contribution to the CVT system.

This way of strengthening work-related learning significantly influences concepts of human resources development in France. For example, over two thirds of all employers that offer CVT are actively pursuing a strategy to enhance labour flexibility and mobility (Simula, 1996; Charraud et al., 1998). However, an evaluation of this approach indicates that employee flexibility and career development are not only determined by the provision of training, but structural factors such as the size of the company, its organisational structure and human resources policies; sector specificities also play a significant role (Dubar et al., 1990). The trend towards flatter hierarchies, for example, has significantly restricted opportunities for upward mobility of employees.

While continuing vocational training aims at enhancing employee flexibility and career progression, the development of occupational identity has been undergoing significant changes during the last three decades. According to various studies by Sainsaulieu (1977, 1985, 1996, 1997) and Dubar (1992, 1996, 2000), work identities in France are increasingly becoming atomised and scattered. Concurrently, the type of employee whose work identity is shaped by a high level of interactivity with work, the anticipa-

tion of adjustment and the ability to deal with changing work settings, is growing in significance. For those employees, CVT has become an important instrument for pursuing greater flexibility and increasing access to career opportunities and higher professional status (Barbier, 1996).

While the German dual system demonstrates particular strength in providing high quality vocational preparation, it is less flexible and innovative and, at the same time, much more diversified through the principle of decentralisation. The French system, by contrast, has incorporated a certain level of flexibility into its systems of vocational training. Particularly in responding to new skill requirements due to technological change, the German dual system still has difficulties in adjusting to new demands. However, both countries show similar concepts of work, work ethics and occupational structures that significantly influence how employees develop forms of work identity.

If we look at Estonia and Spain, we are confronted with a situation of transition. Over recent decades both countries have encountered some major instabilities and discontinuities in the development of vocational education and training, institutional structures and labour market configurations. Combined with unstable and weak national economies, these disruptions make it particularly difficult for employees to develop a stable occupational orientation and progressive career.

Countries in transition to a market economy, like Estonia, are facing a complex reorientation process. Over three historical very distinct periods, the pre-communist, the Soviet and the new transition period, their labour markets and vocational training systems have undergone various transformations, each characterised by a radically different political and economic orientation and concept of work. Until the early 20th century, Estonia - similar to the German model - established a close connection between vocational training, skills development and related occupational identities that would interlink with occupational labour markets. The Soviet regime embedded the discourse of the meaning of work and work identities in Marxist-Leninist ideology fostering a strong worker and proletarian identity that went alongside the push for industrialisation and a value system that particularly rewarded manual work. In vocational training, this system established a rigid one-to-one matching between vocational specialisation and work profiles upon which the entire economy and education system relied.

The highly formalised and centralised Soviet system with stable working conditions, limited career progression and virtually no threat for unemployment, produced a rather passive worker attitude with little interest in mobility, flexibility, further training or skills enhancement. Today, this kind of work attitude clashes with emerging demands and working conditions induced by the market economy and democratisation. Like many other post-communist countries, Estonia has to deal with structural unemployment aggravated by a mismatch between the available skills of the labour force and the skills demands of the market economy. During the past decade, great demands for occupational mobility pushed the devel-

opment of retraining measures, multi-skilling and flexibility in the light of establishing new job requirements and occupational profiles. The effects of vocational socialisation of the past, however, cannot just be wiped off. Today, most workers not only lack the required specialised skills, but also the ability to adjust, to communicate, to assume responsibility or to take initiative (Joons et al., 2001).

Estonian employees are only slowly acknowledging that work identities have become less prestructured and ideologically influenced, but are instead dependent on an individual's active construction, largely building on performance and professional progression. Large-scale retraining programmes in many occupational areas are fostering this approach. For example, nurses in Estonia have to undergo retraining and pass examinations according to newly developed curricula to demonstrate that they comply with modern work requirements and the expected work attitude. In the course of adjustment, acquiring new skills and raising their professional status as qualified staff, nurses also develop new forms of occupational identity and professional pride (Kirpal, 2004b).

Spain shows some similarities with the transition countries in that historical periods created fragmentation and discontinuities of concepts of work and the Spanish vocational training system. Those discontinuities are a major factor for perpetuating the inadequacy of skills preparation and unstable work identities that employees experience today. Historically, two incidents initiated an intensive transition process that significantly influenced the Spanish labour market and training system. First, the end of the Franco era in 1975 radically transformed the political environment after the political and economic isolation of the country for 40 years. Second, joining the European Union in 1986 set a new framework for the Spanish economy.

The Spanish vocational education and training system used to be highly diversified, unregulated and of poor quality until the early 1990s when the formal integration of work practice into the curricula of vocational qualification programmes significantly strengthened the connection between skills acquisition and skills demands. Although the quality and adequacy of vocational training has improved significantly since then, high rates of unemployed youth and school-to-work transition of young people continue to remain major problems. Regardless of the level of qualification, the labour market gives little opportunities to young people to find long-term employment and to develop a progressive career. As many jobs in Spain still require low qualified or semi-skilled workers, large numbers of young skilled workers end up being over-qualified for the jobs they are occupying. In addition, many employees struggle with the seeming lack of recognised occupational fields and the low recognition of formal vocational qualifications. Employers rather value continuing vocational training over formal qualifications, particularly when it comes to opening up career opportunities for their employees.

In Spain, the research undertaken could clearly connect the devaluation of formal vocational qualifications with employee difficulties in de-

veloping stable work identities and confidence in their personal skills (Marhuenda et al., 2001; Kirpal, 2004a). For most, working conditions are unstable so employees need to be extremely flexible. This kind of flexibility, however, means continuous adjustment that gives individuals little control over their own professional development and career direction. Subsequently, employee work identities are frequently subject to change depending on the job situation and employment conditions. The lack of recognition of their vocational skills and qualification combined with the unstable Spanish economic situation - high rate of unemployment, unregulated labour markets, diversified vocational training systems and a high demand for low qualified and unskilled workers - makes employees particularly vulnerable to the employment contract they are holding. An individual solution to those circumstances seems to be pursuing employment within the public sector. Today, to become a civil servant is highly aspired by most Spanish citizens as it presents one of the few opportunities to achieve a somewhat stable working situation, which promises continuity and career progression over a longer period of time (Marhuenda et al., 2001).

The different national examples illustrate how strong and continuous occupational traditions can provide a framework to guide and support individuals in developing work-related identities. This is particularly the case for countries where vocational training systems and occupational areas are highly formalised and linked to occupational labour markets, as in Germany. Here, the recognition of vocational qualifications and related job profiles give employees an orientation and a sense of stability when making the transition into the labour market. Even if today most of these structures are in transition and have become unstable, changes are more likely to be gradual, giving individuals some time for making adjustments.

By contrast, countries with disrupted and highly diversified work and labour market traditions often lack the institutional support for developing strong vocational training systems. Vocational qualifications lack recognition and are, to a certain extent, disconnected from labour market requirements. Under these circumstances, employees encounter difficulties in developing stable occupational orientations and progressive career perspectives. Not only are employees challenged to take a much more active part in defining and identifying relevant elements at work they can identify with, but, at the same time, they have to respond to processes of redefinition of their work identities in the context of fast changing job profiles and skills requirements. This is the case in Estonia. The process of transition pushes for new work requirements, qualification standards, training schemes and newly emerging occupational fields with which the labour market has to adjust and the workforce has to internalise. In addition, an interesting aspect of the example of the transition countries is that it shows us how changing concepts of work and work-related identities can be made instrumental in satisfying political or economic purposes. In the context of reorientation, emerging professional communities and interest groups can

play a new central role as they provide a framework for developing collective forms of work identities.

Finally, the UK presents a model where the labour market has never been fully structured along clearly defined occupations and professions, and has become increasingly reliant upon a high level of flexibility, deregulation and fluidity of work profiles and skills requirements. This more open and less formalised system does not place emphasis on an individual's attachment to specific occupations but on an individual's skills development, acquisition of a set of knowledge and competences, work experience and a proactive work attitude. Particularly since the collapse of apprenticeship programmes from the late 1970s, specific work-related or technical skills are usually trained on the job, thus strengthening the importance of general education and work-related learning against vocational education and training (Brown, 2001). Further, work-related learning and vocational training are usually linked to very concrete work settings, instead of preparing the individual to assume a general set of work tasks in an established occupational field.

One characteristic of the British vocational training system is that access to most types of employment is more or less unregulated in terms of preconditions for job access (Tessaring, 1998). This is coupled with weak recognition of qualifications generally, such that it is quite difficult for those completing particular vocational training programmes to be clear about their subsequent progression (Brown, 1995). The situation is highly flexible: it is possible to enter many jobs without particular qualifications and to continue working without necessarily becoming formally qualified subsequently. Hence, much learning while working, and even in more formal training events, is not externally recognised. The generally underdeveloped intermediate skills level in the UK presents a complex, multifaceted issue that cannot be addressed in this paper. One consequence, however, is that many more graduates fill intermediate level jobs in the UK than elsewhere in (northern) Europe, for example, Germany and the Netherlands (Lloyd et al., 1999). Further, graduate recruits are assumed to have better developed generic or core skills such as communication, social and coordinating skills, which in UK training and work contexts are typically prioritised over developing specific technical skills.

The lack of a common model for vocational education and training, skills development and occupational identity formation in the UK also means that there is enormous variation in these processes across sectors and occupations. Therefore, work identities are highly individualised and dependent upon the specific work context, job profile, individual skills composition and career orientation. The economy as a whole is less structured around occupations or professional communities, although such communities are still important in some sectors. It is not that occupations are not significant; it is rather that they are of less significance than in other European countries.

What could be identified as a general trend in all countries under investigation was that employees increasingly need to develop multi-

dimensional (individual and collective) occupational identities that can be adjusted according to socio-economic and technological change. In the light of the general decline of collective forms of work identity, self-initiative has gained significance for the individual employee. This means that the responsibility for forming an attachment to the work context and developing forms of identification with work is almost entirely left to the individual and increasingly manifests itself as an open and unsystematic process. In the five countries we looked at, institutional mechanisms that could guide and support the individual when making adjustments to their work identities and skills are highly underdeveloped. Learning and vocational socialisation seem to play a decisive role in this context. In Germany and Estonia, for example, employees showed great difficulties in reorienting and adjusting their work identities to changing work settings since those had been embedded in stable frameworks until around 10 or 20 years ago. By contrast, UK employees seemed to have learnt how to cope with individualised forms of work identity, sometimes to an extent that lack of commitment and frequent job changes can present a great challenge to employers (Brown et al., 2004).

The influence of sector specificities in forming work identities

As well as national contexts, sectors and/or occupational groups have specific characteristics, which influence identity formation processes at work ⁽²⁾. At the sectoral level, the research project identified two features that seem to be of particular significance: the degree of formalisation of occupations and learning (including initial and continuing vocational training) and the dynamics of change, including demands for flexibility and mobility. Taking into account those features, the sectors investigated could be grouped as being either highly formalised or unregulated, and being either highly dynamic or less so regarding changes concerning, for example, job profiles, skills requirements, learning, organisational structures, etc.

These structural features of each sector are often, for their part, also dependent on certain traditions, which, in some cases, overlap with their national embedding. This might have, over time, brought about a very specific combination of these features. However, this seems to be the exception ⁽³⁾. What we found was that sectors show their specificities across countries, thus, to a significant degree, superimposing national influences and the historical-cultural embedding of work identities ⁽⁴⁾. This clearly indicates that international and globalising trends have a strong impact on

⁽²⁾ These features are analysed in depth for each of the sectors of investigation in *Career Development International*, 2004, Vol. 9, No 3.

⁽³⁾ The sector of metalwork/engineering, for example, was characterised by being highly heterogeneous in certain combinations with national specificities.

work identities. However, it also suggests that work tasks and job profiles, which seem to be relatively invariant of national or cultural particularities as they are largely determined by the nature of work or occupation itself, significantly influence work identities.

For example, for each sector a basic element could be identified that is characteristic for the particular work to be performed. These elements represent a specific 'sectoral culture' that seemed to be decisive at the level of what employees identify with in their work context. Additionally, these elements often attract employees and may be a key motivating factor for

Figure 2: National contexts: the structural embedding of work identities

		Country				
		Germany	France	Estonia	Spain	UK
Condiciones estructurales	VET	Highly formalised; dual apprenticeship training	Highly formalised, mainly school-based	Undergoing severe adjustment	Diversified, unregulated; lack of recognition	Weak against general education and training-on-the-job
	CVT	Mainly state-regulated; mechanism for labour market integration	Flexible; complementing initial VET; employer-supported	Large-scale retraining programmes (state- and employer-directed)	Diversified, partly employer-directed; partly substituting initial VET	Demand-driven, modularised; mechanism to foster transition between different educational tracks
	Work-skills profile	Highly stable	Adjusting	Reorientation; mismatch between skills of the workforce and skills demands	Many jobs require unskilled labour; striving for standards	Highly flexible and deregulated; fluidity of job profiles and skills requirements
	Special features	Strong links between skills acquisition and occupational labour markets	Labour market is driven by formal qualifications	Discontinuity through changing political systems	Discontinuity, lack of standards; high rate of unemployment	Liberal market economy with flexible labour markets
	Overall direction	Stability	Flexibility	Meet new standards	Skills enhancement	Individualisation

(*) The primacy of sector-specific features and their strong influence on work-related identity formation strengthened the project's approach of concentrating the research analysis on sectoral instead of national perspectives. The first level national analysis was regarded as a tool to facilitate a sector-wide integration of research findings.

choosing to specialise in a particular occupational area, and can be important in constituting employee occupational identity. In metalwork, for example, working with the specific material and work processes involving at least some degree of manual or mechanical work constituted a significant element workers identified with. The same was true for the technical interest of employees working in the telecommunications and IT sector, whereas for nurses the caring aspect and taking responsibility for people seemed to be decisive. Employees working in tourism mentioned that social interaction and communication were basic elements that made them identify with their work.

The role of vocational education, training and skills

A shift in skills requirements from technical knowledge to the increased importance of generic and communication skills combined with a high demand for multi-skilling could be observed in all sectors. At least two dynamics require such a new skill balance: work organisation along flatter hierarchies and teamwork, and the tertiarisation of the economy that becomes increasingly service-oriented, giving the client a new role in the economic context. The latter implies two consequences in practice: a high level of client interaction at the intermediate worker level, and the fact that clients and customers in general have become much more demanding with very concrete ideas about the quality of service they expect. This leads to a new competitive structure, even for established service sectors like nursing or tourism. The initial vocational training structures gradually acknowledge these new skills requirements and where reforms have been implemented during recent years, training systems have tried to respond to these demands ⁽⁵⁾.

Multi-skilling comprises a whole range of expectations from employers: "The profile of a multi-skilled IT technician constructed by employers contains a variety of aspects such as confidentiality, language skills, hybrid technical skills, communication skills, readiness for changes and continuous self-development, stress handling ability, team working skills and a general knowledge about administration" (Loogma et al., 2004, p. 329). However, there were also examples where generic and communication skills were regarded as secondary by both employers and employees, particularly in areas that required mainly manual, mechanical or purely technical work, as in some segments of the metal working industry or the telecommunications and IT sector. The desired skill mix often seemed to depend upon how far companies integrate teamwork in their everyday work practice. A great shift was observed, for example, in metalwork/engineering

⁽⁵⁾ For example, the creation of the German dual apprenticeship programme for the new IT professions, implemented in 1995, or the new curriculum for nurses in Estonia, incorporate a significant number of modules that focus on fostering communication skills.

in recent years, where transfer of responsibility to the lower levels and teamworking have become more common compared to Taylorist and hierarchical forms of work organisation. A similar shift in health care has made the nursing profession less structured around directives from doctors. In tourism, hierarchical work organisation still predominates, whereas IT and telecommunications present a combination of highly individualised work and work organised around projects and team working.

The nursing profession provides a good example of how skills demands are shifting. The modern patient-oriented approach to care requires a shift from a directive control approach to an empowerment approach that is placing a new focus on consultation. This brings guidance and counselling into the health care process, requiring highly developed interpersonal skills. In addition, 'information and communication technologies and the management of complex data processing combined with a new approach towards customer orientation re-define the traditional profile of health care services' (Kirpal, 2004b, p. 287). Both processes require advanced communication skills in addition to creating general skills amplification and more complex work processes.

The shift in skills demands directly points to the role and recognition of vocational initial and continuing training. The research results suggest that, in many areas, continuing training combined with practical work experience is being prioritised over formal vocational qualifications. This, at least, was the case in the IT sector, in tourism and, to some degree, in telecommunications. In nursing and metalwork/engineering, initial training is highly valued by employers and employees and is considered a prerequisite to entering the job market and for further career progression. In addition, practical work experience in the framework of vocational training programmes is also regarded as a recruitment strategy, especially in the German dual apprenticeship model. Generally, an initial formal qualification increases employability and chances of career progression. Further, it sets the foundation for general learning abilities and developing a basic form of occupational identity, even in the highly diversified tourist industry. However, for many occupational groups, initial vocational qualification does not succeed in preparing young employees to master what is required of them in everyday work practice. In tourism, telecommunications, IT and even nursing, employers and employees confirmed that on-the-job experience is what really counts. Becoming skilled was clearly connected with learning while working, involving training on the job, learning by doing and self-directed learning.

An increasing demand for just-in-time knowledge could be observed in most sectors, particularly in IT, telecommunications and metalwork/engineering. This trend has led to the restructuring of the mode and role of continuing training and places considerable pressure on employees for self-study and informal learning. In most cases, this kind of knowledge acquisition does not significantly contribute towards enhancing vocational competences, as it is short-term, rapidly outdated and regarded as a

minimum requirement to keep pace with changing technologies in order to maintain one's own employability. Employees critically noted that acquiring just-in-time knowledge was leaving little room and resources for more profound and long-term competence development, which may be important to foster opportunities for career progression. Some employees felt that this knowledge structure even gives them far less control over their own skills development. In addition, it favours the increasing employment of graduates, a trend that could be observed in technical areas such as metalwork/engineering, telecommunications and IT. Other factors that prevent employees from enhancing their vocational competences are the incompatibility of courses and training offers with employee work schedules, lack of financial support from employers and the inappropriateness of the training offered. That companies favour a 'core' against a 'disadvantaged' segment of the workforce when it comes to training opportunities, and skills enhancement was an issue in telecommunications/IT, tourism and metalwork/engineering.

Conclusions

Existing social and economic structures strongly influence the nature of work and lead to a range of modifications meeting the need for change. Obviously, there is much variation between European countries and sectors with respect to how demands for flexibility and mobility affect the workforce and each national and sectoral context presents a different set of issues. However, some contextual variables seem influential in the formation of work identities at the level of the national embedding of work concepts as well as at the level of sector-specific structures.

Formalisation versus deregulation

Formalised, regulated structures foster stability and continuity and support the individual in developing a professional orientation and work identity. For example, established vocational education and training systems and the recognition of formal qualifications can play a decisive formative role in developing an initial occupational attachment and self-confidence. This applied to a certain extent to all occupational groups investigated. Stable employment situations and reliability are important for the individual to develop company attachment, commitment and to plan his or her own professional development. They are also important for career progression, be it in the sense of deepening one's own knowledge and competences through horizontal mobility (as in nursing) or through promotion involving vertical mobility. By contrast, unstable employment conditions make it particularly difficult for employees to develop a stable work identi-

ty as was typical for employees working in the tourism sector.

The influence of formalisation also applies to the organisation and role of professional communities and associations. Their strong influence on identity formation was seen in almost all professional groups investigated. Where the level of formalisation of professional associations is high (as in nursing and traditionally in the metalworking industry), an offer of professional guidance and support helps employees to strengthen their position in terms of the work context, employer-employee relations and their professional status. Where those mechanisms were absent, either they were replaced by informal professional communities (as in the IT sector) that take on a similar function, or the employment situation and identity formation processes were highly individualised as in tourism.

Where stabilising mechanisms have been eroded (as in the metalworking industry/ engineering and in telecommunications) or are non-existent (as in IT and tourism), employees are challenged to construct their own systems of identification. Three tendencies can be highlighted in this context. First, transferring the concept of a professional work attitude - that is typically expected in the so-called professions (such as lawyers, doctors, managers) - to employees at the intermediate skills level. This development could be observed, for example, among IT experts, highly qualified employees working in tourism and engineering and, to a certain extent, nurses. In this case, the work ethos, personal interest and commitment, a pro-active learner's attitude and self-realisation are promoted and adopted as key concepts. A second possibility observed was a highly individualised work attitude, exemplified within the UK context, but also increasingly observed among most of the occupational groups investigated. The focus here lies on the individual's skills, knowledge, vocational competences and active career development using learning and continuing training, as well as mobility and flexibility, as important tools for career progression. Third, a large number of workers developed a functional or instrumental work attitude, complying with the minimum requirements for learning, flexibility and mobility in order to maintain their employability. Such an approach could be observed in telecommunications and metal/engineering, but was also represented to a lesser degree in the other sectors. It can be regarded as a rather passive response to changing work requirements, whereas the first two trends expect and exemplify a more pro-active approach.

Flexibility and mobility

Organisational changes, technological innovations and strong customer orientation require employees to adjust to new demands in the work context by developing new skills profiles and the ability for continuous learning. Companies are challenged to meet changing organisational demands, to create a rich learning environment and to support employees in adjust-

ing to changing work situations. They are generally in a position to restrict or actively encourage the specific work attitudes of their employees and thus have an influence on shaping work identities.

Regarding mobility, the project consortium distinguished between geographical or spatial mobility, horizontal mobility and vertical mobility. Demands on employees to be spatially mobile, address the need to and/or the possibility of changing workplace, to be transferred to a new location, to travel for the job or to have a long commute on a regular basis. Horizontal mobility relates to changing employer or departments, practising job rotation, acquiring certain specialisations or engaging in teamwork. Finally, vertical mobility encompasses the capacity, interest and opportunity for personal career development by taking advantage of opportunities such as further education or in-house promotion. Horizontal and vertical mobility both connect closely to opportunities for continuous professional development and work-related learning. Migration can be considered as a special form of mobility, usually related to changing employer and occupation. Although this issue may be of great interest at European level, the project did not consider migrant workers as their occupational identity development forms a special case.

In times of severe economic constraints, flexibility and mobility were first regarded as demands that put pressure on companies and employees. However, flexibility and mobility also create opportunities in terms of the learning environment at work, job profiles, career options and employee autonomy and self-realisation. Company organisational strategies may open up new opportunities for employees, or they can create pressure, for example, through work intensification; this was a prevalent feature, mentioned by employees of all sectors under investigation. The study revealed that flexibility and mobility are experienced and valued quite differently in different occupational groups, and showed how this affects identity formation processes at work.

Employees typically connected the issue of flexibility to the ability to cope with, and adapt to, changes at work, such as new work tasks, job situations and work organisation, generally linked to broadening competences and work profiles. They also referred to working conditions in terms of time flexibility, irregular working hours, changing time schedules and the readiness to work overtime. There was great variation in whether flexibility and mobility were perceived as creating opportunities or as new demands that put pressure on employees. Nurses, for example, felt largely in control over the degree of flexibility and mobility to which they were required to respond and considered that they had individual choices. In contrast, in the new economies both elements were perceived as demands beyond the control of employees that created a high stress level. Demands on flexibility were critically seen in the light of working overtime and flexible working hours, particularly in tourism where the compensation mechanisms for such requirements were stated to be inappropriate, not only in terms of financial remuneration but also in terms of job security, career perspec-

tives and training provision. Flexibility had the most negative connotation when it was interpreted as the possibility of hiring and firing without incurring high costs. Negative implications were lack of commitment, company attachment and high levels of staff turnover.

When it comes to the readiness of employees to be flexible and mobile, national (or cultural) differences could also be distinguished. Employees in France and the UK generally seemed to be better prepared to deal with, and personally benefit from, demands for flexibility and mobility than German employees. Socialisation, learning and personal experiences seem to play an important role in this context. This became clear, for example, when comparing the work attitudes of nurses and employees working in telecommunications across the three countries. At the same time, employees in countries with an unstable economy, like Spain or Estonia, are generally also more used to adjusting to changing work requirements, as they often need to be highly flexible in order to bear with turbulence and periods of transition.

Horizontal mobility was often used as an important means to broaden vocational competences and enhance career chances. Particularly in IT and tourism, and especially in the UK, changing employers to gain work experience was closely linked to professional development. In nursing, horizontal mobility (mostly between different hospital departments) was typically pursued to broaden and deepen vocational competences, but without thought of promotion. It was striking that, in most sectors, the majority of workers at intermediate skills level favoured horizontal mobility over vertical mobility. This tendency could be linked to the core elements of an occupation (as described above), with which employees at this skills level typically identify. This pattern of professional identification may lead to a certain incompatibility between performing technical tasks and assuming coordinating and administrative functions with higher level work responsibilities. In telecommunications, IT and metalwork/engineering, for example, the shift from working as a technical expert to assuming a coordinating role turned out to be a conflict for many employees that often prevented them from moving into team leading positions. IT specialists even associated managerial positions with inevitable degeneration of technical knowledge and practical skills (Loogma et al., 2004). Most nurses experienced a similar conflict: nurses who strongly identified with direct patient care generally did not like to move into management and develop skills related to administration, coordination or broader managerial tasks (Kirpal, 2004b).

These results may lead to the conclusion that, for most skilled workers, performing the core tasks of an occupation is more important than making a career as supervisor or team leader, particularly when the salary structure does not change significantly as in nursing. A stronger career orientation was noticeable among British and French employees and among employees working in diversified and less formalised sectors such as tourism and the IT sector. Here it is important to note that, particularly in the UK,

the salary structure changes significantly when moving up the career ladder. It was striking that for UK employees, pursuing a progressive professional development path was mainly related to vertical upward mobility and higher wages; combined with passing through different employment situations this often also involved a change of occupation. Even the attachment to a particular company or work environment did not seem to be of great significance. By contrast, skilled workers in the other countries identified much more with being an expert in a particular field, creating strong identification with the actual work activities that involved applying very specific technical skills.

Other structural factors that generate little incentive for employees to pursue vertical mobility were the lack of opportunities for career progression due to organisational re-structuring, the lack of support from employers, or the nature of how the profession was organised. The trend towards flat hierarchies in work organisation in telecommunications, IT and metalwork/engineering has significantly reduced the number of supervisory positions available particularly in intermediate management. One consequence in Germany, for example, is that far fewer employees use the *Meister* qualification as a classical form of career progression, as this pathway is also increasingly undermined by the recruitment of graduates into these positions. Lack of support from employers in providing and facilitating adequate training was particularly an issue in tourism and IT, whereas in nursing the highly formalised organisation of the profession significantly limited broader career opportunities.

The connection between mobility, flexibility and work identity may become most obvious when looking at the self-understanding of IT specialists and metalworkers, who clearly distinguished themselves from administrative personnel, managers and directors. The IT sector study reveals that the work identity of an IT specialist can be so deeply rooted in technology that it correlates with a high level of inflexibility when it comes to developing a broader occupational orientation. It would be interesting to investigate further the extent to which highly developed, but narrowly focused, technical competences would put such employees at risk in the context of requirements to adjust to changing work contexts.

Reflections

The research project could confirm that employees in Europe are increasingly exposed to demands for greater flexibility and mobility at work and are challenged to deal with continuous changes and making adjustments. The project findings also showed that not all employees at intermediate skills level possess the personal resources to cope with demands to make adjustments to their job, skills development and career orientation. Shifting the focus back to the individual, in all of the occupational groups investi-

gated we found employees with classical forms of work identities characterised by a high level of identification either with their occupation, the employer, the company's product or their daily work tasks. For this group of employees, rapid changes at work presented quite a challenge, particularly for those who did not have the means or personal resources to adjust to new demands. In such cases, employees typically developed a 'retreat' strategy trying to conserve their current work status and job profile. This group of employees largely resisted demands for greater flexibility, with little or no inclination towards learning, career progression or changing their work place or employer. In addition, pressure to achieve flexibility, and changes in work tasks, professional roles or employers, often lead to stress and a lack of control over work performance. This was particularly the case within occupations and organisations where the requirements for flexibility and mobility are high and forms of work organisation and tasks change rapidly, such as in the IT sector.

By contrast, employees with flexible, transitional and individualised forms of work identities, who are able to anticipate and internalise the requirements for continuous changes at work, were much better equipped to respond to demands for flexibility. Those employees often combined the desired mix of technical and hybrid social skills and had the ability to use flexibility, mobility and learning as instruments to develop their careers. The research results also showed that employers favour such flexible employees and increasingly expect a type of self-employed entrepreneur, who sells his or her services, skills and competences on demand (see also Pongratz et al., 2003; Voß et al., 1998). This type of employee assumes a high level of flexibility, continuous learning, risk management capacity and the ability actively to shape and construct his or her own work identity and career orientation.

Emerging new forms of employer-employee relationship further support this entrepreneurial model, gradually abandoning former types of trust-based relationships and loosening patterns of organisational commitment (Baruch, 1998; Reader et al., 2001). This tendency promotes and supports a general trend towards the 'individualisation' of work identities away from classical collective forms, making collective bargaining for workers difficult. In addition, the model transfers responsibilities for training, learning and professional development from the company to the individual. For the individual employee, however, a proactive, entrepreneurial multi-skilled work attitude also generates complex, flexible and multi-dimensional work identities, which can create conflicts when continuously being adjusted to the requirements of change. Stability and continuity that were formally generated through, for example, permanent employment contracts and a stable company attachment, increasingly have to be actively constructed by the employees themselves.

To what extent employees are able to deal with demands for flexibility and adjustments has a significant impact upon their motivation, work commitment and forms of identification with work. This article tried to show that

it is not the individual alone who determines the potential for adjustment, but that structural variables also play a vital role in either supporting or inhibiting employee developments. As the number of employees in Europe who are not of an entrepreneurial type, and thus could be at a disadvantage, is potentially high, employees need some form of support to be equipped and prepared to cope with changing requirements at work. The research results showed that workers at the intermediate skills level aged over 35 need especially to be actively supported and guided to avoid them falling into a passive 'retreat' strategy that may ultimately lead to their professional exclusion. By contrast, employees, who trained during the last 10 years were much better equipped to anticipate and deal with demands for flexibility and continuing learning. This points to the vital role that initial vocational education and training plays in this context if adequately designed to prepare young people to meet the challenges of modern work settings. However, where employees missed the opportunity for being trained to modern standards, continuing work-based learning needs to fulfil a compensating role.

Flexibility is particularly needed when it comes to adequately integrating initial and continuing vocational training and developing a balanced mix between specific technical knowledge and generic skills. The accreditation of informal learning to allow for effective access to further learning, promotion and horizontal job movement also need to be improved. Guiding instruments to support employees in successfully responding to the demands for flexibility and mobility and to empower them to become agents of their own professional development do not necessarily need to be restricted to institutional arrangements. Self initiated and directed continuous vocational learning and 'competence audits' for self guided socioprofessional orientation can also be powerful tools.

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Behavioural and motivational training for Senior Staff in the Portuguese Public Sector

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Key words

Vocational training,
training management,
specification of training
requirements,
training evaluation

SUMMARY

The results of this research has highlighted the fact that most public sector bodies in Portugal do not have any formal specification for training requirements, nor do they have training programmes or detailed training evaluation systems. Furthermore, there is no interaction in these areas between the training body and the Departmental Customer or any involvement of the Departmental Customers in the entire training process. In spite of this, senior staff continue to be optimistic about the role of behavioural and motivational training in the everyday realities of administration. However, our results reveal numerous inconsistencies and contradictions and it is clear that, for the time being, no systematic organisation of behavioural and motivational training attended by senior management exists in public sector bodies in Portugal.

This article has been based on a doctoral thesis by the author defended on 22 April 2004 in the Faculty of Economics and Business Studies at Lusiada University in Lisbon and aims to summarise some of the results of the research.

(¹) National Institute for Administration (INA). A Central Body Promoting Training of Managers and Public Sector Employees in the Portuguese Administration. Although there are several training centres for Portuguese public sector employees, the INA is the largest body responsible for professional training in the Portuguese Administration.

Introduction – Problems surrounding the issue and objectives

At the beginning of this century, the public sector was forced to modernise, in response to the needs of a knowledge society and a globalised economy. In the private sector the ability to manage change and complexity was becoming vital to efficiency and, similarly, in the public sector too, professional training was affirming itself as strategic to change, revealing itself as a vital accompaniment to steady and comprehensive modernisation in the public sector, both in technical and behavioural fields (Majchrzak, Davis 1990). However, paradoxically, pyramidal structures within the public sector and the 'bureaucratic and assembly-line mentality of Taylorism' that still prevails, contributed to ensuring that investment in training continued very often to be regarded as a non-quantifiable, non-definable cost, which was therefore to be 'avoided' (Crozier, 1991; Madureira, 1997, 2000).

As far as the subject of professional training in the context of the Portuguese public sector is concerned, a group of authors (see Madureira, 2004) and various studies (Profap, 1994, 1995, 1997) both underline the need for continuous training to be implemented as part of an integrated process that incorporates all the stages of the training programme. They also point to the absence of any concerted training programme within the public sector. This apparent absence of any systematic planning was what led us to define the central aim of our study, namely to try and identify the gaps that exist in the management of behavioural and motivational training ^(?) for senior staff in the Portuguese public sector.

Our research focused on the above-mentioned group and on recent publications on the subject of 'change in the public sector' based on the premise that it is highly qualified management hierarchies and public-sector employees who are the main agents and drivers of change and modernisation in the Administration (Campos, 2002, Rocha, 1998). This reasoning appeared to us more than sufficient to justify our choice of study. We have thus tried to define and interpret the perception of trainees (senior staff) of behavioural and motivational training in the public sector. To achieve this, we outlined our basic aims and then performed tests which produced results which will be analysed in greater detail later on.

Theoretical framework

In the 1990s, the OECD was already stating that development and training of human resources should be seen as a priority (OECD 1996), and that adaptation of qualifications and skills to permit flexibility in the work-

^(?) In the next chapter a full definition of what is understood by 'behavioural and motivational training' is given.

place should be seen as essential to consolidating reforms in the public sector.

Although this statement is significant, it will not amount to anything more than a declaration of good intentions if we do not clarify the concept of training as we see it today. What sort of training are we referring to? Indeed, we should not confuse the concept of training (as a specific attempt to increase the immediate performance of an employee in a particular job, reinforcing the culture and image of an institution already in existence), with the concept of behavioural and motivational training or change (as part of a process of wider change of the organisational, cultural and behavioural models apparent in people and institutions).

Although the subject of training in the behavioural field has been discussed in depth, particularly in Anglo-Saxon literature, the term 'behavioural and motivational training' has not been used very much. It is therefore important to state that what we mean by behavioural and motivational training is everything that relates to the subject of organisational behaviour (Madureira, 2004). Amongst these areas of study, we shall highlight the issues of organisational change management, leadership, organisational culture, team management, conflict resolution and negotiation techniques, communication methods, institutional power and motivation (Robbins, 1998).

However, in order to slot the issue of behavioural and motivational training into the context of a specific organisation, we needed to build up a more detailed picture of it. It is, therefore, relevant to point out that in the case of the Portuguese public sector, the average age is quite high (over 45 years old) and academic qualifications tend to be low. It also tends to have old-fashioned organisational models with bureaucratic procedures and centralised decision making. This is not an environment therefore that would appear to be conducive to behavioural change and consequent training (Madureira, 2004; Rocha, 2001; Pessoa De Amorim, 1997). In a context such as this, we can see that training, specifically behavioural and motivational training (where measurement of results is more subjective), and its management, might often be viewed as one of the less important issues concerning management in the Portuguese administration.

Basic premises

Premise 1 – In view of the above, our first premise is based on the principle that behavioural and motivational training is not clearly defined, organised or decentralised in the Portuguese public sector. We believe that in the majority of cases there is no 'change in conduct as a result of training', or any coherence between the behaviour encouraged by the training programme and the actual requirements of the employees in the workplace. Nor is there any awareness or active participation by the students in specifying the requirements and training programmes for their departments or

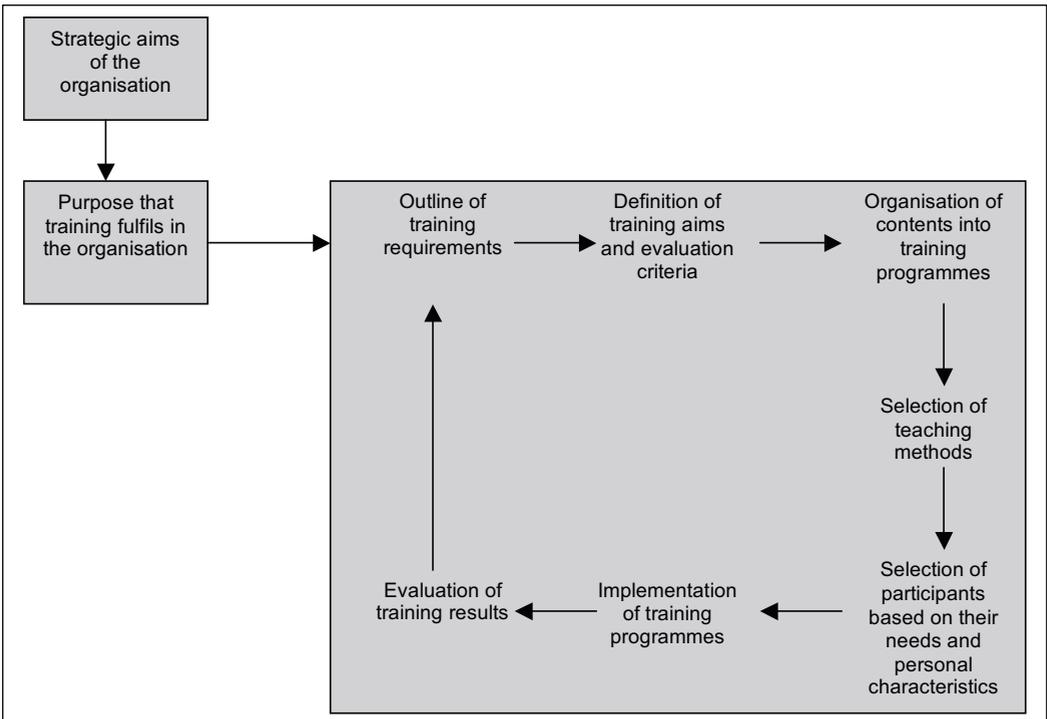
any uniformity in the criteria used as a basis for selecting those employees who attend training courses.

Nevertheless, we are working on the premise that there is insufficient scheduling of the various training phases (specifically between the needs analysis and the phases following this). We also tried to find out which of the *systematic training models* presented by Cruz (1988) or by Chiavenato (1987), and shown in Figure 1 and Figure 2 respectively, could be tested.

By applying these models to the realities of the Administration in Portugal, we have attempted to find out whether there is a training programme in the Portuguese Administration which could be linked to the models outlined by the aforementioned authors and whether this at least includes steps such as the establishment of aims, needs analysis, planning, training implementation and evaluation.

Premise 2 – In the second premise it is suggested that in the Portuguese public sector, training management is conditioned by corporate/institutional arguments and also by the cultural context. In this case, the models proposed by Scott and Meyer (1991) and by Moore and Ishak (1989) point clearly to the existence of corporate constraints (model one) and cultural

Figure 1: Chart showing general organisation of training activities



Source: CRUZ, J.P. (1998), *Formação Profissional em Portugal – Do Levantamento das necessidades à avaliação* [Professional training in Portugal – From needs identification to evaluation], Lisboa, Edições Sílabo, p.31.

and meta-cultural ones (model two), which exert a huge influence over training management in an administrative context ⁽³⁾.

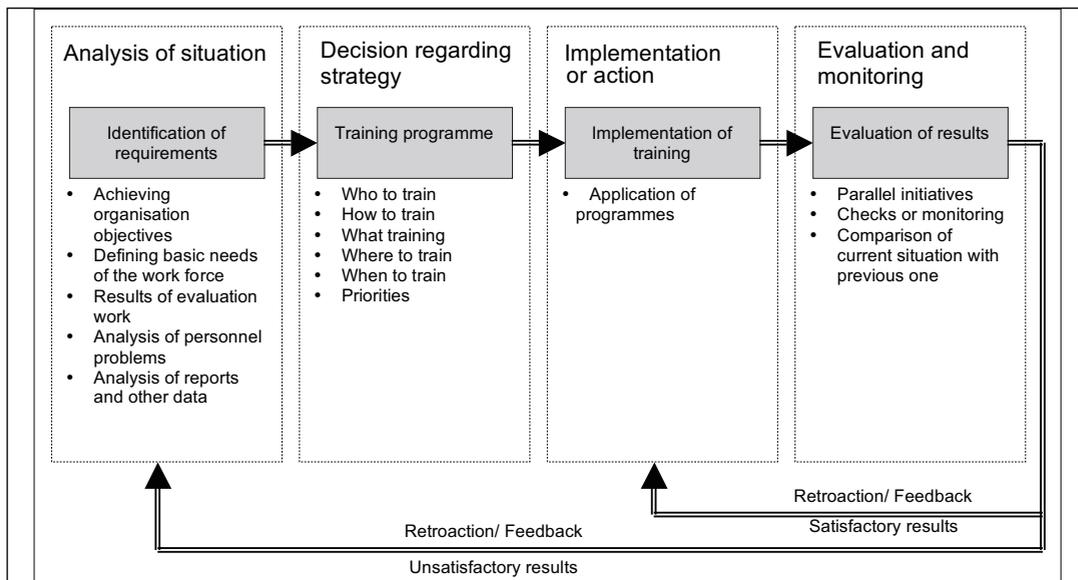
Premise 3: Of the training system models already referred to under point one, it appears particularly relevant to pay careful attention to the issue of ‘training evaluation’. Authors such as Le Boterf (1992) and Kirkpatrick (1997) believe that the concept of evaluation should be split up. Kirkpatrick highlights significant differences between the various levels of evaluation (with the first being the most superficial and the last being the most in-depth):

- level of reaction,
- level of learning,
- level of behavioural modification,
- level of influence on organisational outcomes.

Indeed, it is only through evaluation and, in particular, through continuous assessment over a period of time, that *feed-back* adjusted to the results of training can be built up, looking at both the effect on those trained and their objective impact on the organisation itself.

Taking these premises as a basis, our third point supports the idea that the evaluation of senior staff training in the administrative context is carried out superficially, exclusively by the training organisation (in this case

Figure 2: Stages in the training programme



Source: adapted from Chiavenato, Idalberto (1985), *Recursos Humanos – Edição Compacta*, Atlas, São Paulo, p. 291 [Human Resources – Compact Edition].

⁽³⁾ Moore and Ishak define ‘meta-culture’ as the extended cultural environment (in this case the Administration) and ‘culture’ as representing the organisational culture of a particular Department.

the INA), with no interaction between it and the departmental training customer.

Having outlined the basic points, we then tested them and presented the results together with a discussion of the results in section 5.

Methodology

Based on our propositions, a questionnaire was drawn up and sent to all senior staff attending training courses in the field of behavioural and motivational training at the INA between 1996 and 2001. This took place during a period when the country was governed by the same political party⁽⁴⁾ and we were curious to find out whether, during these six years, the ruling party had left a 'political imprint' for change upon management training. Once the replies to the questionnaires had been received, the results were described and presented along with a discussion/analysis of them.

Universe and Sample

Universe

The universe used for our study consisted of 1 342 individuals (senior management, from all corners of the Portuguese public sector, who had attended behavioural training courses in the senior staff Training Division of the INA between 1996 and 2001). The purpose of selecting this universe was to enable us to gather the opinions and perception of the trainees regarding behavioural and motivational training received over a considerable period of time (six years).

Sample

The sampling process took the form of sending questionnaires to all the members of the universe by post (the sample group were sent questionnaires by registered post), with the final sample based on the number of trainees who replied to the questionnaires mentioned earlier. With regard to the universe, of the 1 342 trainees to whom questionnaires were sent during the month of April 2002, we received replies from 212, or, in other words, 15.8 % of respondents.

Around 70 % of the sample were between 30 and 50 years of age, and 62.1 % of them were women.

⁽⁴⁾ Government formed by the Socialist Party (PS)

Presentation and analysis of the results

The role of behavioural training in the public sector

The results showed that a majority of those surveyed (66.8 % of the sample), agreed with the premise that *behavioural and motivational training courses introduce new ideas, which are capable of being incorporated into the public sector context and/or which are in tune within the mood for change within it*. The perception of public sector employees regarding this issue was not what we had initially expected and indicated a belief that behavioural and motivational training initiatives were likely to introduce *new ideas, but not always with any possibility of practical application*. This view held by the respondents alerted us to the fact that, in an environment in which public sector employees⁽⁵⁾ and the workings of the public sector are discredited, there was apparently a strong desire to regain their status and professional self-esteem. The belief that behavioural and motivational training could provide the impetus for change, had its supporters amongst a group of skilled public-sector employees (senior staff) who aspired to being able to work within a modern organisation in which they would be respected professionally. Perhaps it was this sort of aspiration which led respondents to be so categorical in their appreciation of the possibility of putting the ideas communicated in the training into practice.

The results even point towards *a match between the attitudes and conduct learned through the training initiatives and the actual needs of the work place*. Around 92 % of respondents said that the match was exact or at least on target. However, this could again be a case of respondents feeling constrained by 'a corporate sentiment' that things should go as well as possible. In these situations, it is perhaps difficult for anyone filling in a survey to express an opinion that does not reflect how they would like things to be.

According to 73 % of the trainees, in our public sector departments *there is a perfect link or a very strong match between tasks carried out and tasks formally listed as part of the job description of public sector employees*. If the situation is as they say, any training needs analysis would have to be based on reliable information supplied by a solid *job description*, that would presumably permit a proper specification to be drawn up that would list any actual shortcomings and would be likely to produce proper training programmes that suited the identified needs. However, the information supplied by respondents would seem to be at odds with data gathered from previous studies (see Profap, 1994, 1995, 1997) which reveals a tenden-

⁽⁵⁾ This lack of credibility is widespread. There is a reference to the situation in Portugal in Corte-Real, I.; Koen, N.; Kelly, M.; Petiteville, F. (1999), *Les administrations en mouvement – Les réformes de modernisation administrative dans quatre pays: Portugal, Pays Bas, Irlande et France*, Maastricht, EIPA. [The public sector in flux – administrative reforms and modernisation in four countries: Portugal, Netherlands, Ireland and France].

cy on the part of training bodies to use 'general theoretical frameworks' instead of carefully identifying actual training needs.

With regard to the issue of *whether or not most departments carry out a training needs analysis and a training programme*, involving the participation of trainees in behavioural and motivational training initiatives, the results show that most of the respondents (around 80 %) observe that right from the start, public sector departments do not carry out any (behavioural) training needs analysis, and also state that there is no training programme in those Departments where they are working. These results clearly contradict other data provided as respondents claimed that there was a match between behaviour learned and the actual needs of the job. It would be difficult for what is learned and what is needed to match, without first carrying out a formal analysis of those gaps which need to be filled or what behaviour should be changed. Based on these results, we can state that the organisational training models proposed by Cruz (1988) or by Chiavenato (1987) are not being complied with, in the majority of cases, in the Portuguese public sector, and that in reality it is not feasible to talk about the existence of a training programme within the public sector.

Despite the above, there are other approaches that supply alternative arguments to an understanding of the issue. According to these, although most of the Departments do not have either a suitable needs analysis or a proper training programme, their public-sector employees still attend training courses and it is possible that we are dealing with a self-organisation phenomenon. Indeed, since these organisations function openly, within an environment of change, they can easily become dissipative structures. This is what Fonseca (2002) implies, when the author warns that the emergence of a dissipative structure cannot be deduced from assumptions or previously established conditions. According to this line of thought, these organisations have great potential for things to happen because of their precariousness. In other words, even in the absence of any training needs analysis or training planning, public sector employees carry on training themselves in a relatively self-organised manner, finding solutions for any constraints upon them.

Moreover, with regard to the analysis issue, it has been shown that in most cases in which Departments use informal methods for training needs analysis, there is less likelihood of a behavioural and motivational training programme being put in place for the Department, but, conversely, if the situation is the opposite, the opposite is true. The use of formal methods of analysis makes it more likely that there will be a training programme in the Department (55 % of those surveyed who stated that they worked in departments that used formal methods for training needs analysis said that there was a training programme, whereas 70 % of those who said that their departments only used informal analysis methods stated that there was no training programme). It would therefore appear to hold true that if there is no formal structure for all stages of the training programme (with emphasis on the identification of needs, without which the whole programme would

go wrong), substantiated in integrated institutional documentation, akin to a 'training programme', it would appear to be impossible to foster training programmes to match current needs, and even less so to make extrapolations regarding future ones. This reasoning does not conflict with what was stated previously which implied that structures were unpredictable. However, although on the one hand it appears appropriate that organisations should have a system for identifying training needs to allow us to provide suitable training, on the other we are aware that the assumptions which we use as a basis for making this decision are ephemeral (from the point of view of their time limits) and cannot offer permanent change. These points of view must be taken into account when we talk about the training programme.

The absence of *uniform criteria for attending behavioural and motivational training initiatives by trainees* was another of the points confirmed by the data. It was also revealed that the main criterion listed by respondents was the 'need to update knowledge' (44.2 %) rather than the 'need to prepare for future change' (23.3 %), as might be expected bearing in mind that the specific issue of behavioural and motivational training is being discussed. Although it would not appear wrong to have a number of different criteria, there should be a logic presiding over the definition of these criteria and aims. In this case, the apparent absence of a way to define any criteria for behavioural training seems to stem from wider issues relating to the way in which training is perceived within the public sector. The fact that 'self-motivation on the part of employees' (86.5 % of those surveyed) seems to be decisive in attendance of training initiatives, to the detriment of other factors (such as the formal identification of needs, harmonisation between the trainee's opinions and that of their managers, etc.), was also revealed by the results. This issue supports the view that we are looking at processes that are self-organised.

If this is the case, the results confirm that the INA (the Central Body Promoting Training), is the body to which employees most frequently refer for attendance of behavioural and motivational training initiatives (of those surveyed only 14 % said that they had already attended behavioural and motivational training initiatives organised by other training centres). According to 71.3 % of respondents, in most public sector departments, there are no training centres, leading us to suspect that centres offering training are too centralised. Excessive concentration of responsibilities for training (when the groups of trainees come from sectors as different as economic affairs, finance, employment, defence, justice, health, agriculture and fishing, etc.), in an organisation such as the INA, which in spite of having a portfolio of external trainers, has a small number of permanent staff, appears inadvisable to us. The Institute could set up training models and develop strategic initiatives aimed at decentralising training initiatives (particularly in view of the specific nature of some of them) and could also encourage development of each Department's own training needs analysis and evaluation tools (although these could be based on global training guidelines for public sector training initiatives).

Management of motivational and behavioural training by public institutions: is this technically suitable or is there institutional domination?

Within the public sector, the adoption of a more rigorous approach in the management of behavioural and motivational training is made more difficult by the imposition of an institutional perspective, where tradition, rules and old ways impose themselves upon rational thought. This premise is submitted as a basis for supporting the argument of Scott and Meyer (1991) which states that institutional processes (which in the case of the public sector are bureaucratic), are instruments for disseminating organisational beliefs and values according to which professional training should be something which people want to do and agree to. According to this view of institutions, professional networks can show that they encourage and foster change and organisational innovation, without this necessarily changing the philosophy or commitments of the organisation. This view finds support in the model of Moore and Ishak (1989), according to whom the management of training is always conditioned by a wider metaculture (in the current case the culture of administration), and by the culture of each Department in particular.

Taking these premises as a basis, and with the aim of looking at using behavioural and motivational training by senior management, we focused on identifying the *management styles adopted by the Portuguese public sector*. According to the trainees, the predominant training style in the Portuguese public sector is 'democratic' (39.9 %), followed very closely by a 'participatory style' (38 %). These results contradict the premise which implied that the style of management prevailing in the Portuguese public sector would be 'bureaucratic'. Indeed, only 15.4 % of trainees said that this was the predominant management style. An explanation for these results could be the fact that the respondents were senior staff, many of whom carry out management or coordination roles.

Perhaps this points to excessive optimism amongst respondents about the management style practised as it would be difficult to admit that the Departments in which they work are subject to a 'bureaucratic' style of management (see Crozier, 1963).

With regard to sharing with colleagues behaviour learned during the training initiatives, 75.7 % of trainees said that this happened, which would suggest minimal resistance on the part of the Departments to the new suggestions introduced by the departmental employees from the courses attended. A very similar percentage of respondents even said that the Departments did not object to the new behaviour learned in training, stating that there was a process known as *organisational learning* (on this matter see Sisternas, 1999), which involved the adoption of new group attitudes within the organisation without focusing on individual behaviour. In this context, it is worth remembering that although resistance to change can be lessened, it is normally associated with organisational change

processes (Lewin, 1965; Kanter et al, 1992). The results we found might lead us to think that this is a case of the exception proving the rule. However, the respondents came from very different bodies within the public sector, so it does not seem to be a satisfactory explanation. It would be a huge coincidence if our sample contained everyone in the public sector who actively wants change. Rather, we think this is, once again, a case of public-sector employees having a 'corporate sentiment' where encouragement to participate pro-actively in change is a real factor. However, since, as we have seen, many respondents have high-level jobs, they are part of the organisational reality to be changed. Perhaps because they are aware of this, they choose to highlight the 'involvement' of the different management levels, to give the impression that the change is being embraced. Only in this way can *status* and privilege be preserved, whilst continuing to utter the politically-correct slogan of 'shared change' (see Campos, 2002; Araújo, 1999; Rocha, 1998).

Definition and the lack of it in the evaluation of behavioural and motivational training within the context of the public sector.

With regard to the section on training evaluation *the main evaluation carried out focuses simply on 'trainee reactions'* (51 % of respondents). This has an entirely plausible explanation as can be seen by reading the 'Kirkpatrick evaluation model' which states that 'level of reaction' is what is most easy to measure, although it may provide the least number of clues (Kirkpatrick, 1996).

Furthermore, as far as the timing of evaluations is concerned, if we look at the responses from respondents about this issue, the evaluation of behavioural and motivational training initiatives is most often carried out at the end (97.3 % of responses). The option of carrying out the evaluation as part of a continuous assessment process over time is almost always disregarded. This is not the right approach and is inadequate but it is the norm for training programmes in the public sector. As can be seen from looking at the model, an evaluation of this type is only likely to see what the 'reactions' and 'learning' of the trainees are like, but cannot ever determine whether there has been any actual 'change of behaviour' or what has been the impact upon 'organisational outcomes'.

The results also showed that, according to 62.5 % of respondents, it is the INA that is the main evaluator of behavioural and motivational training courses that it carries out. Indeed, it is the Institute itself which carries out this evaluation on its own, without involving Client Departments in this stage of the training process. A system such as this seems disproportionately 'onerous' for the INA, but it also reduces the responsibility of the Client Department and puts constraints upon it. In reality, this system encourages a certain 'laziness' in less pro-active Departments, whilst forcing more dynamic Departments to do without evaluations which should be

encouraged and incorporated into that of the training provider. This tendency to *centralise the evaluation carried out by the professional behavioural training bodies* and for Client Departments not to be involved in this process, can also be seen in the evaluation of courses provided outside of the INA (54 % of respondents). It is therefore an issue which is not restricted to a specific training body but which probably permeates the whole public sector.

Conclusions

The principal problems associated with training in the Portuguese public sector continue to be the issues of needs analysis, training evaluation and the lack of intervention by the various organisational protagonists in the training process. Our study attempts to provide added value, firstly by updating the information available, and secondly by analysing the kind of training discussed: behavioural and motivational training.

The results show that most of the Departments still do not use formal analytical methods for identifying behavioural and motivational training needs and do not organise any specific training plan. The criteria for selecting candidates for training are vague, with the preference of the employee taking precedence, at the expense of managing the training as part of an integrated strategy. Because of this, even if you take the view that the employees are organisational actors working within a complex and open structure, who are likely to work out their own forms of self-regulation, it is still difficult to talk about a strategic approach to behavioural and motivational training management. As far as evaluation is concerned, we have seen that this focuses on 'reactions' in particular, and only at the end of the initiative, with no follow-up of the evaluation process. We have also confirmed the existence of a tendency to centralise the evaluation carried out by the bodies responsible for behavioural and motivational training and seen that the client departments are not involved in this process. In this respect, we are looking at a phenomenon which, rather than being intrinsic to a specific body organising the training (in this case the INA), is probably more cultural, permeating throughout the public sector.

This study also highlights the possibility that respondents made their comments because of a feeling of 'corporate sentiment', giving answers more revealing of an ambition, a desire or an instinct for corporate preservation than of what is really happening in their opinion. The fact that the trainees believe that the prevailing management style in the Portuguese public sector is 'democratic' is an example of this. At the end of the survey it is clear only that a professional training programme does not exist within the public sector. There are innumerable vagaries and inconsistencies and perhaps there is also no meaningful awareness regarding the impor-

tance of behavioural and motivational training. It is vital furthermore to point out that the data gathered, and the conclusions drawn from it, are reinforced by the fact that the study was based on a non-random sample in which the people answering the questionnaires (15.8 % of the universe) were more interested and involved in the behavioural and motivational training issue and its consequences. With regard to practical implications and future research which might be undertaken as a result of our study, it should be remembered that excessive centralisation of training management and its evaluation appear to be ample grounds for rethinking in the near future how the INA works with its client departments (that is, the various departments within the Portuguese public sector), to build up an evaluation and management system that is integrated into professional training, with particular reference to behavioural and motivational training.

With regard to training needs analysis and plans (especially behavioural plans), we recommend that these should be formalised in each Department. Although the analysis methods will vary according to the particular features of each Department and the branches of activity, the INA, finding itself unable (otherwise this assumption would not be made) to analyse training needs in all the Departments of the public sector, must work together with them to arrive at a 'common ground' for the analysis, which could be used for all Departments or would at least be capable of adaptation for the various Departments.

Each of the above issues should be the subject of further research to study each of these points and thereby assist in their implementation in the near future.

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Employment research method for early recognition of skills needs

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SUMMARY

Given that the early recognition procedures used to date focus on trends and the scenario technique and are less concerned with the design of VET, a research-based employment research early recognition tool was developed as part of the 'EarlyBird' Leonardo Project, by means of which it is possible to identify changes at shop-floor level. What was learnt from use of the instrument may be used to design future-oriented VET. The methods developed were tested in the project, and the changes identified were used to develop well-founded forecasts for the content of future European job profiles in the recycling and machine tool sectors. This article discusses this research tool in more detail.

Introduction

What is early recognition? Early recognition is a kind of 'prediction', 'a form of strategic analysis in which a combination of participatory procedures is used for the collection of information of relevance to the future in order to build up scenarios that will facilitate decision-making and concerted action in the present. The participatory essence of the prediction makes it suitable in principle for regional and local planning... (and for the discussion of skills needs, Authors). In some countries there are examples of well-established regional prediction, and in other countries, experiments are being conducted in this direction; however, 'it is totally lacking...at most regional and local levels' (Gavigan/Scapolo, 2001, p. 2).

This definition in terms of regional policy sets out clearly what the essence of early recognition may be, and where its limits may lie. However, the term 'prediction' indicates that despite strategic analysis of participatory procedures and close proximity to the object of the investigation, very precise forecasts of a wide range of developments cannot be expected, although some forward-looking guidance is possible, from which, for example, European policy may learn how social networks ought to be shaped to cope with demographic change. In relation to vocational education and training (VET), this means that an information and decision-making platform can be created that will permit conclusions to be drawn as to future skills needs, using selected research methods for the early recognition of skills needs. Forecasting – or 'early recognition', to use the term employed here – of anticipated developments in industry, craft trades and services thus implies:

Providing appropriate information about the development of skills needs for employment decision-makers and social partners so that decisions can be taken in time about, for example, the reclassifying of occupations and

Creating a 'laboratory' in which it is possible not only to exchange a wide range of research findings but also to profile them so that they are of assistance in decision-making about education policy designed to create sustainable VET and job profiling.

As part of the Leonardo da Vinci project EarlyBird, these challenges were taken up and dealt with using a sectoral research approach. The results contributed to the 'Integrated Guidelines for Growth and Jobs' Nos. 3 and 4 of the European Commission ⁽¹⁾(EC 2005).

Progress to date with early recognition

In the past, quantitative methods were generally developed to estimate future skills needs: from macro-economic projections to surveys of employers and employees (Tessaring 2003; Wilson/Lindley 2005). The macro-economic approaches resulted in long-term forecasts and were used to advise policy-makers. In order to produce more exact statements about the direction of developments, schemes such as the German FreQueNz Network have been developed in recent years, which also reveal qualitative characteristics (Abicht/ Bärwald/ Schuster 2002; Gidion et al., 2000). These have often been combined with quantitative methods, to make it possible to make predictions at sectoral, national and regional level. In Germany, the FreQueNz research network for the early recognition of skills needs has been supported by the Federal Ministry for Education and Research, and is now well established. The aim of the project is to identify skills needs, to develop options for action, and to provide results for a variety of target groups. Many different procedures and methods have been used (work-

⁽¹⁾ Guideline No 3: 'To promote a growth- and employment-orientated efficient allocation of resources' and No 4: 'To secure economic stability for sustainable growth'.

place observation, enterprise case studies, surveys of experts and networks, and statistical analysis) (Schmidt/Dworschak 2004). In the United Kingdom, current skills' bundles are being researched using scenario modelling ⁽²⁾, in order to define skills needs more precisely. This method has already been used in two sectors – financial services and transport (Coles 2003). In Spain, on the other hand, a 'Training Observatory' is now being developed to provide forecasting tools to bundle and evaluate information about skills needs. One of the tools used is the Delphi method of establishing trends and prognoses. An Italian network is collecting information about sectoral scenarios in order to establish job requirements and to make short and medium-term employment forecasts (Gatti, 2003). Other early recognition initiatives of widely varying rigour exist in other European countries, but these cannot all be listed here ⁽³⁾.

From closer analysis ⁽⁴⁾ of the individual procedures and methods, and of their results, it can be seen that the main purpose of most projects is, first, to discover new trends within a field of investigation, and secondly, to develop future scenarios for sectoral, national and regional development. This is done in close alliance with the European policy of supporting growth and employment through action for the future.

As yet, however, little or no use has actually been made of early recognition results for the planning of VET activities in Europe. This may be because the methods employed to date have not revealed detailed changes in sufficient depth. In order not only to show up key lines of development for the enterprises in a given sector, but also to define specific gaps in skills, tools and methods need to be used that shed light on how enterprises work, on what the implications of this are, and ultimately on the whole domain ⁽⁵⁾.

At this point there is a clear distinction between the purpose of early recognition research and curriculum development schemes, such as that presented by Mulder (1992). Mulder insists on participation by all the groups

⁽²⁾ In this case a scenario technique is used which is future-oriented but nonetheless seeks to establish very specific bundles of skills which can be transferred to a training programme (Leney, T. et al., 2004). In Germany, the scenario method was first used in the area of VET in the project 'Berufe 2000' (Heidegger/Rauner et al. 1989). Scenarios were designed for future paid work and employment in order to create pictures of a possible or 'desirable' future for VET planning.

⁽³⁾ The European early recognition methods described briefly here, and other procedures, were presented in 2002 at the early recognition conference on the theme of 'Early Identification of Skill Needs in Europe'. Further information and other early recognition approaches can be found on the homepages of the Cedefop network for the early identification of skills needs: http://www.trainingvillage.gr/etv/projects_networks/skillsnet/ and of the German early identification network: FreQueNz: <http://www.frequenz.net/>

⁽⁴⁾ In the dissertation by Windelband (2006), a number of early recognition methods are examined thoroughly to see whether they are suitable for designing VET.

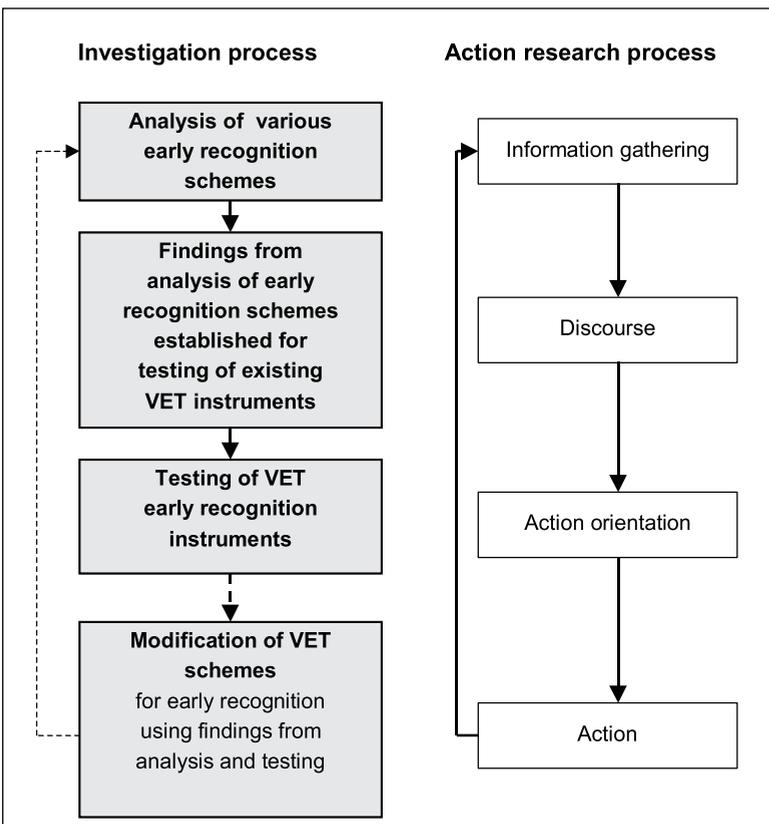
⁽⁵⁾ A domain is taken to mean an area, a sovereign area or specific area, in which a person is particularly active. Initially it would therefore seem justified to describe any restricted area of action in which someone can function in a 'sovereign' capacity as a domain. This option is used in research into expertise because it is assumed that the skills of an expert can only relate to that person's specific area.

affected (managers, experts, teachers, graduands, etc.) in what he calls curriculum conferences, in order to reach a consensus on curriculum content. Research results about the development of selected fields of work form the basis for the conference. The difference between early recognition schemes and Mulder's ideas lies partly in the intention of the research – early identification of changes in the world of work and their implications – and partly in how the results are presented. There is no monitoring of curriculum development, and the main concern is instead to devise skills and job profiles.

Focus of early recognition research

In the early recognition project discussed here, an empirical approach was used not only to facilitate more precise examination of developments in the field of work, but also to allow conclusions to be drawn for future skills profiles from the data produced and from the findings on changes in tasks. The focus was on two research questions:

Figure 1: Research designs based on investigation and action research



- What contribution do the early recognition schemes operated to date make to the establishment of job profiles in particular domains?
- How does a research instrument for early recognition need to be designed in order to capture changes in tasks at shop-floor level and to establish the resulting skills needs?
- A twofold research perspective was therefore adopted.

Analysis of various national and European research projects clearly confirmed that little use had been made of the twofold research perspective referred to. This is because most research, regardless of whether it is concerned with social, educational, employment or occupational issues, takes a different direction. The emphasis is almost invariably on diagnostic or comparative research. There is no support for action that is both scientific (e.g. analysis of early recognition schemes) and practical (e.g. analytical findings used to modify VET) with constant cross-checking, such as is required by this research strategy. The starting point chosen for the research was therefore action research since this has the aim of involving action directly in the research alongside analysis and diagnosis.

In the present case, research and design were intended to be closely related by means of a cyclical process in which theory and practical recommendations were continually analysed, tried out in practice and revised and improved as necessary. That is, in order to achieve continual improvement of early recognition methods and interpretation of research results, phases of action and research had to be combined – as in action research.

The aim was thus to use the findings from analysis of existing early recognition schemes ⁽⁶⁾ to improve the employment research strategy that was to be tested. After this had been tested, the instruments used were to be optimised and further developed into a qualitative early recognition tool (see Figure 1). Changes in work and technology were to be at the heart of the investigation, so that conclusions could be drawn for the future-oriented skills profiles required.

The juxtaposition of the research strategy discussed here and the action research method ⁽⁷⁾ in Figure 1 shows that both approaches are based on interactive procedures combining theory with practice.

It is only when changes on the 'shop floor' are captured exactly that forecasts can be made of future changes in employment, work processes, technical peculiarities, the structure of company working practices and procedures, working requirements, and the skills and competences arising from these, and of the consequences for job profiles, curriculum development and training ⁽⁸⁾.

⁽⁶⁾ For reasons of space, only the set of early recognition tools developed for VET will be described. The analytical results are discussed fully in Windelband (2006).

⁽⁷⁾ The term action research can be interpreted in two ways: as *active* research that shapes the environment, and as research which works with a particular pool of *actions* or methods. Action research means a process of sequentially linked actions which typically run in parallel at the theoretical and practical level – albeit in stages – and are provided with continual cross-check loops between the two levels.

Action research discourse played a key role in the discussion and evaluation of the results of the various early recognition methods. Ultimately, the outcome of the debate decided how the early recognition tools used were to be modified and taken forward. This was the point at which the quality of the research tools was crystallised.

Occupational approach to early recognition research – Justification and research design

The discussion of the various research methods showed that there had only been isolated cases of future-oriented planning of VET. First, the research methods used tended to focus on the current status of the object of the research rather than looking at future developments. Secondly, other research merely produced estimates of trends, without linking these with specific statements about the design of future skills profiles. One of the reasons for this was perhaps that there was an inherent contradiction in the research methods, namely that methods suitable for assessing trends were totally inadequate for the more exact identification of changes in (skilled) work and therefore did not set out to capture the details of the matter under investigation. This was of particular relevance if the intention was not only to predict trends but also to make specific proposals for the content of skills profiles. At that point, at the latest, the second research question became more important since it was concerned with the design of an early recognition method that was capable both of capturing future skills needs and of putting forward suggestions for the content of job profiles. If this was to be made possible, the various types of working conditions on the shop floor needed to be examined thoroughly.

In order to achieve this aim, a research design was required which contained within itself the preconditions for such investigations. Existing methods based on analysis such as EarlyBird, which is part of the Leonardo da Vinci project, had decided to adopt and develop an occupational approach. Ultimately, this had aimed at optimising available empirical tools (see Figure 1) ⁽⁸⁾. This had been necessary in order not only to capture exactly changes at shop-floor level, but also to forecast how employment, work processes, technical equipment, company working structures and processes, and the associated skills and competences, would change in future, and what consequences this would have for skills profiles, job profiles and training.

⁽⁸⁾ A more detailed discussion of social relations would clearly be relevant, but is not considered further here.

⁽⁹⁾ The employment research tools of sector analysis, case studies and work process analysis were used as the instruments for the investigation.

Design of early recognition tools for the study of employment

Additional research tools were needed in order:

- to capture details of work on the shop floor, and of its impact,
- to explore technology and technical procedures in depth, to establish the gaps in these and the way in which work is organised, and to look at relevant planning, development and training processes, and the relationships between these,
- to establish the nature and content of actual work processes and tasks,
- to identify the true organisational framework and the steps involved in repair and maintenance work, and
- to establish the 'secret' practical knowledge associated with skilled work.

Only with exact knowledge of the above areas would it be possible to establish the implications of the complex world of work more precisely, to engender a discussion of sectoral job profiles and training based on work processes, and to show the way ahead. Such an outcome clearly went far beyond a general prognosis.

Reference to specific sectors always means looking at the practicalities of vocational training and at the expected levels of competence in an actual field of work that are regarded as necessary and desirable.

In order to achieve this, the project ⁽¹⁰⁾

- examined two sectors in detail (recycling and the machine tool industry). A total of 25 case studies were carried out, developments in each sector were analysed, and four expert workshops were held. Four work process studies completed the investigation ⁽¹¹⁾.

⁽¹⁰⁾ No systematised method was used in the project to evaluate the instruments developed and the results. This was because the main purpose was to develop a set of early recognition tools. The results and the project were continually discussed with the project advisory committee, however. The advisory committee of the 'EarlyBird' project consisted of social partners and experts in the two sectors from the five partner countries.

Two-way contacts, and contact between researchers and social partners, were among the research activities involved in the choice of the enterprises to be investigated, and in the investigation itself. The opportunity to exert an influence enhanced the level of involvement of the members of the advisory committee. Particular attention had to be given to this relationship, which ensured that everything learnt was checked. The results obtained from the research steps undertaken were therefore expanded and strengthened in the course of the project.

⁽¹¹⁾ The research strategy – sectoral analysis, case studies and expert discussions – was identical in the individual European countries, so that it was possible to make a European comparison within each sector and to try out the early recognition tools for employment research. The basis for comparing developments within sectors, and especially within enterprises, was the common work processes in the enterprises. It was possible to examine these independently of the different employment systems and to reveal the new requirements that now predominated and could be expected in the sectors in future. For the further development of the instruments, other research methods associated with early recognition were also considered. These included the scenario technique analysed more closely in a project run by Cedefop and the European Training Foundation and used in various sectors in ten European countries (Leney, T. et al., 2004). The results of that project fed into the newly developed set of instruments, in that the scenarios were used as an instrument for the development of future-oriented job profiles. Mike Coles, one of whose roles is to act as coordinator of the Cedefop project, was a member of the advisory committee and thus contributed his expertise.

- developed a set of sector-specific indicators for early analysis of skills needs based on the results of the investigation.

The above-mentioned research instruments made it possible to establish work processes empirically and to identify the knowledge and skills associated with them. The investigation therefore focused on the world of work and the changes within it. The enterprise, together with its organisation, working tasks, technologies, employment structures, innovations and other aspects, was thus the central point of reference for the investigation carried out (Spöttl 2001).

The methods and tools of employment research can be used for a variety of areas of enquiry (Blings/Spöttl/Windelband 2002; Windelband/Spöttl 2004). They consist of:

- sector analysis (level: establishment of sectoral and job structures and of wider employment impact),
- case studies (level: investigation of jobs within enterprises, company

Table 1: **Employment research tools for early recognition of skills needs**

Level	Instrument	Aim	Methods
Structure of jobs and sector, and wider impact on employment	Sector analysis	Identification of current developments, socio-economic institutions, trends and changes in tasks within a sector; Future development of technology and organisation of work.	Document analysis (surveys of research institutes, associations, trade unions); Surveys of key persons; Analysis of continuing VET provision; Analysis of research activities and results in the sector (universities, independent research institutes, company research institutes).
Jobs within enterprises, work processes, ways in which work and enterprises are organised, enterprise structures, overall operation	Case studies	Details of shop-floor work and of factors and changes influencing it; Development of enterprises and of ways in which they are organised.	Observation of work; semi-structured specialist interviews; discussion with experts at all levels; visits to enterprises.
Competences in future-oriented company and work processes.	Studies of work processes	Identification of work tasks and nature of work within enterprises, and of 'secret' practical knowledge of skilled work; Design of work, technology, knowledge and organisation of work and enterprise.	Observation of work; Analysis of work tasks; action-oriented targeted interviews; discussions with experts; discussion with skilled workers.
Significance of trends identified for an area of employment. Anticipated future developments.	Expert workshops on the future	Identification and structuring of highly relevant tasks for skilled workers; Trends and forecasts of further skills developments in selected fields of employment.	Brainstorming; targeted discussions on development of scenarios with selected experts and others from the sector and from associations and trade unions.

practices, types of work and enterprise organisation, structures of enterprises, overall operations),

- work process analysis (level: establishment of competences in company and work processes) and
- expert workshops on the future (level: significance of trends identified for a given sector).

The aim of the investigation was to establish the knowledge, skills and competences needed to perform a job in association with actual company and work processes rather than in the abstract. This kind of skills research gives priority to participatory analysis of skilled work and assumes a basic knowledge of the matter under investigation. Employment skills research is therefore domain-specific, that is, it deals with particular areas of work (Becker 2003).

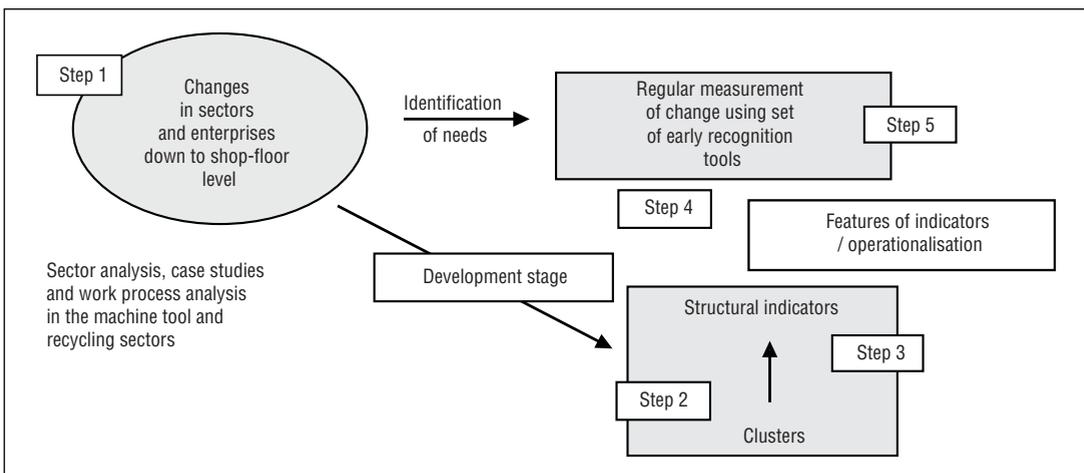
Usefulness of the individual instruments

Sector analysis was of particular importance since this instrument is intended above all to capture new developments and trends in the sector. The main subject of the investigation was thus changes in employment within a sector over a given period (see Table 1), looking at trends in development, the relevance of individual fields of business, innovations in technology and the organisation of work, and other pertinent factors. In order to shed light on future developments and trends, sector analysis was expanded in two directions for the purposes of early recognition:

- examination of innovative fields of research, and
- analysis of innovative continuing VET relevant to the sector.

The results of the sector analysis were explored further in selected case

Figure 2: From changes in sectors to new skills training



studies ⁽¹²⁾ to see how the world of work had changed (see Table 1). The selection criteria for the case studies included:

- belonging to the sector,
- relevance of the location of the economic region,
- innovative nature of the enterprise (changes and pressures to change in the organisation of the enterprise and of the work, innovative practices and products),
- development dynamics (growth in economic power: market share, turnover),
- enterprises changing or subject to a process of change, and
- range of activities (split between services, products, type of production, assembly work, external relations).

Forward-looking enterprises needed to be identified for the case studies. In the recycling sector, the enterprises selected were active in several areas and had been able to shift their emphasis in response to market conditions. The reason for this was the varying market prices of second-

Table 2: Extract from the structural indicators and their operationalisation for the machine tool sector

Cluster	Structural indicators	Operationalisation for engineering / machine tool sector
Organisation of work	Organisational structures	<ul style="list-style-type: none"> • Changes in organisational structures (e.g. 'lean production', project work), • Spread of flatter structures, • Spread of new models of work organisation (group and team work).
	Responsibility structures	<ul style="list-style-type: none"> • Shifts in structure of responsibility, • Changes in areas of responsibility, • Growth or decline in responsibility at shop-floor level.
Technology	Spread of ICT	<ul style="list-style-type: none"> • Increase in widespread use of ICT such as SPS / CNC / CAD / CAM in production / processing / quality control measurement, • Implementation in new fields.
	Production techniques	<ul style="list-style-type: none"> • Spread of laser processing equipment, near net shaping, robot technology, cutting techniques (e.g. water jet cutting, laser cutting), linear direct drives, measurement techniques (e.g. laser measurement), parallel kinematics and other new production techniques.
	Products	<ul style="list-style-type: none"> • New innovative products (with full service), • Changes in prices of machinery, • Use of new materials (plastics, ceramics), • New ways of providing service such as teleservice, counselling, training courses.

⁽¹²⁾ How a case study was defined exactly depended on the specific research task or intention. Each case study therefore needed both to be typical of a sector, and to demonstrate its unique character.

ary raw materials. In the machine tool sector, forward-looking enterprises were distinguished by having an 'open' enterprise structure. These demonstrated a high degree of dynamic development.

Each case study referred to one or more similarly situated enterprises together with the associated environment of initial and continuing training institutions. The aim was to analyse precisely the work tasks carried out in the enterprise(s).

Where the results of sector analysis and the case studies showed that work tasks at the shop-floor level had changed hugely because of new influences, new machinery, new ways of working, new legislation, etc., and that this was of great importance for the sector, further in-depth analysis was necessary in order to capture the exact impact on work processes. The instrument of *work process analysis* was then used. Work process analysis was regarded as an extension of the case studies⁽¹³⁾, and was used to capture the knowledge and skills used to carry out work tasks, working conditions and operations, and the challenges to be resolved. Selected work processes in both sectors were established with the help of work process analysis, such as the process for managing accelerated rotting equipment and, in the machine tool sector, the rapid prototyping process⁽¹⁴⁾.

In order to give greater solidity to the empirical findings, indicators were developed heuristically to show exactly what was changing where within each sector. These were termed structural indicators and are to some extent transferable to other sectors⁽¹⁵⁾. Figure 2 summarises schematically how the indicators were developed and operationalised on the basis of the investigation. It shows the sequence of steps clearly. As a first step, all the changes identified in the sectors, right down to the shop-floor level, were captured and listed. In the second step, all the changes found in Step 1 were structured and clustered. Because cluster structures did not exist for this purpose, they were created on the basis of plausibility. One important criterion was that minor and major changes in work tasks had to be recognisable. This was also expressed in the structural indicators, which concentrated on parameters characterising major structural change (Haas 2002).

In Step 3, indicators were derived and arranged, on the basis of the changes collated. These indicators were then operationalised in Step 4. Future changes in work tasks in the sectors were subsequently measured using the framework of indicators developed (Step 5).

⁽¹³⁾ A case study involved around 1-1.5 days in an enterprise. Work process analysis usually requires 4-5 days to capture selected work processes completely.

⁽¹⁴⁾ In total, four work process analyses were carried out as part of the project, to capture exactly the content mentioned above and to test the instrument. Case studies and sector analyses were carried out in all five European countries.

⁽¹⁵⁾ A literature and Internet search by the authors showed that there was as yet no suitable design of indicators to identify employment skills needs. The indicators referred to in social science literature pursue other objectives.

Before being used, the indicators were operationalised and evaluated to ensure that they would make changes visible. Operationalisation meant specifying what had changed in enterprises, equipment, services, etc., and might lead to new skills profiles for skilled workers.

Overall, 31 indicators and 10 clusters were devised for the machine tool sector ⁽¹⁶⁾ (see Table 2).

Since indicators were developed in two sectors, much of interest was learnt in relation to transferability. Because the aim of the project was to identify and develop indicators on the basis of real empirical surveys ⁽¹⁷⁾, the indicators could not be too detailed. However, in order to describe change, it was advantageous to formulate the indicators at a level of abstraction which was not too general, and yet captured the context without being too differentiated. If they were too detailed, they could not be used to capture development trends. The essential point was that the indicators had to be operationalisable. If that was the case, then it would be possible to identify changes with sufficient accuracy. Ultimately, the indicators operationalised did not relate exclusively to one sector and can be transferred to other sectors.

All the same, it should be remembered that the same sector-specific context is not hidden behind every actual indicator. The context actually described at the operationalisation level of an indicator may differ from sector to sector. The advantage of the potential transferability that nonetheless exists is to be seen in the ability of the same indicators to represent changes in different sectors. This considerably increases the transparency of the developments explained. In our case, the indicators were developed for the purpose of investigating the machine tool sector, and were then transferred to the recycling sector. By means of the iterative operationalisation process usual in such cases, it was possible to construct a skeleton of indicators suitable for both sectors. This will doubtless undergo further change and development in the future. However, it has been demonstrated that the indicators developed are suitable for both sectors, even though the sectors are differently structured.

However, it may well be that a core of indicators will be valid for all or a number of sectors after further differentiation, while there will probably be some indicators that will constantly change. One essential advantage of the indicators identified here for specific sectors is that developments that are highly relevant to early recognition schemes can be described relatively exactly by them.

The results of the investigations show very clearly that it was possible to depict real work processes in enterprises, and the structures and devel-

⁽¹⁶⁾ The process of developing the indicators is described in Windelband/Spöttl (2003b).

⁽¹⁷⁾ Broad indicators such as international trends or macro-economic developments were not developed specially since other research institutes such as IAB (Institut für Arbeitsmarkt- und Berufsforschung in Germany) had been working specifically on these issues for years. Where these developments were significant for the sector under investigation, the results were fed into the analysis.

opment of enterprises by means of the research instruments used, although forecasts of further developments more than 5 years ahead could not be made, or were at best sketchy. For this reason, expert workshops on the future were further developed as an instrument by the project team.

At the expert workshops on the future ⁽¹⁸⁾, the results identified by means of the employment research strategy were collated to form scenarios for future European job profiles, with the help of sectoral experts (representatives of bvse ⁽¹⁹⁾ and VDMA ⁽²⁰⁾, and from enterprises) and of key persons (the project advisory committee, vocational training experts from BIBB and European experts) ⁽²¹⁾. The key persons selected were distinguished by their knowledge of such fields as:

- new developments and trends in the sector,
- changes occurring in enterprises,
- changes to working tasks in the sector,
- new skills strategies in the sector,
- VET strategies in Europe.

The advantages of these workshops was that key individuals and decision-makers from associations, enterprises and VET could 'sit around a table' and debate scenarios for skills profiles, job profiles and other competence models.

Project results

The use of the research design in individual partner countries made it possible to capture changes at shop-floor level in the two sectors investigated and to interpret these for the future ⁽²²⁾.

In recent years, the profile of requirements in the recycling sector has changed considerably in the individual countries, both as a whole and at various levels. The main cause is the increased regulation of the handling of secondary raw materials. In the Netherlands, Austria and Germany, employees in the sector face new service demands such as taking delivery of used materials (waste) from suppliers, checking these for alien substances, and managing the paperwork associated with waste (waste disposal certificates and consignment notes). The work is now organ-

⁽¹⁸⁾ Four expert workshops on the future were held together with project partners, experts and the project advisory committee.

⁽¹⁹⁾ bvse- Bundesverband Sekundärrohstoffe und Entsorgung e.V. (Federal Association for Secondary Raw Materials and Waste Disposal)

⁽²⁰⁾ VDMA - Verein Deutscher Maschinen- und Anlagenbau e.V. (Association of German Machine-Making Companies)

⁽²¹⁾ Policy-makers did not initially take part in the expert workshops on the future, but this target group was integrated into the sector analysis survey. If re-used in future, the whole instrument should be accompanied by a process evaluation to provide constant feedback on the results in the sector at policy level as well.

⁽²²⁾ The research strategy and methods concentrated on changes in the world of work. Where conditions were appropriate, it was possible to transfer the results to skills training in VET systems.

ised so that skilled workers can advise clients on what papers are needed and on the requisite sorting and packing of the goods delivered. Clients are given information about ways of avoiding, re-using and disposing of waste. Enterprises offer their clients a service that accords with the client's wishes.

The trend towards increasingly automated systems, sometimes with widespread use of ICT, can also be seen in this sector and in changes in the range of tasks expected of employees working in recycling. The ability to remove alien substances and carry out repairs is playing an ever greater role. This presupposes basic technical skills and considerable experience with equipment, in order to judge its 'behaviour' when alien substances are present, and to correct faults appropriately. It is increasingly important for workers to understand the main functions of the equipment, but the ability to analyse and remove the causes of disruption is yet more crucial. Operators need to know about the process and how it functions in order to correct, or preferably to prevent, break-downs.

These developments, and the changes in tasks associated with them, demonstrate the need for skills training in the sector. This may take the form of job profiling, although other types of skills development may also be called for.

New challenges were also identified in the second sector investigated, the machine tool industry. The substantial changes at the work place are leading to new, decentralised arrangements at lower levels of the job hierarchy. As a result, skilled workers face a variety of challenges:

- Behaviour needs to be developed or already present to support company operations.
- Maximum priority needs to be given to performance of tasks.
- Management competence is needed to ensure that processes are carried out and that the tasks allocated can be performed independently.
- Besides technical execution of tasks, there is also a need for cooperative, organisational and planning ability, etc.
- Continual quality enhancement needs to be achieved by means of proven quality awareness and the ability to think for oneself.
- The design of production processes should help to drive innovation in processes and products.

It is obvious that there is a need to modify existing skills profiles since vocational trainers frequently still cling to traditional technologies and non-existent working tasks.

This rudimentary extract of the results shows that thought needs to be given to changing and redesigning skills profiles in both sectors in Europe. The expert workshops on the future, involving project partners, sectoral experts and key persons from various European countries, therefore set out to design scenarios for further European skills and job profiles ⁽²³⁾. It

⁽²³⁾ The scenarios identified should not be regarded as forecasts based on quantitative information from the past and present, or as utopian fantasies that have no basis in reality. They are based on the results of sectoral investigation.

was not assumed that it would be possible to apply these one for one, but that they should:

- help prepare for future sector-specific developments,
- provide key ideas for future-oriented job profiles, and
- show up a broad, future-oriented range of developments in order to assist social partners in the 'design' of modern job profiles.

Overall, seven job scenarios were designed for European use; five job profiles for the machine tool sector and two for the recycling sector ⁽²⁴⁾.

Summary

The employment research method developed for early recognition of skills needs was based essentially on indicators by means of which changes in a sector could be constantly observed at shop-floor level. The indicators were derived from what was learnt from the studies conducted. They may be regarded as the crystallisation of early recognition.

The newly developed early recognition system for identifying skills needs, based on indicators, is sector-based and has two aims:

- to obtain information for the design of VET and skills and job profiles, and
 - to help forecast skills needs in a variety of occupational fields.
- In order to obtain information for the design of VET and job profiles, the authors recommend the tools of sector analysis (analysis of sector and employment structures, and of current and likely future developments in the sector), case studies (investigation of work places and company and work processes) and work process analysis (identification of knowledge and skills implicit in future-oriented working tasks). The employment research tool of sector analysis was expanded to improve forecasting of future developments by the addition of consideration of research fields in the sector, analysis of innovative VET provision and analysis of sector-specific measurements and activities.

The expert workshops on the future, newly developed within the project, were used to identify sectoral trends and scenarios for future European job profiles. The scenarios revealed that VET and VET policy cannot rely on reaction alone in industry and craft trades. The employment research method described here, in association with the development of scenarios, opens up ways of achieving early recognition of the changes to be expected in Europe, and of reacting to these through proposals for European job profiles. Essentially there are two possibilities:

- the involvement of VET experts in design in this field.
- cooperation in the production of future-oriented VET and skills and job profiles in Europe.

⁽²⁴⁾ All seven occupational scenarios have been described more fully by Spöttl/Windelband (2003).

These could help to overcome the 'pragmatism' that predominates in many sectors and countries by fostering streamlined, effective European planning.

Above all, the indicators already available, in conjunction with the research method, can help to identify anticipated developments at 'shop-floor' level in a given sector more quickly and more exactly. Changes in enterprises, down to the level of work processes, can be captured relatively precisely by means of this set of instruments, and it can be decided more rapidly whether particular developments only apply to certain enterprises or areas of work, or are meaningful for the entire sector throughout Europe.

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Economic analysis of continued education by holders of short-cycle technical diplomas in French higher education ⁽¹⁾

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Key words

Human capital,
signal theory,
higher education,
vocational guidance,
vocational education
and training

SUMMARY

In a context of fierce competition in the labour market and employment system, the decision to continue studying after completing French short-cycle higher vocational education must be distinguished from the simple individual decision for optimum allocation of resources postulated by standard human-resource theory. It has much more to do with a sequential strategic choice and illustrates behaviour by players facing reality, knowing how to act and react to their evolving environment and the difficulties of dealing with uncertainty, relying more on cognitive than calculated reasoning. This article demonstrates that continued education varies according to students' profiles (according to qualifications, specialisation and gender). It may involve a combination of training strategy and/or employability strategy, and of minimising risks (of failure at university) and maximising competitive advantages.

(¹) This article is extracted from a work entitled *Les diplômés d'un BTS et d'un DUT et la poursuite d'études. Une analyse économique* (Gendron, 2004), which present the results of a thesis which was awarded a prize by the Scientific Council of L'université de Paris I Panthéon-Sorbonne and was a finalist for the thesis prize of the National Association of Doctors in Economic and Management Science (ANDESE).

Introduction

Continued education into higher education is becoming a massive and complex phenomenon in France, to the extent that it affects even the 'final' types of training such as higher education courses leading to the general or technological upper-secondary school-leaving certificate (BTS) and the university-level technology diploma (DUT). Continued education after these courses is taking on a singular character in relation to the peculiarity of the French higher education system (Annex 1) ⁽²⁾. Indeed, in many European countries, entry to short vocational training courses in higher education is open while university entrance is selective. In France, the opposite is true. Short vocational courses leading to the BTS and DUT among others are subject to entrance selection, while long university courses are freely accessible to all students with a baccalaureate qualification. While France may be an exceptional case, it is nevertheless paradoxical since a growing number of students are continuing their studies after obtaining these qualifications and, at the same time, a substantial number of students who would have like to follow short courses end up registering by default at university and failing (Beaud 2002) ⁽³⁾.

According to surveys by the Centre for Studies and Research on Qualifications (Céreq), in 1992 almost 40% of BTS holders and over 60% of DUT holders continued their studies in this way. Today, in 2005 the figure has risen to almost 70% of DUT holders, according to the assembly of directors of university technology institutes (ADIUT) and the directorate for higher education (DES). Alongside the logic of 'final' vocational training, a logic is developing of continued education to convert BTS and DUT qualifications into university foundation courses or a sequence of courses leading to higher education. So what is behind these decisions to continue studying? Why are these diploma holders who voluntarily opted for short 'final' courses in French higher education changing their initial decision? Furthermore, are they changing their initial choice, or had they already considered continuing before beginning their training? Since a large number of students are interested in these courses, should we regard this behaviour as a strategic approach?

⁽²⁾ We recommend that readers unfamiliar with the French education system do not continue reading this article before reading Annex I. Additional information on the French education system can be found at the following sources:

http://www.eurydice.org/ressources/eurydice/pdf/047DN/047_FR_FR.pdf

http://www.eurydice.org/ressources/eurydice/pdf/047DN/047_FR_EN.pdf

⁽³⁾ The democratisation of schools has led many students from working class backgrounds into the least legitimate courses of higher education, where those who succeed in obtaining an educational certificate will end up discovering that it is of little use on the labour market. These certificates are in competition with more selective training courses for access to both private- and public-sector jobs. The result is a process of devaluation of hope and bitter disappointment which, on a large scale, according to Beaud, may be socially damaging.

In this research work (Gendron 1997, 2004) we have attempted to understand the phenomenon using an approach in terms of sequential decisions. From the practical viewpoint, that work endeavours to explain the decision to continue studying after obtaining a BTS or DUT and to assess the consequence of that decision on their career. This article has the more modest aim of determining whether the demand for education has more to do with a simple choice of optimum allocation of resources or with a strategic choice⁽⁴⁾ based, in a context of job rationing or the inaccessibility of certain positions in the employment system, on fierce competition on the labour market. Specifically, we take stock of the factors behind the decision to continue studying. In order to achieve that, after describing the data used and the specific methods used to process them, we will look briefly at the hypotheses tested, the analysis method used and the estimated logistic regression models. From that starting point, we identify the main factors behind the decision to continue studying by IUT and STS graduates in general and on the basis of the course chosen.

Factors behind the decision to continue studying: data, hypotheses, tests and econometric models

Data used and hypotheses tested

The data used are taken from national surveys by the centre for studies and research on employment and qualifications (Céreq) relating to IUT and STS qualifications obtained in 1988, and conducted in March 1991⁽⁵⁾. These data (see Table 1, Annex 2) show for each qualified person, their demographic and socioeconomic characteristics, schooling and whether they went on to higher education or into the employment system. Using these data, we attempt to answer the question: What are the factors behind the decision to continue studying? In order to do so, among the factors influencing the decision to continue studying after the BTS or DUT, besides financial reasons, we have assumed that certain factors are linked to the student's socio-economic characteristics and schooling, others to

(4) The theoretical justification for a 'strategy-based' approach will not be discussed here. For that, the reader is referred to the following references in the bibliography: Gendron (1997, 1998, 2004).

(5) These old databases are a valuable resource when exploited at a detailed level. Until 1991 the Céreq databases were compiled from in-depth surveys that enable detailed analysis by course, diploma specialisation and gender. The exploitation of these databases for the purpose of this work are the original feature and value of this paper, as it allowed a more detailed analysis of continued education than is possible with the new generations of surveys such as those used by Cahuzac and Plassard (1996). In this article, we show that the analyses by Cahuzac and Plassard may be challenged (a trend towards general courses in continued education) given the chance to work on more detailed data. For instance, in our analysis we can distinguish vocational university courses such as the 'science and

the student's expectations in terms of employment and characteristics of the job other than the salary, but also a good and by no means insignificant number are linked to tensions on the labour market.

In order to analyse the factors behind the decision to continue studying, logistic regression models have been used in order to distinguish the specific direct effects from the various variables that can influence the student's decision. The factors behind the decision to continue studying were also modelled using a function of the decision to continue studying in which the parameters related to the students' socio-economic and schooling characteristics (social origin, schooling, age, etc.), the characteristics of their current job and tensions on the labour market.

Model types: dichotomic models

Specifications of the models adopted

The first dichotomic model is tested on the occurrence of the event 'continue studies' in relation to non-continuation (see Tables 2 and 3). Moreover, a second test related to the various types of continued education in relation to non-continuation (see Tables 4 and 5); among others, short post-BTS/DUT vocational courses⁽⁶⁾ and long vocational courses (science and technology college and master's degree types, etc.) and long general courses (e.g. disciplinary bachelor's and master's degrees). We also studied the effect of gender on the way in which studies were continued after the BTS or DUT.

Specific statistical processing on the population under review

For the variables of tensions on the labour market and job characteristics, we assumed that the student, in deciding whether to continue studying, was taking account of the available information from graduates of pre-

management maîtrise' or 'science and technology maîtrise' courses from general university courses, which Cahuzac and Plassard were unable to do since in their work all university courses are grouped together for statistical reasons under 'university courses' and therefore regarded as general ones. Thus, the use of the detailed Céreq surveys enabled us to work at a more detailed level statistically and so to consider 'general' university courses separately from vocational ones, such as the MST or MSG. It is this level of detail that explains why our analysis reaches the opposite conclusion: students are tending to continue their education in vocational rather than general courses, as the statistical groupings of Cahuzac and Plassard seem to indicate.

⁽⁶⁾ Post-BTS/DUT training generally takes the form of short-cycle one-year sandwich courses (six months in college, six months in industry) and in partnership with businesses, sometimes known as supplementary local-initiative training (FCIL). It may lead to a diploma (specialist national technology diploma, DNTS) or a local certificate. They are gradually being converted into vocational degree courses. For a development, see Gendron (1995).

vious years regarding the difficulties of finding jobs and of advancing their career. To achieve this, we made an assumption about information and used for that purpose the previous Céreq survey on the 1984 Céreq higher education graduates conducted in 1987. On this population, we calculated indicators of tension on the labour market and of career development, by course, specialisation, gender and regional education authority, which we then assigned to 1988 graduates with the same profile, as 'student knowledge'. Using these models, we attempted to understand the fac-

Table 2: Model explaining the probability of a man who has obtained a BTS or DUT continuing his studies

Reference de referencia	active	BTS		DUT	
		coeff.	sign	coeff.	sign
constant		-0,75		1,3	
Identifying particulars					
Ile de France	South	-0.24	-	-0.54	--
	Centre	0.11	non-significant	-0.28	-
	North	-0.16	ns	-0.08	ns
	West	-0.19	-	-0.65	--
Behind at school	Standard age	0.93	++	0.72	++
Married, divorced	Unmarried	0.64	++	0.55	++
Father not managerial	Father managerial	0.54	++	0.22	+
Mother not in employment	Mother in employment	0.14	+	-0.04	ns
Discharged, exempted	Deferred military service	3.48	++++	4.07	++++
Vocational baccalaureate	General baccalaureate	0.25	+	0.73	++
Services specialisation	Industrial specialisation	0.69	++	0.73	++
Tension on labour market					
Proportion of unemployed low	- average	0.22	+	0.24	+
*	- high	0.11	ns	-0.50	--
Average total duration of unemployment low	- average	-0.19	-	-0.43	-
*	- high	-0.68	--	-0.22	-
Proportion out of work for more than 6 months before first job low	- average	-0.07	ns	0.21	+
*	- high	-0.31	-	0.09	ns
Characteristics of job					
Salary>median salary*	Salary<=median salary	-0.16	-	0.13	+
Proportion of insecure job low	- average	0.48	+	0.33	+
*	- high	0.72	++	0.20	+
Proportion of managerial high *	- low	-0.02	ns	0.39	+
Proportion hired on indefinite contract high	- low	0.17	ns	0.40	+
	- average	-0.14	-	0.53	++

Source: Céreq data, Processing by Cereq-Laboratoire d'Économie Sociale.

* in March 1987; ns: non-significant at 5% threshold. Concordant pairs BTS and DUT: 75.7% and 82.3%. [How to read this table:](#) In table 2, the coefficients above zero mean that the propensity to continue studying is greater where the variable in the second column applies rather than the first. Also, this result is significant only if it has + signs next to it ('ns' being 'non-significant' and <0 meaning 'less marked'). [Example reading:](#) For all male students, the propensity to continue studying is greater where they are not behind at school. This result is significant for IUT and BTS graduates (++) . In particular, the propensity to continue studying is greater for a male student with a BTS of a 'standard age' (0.93) in relation to a student who has been behind at school. The same applies to male IUT students (0.72) but to a lesser extent than for BTS holders.

tors determining the decision to continue studying, taking account not only of the students' identifying particulars but also the socio-economic context of their environment.

Table 3: Model explaining the probability of a woman who has obtained a BTS or DUT continuing her studies

Reference de referencia	active	BTS		DUT	
		coeff.	sign	coeff.	sign
constant		-0,75		1,3	
Identifying particulars					
Ile de France	South	0.63	++	-0.4	-
	Centre	0.09	ns	-0.43	-
	North	0.24	+	-0.73	--
	West	-0.41	-	-0.36	-
Behind at school	Standard age	0.72	++	0.82	++
Married, divorced	Unmarried	1.23	+++	1.24	+++
Father not managerial	Father managerial	0.57	++	0.48	+
Mother not in employment	Mother in employment	0.13	+	-0.03	ns
Vocational baccalaureate	General baccalaureate	0.62	++	0.67	++
Industrial specialisation	Services specialisation	0.17	+	0.40	+
Tension on labour market					
Proportion of unemployed low	- average	-1.13	---	0.61	++
*	- high	-0.39	-	0.16	ns
Average total duration of unemployment low	- average	0.81	++	0.32	+
*	- high	1.64	+++	-0.49	-
Proportion out of work for more than 6 months before first job low	- average	-0.83	--	0.12	ns
*	- high	-0.73	--	-0.17	ns
Characteristics of job					
Salary>median salary*	Salary<=median salary	0.15	+	0.29	+
Proportion of insecure job low	- average	-0.43	-	0.32	+
*	- high	-0.18	ns	0.71	++
Proportion of managerial high *	- low	-0.18	-	-0.27	-
Proportion hired on indefinite contract high	- low	0.18	+	0.004	ns
	- average	0.54	++	-0.16	ns

Source: Céreq data, Processing by Céreq-Laboratoire d'Économie Sociale.

* in March 1987; ns: non-significant at 5% threshold. Concordant pairs BTS and DUT: 71.1% and 70.9%. How to read this table: In table 3, the coefficients above zero mean that the propensity to continue studying is greater where the variable in the second column applies rather than the first. Also, this result is significant only if it has + signs next to it ('ns' being 'non significant' and <0 meaning 'less marked'). Example reading: For all female students, the propensity to continue studying is greater where they are not behind at school. This result is significant for IUT and BTS graduates (++) . In particular, the propensity to continue studying is greater for a female student with a BTS of a 'standard age' (0.72) in relation to a student who has been behind at school. The same applies to female IUT students (0.82) but to a greater extent than for BTS holders; this is the opposite trend observed for their male counterparts (table 2).

Results of the models: factors behind IUT and STS graduates' decision to continue studying

Basic models: general trends towards continued education

Based on these logistic models (see Tables 2¹ and 3) on continued education in general, the factors determining whether students continued their studies from the point of view of their identifying particulars relate to the general trends traditionally found in career guidance works^(?) (Ertul et al., 2000, HCEEE, 2003).

The influence of the student's identifying particulars on continued education

Young graduates who have not failed any previous stage of their school career are the most likely to continue their studies. Indeed, they are more likely to continue their studies if they did not fall behind at school before qualifying.

This effect is slightly more marked for young men with a BTS than those with a DUT, and the other way round for young women IUT graduates compared with their STS counterparts. Continued education therefore appears to be a logical extension of studies in the educational system that can make up for their reluctance to enter the labour market since they '*feel too young and insufficiently prepared to face up to it*'^(⁸) by delaying their exit from the educational system and enabling them to add 'new strings to their bow'^(⁹) (Gendron, 1995, 2005).

The propensity to continue studies is greater among those with a general baccalaureate than those with a vocational baccalaureate. General baccalaureate holders are more likely to continue studying than vocational baccalaureate holders, and the same distinction applies at the end of BTS and DUT. The trend is nevertheless less marked for men with a BTS. Studies are continued uninterrupted and any interruption is likely to limit the tendency to continue studies. Indeed, whatever the course, there is a greater propensity to continue studying if the student's military service is deferred. On the contrary, military service interrupts the training process.

(¹) One part of the choice of whether to continue studying is determined by the descriptive variables which already governed guidance in higher education after obtaining the baccalaureate, including the choice of BTS or DUT. We will not develop this point any further in this article. For further details, see Ertul (dir. 2000) and the minutes of the plenary session of 9 January 2003 of the High Committee for Education-Economy-Employment, DPD, Ministry of National Education (HCEEE, 2003).

(⁸) The view of a headmaster recorded during surveys conducted on the supplementary local-initiative training (Gendron, 1995).

(⁹) *Ditto*. The view of a professional.

Most graduates who continue studying are unmarried. Being married (or having been married, or living together) implies that students have to be able to bear certain financial constraints associated with living as a couple, especially when there are children involved. In these circumstances, it is comparatively more difficult for a single student to continue studying where they take place in the same context as for previous years. This factor has greater weight for women.

Continued education is affected by the region in which the BTS or DUT is obtained. Women with a BTS are more likely to continue studying in the south or north of France than in the Ile-de-France. Conversely, other graduates are less likely to continue studying wherever they obtain their diploma than in the Ile-de-France. This may be explained by the fact that the Ile-de-France region, used as a reference variable, is characterised by a high level of BTS training possibilities, accounting for over a quarter of all higher education diplomas alone. Therefore, there are more likely to be routes to further training at the end of these courses if the region in question has a highly developed range of BTS courses on offer.

Studies tend to be continued in the same specialisation as previous studies, as this has more impact than the course followed. Indeed, this effect is more pronounced for men who have had training with an industrial specialisation, on any course. The effect also applies to women training with a services specialisation, albeit to a lesser extent.

Social origin plays a more important role with BTS holders than with their university counterparts. Indeed, there is a greater propensity for continued education for students holding a BTS where the father has a managerial job and the mother is working. It seems as if social origin has an effect equivalent to the 'baccalaureate' effect observed among IUT graduates. In cases where the baccalaureate has a significant effect on continued education for IUT graduates, social origin has that effect with STS graduates. Should we deduce from this that continued education applies to the better off BTS graduates rather than the academically stronger IUT graduates? In fact, STS graduates would only be able to continue their education if they have the financial means to do so.

Impact of information on labour market tensions and the characteristics of the job held on the decision to continue education

Overall, the conditions for entering the labour market and the characteristics of jobs on the labour market for BTS and DUT graduates influence the decision to continue their education. Described by Lojkin (1992) in negative terms as 'neither a manual worker nor an executive', the identity of these graduates is split (Kirsch, 1991); BTS and DUT graduates have to handle a dual intermediate position, in the education system and on the labour market. On the labour market, the tendency towards ever higher requirements in terms of training and qualifications to get a job in France has

the effect of raising the level of graduates on the labour market. Students are well aware of their 'potential' employability in relation to the future of their peers who have left earlier, and the employability 'differential' in comparison with graduates of a higher level – the level at which the crucial change takes place of the status from the 'intermediate profession category' to the 'managerial' level, where the risk of unemployment is a necessary condition but not sufficient to justify continuing education for BTS or DUT graduates; the trend towards continued education, which is growing constantly, was in fact triggered well before their difficulties in gaining employment began after 1990 (Martinelli and Vergnies, 1995). Competition between intermediate graduates does therefore have an impact on the relative and absolute socio-professional position of BTS and DUT graduates, and on their uncertainty as to their academic and career prospects; it influences the continued education phenomenon. Nevertheless, the climate on the labour market has an impact on continued education, though to a varied extent according to the profiles.

The propensity to continue education regardless of course or gender (with the exception of women BTS graduates) is higher where there is a high proportion of unemployed among the graduates of previous years, 30 months after leaving the education system. Women, however, whether IUT or STS graduates, seem to be more sensitive to the overall duration of unemployment than to the risk of unemployment itself. Thus, the longer unemployment lasts, the more women are inclined to continue their education. The differences between men and women in the variables characterising the tensions on the labour market and in the employment system may indicate differing sensitivities to the variables relating to the short- or long-term outlook. Before finding a stable position (Vernières, 1996) in the employment system, women seem to pay special attention to the indicators associated with the conditions for finding a job rather than the characteristics of the actual job concerned. Conversely, men's priority concerns relate to job stability and the possibilities of career development, especially towards managerial jobs for IUT graduates. In addition to these sensitivities, we observe specific trends according to course. Thus, STS graduates appear to be particularly sensitive to fast access to the first job when deciding whether to continue their education, while for IUT graduates job stability would appear to be more important.

Factors affecting continued education by BTS or DUT graduates on short or long vocational courses or general long courses

Based on the logistic models distinguishing the types of continued education (short or long vocational, and long general), we highlight on the one hand variables determining whether education continues according to the type of course and secondly the similarities and differences between student profiles (see Tables 4 and 5).

Table 4: Model explaining the probability of a man holding a BTS or DUT continuing his education in a variety of course types

Variables		BTS						DUT					
		Post-BTS		Long vocational		Long general		Post-DUT		Long vocational		Long general	
reference	active	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign
constant		-1,94		-1,77		-2,06		-2,67		-4,71		-1,20	
Identifying particulars													
Ile de France	South	0.30	+	-0.40	-	-0.25	-	-0.66	-	-0.90	--	-0.38	-
	Centre	-0.06	ns	0.61	++	-0.09	ns	0.15	ns	-0.90	--	-0.14	ns
	North	-0.19	ns	0.45	+	-0.44	-	0.42	+	-0.62	--	-0.01	ns
	West	0.14	ns	-0.72	--	-0.12	ns	-0.85	--	-1.23	---	-0.26	-
Behind at school	Standard age	0.74	++	1.19	+++	0.72	++	0.75	++	0.93	++	0.63	++
Married, divorced	Unmarried	0.77	++	0.66	++	0.51	++	0.13	ns	0.93	++	0.67	++
Non-father managerial	Father managerial	0.29	+	0.67	++	0.56	++	0.06	ns	0.48	+	0.13	+
Non-working mother	Mother in employment	0.38	+	-0.14	-	0.22	+	-0.03	ns	0.17	ns	-0.04	ns
Discharged, exempted	Deferred military service	2.10	++++	3.07	++++	4.16	++++	0.90	++	4.38	++++	4.43	++++
Vocational baccalaureate	General baccalaureate	0.50	++	0.23	+	0.27	+	0.63	++	0.68	++	0.80	++
Services specialisation	Industrial specialisation	-0.29	-	1.68	+++	0.13	ns	-0.07	ns	1.83	+++	0.67	++
Tension on labour market													
Proportion of unemployed low	- average	0.35	+	-0.20	ns	0.52	++	0.42	+	0.43	+	0.06	ns
	* - high	-0.92	--	0.52	++	-0.07	ns	-0.25	ns	-0.39	-	-0.64	--
Average total duration of unemployment low	- average	-0.50	--	0.44	+	-0.34	-	-0.35	ns	-0.17	ns	-0.70	--
	* - high	-0.65	--	-1.19	---	0.01	ns	-0.62	--	0.40	+	-0.42	-
Proportion out of work for more than 6 months before first job low	- average	0.33	+	-0.52	--	0.07	ns	0.26	ns	0.52	++	0.06	ns
	* - high	0.17	ns	-1.48	---	-0.04	ns	-0.01	ns	0.60	++	-0.05	ns
Characteristics of job													
Salary > median salary*	Salary <= median salary	-0.35	-	-0.14	ns	-0.01	ns	0.29	+	0.04	ns	0.05	ns
Proportion of insecure job low	- average	-0.25	ns	1.20	+++	0.34	+	0.10	ns	0.26	ns	0.70	++
	* - high	-0.16	ns	2.22	++++	0.45	+	0.40	+	-0.54	--	0.52	++
Proportion of managerial high *	- low	0.20	ns	-0.54	--	0.17	ns	0.69	++	0.38	+	0.24	+
Proportion hired on indefinite contract high	- low	0.87	++	-0.45	-	0.19	ns	-0.54	--	1.39	+++	0.32	+
	- average	1.09	++	-1.97	---	0.28	+	0.06	ns	1.25	+++	0.31	+

Source: Céreq data, Processing by Céreq-Laboratoire d'Économie Sociale.

* in March 1987; ns: non-significant at 5% threshold. Concordant pairs for BTS: 71.1%, 85.7%, 78.1% and for DUT: 69.2%, 87.1%, 85.2%. How to read this table: In table 4 on men who have obtained a BTS or DUT according to type of continued education, the coefficients above zero mean that the propensity to continue education is greater where the variable in the second column applies rather than the first, depending on the course type. Also, this result is significant only if it has + signs next to it ('ns' being 'non-significant' and <0 meaning 'less marked'). Example reading: For all male students, the propensity to continue education is greater where they are not behind at school, regardless of the type of continued education or original diploma type (DUT or BTS). However, the propensity to continue education on a long vocational course is greater for a male student with a BTS of a 'standard age' (1.19) in relation to a student who has been behind at school relative to other types of continued education.

Table 4: Model explaining the probability of a man holding a BTS or DUT continuing his education in a variety of course types

Variables		BTS						DUT					
		Post-BTS		Long vocational		Long general		Post-DUT		Long vocational		Long general	
reference	active	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign	coeff.	sign
constant		-2.44		-0.89		-1.65		-4.05		-2.87		0.15	
Identifying particulars													
Ile de France	South	2.08	+++	1.93	+++	-0.66	--	0.30	ns	-0.67	--	-0.49	-
	Centre	0.49	+	0.60	++	-0.23	-	1.30	+++	-1.20	---	-0.39	-
	North	0.07	ns	1.49	+++	-0.60	--	0.48	+	-1.52	---	-0.50	--
	West	0.53	ns	-0.36	-	-0.65	--	-0.04	ns	-0.62	--	-0.39	-
Behind at school	Standard age	0.33	+	0.75	++	0.85	++	1.06	+++	0.75	++	0.89	++
Married, divorced	Unmarried	0.52	++	1.05	+++	1.84	+++	0.86	++	1.16	+++	1.33	+++
Father not managerial	Father managerial	0.68	++	0.74	++	0.42	+	0.35	+	0.83	++	0.26	+
Mother not in employment	Mother in employment	-0.04	ns	0.09	ns	0.21	+	0.32	ns	-0.04	ns	-0.07	ns
Vocational	General	0.50	++	0.92	++	0.66	++	0.26	ns	0.46	+	0.88	++
baccalaureate	baccalaureate												
Industrial specialisation	Services specialisation	2.87	++++	-2.12	---	0.70	++	2.55	++++	0.31	+	0.63	++
Tension on labour market													
Proportion of unemployed low	- average	0.01	ns	-2.50	----	-0.17	ns	-0.46	ns	0.64	++	0.75	++
	* - high	1.39	+++	-0.83	--	-0.03	ns	-0.42	ns	0.24	ns	0.26	+
Average total duration of unemployment low	- average	-3.14	----	2.56	++++	-0.71	--	2.29	++++	1.55	+++	-0.08	ns
	* - high	-2.99	----	3.60	++++	-0.29	ns	0.61	ns	0.28	ns	-0.74	--
Proportion out of work for more than 6 months before first job low	- average	1.56	+++	-2.48	---	0.41	+	-0.02	ns	0.19	ns	0.03	ns
	* - high	1.18	++	-2.24	---	1.29	+++	-0.45	ns	0.07	ns	-0.20	-
Characteristics of job													
Salary > median salary*	Salary <= median salary	1.26	+++	0.07	ns	0.18	ns	0.17	ns	0.47	+	0.32	+
Proportion of insecure job low	- average	-0.50	--	-0.47	-	-0.44	-	0.41	ns	0.54	++	0.32	+
	* - high	-3.17	----	0.99	++	-0.53	--	0.57	ns	0.61	++	0.86	++
Proportion of managerial high *	- low	-0.44	-	-0.87	--	0.39	+	-0.68	--	0.07	ns	-0.51	--
Proportion hired on indefinite contract high	- low	-0.48	ns	-0.42	-	0.85	++	-0.81	--	0.14	ns	-0.18	ns
	- average	-0.78	--	0.85	++	0.38	+	-1.11	---	0.31	+	-0.43	-

Source: Céreq data, Processing by Céreq-Laboratoire d'Économie Sociale.

* in March 1987; ns: non-significant at 5% threshold.

Concordant pairs for BTS: 75.3%, 81.5%, 74.2% and for DUT: 75.4%, 75.1%, 72.9%. How to read this table: In table 5 on women who holding a BTS or DUT according to type of continued education, the coefficients above zero mean that the propensity to continue education is greater where the variable in the second column applies rather than the first, depending on the type of continued education course. Also, this result is significant only if it has + signs next to it ('ns' being 'non significant' and <0 meaning 'less marked'). Example reading: For all female students, the propensity to continue education is greater where they are not behind at school, regardless of the type of continued education or original diploma type (DUT or BTS). However, the propensity to continue education on a short vocational course (post-DUT) is greater for a female student obtaining a DUT at a 'standard age' (1.06) in relation to a female student who has been behind at school relative to other types of continued education. The propensity for continued education on a long vocational course is similar for holders of a BTS or DUT in relation to the variable 'behind at school' (0.75).

Dichotomic models and factors behind the decision to continue education according to course type

The choice of dichotomic model to understand the factors determining whether education is continued according to course type is justified by the fact that we have assumed that graduates deciding whether to continue their education based on course type were considering it not in the absolute but in a fairly well defined career. The reasons many students, with the exception of those who are undecided, continue their education are special considerations such as specialisation, adding to their skills during post-BTS or post-DUT training, obtaining a higher-level qualification and/or continuing education, combining both a diploma and a vocational specialisation (such as science and technology master's degree courses). Thus, the analysis and tests were carried out on the basis of the choice 'continue education on a particular course or finish education'.

Variable influences of students' identification variables on the type of continued education

The 'age' effect has a greater impact for graduates considering vocational courses. Here again, standard age has an influence on continued education, as already observed in the first models. However, by specifying the types of continued education, the impact of standard age is greater for male STS graduates considering long vocational courses and for female IUT graduates on short courses. Not being behind at school is important for graduates wishing to specialise or train in a trade with a view to getting a job quickly.

The choice of vocational training can be indicative of the desire to enter the labour market quickly or in the near future, while a more general training can correspond to an earlier interest in long-cycle studies regardless of any delay in academic career.

The effect of military service confirms the result of the previous models. Deferred military service has a positive impact on continued education, especially if the student is considering a long course. This result can reveal two types of situation: either the student had not applied for postponement, and on obtaining his diploma will therefore be faced with the decision of doing military service or not. This situation would justify, for example, the choice of taking a short course while waiting to join up. Either the student had previously applied for postponement with a view to deciding whether to join up when the time came, thus enabling him to go ahead, or the student had planned to continue his education (as, for example, in the case of using BTS/DUT training as a *pseudo*-DEUG (diploma of general university studies) or *pseudo*-CPGE (preparatory courses for the major colleges). Thus, postponement often goes hand-in-hand with continuing a long-cycle education. For short-cycle continued education, postponement has less

impact, as many students were able to choose short-cycle education while waiting to join up, as observed in previous research (Gendron, 1995).

The type of continued education varies according to the specialisation of the diploma. The 'industrial' specialisation does not often lead to continued short-cycle education after a DUT or BTS. This can be explained by the fact that most short-cycle courses are in the services sector. This means that women holding a service-sector BTS or DUT are more inclined to continue their education on a short-cycle course. Conversely, the likelihood of continuing education in a long-cycle vocational course is greater for men holding an industrial-type BTS or DUT, and lower for service-sector STS graduates.

The 'region' effect highlights the effects of supply in terms of choice of course subject. Women are more likely to continue their education if their chosen course is offered in the region where they graduated; this is particularly so for women continuing vocational education and especially those with an STS diploma. This result may imply that women are inclined to continue their education provided it does not require significant geographical mobility (mobility being unimportant for these graduates, Martinelli and Vergnies, 1995); a choice of proximity (confirming the one made after obtaining the baccalaureate). Conversely, for men, the region variable has little effect on the decision to continue their education in relation to other factors. Women are especially sensitive to family situation. Women's decision to continue their education is very much conditioned by their family situation (whether or not they have dependent family members). Single women feel able to follow long-cycle courses. Being single is also a positive factor for men, regardless of their chosen course, but not as much as for women.

Differing profiles according to perception of labour market conditions and job characteristics

The continuation of education generally indicates students' concern not only for their short-term future but also about their position in the socio-professional hierarchy as their career develops. The reason for embarking on continued education may be a certain disappointment when potentially emerging onto the labour market linked to poor job and career-development prospects. It may be influenced by a large number of graduates on a slack labour market leading to devalued qualifications or difficult access to the desired position on completion of their education when planning their career path. Knowing that their job prospects are very much conditioned by their obtaining a relevant qualification (Kirsch and Desgouttes, 1996) and finding in-service training facilities very limited or restricted at their level of education, they tend to be all the more concerned about their career development and hence to continue their education.

However, the factors determining continued education vary according to the subject in which they wish to continue their education. Thus, the main

reason for BTS graduates to continue their education is access to a first stable job. In addition to job security, their university counterparts also seem to be concerned about salary and career development. Distinguishing the nature and length of the chosen courses enables a detailed analysis to be made of certain profiles between men and women and according to the original qualification. Male STS or IUT graduates in continued education seem to be motivated mainly by the characteristics of the job. Many STS graduates seem to continue their education on long vocational courses in response to fear of unemployment and job insecurity. Besides the desire to gain direct access to a stable job, IUT graduates appear to continue their education in order to develop a career path leading to a management job. IUT and STS graduates following traditional university courses are similarly motivated, particularly concerns about the characteristics of the job, in this case direct access to a job with an indefinite contract and, especially for DUT holders, development towards management positions.

Women BTS graduates continuing their education on short-cycle courses seem to be particularly sensitive to salary, but the risk of unemployment has an even greater influence on their decision. Continuing education in short-cycle courses masks the fear of unemployment by delaying their entry into the labour market. Their university counterparts are motivated to continue their education in short-cycle courses not so much by the risk of unemployment as by its duration. Post-BTS/DUT education is thus a way of specialising or diversifying skills, so enabling these students to distinguish themselves from other candidates on the labour market and – owing to the applied nature of this training – to find work more quickly than if they had ended their education at BTS or DUT level.

Women BTS graduates continuing long-cycle general education, besides their desire to gain rapid access to employment, seem to be motivated by the desire to move towards stable jobs and management positions. Their university counterparts have similar concerns, but salary seems to be a more important issue for them than the desire to achieve 'managerial' status.

Finally, female students continuing their education on long-cycle vocational courses have different motivations according to whether they hold a DUT or a BTS. The original course is highly significant in this case. For instance, IUT graduates seem to be particularly motivated by the characteristics of the job (job security, salary) while STS graduates seem to be particularly concerned about the duration of unemployment that their fellow students from previous years may have experienced.

Similarities and differences between different profiles

After revealing the main factors determining whether students continue their education for each course type, similarities and differences between certain profiles appear, according to the student's personal characteristics and to the situation on the labour market and in the employment system.

From the viewpoint of the students' socio-economic characteristics, the fact of being of standard age is an important factor for men continuing their education on a long-cycle vocational course. This continued education behaviour may lead to an intermediate choice of postponing entry into the labour market on account of the economic climate, so deliberately using BTS or DUT training as pseudo-DEUGs. This intermediate choice of long-cycle vocational training can prove difficult if it was not planned, since the student has to commit to a new stage and a new training cycle in which not being behind at school is a variable influencing the decision. While the 'standard age' effect also applies in a positive way to women, the 'family circumstances' effect is more important for them. The longer the studies women consider, the more important it is for them to be single. Moreover, men and women following long-cycle vocational training courses tend to have similar profiles, regardless of the original course. Their decision to continue their education on a long-cycle vocational course is influenced more than for other courses by the father having a managerial position. The mother's employment, on the other hand, has only a slight influence and only for male BTS graduates continuing their education with a post-BTS or in a long-cycle general course. The general baccalaureate has a positive impact on the continuation of education in all cases, regardless of gender. However, the longer the continued education considered by IUT graduates of both genders, the more important it is to have a general baccalaureate. It is important to male STS graduates continuing education in short-cycle courses and to women taking long-cycle vocational courses.

So we see that the differences and similarities between students' profile for the variables relating to an understanding of tensions on the labour market and to the characteristics of the job do not tally with those observed for graduates' particulars. Women's motivation for continuing their education varies according to the original diploma. Thus, BTS graduates continuing short- or long-cycle vocational education are particularly sensitive to the conditions for finding a job. It is mainly the characteristics of the job that influence IUT graduates to continue their education on long-cycle vocational or general courses. While for women, the original qualification is the element determining the structure of the continued education profile, men find the job characteristics more important in deciding on continued education. However, the 'original qualification' effect is important in relation to the effect of 'access to management' regardless of the type of continued education chosen. All are motivated by the possibility of gaining access to managerial functions. Moreover, we observe similar motivations from the viewpoint of the choice of continuing long-cycle education. What-

ever the type of long-cycle education followed, IUT and STS graduates share the desire to obtain a secure job. However, those continuing their education on long-cycle vocational courses are also concerned about the risk of unemployment. On the other hand, graduates continuing with short-cycle education are characterised by diverging traits. BTS graduates, by extending their education for a further year, are seeking to gain direct access to a secure job while DUT graduates continue their education with short-cycle courses in order to attain a 'managerial' position, requiring a level of recognised education of baccalaureate plus three years; moreover, the first DNTS (national specialist technical diplomas) appeared mainly for post-DUTs rather than post-BTSs (Gendron, 1995) ⁽¹⁰⁾.

Conclusion

To sum up, the regression models show for continued education in general that the more students are pessimistic about the labour market situation, the more they are inclined to continue their education, especially if they already have a general baccalaureate, if they are from a comfortable background and if there has been no break or failure in their schooling; these trends tally with those highlighted by Cahuzac and Plassard in 1996. On the other hand – and this is the paper's original contribution – distinctions appear when looking at the type and length of continued education. An analysis of the factors behind the decision to continue education, according to the course, using the database used in my work (Céreq survey 1991) enables these factors to be specified on the basis of the length and type of course followed, which was not possible with the data used by Cahuzac and Plassard (1996). This is the original aspect of this work and it is the main reason why our conclusions differ from those offered by Cahuzac and Plassard. While these two authors wondered 'whether the continued education movement, mainly based around university courses, was tending towards a movement in favour of general training⁽¹¹⁾', our models' ability to distinguish between continued education courses allows the opposite conclusion to be drawn, namely the trend towards continuing education in

⁽¹⁰⁾ This, like the recent creation of vocational degrees, is the responsibility of the universities.

The vocational degree is issued by the universities, alone or jointly with other public higher-education establishments, empowered to do so by the Minister for Higher Education.

⁽¹¹⁾ These differences between our respective conclusions may be explained by the coarse groupings of the continued education courses that Cahuzac and Plassard (1996) were obliged to adopt, owing to the nature of the database used. For these authors, all second-cycle university courses were regarded as mainly 'general' education, whereas many students continued their education after a BTS or DUT with a master's degree in science and technology or applied to a vocational field.

Cahuzac and Plassard (1996), p. 11: *'In order to attempt a (rough) assessment of this process, courses have been grouped together into two main types: general and vocational. By definition, the vocational group includes courses from the initial sample (IUT, BTS, Colleges) and the 3rd cycle university vocational diplomas (DESS); the general group covers all other university diplomas (1st and 2nd cycle), and research courses (DEA, thesis).'*

vocational courses. Indeed, this tendency to continue education in vocational courses is confirmed by the practice of current students at all levels (with the creation of vocational bachelor's and master's degree courses). Thus, looking at the specific logistic models, two main profiles emerge for continued education. Short-cycle continued education courses (post-BTS and post-DUT types) meet short-term concerns such as entering the job market, while long-cycle general continued education is chosen according to the desired job and career development prospects, i.e. the probability of attaining managerial positions. Graduates engaged in long-cycle vocational continued education are influenced by a combination of these reasons.

Finally, this work has attempted to show that, in a context of competition for jobs, the demand for education depends on sequential and strategic decisions (in the sense of a strategic reaction in relation to competition or successful 'opponents' in applications for jobs by students with the same profile on the labour market) rather than simple personal decisions about allocating resources as postulated by the standard theory of human capital. Furthermore, they stress the complementary nature of approaches in terms of human capital and signalling⁽¹²⁾ and investments of form⁽¹³⁾. While the basic qualification is important, the desire to distinguish oneself from the holder of a single diploma (baccalaureate + 2 years) by continuing one's education may be indicative of a concern to 'stand out' on two counts with a potential employer. First, the entrance to the initial training, which is selective, and second by specialising in some cases. This desire to stand out is particularly meaningful in the context of the French labour market, which is very hierarchical in its judgment of qualifications (Gendron, 2005, 1999).

Moreover, while these models attempted to understand continued education in terms of 'employability strategy' by studying the impact, on the decision to continue one's education, of the difficulties encountered by IUT and STS graduates on the labour market and in the employment system, these models did not aim to take account of the 'training strategy' that characterises another face of the continued education phenomenon. However, monographic surveys of socio-economic approach conducted on BTS

⁽¹²⁾ While the theory of human capital assimilates training to a productivity factor investment, Spence's signal theory (1973) differs specifically on this point by considering that the investment in training is more of a filter revealing the individual's potential than a productivity indicator. It is based on the fact that employers have incomplete information on the job applicant and regards the investment in education as a signal. Thus, without knowing the capabilities of job applicants, employers look for all the signals that they may emit: in particular, the diploma is indicative of the applicant's potential as much if not more than his level of productivity.

⁽¹³⁾ As an extension of the theory of human capital and on the border of the conventionalist current, the theory of investments of form (Thévenot, 1986) considers that employees' qualifications play a decisive role in the operation of the labour market, but within the framework of institutions (classification standards, pay scales), which create vertical hierarchical systems and horizontal equivalents.

graduates in short-cycle continued education [not tackled in this article, but developed in a report and in the work (Gendron, 1995, 2004)] enabled us to highlight this 'training strategy' dimension, referring to the use of these short-cycle courses as a stage of training (foundation course, pseudo-DEUG or pseudo-CPGE). Continued education of this kind appears to be a sequential strategic choice where the decision to continue in this context illustrates behaviour by players facing reality, knowing how to act and react to their evolving environment and the difficulties of dealing with uncertainty, relying more on cognitive than calculated reasoning. The flexibility that it contributes to students' strategies, decisions in sequences (or stages) helps them to play the dual role of reducing uncertainty and optimising the conditions in the sense that the student's cognitive reasoning allows for review, adaptation and learning, experience and maturity on the part of the player in a changing environment. Thus, an approach in sequential and strategic terms helps to explain this rise and the diversity of strategies for continued education of these graduates: behaviour combining training strategy and/or employability strategy, and of minimising risks (of failure at university) and maximising competitive advantages (via the added value of technical and professional skills imparted in continued education and its corollary, signalling).

Finally, while this enthusiasm for these courses may be an indicator of the success of the training, on the other hand, the ongoing rise of continued education calls into question their 'final' status and gives rise to a number of comments. In general, the question is asked about the challenge of investment in education and of its signalling and the misuse of educational policy by the players' strategies, notably the effect of selection at the entrance to these courses which end up accepting 'good' students capable of following long-cycle courses and who have a relatively high propensity for continued education. In particular, the structure, organisation and operation of the higher education system which, through the action of supply also feeds continued education, and the rules on the labour market in France are not unconnected with students' choices and the reasons behind career decisions and choices. Moreover, from the viewpoint of the organisation of higher education, it would be interesting to know the impact of entrance selection for these courses on continued education⁽¹⁴⁾.

Also, these initial results support the need for socio-economic and psychological research work, data and information about the way in which stu-

⁽¹⁴⁾ Work on the Two-Year Colleges (TYCs) of the Community Colleges, which are short-cycle technical courses in American higher education, open to all, non-selective and allowing for continued education in Four-Year Colleges, has attempted to understand the impact of the absence of entrance selection on continued education (Gendron, 2000). That research revealed a relatively low level of continued education at the end of these TYCs, partly linked to the lack of selection at the entrance to these courses which attract students really motivated by a short vocational course, even though the continuation of education at the end of these courses is institutionally possible and expected. These initial analysis results must nevertheless be viewed with some caution, as in any attempt at international comparisons, in view of the different socio-economic and labour-market contexts of the two countries.

dents take educational decisions and the way in which they make their choice of course depending on the structure and organisation of available training and in relation to the expectations and rules of the French labour market. These works and those on this phenomenon of continued education raise especially the real issue of vocational training in France, which has yet to be seriously thought through.

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Annex 1

The organisation of higher education in France

Higher education in France can be defined as the set of training courses that lead to continued education after the baccalaureate, the first level of higher education (see diagram below). French higher education is characterised by the coexistence of a multiplicity of training types with widely varying goals, administrative structures, admission conditions and organisation of studies. Thus, students are divided between, on the one hand, universities, which offer general and vocational training that is mostly multidisciplinary in the three education cycles. These include the university technology institutes (IUTs), which offer two-year courses up to the university-level technology diploma (DUT) and the engineering colleges; and secondly, the post-baccalaureate classes of the public or private secondary schools under contract. These two-year courses, taking place in the secondary schools, are provided by second-level teachers and, in accordance with the decentralisation laws, are funded by the regions for operation and investment, while the State covers the remuneration of teachers and teaching expenses. They comprise: firstly preparatory classes for the major colleges (CGPE), preparing students for competitions for the engineering colleges, commerce and management colleges and the higher normal colleges; secondly, the higher technical sections (STS), preparing students for the higher technology certificate (BTS) which aims to place graduates in work; finally, there is a variety of other public and private training courses. In particular, we would mention: *the paramedical and social colleges*, which are under the authority of the Health Minister, the *universities' independent engineering colleges*, which come under the authority of the Education Ministry or other technical ministries: Defence (*École polytechnique*), Agriculture (agronomy colleges), Industry (mining and telecommunications colleges), Infrastructure (*École des ponts et chaussées*). These colleges were often founded at the time of the French Revolution and are responsible, in particular, for training the engineers of the State's main technical bodies, the commerce and management colleges, mostly private or depending on the chambers of commerce, the higher art and culture colleges (architecture, fine arts) under the Culture and Communications Ministry.

Despite this very high degree of diversity, characteristic of French higher education, it is nevertheless possible to distinguish some common features. It is no longer possible to contrast universities and colleges, in that universities have considerably developed vocational courses in which a high proportion of engineers and management graduates are now trained, while colleges have become increasingly involved in research activities. However, the French system is characterised by the coexistence of selective and non-selective sectors. The highly sensitive issue of selection emerges for access to higher education and is discussed in this article.

*The first cycle of higher education, lasting two years, is generally based on the principle of non-selection. This is set out in Article 14 of the 1984 law on higher education, now Article L 612-3 of the education code, which gives every baccalaureate holder the right to enter the university course of their choice. But exceptions are also made: university technology institutes (IUTs), preparatory courses for the major colleges (CGPE), higher technical sections (STS) and health education courses. The latter are subject to a *numerus clausus* set at national level after a competition that is taken at the end of the first year of university. Conversely, universities offering long-cycle courses have no say in recruiting their students since the principles of free access and non-selection apply. Thus, the corollary of free access to university and entrance selection for short-cycle courses means that students' entrance into university depends both on their wishes, information they have gathered or assimilated and whether or not they are accepted on the selective courses. The outcome is therefore not necessarily ideal. For example, a significant number of baccalaureate holders end up on a general university course even though they had applied for a short-cycle selective vocational course. Conversely, a growing number of baccalaureate holders choose to enter an IUT or STS but end up continuing their education in the second cycle. This is the phenomenon analysed in this article.*

Figure 1: Simplified diagram of the French secondary and higher education system (and apprenticeship system)

		Main certificates of the general curriculum (in the education system: school status)			<i>CFA certificates (apprentice status)</i>		
Higher education	18 years old and above	Level II-I	Doctorate	<i>(new Bologna process structure below)</i> Doctorate		<i>Qualified engineer</i>	
			DEA – postgraduate degree DESS – postgraduate diploma of advanced specialised studies Engineering diploma	Master's degree (former <i>maîtrise</i> + DEA or DESS)			
			Master's degree				
			Bachelor's degree	Bachelor's degree			
		Level III	DEUG – Diploma of general university studies DUT- university-level technology diploma BTS - general or technological upper-secondary school-leaving certificate			<i>DUT, BTS</i>	
Secondary school	15-18 years old	3-4 years of study	Level IV	General baccalaureate	Technology baccalaureate	Vocational baccalaureate	<i>Vocational baccalaureate</i>
		Level V		General education	Technology education	BEP CAP Vocational education	<i>BEP CAP Vocational education</i>

Annex 2 Characteristics of the statistical population

Table 1: **Description of the population**

Particulars of 1988 graduates		Breakdown by continued education course (%)		
		Post-BTS Post-DUT	Long-cycle general courses	Long-cycle vocational
Number of BTSs: 35 481 Number of DUTs: 20 400				
Course type	BTS	15.93	42.91	41.17
	DUT	10.49	62.93	26.58
Gender	Male	16.7	55.02	28.28
	Female	8.04	51.47	40.48
Family circumstances	Single	12.2	54.95	32.88
	Married, Divorced	19.13	43.43	37.44
Type of baccalaureate	Technical	10.76	57.46	31.78
	General	17.48	45.86	36.65
Region	South	13.46	50.71	35.87
	Centre	17.11	53.24	29.64
	North	15.53	57.0	27.47
	West	9.7	56.94	33.37
	Île de France	10.35	51.93	37.73
Father's profession	Managerial	11.36	50.55	38.09
	Non-managerial	14.38	55.89	29.73
Mother's activity	In employment	13.04	53.52	33.45
	Not in employment	13.05	53.54	33.41

Source: Céreq data, Processing by Cereq-Laboratoire d'Économie Sociale.

Youth unemployment

Outline of a psychosocial perspective

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SUMMARY

This analysis of education policy constitutes an attempt to outline the problem of youth unemployment. Building on a recognition that structural change in the 'society of labourers' has also affected the social entity 'young people', it shows the problems inherent in our concept of linear transitions to working life and the need to learn to live with imponderables, by gradually freeing ourselves of the illusion of full-time employment and of waiting for things to improve. The answer to the question of who is equipped to cope with life will ever less often be 'the person with a secure job' and ever more often 'the person who is competent to handle transitions'. So in the context of youth unemployment, what is needed is a change of direction, from a burden-oriented coping paradigm based on a deficit to a competence-oriented coping paradigm. However, all young people (and not only those belonging to special risk categories) need models and concepts of success for this new skill. This means that there is a socio-political task facing society as a whole, as well as a need for young people affected by unemployment to cope with their working career.

Key words

Adolescents,
access to vocational training,
disadvantaged group,
self-esteem,
social inclusion,
coping strategies,
underemployment.

Introduction

Young people today are a generation that has been cheated. They want nothing more than to be integrated into working life, but constantly experience rejection and refusal. In the process, unemployment has become a reality in their working career. Many young people interpret such experiences as a misanthropic message: 'Society has no use for you. You might as well not have been born.' For years they believed parents and teachers who told them that 'you (...) (need to) work hard and loyally, everyone according to his occupation and position, (and) man (...) (was) born to work as birds were born to fly' (Luther, 1962, p. 21). They learned that this means

that success at school and educational qualifications are the main sources sustaining later working careers. Now, however, as they seek a traineeship or a job, they are finding that the 'society of labourers' is displaying an increasing shortage of jobs, which affects *them*. It is not only young people with very limited qualifications who are now encountering such scenarios. Even high-level educational qualifications no longer guarantee problem-free integration into the employment system (Lüde, 1998). So it is understandable if young people perceive the unsuccessful quest for a traineeship as a 'prior conviction' imposed on them. Education is supposed to be profitable? What's the point of my life then, when I work hard at school but end up being one of society's losers anyway? To date young people have received virtually no answer to questions like this. Even in a society that socialises young people with a view to employment and expects them to be willing to work, but at the same time in reality denies them work. It is obvious that a 'late modern double-bind situation' of this kind can only lead to fundamental insecurity.

This analysis of education policy sets out to take up these problem areas on the basis of the theory and empirical experience of developmental psychology and socio-pedagogy. Building on an initially trivial hypothesis, namely that structural change in the society of labourers has included the social entity 'young people', against the background of considerations of developmental psychology and vocational education it shows the need for a change of direction for all young people, from a burden-oriented paradigm to a coping paradigm.

Our double-bind society

What is our society doing, against a background in which young people are being denied a socialisation through to adult existence that is assumed to be ongoing? And what are we doing about the fact that we have found no answers to the above questions from young people? It is true of the German-speaking regions at least that we claim, firstly, to be convinced that an imminent economic upturn will lead to a decline in unemployment and will once again guarantee full employment and training and job security. All that is required for this 'standard' employment relationship to take effect for all, and also and in particular for young people to be integrated into training and employment, is for sufficient State funds to be expended (Thoma, 2003). Secondly, we declare that youth unemployment is a problem of deviance and that assistance to young people is a state-approved remedial exercise, and thereby assure ourselves that we are taking youth unemployment seriously, as a most urgent problem. And thirdly, we cite the results of the vast body of research, which are always the same, and which demonstrate to all of us, particularly the young, the looming material, mental, social and health-related burdens that accompany unemployment.

Although this is not our intention, in perpetuating these patterns of argument we are spreading a poison that does even more damage to everybody. The vocabulary we use alone promotes youth unemployment at the level of a paradigm based on the individual burden. It is to this that such terms refer as 'disadvantaged young people', 'risk trends', 'the fate of integration into employment' and the 'educationally disadvantaged' – these terms imply that youth unemployment is to be understood as a failure for which the individual bears responsibility, a departure from the standard career history. How do young people themselves deal with such inferences? For the moment still in a very positive fashion, in that they are still trying to live according to their 'career illusions' (Bourdieu, 1990). Despite the dark clouds on the horizon, they ignore the structural criteria and effects of the labour market. They seek an occupation that has to be their ideal occupation, which will be enjoyable, will suit them, and will promote their self-development. However, this individual perspective is by no means confined to young people, but is a 'guide rail' to which late-modern man orients himself (Thomä, 2002).

The truth is that in view of the acute shortage of traineeships, large numbers of young people are denied the development hitherto marked out as the norm, and the move from student to worker cannot take place, so that the protected educational space is inevitably extended. For this very reason, insecurity and uncertainty increase dramatically, and mental reorientation gradually becomes apparent. This may have both positive and negative effects. It is positive when reorientation leads to (hesitant) abandonment of the concept of the ideal and to a new, more realistic, orientation of vocational ambitions and hence results in stabilisation of mental welfare (Haeberlin et al., 2005), but it may also lead to increased competitive pressure and pressure to achieve. However, if the result of the reorientation is that the hitherto optimistic view of one's own ability to take action ('self-effectiveness') is replaced by resignation and retreat, the effects are not only negative, but also actively alarming. The individual then seems to be pre-programmed to flounder on the contradiction between opportunities for action and normative orientation.

The society of labourers as a 'discontinued model'

'What we are confronted with is the prospect of a society of labourers without labour, that is, without the only activity left to them. Surely, nothing could be worse.' Today this observation, made by Hannah Arendt in the Prologue to her 1958 book *The Human Condition*, has, with only a few exceptions, become a reality for Europe. In fact we are light years away from a modern society of labourers in which full employment is the norm. However, our society continues to live in accordance with the concept of a stan-

standard career history based on paid employment, under the premise of full employment (Schmid, 2002; for critical comment, see also Beck, 2005). Despite globalisation and automation, she sees gainful employment as pivotal and crucial to success for the individual in coping with life, and regards all other areas as less critical. Not only is work possessed of omnipotent significance, but, according to Max Weber (1988), it has also actually become a religion, a post-modern 'meaning of life'. From the perspective of social and vocational education, work is important, firstly to the development of a material livelihood, and also, secondly, to the development of a personal and social identity (Galuske, 1986). If everything is subordinated to employment but there is none, and life plans are consequently put at risk, the feasibility of this concept threatens to become a fiction. This applies not only to the working population, but also and in particular to young people, to their transition from school to working life and from vocational training to employment. However, both transitions are taking place in a manner that is anything but straightforward (Isengard, 2001; Meyer et al., 2003).

There is a major problem here, not only because statistics show that in Europe at least one in seven young people is affected by unemployment, but also because this means that as a result this young person is completely unable to take a crucial step – to acquire a working identity via integration into the adult world and preparation for a working career. However, ever since Erikson (1974), a working identity – committing oneself in the employment sphere – has been regarded as one of the key development tasks for young people, which also include leaving the parental home, developing their own system of standards and values, or starting a relationship. If this means that this stage of life serves to elaborate the key elements of one's personal identity, it seems highly likely that the fundamental insecurity brought about by unemployment must have far-reaching consequences on young people's development. In the light of the 'end of the society of labourers' (Negt, 1998), is it even possible for them still to develop such a thing as a working identity and subjective and meaningful work orientations respectively? Or would it not be much more sensible to remain 'confused in the sense in which Erikson uses the word, i.e. deliberately not to decide on anything, to avoid commitments and also not to develop any clear value structures and preferences? Such questions could prove redundant in future. At the very least, it can be assumed that owing to the structural change in our society of labourers, this traditional model of identity development *can* no longer apply, and that a working identity is being replaced by an integrity that tends to be geared to the world of life.

Against this background, however, how do young people actually *behave*? A look at various studies (Raab, 1996; Steinmann, 2000; Amosa, 2004; Meyer et al., 2003) shows that from the point of view of developmental psychology, superficially their behaviour is ideal. Young people work actively on their work identity, and hence also on occupational self-socialisation (Keupp et al., 2002). Initially they adopt a standard career his-

tory pattern. To them, this means striving for vocational training and subsequently moving on to a permanent full-time job. Even more than that, they struggle to achieve their ideal job and hold on to their strongly occupation- and work-based thinking. So they experiment in their quest for the job they want – to stimulate smooth, direct integration, they write (too) many applications, but also knowingly accept diversions and holding patterns. Is this making linear transitions a discontinued model, marking the end of the old order? It would almost seem so, for such linearity presupposes normality, and in the light of the many ‘now and thens’, the ‘both/ands’, or the ‘neither/nors’, normality has become unsustainable. Owing to this new dynamic, the constant toing and froing, these transitions have also recently been christened ‘yo-yo’ transitions (Iris, 2001; du Bois-Reymond, 2004). This term represents the increasingly risky, reversible and unplannable transitions, with their constant toing and froing between independence and dependence, between adolescent and adult status. State-sponsored employment and bridging programmes also constitute a fundamental basis for these yo-yo transitions. Admittedly these programmes improve people’s lot and are undoubtedly justified, but the way in which they define their target group means that they relabel unemployment as an education problem, deteriorate into holding patterns (Galuske, 1986), and so ultimately individualise the causes of the problem. Yo-yo transitions are by no means always a matter of choice, but are, in the majority of cases, unavoidable, and also, depending on material, social and personal resources, stigmatise those involved.

Empirical experience of youth unemployment

In our society, the mood on the subject of youth unemployment is threatening to reach a new low point. Anybody who cannot see this should read the stories in the papers. They provide headlines almost every day. They talk of ‘traineeship drama’ or ‘traineeship disaster’ (*Die Welt*, 2003), of ‘Anxiety about livelihood in the classroom’ or of a ‘Time bomb of unemployed young people’ (*Bildung Schweiz*, 2003). The range of statistics and research findings also offer a clear message – in Europe, some 15% of young people aged 15 to 19 are unemployed. Out in front are Spain, Greece and Italy with 25% (State Secretariat for the Economy, 2005). In Switzerland, the figures for youth unemployment are 7.1% in the 20-24 age group and approx. 4.1% in the 15-19 age group, which are fairly low in comparison with the international average, but still much too high in terms of the thousands of job seekers involved and the tripling of rates in the last two years. In addition, a whole series of negative consequences are concealed behind these data. It is true that since PISA (German PISA Consortium, 2001) and TREE (Meyer et al., 2003), the two studies of most relevance to issues of this kind, they have become part of ‘education-policy folklore’,

but they are nevertheless impressive. For example, the data show that in Germany, Belgium and Switzerland, it is primarily sex, nationality and educational qualifications that are decisive in whether the transition to a regular training relationship has a positive outcome. In the 1960s it was the metaphor of the 'working-class Catholic girl from the country' (Peisert, 1967) that stood for educational disadvantage, but today it is the weak male student from a 'secondary modern' type school and from an immigrant family who fulfils this role. He is the main loser in the context of modernisation. On the other hand (although this statement possesses empirical validity only for Switzerland), the young male national continues to have the best opportunities, even if he has not achieved excellent educational qualifications or if he already has behind him a lengthy phase of getting his bearings (Haeberlin et al., 2005). This does not, however, apply to young women, who are subject to much stricter criteria. We know, for example, from the German Shell study (2002) or the Anglo-Saxon study focusing on Europe by Warner Weil et al. (2005) that many young people, particularly girls, feel threatened by the problem of unemployment long before they complete their compulsory education. For 12-18-year-olds, the fear of one day being without a job is now stronger than any other fear. However, almost 50% describe work as the most important or second most important of five areas of life (family, work, community association activities/friends, leisure time, religion). Thus the data *also* show clearly that nowadays the traditional formula according to which being young means being cool and unencumbered no longer applies, or applies only superficially. This is indicated by the relevant research studies (Kieselbach, 2001; Richter, 2004; Imdorf, 2005; Reissig, 2005), which show that even brief experience of involuntary unemployment leaves young people with traces of insecurity, doubt, resignation, social isolation or health problems. A particularly serious problem is the calling into question of membership of the group of trainees or employees and the ensuing enforced retreat into the family, which in turn leads to a delay in the separation process, which is already in any case a potential source of conflict.

Against the background of these scientific findings, it is essential for individual States to treat youth unemployment as a priority issue. The fact that, at least in Switzerland (Eidgenössisches Volkswirtschaftsdepartement, 2005), there have been passionate arguments about rafts of education-policy measures shows that the problem is being taken seriously. Nevertheless, the entire debate is based on a burden-oriented scenario based on a deficit. How, then, are young people to develop a spirit of hope and confidence?

Coping skills in place of burden-oriented scenarios

Our European 'society of labourers' is currently in the midst of a fundamental crisis to which no end can be foreseen, but only an end to the hope of a return to full employment. This statement may not be true of all the countries of Europe, but nowhere do unemployment and its consequences appear to be merely a transitory manifestation, so it would seem that changes must be made in the longer term (Beck, 2005). The problem affects us all, not only the younger generation but also the older generation, the majority of whom have hitherto been in stable employment.

So all the signs indicate that we need to abandon both the straitjacketed concept of the society of labourers and our ideas of linear transitions to working life. We must learn to live with imponderables, gradually freeing ourselves of the illusion of full-time employment and of waiting for things to improve. The answer to the question of who is equipped to cope with life will ever less often be 'the person with a secure job' and ever more often 'the person who is competent to handle transitions'. In future, life as a whole will become a transition for everybody. This means that a dual coping task ensues, firstly a socio-political task facing society as a whole, and secondly a need for young people affected by unemployment to cope with their working career.

However, if we focus only on the suffering involved in youth unemployment, we cannot manage transitions. What is needed instead is a change of direction, from a burden-oriented coping paradigm based on a deficit to a competence- and resource-oriented coping paradigm (Krafeld, 2000; Stauber, 2004). However, it is not just the young people affected by unemployment who need to change direction, but all of us. 'Burden' implies 'endangering', sees young people as victims, and promotes resignation and feelings of powerlessness. In contrast, 'coping' or 'management' is based on developing potential, sees the unemployed as subjects and actors, considers every situation to be open to development and change, and promotes self-confidence and strengthening of the individual, even in times of crisis. However, the previous adherence to the burden-oriented paradigm was an initial necessary and important step towards actually recognising the dramatic nature of the situation. To persist in this view now is, though, a retrograde attitude, an adherence to anachronisms, which gets in the way of identifying the viewpoints necessary. The paradigm of coping behaviour is the optimistic response, designed to strengthen young people and to enable them to achieve successful career patterns, despite the stressful situation in terms of finding jobs. However, coping strategies do not come about of their own accord. They are primarily the product of the society immediately around the young people, including the behaviour of positive role models in the shape of the adults close to them and those who guide them.

Consequences

A concept formulating coping strategies for an uncertain working future would be of great significance in developing prevention and intervention measures in the context of youth unemployment. However, only a marginal quantity of the relevant knowledge exists. So more research is needed into why certain young people are resilient and survive phases of unemployment undamaged. 'Resilience' is understood as meaning people's capacity to overcome crises with the aid of personal and social resources and to use them as an opportunity for development. Concepts such as salutogenesis and coping are related to the concept of resilience (Holtmann, Schmidt, 2004). All these concepts add to the orientation towards deficits and burdens the alternative viewpoint of *coping/management*. We must, however, concede that research into resilience and coping in general is still in its infancy, and that we know little about productive forms of coping in the context of youth unemployment. They probably include measures such as the promotion of ways of finding an identity not restricted to paid employment, mobility training, or the capacity to come to terms with changing conditions. The development of strategies for resolving problems and conflicts, of positive self-awareness, of stress-management skills or training in self-effectiveness should, however, be to the fore.

Ultimately, the whole problem of youth unemployment lies in the collective imagination. Our burden-oriented attitude encourages such trends. State support and sponsorship measures are on the right track, but education and training do not consist only of state-organised provision. They also involve discussion, conversations with oneself, and the social participation of society in dialogue with those involved. And there is a shortage of this in Switzerland – and probably also in many other European countries. Our young people are in urgent need of images of success. They must be given at least what is most lacking in the current difficult debate – primarily, strategies, communicative exchanges and the participation of society, to enable them to cope with uncertain future prospects.

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A teacher's professional development Training for a different kind of experimental work

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SUMMARY

The article includes part of a research study on experimental work in teaching science (Santos, 2002): a teacher with ten years in the profession received teacher training. It goes on to describe the training programme, which lasted six months and is included in the practice-oriented training paradigm (Kennedy, 1987), along with a reflective approach to practice (Gómez, 1992). The goal of this training was the teacher's professional development. The article also includes the teacher's own reflections, immediately after completing training and four years later.

Key words

Educational research, secondary education, teacher training, training programme, in-service training, practical skill

The training of science teachers in Portugal

In Portugal, teacher training may be divided into the following phases: initial training, training in the work context during the period of initiation into the profession (traineeship/practice period) and professional development (Garcia, 1999). Obviously, this third phase is intimately connected with lifelong learning, part of which is continuing vocational training in the shape of formal courses.

At the moment, a science teacher in Portugal receives initial training at a university (five years - four years plus one) or an institute of higher edu-

cation (four years, three years plus one). Universities train teachers for any level of education. Graduates of institutes of higher education, which are polytechnics, are only able to teach at pre-school, first primary school level (ages six to nine) and second primary school level (ages from 10 to 12).

A number of bodies are accredited to conduct formal courses of continuing vocational training. These are the universities, school training centres, scientific associations and teachers' associations, trade unions and firms. There is a very wide range of training on offer, from workshops (50-60 hours) and courses (at least 25 hours) of either the personal attendance or distance learning type, to the conduct of research projects. In Portugal, the continuing vocational training of teachers is one of the requirements for advancing in one's career. Advancement is connected with the policy of teacher assessment, which is made up of three elements: a critical reflection document prepared by the teacher under assessment, compulsory attendance at continuing vocational training courses and a verdict on the part of an assessment committee belonging to the school where the teacher works.

In a study on the implementation of teacher assessment policy in Portugal, it was concluded that the assessment policy, which is supposed to promote teachers' professional development and organisational improvements in schools, failed to include a number of characteristics which literature on the subject deems fundamental for attaining these goals. Implementing the teacher assessment system aims above all at the administrative goal of making it possible for a teacher to advance up the career ladder (Curado, 2002). In another study, (Marques *et al.*, printing) where teachers at the 'Mestre' (Master) grade were interviewed, and which identified obstacles to the links between research and educational practice in scientific education difficult, teachers said that initial training was inadequate and knowledge acquisition in continuing vocational training fell short, both in terms of education research and of specific fields. There is not enough training on offer in subjects of particular importance to teachers, such as experimental work, problem-solving, information and communication technologies and the use of existing resources in the school. It was also pointed out that initial and continuing vocational training used methods that were based mostly on passing on information and technical skills; the honing of social and self-training skills was neglected. As Garcia (2002) states, 'the ways in which teachers learn do not generally coincide with the possibilities offered by training institutions.' (p. 27). Moreover, studies conducted in Portugal and cited by Flores and Shiroma (2003) provide evidence that in-service training was planned and implemented in accordance with a bureaucratic concept of technological orientation (Ferreira, 1994; Barroso & Canário, 1999; Ruela, 1999; Silva 2001), where empirical evidence demonstrated that continuing vocational training activities were planned and implemented in accordance with a bureaucratic concept orientated towards technology (Ferreira, 1994; Barroso & Canario, 1999; Ruela, 1999; Silva, 2001).

In the article '*A Formação de Professores em Portugal e a Universidade*' (Teacher training in Portugal and at university), Pereira (2002) asserts that the problem is that teacher training at Portuguese universities, or even outside them, is that it is based on models (...) originally designed for accelerated teacher training; these fulfilled their historical functions in the 70s, when the aim was to render teaching more democratic but are entirely unsuited to current circumstances (...) as they fail to prepare teachers for the world in which they will be teaching for the next thirty years (...), and they do not dwell in the slightest upon lifelong learning, on learning to learn or on initiation into research.' (p. 59).

Professional development of science teachers A brief theoretical discussion

Below are a few definitions of professional development for teachers (PDT).

'A process designed for the personal and professional development of individuals in an organisational climate of respect, positivism and support, the ultimate goal of which is to improve learning by pupils and continuing and responsible self-renewal on the part of educators and schools.' (Dillon-Petersen, 1981, cited by Garcia, 1999)

'The process which improves the knowledge, skills or attitudes of teachers' (Sparks and Loucks-Horsley, 1990, pp. 234 and 235);

'Professional development is more than just a stage in acquiring information; it means adjusting to change with the aim of modifying teaching practice, changing teachers' attitudes and improving pupils' performance. The professional development of a teacher is concerned with personal, vocational and organisational needs.' (Heidman, 1990, cited by Garcia, 1999);

'Professional development has been defined more broadly as including any activity or process that leads to better skills and attitudes. Understanding or action in current or future roles.' (Fullan, 1990, cited by Garcia, 1999).

As may be seen, the concept of PDT includes many different dimensions, including pedagogical development, self-knowledge and self-understanding, cognitive development and theoretical development (Howey, 1985).

Professional development is a concept whereby the teacher is viewed as an educational professional who is constantly evolving as a person, as a professional and as an individual; and whereby teaching is viewed, not as an applied science, but rather as a deliberating practical activity with a clear-cut ethical component. From this point of view, professional development is seen as the combination of processes and strategies which make it easier for teachers to reflect upon their own practices; it allows them to manage practical and strategic knowledge while inducing them to learn from experience (Garcia, 1999). Here we can see the concept of reflection and the work of authors such as Schön (1983, 1990) and Zeichner (1987),

which centres on the process of training in the reflective analysis of the teacher's professional practice. Nevertheless, as Cachapuz et al. state (2002), it is also necessary to be acquainted in depth with what one is teaching and to hone one's own (particularly metacognitive) skills which such reflection demands. On the subject of initial teacher training, Pombo (1993) contends that, in addition to the scientific and pedagogical component, the reflective component, in which the teacher tries to create critical distance and overall integration of the various components, is necessary. When we talk about science teaching we have to refer to society as it is now, and in which constant cultural, scientific and technological changes are taking place; hence the need to prepare pupils for that society. Every teacher and every school has the duty to participate in their pupils' scientific training. Schools must realise that they too need to change.

When we talk about teaching science we have to talk about experimental work. The experimental dimension is fundamental to any science curriculum (Cachapuz *et al.* 2002). We need to ask ourselves whether it is important to change our educational practices in relation to experimental work in secondary education. The answer, most definitely, is yes. The pupils we are talking about are between 16 and 18, *'at an age when they need activities that provide them with a certain degree of autonomy and responsibility, that give them a challenge, that give them the taste for a scientific career, that help them to develop overall in both the personal and socio-occupational field.'* (Santos, 2002, p. 176). It is not certain that this is possible with routine experimental work. All science teachers must be made to conduct experimental work with their pupils, with recourse to the diversity of possible formats and without limiting themselves to using pre-established procedures which pupils follow step by step as if they were using cooking recipes. Research is one of the formats most widely upheld by a number of authors, on account of its potential for learning about science and learning in general. In investigative experimental work, pupils take on board and recognise the problem under study as something real and they are allowed to take a hand in the planning, execution, interpretation and assessment of the evidence and possible solutions, as well as communicating their results verbally and in writing (Lock, 1990). Hence, just as there is a change in the teacher's role, in which the core of the action takes place via the pupil, so training in experimental work is essential for the science teacher's professional development.

The training of science teachers conceived of as professional development has recently become relevant in research into science teaching. The professional development of teachers may be viewed as a general restructuring of the beliefs, attitudes and behaviour of teachers vis-à-vis science and scientific education (change in teaching) (Furio, C. and Carnicer, J., 2002).

The central idea of this kind of professional development for teachers is that the process is one of ongoing and inevitable learning. It is said that training programmes have to change before teachers can change; pro-

grammes must allow teachers to become active learners, who configure their professional development by reflecting on their own programme and practice (Clarke and Hollingsworth, 2002). The concept of ongoing and life-long professional learning is of fundamental importance.

Some results of an empirical study

In this study, part of an investigation into experimental work on teaching science (Santos, 2002) is set out, which involved training in pedagogy for a science teacher employed in secondary education, within the regular educational system. The points of departure were as follows: what type of training does one choose in order to induce the teacher to put into practice, together with her pupils, research experimental work, a method of teaching rarely used in science classrooms, [and] what strategy should be used to foster such a change in her teaching method?

At this point, we describe the teacher's standard practice, the professional development strategy and reflections thereon at two different points in time – namely, after the training process and four years after the experiment.

The teacher's standard practice

In order to gain a clear idea of the type of experimental work which this teacher was accustomed to allow her pupils to carry out in the classroom, we analysed the data collected in the course of an interview with the teacher conducted at the start of the study. In the interview, when we asked her how she taught her classes when it was necessary to put into practice experimental work and which support materials she used, the teacher replied as follows:

'What we do is provide some theoretical knowledge and on the basis of this proceed further in delving into a given problem. Because we provide the pupils with the protocols, we lead them to specific answers. They already know what the material is, and what method and procedure will be followed ... So all they have to do is to carry out the experiment, assemble the results and try to draw some conclusions. Very often even the conclusions themselves are guided, because it is we who arrange the discussions in the record. It's all guided. We just spoon-feed them everything.'

(4) These are Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authorities, Syria and Tunisia.

(5) The Global Business Environment Ranking, which covers 60 countries and uses a range of indicators to evaluate the business environment, gives Syria a very poor rating, according to the Investor Roadmap for Syria (Syrian-European Business Centre).

The pupils did not participate in drawing up the research plan. They did not choose the problem, nor did they formulate the hypotheses or plan the experiment. There was no interpretation of mistakes either, with a single response being sought, confirming a theory and not explaining the phenomena or establishing a link between theory and practice. The pupils themselves and their teacher confirmed that this was the *modus operandi*. It fits in with a number of studies carried out in Portugal (Cachapuz *et al.*, 1989; Miguéns, 1990; Almeida, 1995; Silva, 1999 and Valente, 1999).

The process of training the teacher

We have just seen, as set out in the foregoing paragraph, that the teacher always used the same type of experimental work in her classes. Nevertheless, this can take various forms, one of them being research. In the same interview, at the beginning of the study, when asked about her research experimental work, the teacher said *'yes, I have heard about that but I do not know very much about it' (...). 'I don't know of any colleague or teacher who has done this up to now, and I do have quite a few years' service behind me.'*

Arising from her training need were fresh questions about research, such as how to train a teacher and what model was to be used.

When training teachers, there are a number of different angles: *'Every direction taken stresses different aspects (...) none offers a complete model as a guide as to the implementation of a programme'* (Feiman-Nemser, 1990 p. 227). Bearing in mind our objective of allowing the teacher to develop professional skills in such a way that she is able to put into practice a new teaching/learning strategy, we drew up a training programme which is included in practical guidance and which, according to Kennedy (1990), entails deliberative action and critical analysis. Gómez divides this guidance into two approaches, one traditional and the other reflecting on practice. The process followed is included in the latter approach. Garcia (1999) affirms that, in teacher training, this guidance is basically used when organising and developing teaching practices. The process of training the teacher who took part in the study lasted six months and included the following activities:

1. An initial interview with the teacher. This was semi-structured and designed to learn about her teaching practice and how much theory she knew about experimental research.
2. Informal discussions between the researcher and the teacher that served to promote awareness and also acquaintance with the existence of various types of experimental work.
3. Reading and analysis of literature referring to the role of experimental work in teaching science.

(^e) According to Emerging Syria 2005, Oxford Business Group.

4. Joint, retrospective reflection between the researcher and teacher on relating theory and practice, while acquainting the teacher with the way of guiding the research carried out by her pupils.
5. Looking at self, in a different group from that of the main study, in terms of the direction that experimental research work in the laboratory should follow.
6. The conduct of experimental work in a sequence of three investigations. It should be said that these classes were recorded and observed by the researcher without participation on her part.
7. Semi-structured interviews by the researcher with the teacher at the close of each investigation to ascertain her views on the results obtained and the way the whole process had taken place. The interview held after the third investigation aimed at further goals, namely assessing the extent to which the objectives initially proposed had been reached, and assessing the training impact of the study on the teacher's practices. In these last interviews, the teacher pointed to the varied potential of this type of experimental work, developing the pupils' capacity to learn how to learn and also significant learning in terms of content and concepts, as we can infer from the following extracts:

'The capacity to learn how to learn - which is what they achieved by this entire process (...) shows that beyond the knowledge we can transmit [to pupils], they should become able to use specific tools in order to 'learn to learn' - that's what is important here.'

'Being able to set out a problem, hypothesise, plan the experiment, execute and analyse the results and draw conclusions - all these are important steps and constitute tools for effective learning. It therefore gives them the opportunity to transform all the information available to them into knowledge. Doing exactly this and knowing above all how to solve problems, not only in biology, but in one's future life (...) And what is it that is needed for this? They need to know how to choose (...), organise and relate - how to think. And it is this which, essentially, we have to teach them'

'On the basis of the research sequence they become able to orient (...) their reasoning and experience in such a way as to be able to grasp theoretical concepts.'

Concerning her own role in guiding and implementing experimental research, the teacher said that she felt a degree of uncertainty. She understood that in this kind of teaching/learning strategy, the teacher had also to be prepared to place herself in a position of learning. She went on to say that teachers and the school had to change the way in which they taught their pupils in order to better prepare them for life – by developing their ability to solve problems. The following extracts confirm these conclusions.

'To have the courage to propose open research [to the pupils] is a very great risk (...) on the one hand we do not know what it is they would like to do research into - to my mind, we feel afraid. I am afraid I shall not be up to it when it comes to answering their questions (...) if a pupil

notices any gaps in knowledge on the part of the teacher, this may lead to a credibility gap.'

'The other thing which can happen when we propose open research is an inversion of the teacher's role. In other words, the teacher is not only the person who, from the loftiness of his/her unquestionable erudition, is there to give out material. He/she has to be a person prepared to sit down beside the pupils in order to learn something as well (...). He/she does not stop teaching, but has to be of a disposition always to learn something (...). I think this is what I felt most deep down and it was this which made me think that this whole process boiled down to being in the right frame of mind for learning. After all, it is no crime not to know everything - the crime is not to want to learn more, is it not? Because the teacher will always have doubts and fears and have minor or major failings, is that not so?'

And she concluded that 'in the midst of all this, only one thing is certain: "It is that one never knows everything".' This was something I felt deep down in myself when dealing with the children (...) One never knows everything and one always has to keep plodding along, updating one's knowledge all the time.'

After the three experimental investigations were completed by the pupils, the teacher reflected critically on her own practice. In talking about laboratory work that always used a set procedure, she said the pupils simply committed the content to memory to fit the final assessment and that '*once the national examinations are over, they forget about it.*' According to the teacher, what happens in the classrooms is that '*we get rid of all the content without further ado and, at bottom, it is not that which interests us.*' And again, on the subject of a critical attitude, the teacher continued:

'I had never thought of things this way and this whole process (...) actually made me aware of these [issues]. The truth is that as teachers we have not quite come up to scratch. Or else it is the way in which we communicate with our charges. We have to reformulate the whole system of teaching, because it really does have to be different, they have to be given the opportunity to learn to disentangle their problems and find solutions to the problems life throws at them and we are not going to achieve this by dishing out subject matter. To do this we really do need to proceed differently.'

What the teacher thought

After four years of training, the same teacher told us there had been a change in her teaching practice. She told us that, currently, and in the course of the last four years, she had allowed her pupils to suggest research that interested them. The following examples illustrate this:

'On the basis of the training, in my presentation classes, I always say "you are entirely free to propose any subject for research you like" (...).

After that, I only help in collection and selection, they do the project and I see whether it has been well done or not (...) And from then on, they do the work and they research the conclusions.'

'I remember a research project we carried out after our experiment. In it, the pupils were putting into practice the principles of asexual reproduction for the propagation of a pineapple. Such a thing had never entered my head - it had never been catered for in any syllabus (...). It brought with it the need for all kinds of knowledge. When the goals had been defined, information had to be obtained about temperature conditions (...). Obviously the pineapple (laughter) had to spend the whole winter being kept warm and the heater was on day and night, but in the end we managed to propagate it. But the process took the whole year (...). These were things I did not know about and it [the pupils] who actually did it. They learned how to learn in their own way. If they had any doubt, they coped with it (...). I found the exercise very useful because at the end of the day they learned how to learn.'

In the course of the same interview, it was reaffirmed that investigative experimental work had an impact on pupils' learning. Once again she mentioned learning how to learn and the understanding of the syllabus which, in her view, the pupils will never forget (i.e. they learned things which meant something to them). She added that the pupils showed greater commitment and motivation than previously in carrying out these activities.

'What is the advantage of this?(...) These research projects, besides adding to the pupils' store of knowledge, increased their wisdom. To me, the advantage is that they learned how to learn for themselves. And it is this proficiency that is going to enable them to survive through life. Because, throughout their lives, they are going to have to adjust (...). We have to think about preparing the pupils to become flexible and adaptable. What I achieved in implementing this research project was, at bottom, enabling pupil to learn for themselves (...) they have to have a space in which to learn how to learn and adjust to different situations, because it is just this that is going to enable them to be life-long learners.'

'When they have that freedom to explore the research subject, when it is they who propose the subject, collect the material and prepare the whole scenario, some of them will show commitment (...) There are pupils we sometimes label disinterested and then, when they are given the opportunity to be in charge of operations, they are fantastic, they are workers, they learn everything expected of them - sometimes more.'

The answer to the question 'What did you change as a teacher?' enabled us to see that she changed her beliefs and attitudes. 'By then, I began viewing the pupils in a different light. *All pupils are different individuals, learning in different ways and we have to apply different strategies, otherwise, you will not get through to all of them.*' She went on to explain that *'there are pupils who succeed very well in learning what we put to them*

by memorising, by reading, by working through exercises, but there are others who do not. There are others who need to do and touch.' Out of this comes an attitude of respect for the person who every pupil is. 'I give them autonomy but (...) there are some who receive it with open arms and are motivated and intend to undertake research, and there are others who will not (...). People are different and we have got to respect this.'

Beyond these changed concepts with regard to pupils, she again says, just as she did four years ago, that *'they have started having a dialogue with me. I am learning a lot with them.'* Their view of the teacher changed also, hence she is not seen as the fount of all wisdom and is final arbiter of learning for her pupils.

'I cannot impose on a whole class just one way of doing things. This would show disrespect towards those who do not like it and who do not learn in this way (...). Because if I do not manage to help them to learn what I would like them to learn, whose fault is it? Mine. (...) Because I did not have the ability to see that they were different and had different ways of learning (...). You just have to vary your strategies. At the end of the day, you are forced to perceive that there are pupils who are different from the others. They are persons (...) they manage to interpret things in a way that another does not. Clearly, human beings are different. They have many facets, not just in the way they learn and we have to use different approaches.'

Nevertheless, having changed her practice with regard to experimental teaching, the teacher pointed to constraints on a change in practice, namely large classes, the Ministry's syllabus and guidelines, the manuals adopted and also the fact that the pupils were unaccustomed to participating in strategies of this kind. The methodological suggestions for programmes for the various disciplines included in the Education Ministry's guidelines (1991) refer to few experiment-based activities, none of a research nature.

Again, we would like to mention what the science teacher had to say about the training process. For her, the most important thing was the effect that this type of work had upon her pupils. She stated that *'what was most gratifying for me was to see the satisfaction on the children's faces through having the freedom to plan things their way.'* She went on *'it was also important to know that other methods are available – in our own initial training we learned nothing of all this. We have to get up to date, and it was good to know that other methods existed.'* A third aspect she said had been important in this training was always having been accompanied by the researcher/trainer. According to the teacher, *'I would never have dared to try it out on my own – even though I read in a book that there is such a thing as open research. It took some effort to get out of my inertia in order to explore that avenue. Yet I did feel stimulated.'*

She also said looking at oneself was an important part of the training process. *'We looked at ourselves and you explained to me how it is that things worked. I was jogging along very nicely – the next year I really stepped up the pace.'*

Conclusion

We have seen in the study we presented that after the training course, the teacher involved changed her way of teaching with experiments. Her thoughts, which we set out, were expressed shortly after the training course and four years after the actual study. They refer to changes in her teaching practice, in the results of learning on the part of her pupils and in her beliefs and attitudes – in line with the model for teacher change (Guskey, 1986), which shows the process of change over time. Thus, starting out from the training programme that targeted the professional development of the teacher (as explained in 3b) above), changes in her teaching practice took place, which influenced how the pupils learned. In turn, because results were positive, the changes in practice contributed towards changing the teacher's beliefs and attitudes.

Shortly after the three orientation sessions on research-based experimental work, the teacher called her own teaching practice into question and showed a critical attitude and a need for change in teacher's practices and in education in general. The teacher understood the need to have an attitude embracing permanent training and learning – of being a 'lifelong pupil.' *'By seeing teachers as pupils who continuously build up their own knowledge of science and pedagogy, teacher training can become an activity that supports teachers in the construction and reconstruction of knowledge structures concerning teaching and learning'* (Dana et al., 1998, p. 120). Or, as Pombo (1993) put it, *'what better training is there for a teacher than his/her awareness of being an eternal pupil?'*

The question we have to ask is: 'why did the teacher change her teaching practice?' A number of factors were equally important in influencing this change. There was the fact that training took place in the work environment, this being seen as the best place for further training for teachers (Kincheloe, 1989 and Pérez 1988, cited by Garcia, 1999), or, as Zeichner (1987) contended: *'practical experiments in schools do, of necessity, contribute towards training better teachers.'* (p. 39).

Another important factor was the thinking process taking place at different times. Time was made available for reflection throughout the training process. The reading and analysis of the literature supplied and the interviews with the teacher fostered in her, and indeed allowed her, thoughtful analysis of her professional practice (this fits in with the continuing vocational training models for teachers in which the teacher is seen as a thinking professional, which presupposes that *'the process of understanding and improving (a teacher's) teaching must start with thinking about his/her own experience.'* (Zeichner, 1993, p. 17). This reflecting analysis showed the teacher that there were other possible practices as regards experimental teaching, inspiring in her a wish to improve and therefore to change. Resorting to self-examination encouraged reflection – being able to see oneself in action and reflecting on the action.

The process of looking at oneself, the recording of lessons and the accompanying by the researcher were collectively factors which, by allowing feedback, fostered reflection, providing help as regards what to change and how to bring it about (in this particular instance, the skills necessary for preparing and carrying out research-based experimental work).

Reflecting on action was a constant in the whole process. *'Reflecting on action and on reflection-in-action (critical reflection according to Habermas) [which] can be regarded as retrospective analysis by the individual of the characteristics and processes of his/her own action (...) In reflection on action, the practical professional, liberated from the conditions governing the practical situation, can apply the conceptual tools and strategies for analysis in the direction of understanding and reconstructing his or her practice'* (Gómez, 1992, p. 105).

We know that the factors which can help the teacher to become more involved in implementing innovation, and consequently his or her professional development, are: access to information on the innovations he/she is going to be involved in and awareness of innovations of interest to the teacher (Fullan, 1991; Furio & Carnicer, 2002). We gave the teacher literature on the role of experiments in the teaching of science. This link between theory and practice during the training process was important since *'grounding teaching practices on an understanding guided by theory can become an important component of lifelong learning which is the teacher's effort to improve his/her teaching practices.* (Dana *et al.*, 1998, p. 120).

In addition to the training programme, the teacher's personal epistemological attitudes are important (Furio & Carnicer, 2002). By this we mean the teacher's interest as a factor which can foster a change in practice (Fullan, 1991). In this sense, the teacher involved in the study also referred to the teacher's intrinsic motivation as a factor to set beside support from the school. Among the factors favouring her own change in the classroom, she mentions the support received from the school's Board of Governors, particularly in connection with the purchase of equipment. And she adds *'when there is no equipment, you improvise.'* The teacher showed openness and a willingness to change. She herself mentions personal characteristics of teachers who can help in the process of change and innovation in education: *'having the spirit of openness and observation. Observing that there are pupils who can receive things well one way and others in another way. And then having common sense, perceiving what needs to be changed and having the willingness to change.'* She goes on to talk about courage. *'You have to have courage not only to accept that new methods exist but to try them out.'*

In addition to all the factors mentioned, the fact that the teacher observed that her pupils were learning more and developing scientific skills, as research went on, encouraged her in the long term to change her way of teaching experimental work.

These results lead us to ask: 'What inferences can be drawn for teacher training and, specifically, for continuing vocational training?' In our opinion,

training models must include certain strategies. As well as the teacher's intrinsic motivation, account must be taken of his/her interests and training needs. Training should be embedded in practice. Teaching practice should be used as the source and site of learning, via reflection and inquiry, promoting a critical debate on conventional teaching and on other, more effective, possibilities for innovation in teaching (based on advances in science teaching). To this must be added the teacher's own access to information about innovation and his or her ability to actually implement innovative proposals in the classroom. In this way, theory and practice can be integrated and the teacher can develop a positive attitude towards innovation and research in teaching. Throughout this process there is a need for theoretical and tutorial backup. Ponte *et al.* (2004) cite Riedel (1977), who speaks of the need for facilitators who can help teachers develop professional knowledge via practice.

Another aspect to be considered in the training programme is support from the school as an institution. The idea of a learning teacher and of the school as a learning community is important (Clarke and Hollingsworth, 2002). It is also crucial to create and maintain an effective partnership between schools and institutes of higher education. This is an important link if we are to build communities of teachers as lifelong learners, in recognition of the ability of these institutions to (re)construct various types of knowledge.

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Reading

Section prepared by Anne Waniart of the Documentation Service with the help of the European network of reference and expertise (ReferNet)

Europe International: information, comparative studies

Comparison of entrepreneurship at partner countries' schools and training centres' curricula.

Forum zur Förderung der Selbständigkeit – FOFOS
Vienna: FOFOS, 2006, 6 vols.

In order to distinguish the needs of SME and one-person-companies, this project aims to analyse existing support services for persons in self-employment without employees. It provides best practice examples, closing with recommendations to enhance the support for specific target groups. This project is a Leonardo da Vinci project with the title 'Self-employment: guidance and counselling for self-employment'. More information is available under:

http://www.fofos.at/projekt_en.php?p_ID=9

Last visit to page: 05/2006.

Consultation on the European qualifications framework.

Council of European Employers of the Metal, Engineering and Technology-Based Industries - CEEMET;
Brussels: CEEMET, [2006], 6 p.

CEEMET acknowledges the Commission's consultation document aiming at establishing a 'European Qualifications Framework'. According to the Commission document, the EQF shall be developed and implemented as a voluntary meta-framework to increase transparency and support mutual trust. Its main goals are to enable qualification frameworks and systems at national and sectoral level to be related to each other and thus to facilitate the transfer and recognition of the qualifications of individual citizens. However, for CEEMET, and as already stated in previous CEEMET papers and addressed at a joint CEEMET-EMF conference on 'Skills Shortages in the Metal Industry' - it is the transparency and the comparability of occupational qualifications of employees which are more important for the companies.

<http://www.ceemet.org/positiondocs/EQF-Position-Dec2005.doc>

Last visit to page: 05/2006.

The economics of knowledge: why education is key for Europe's success / Andreas Schleicher

Brussels: Lisbon Council, 2006
(Lisbon Council policy brief)

A study released by the Lisbon Council shows that educational progress in Europe is lagging behind, in terms of the quality and quantity of its graduates, in openness of its education systems to students from all social backgrounds and in the availability of continuing education and training to those who need it most.

Employment and competitiveness: the key role of education / Daniel Gros

Centre for European Policy Studies – CEPS
Brussels: CEPS, 2006, 8 p.
(CEPS policy brief, 93 (Feb 2006))

More than half way into the decade, it is clear that the EU will fall short of reaching its ambitious goal to make the EU the 'most competitive economy' by 2010. This contribution looks at an aspect that is often forgotten: namely the link between skills and employment, a central element in the Lisbon goal. It shows that the key problem of Europe in terms of employment is not so much the structure of its labour markets, but the insufficient skill levels of its population. The paper finds that investing more in improving the skills of the EU's population would have, inter alia, a direct impact on the employment rate. Some progress is happening on this front as a result of a general increase in the investment in schooling that has taken place over the last decades. However, this ongoing 'automatic' improvement in skill levels is proceeding very slowly. There has been virtually no acceleration since 2000 and almost none of the more specific benchmarks set in the context of the Lisbon agenda is likely to be reached by the end of this decade.

http://shop.ceps.be/downfree.php?item_id=1301
Last visit to page: 05/2006.

Framework of actions for the lifelong development of competences and qualifications: evaluation report 2006 / ETUC, CEEP and UNICE-UEAPME.

Union of Industrial and Employers' Confederations of Europe - UNICE
European Centre of Enterprises with Public Participation and of Enterprises of General Economic Interest – CEEP
European Trade Union Confederation – ETUC
Union européenne de l'Artisanat et des Petites et Moyennes Entreprises - UEAPME
Brussels: UNICE, 2006, 128 p.

The European social partners have prepared an evaluation report 'Framework of actions for the lifelong development of competencies and qualifications'. This is an attempt to evaluate the impact of their actions on both companies and workers after three annual reports about the annual actions carried out on the priorities identified in their work programme 2003-2005. The evaluation report comprises national evaluation reports jointly elaborated by social partners in the different Member States, which highlight the key features of social partners' work to promote the four priorities from 2003 to 2005. European social partners also report on actions taken at the European level separately. In addition, a section entitled 'main trends' summarises the information available on the initiatives taken from 2003 to 2005 and assesses the impact of the actions on labour markets across Europe.

http://libserver.cedefop.eu.int/vetelib/euorg/etuc/2006_0001_en.pdf

Prospects for the development of the knowledge society in the new Member States and the Candidate Countries / R. Compano, C. Pascu (eds.).

[S.I.]: Publishing House of Romanian Academy of Sciences, 2006
ISBN 973-27-1319-4;

'Foresight is being used increasingly as an instrument for strategic policy making in the new Member States and Candidate Countries of the European Union. Opportunities and threats for Information Society Technologies (IST) in these countries are derived from an analysis of national strengths and weaknesses. This volume has been compiled by the FISTERA network as a contribution to the analysis of the development and requirements for IST foresight at European level. It sets out to answer questions like: What are the commonalities and differences of research and development strategies, innovation strategies, foresight exercises in the different countries? What is the self-perception of the new EU Member States and Candidate Countries on their respective status towards the Information Society and knowledge-based Society? What are the future IST scenarios in these countries?'

Qualification and training forum / European shipbuilding social dialogue Committee.

Community of European Shipyards' Associations - CESA; Council of European Employers of the Metal, Engineering and Technology-Based Industries - CEEMET
Brussels: CESA, 2006, 38 p.

In terms of European social dialogue, the Community of European Shipyards' Associations wanted to focus on qualification and training, which are inextricably linked. To enable this, European shipyards must be aiming to get equivalence of qualifications which would enable greater mobility. Contribution

from Koen Bois d'Enghien, (Cedefop): 'The Main European National Legal Frameworks and the Conventional Rules on Vocational Training'.

<http://www.cesa-shipbuilding.org/>
Last visit to page: 05/2006.

Refine: recognising formal, informal and non-formal education: final project report and VALIDPASS Proposal / Pat Davies

European Universities Continuing Education Network – EUCEN
Barcelona: EUCEN, 2006, 55 p.

The aims of Refine are to test the tools for a European methodological framework for the recognition of non-formal and informal learning (as recommended by the Transfine project funded under the first Joint Action call); to foster trans-national and trans-sectoral collaboration and to build mutual trust in the practices and procedures. The primary target groups are practitioners, managers and policy makers at institutional, regional, national and European level; the indirect target groups are those with no or few formal qualifications but with skills acquired outside the academy.

http://libserver.cedefop.eu.int/vetelib/eu/pub/commission/dgeac/2006_0004_en.pdf

All the papers, reports, presentations and documents from the project are available on the website: www.eucen.org/refine.html

Über die Unterschiedlichkeit beruflicher Bildung in Europa und 'Übersetzungshilfen' zur Förderung von Ausbildungs- und Arbeitsmarktmobilität / Arthur Schneeberger

[Different approaches to vocational education in Europe and 'translation needs' for promoting mobility in the fields of vocational training and occupation]

Institut für Bildungsforschung der Wirtschaft - IBW;
IBW-Mitteilungen, No 1 (2006), p. 1-21
Wien: Institut für Bildungsforschung der Wirtschaft, 2006

'The European community promotes and requires European-wide transparent and transferable vocational and university education in order to realize core tasks of labour policy. This article first deals with the education traditions and formal qualification structures of European countries to show the extent of the "translation need" concerning Europe-wide mobility in vocational training and occupation. Another problem the article tackles is the underestimation of qualifications in those countries which already offer vocational education relevant to the job market in the upper secondary school, compared to those offering vocational training only after the upper second-

ary school. Subsequently, existing concepts for facilitating and promoting mobility in vocational education and occupation are discussed.'

Work programme of the European social partners 2006-2008.

Union of Industrial and Employers' Confederations of Europe – UNICE
Brussels: Unice, 2006, 4 p

The EU's strategy for more Growth and Jobs needs greater involvement from national social partners (trade unions and employer representatives) the Tripartite Social Summit in Brussels heard today. In the work programme's three year period, social partners intend to employ a variety of tools, including the negotiation of a new framework agreement on either lifelong learning or integration of disadvantaged groups into the labour market. They will also strengthen efforts to build social partner capacity in the New EU Member States and Candidate Countries.

http://libserver.cedefop.eu.int/vetelib/euorg/unice/2006_0001_en.pdf

European Union: policies, programmes

Education and training 2010: main policy initiatives and outputs in education and training since the year 2000.

European Commission-Directorate General for Education and Culture.
Brussels: European Commission, 2006, 11 p.

This document provides an overview of the main policy initiatives and outputs resulting from the work of the European Commission in the field of education and training since the Lisbon European Council in March 2000. These form part of the integrated policy framework 'Education & Training 2010' and includes Commission contributions to the Bologna intergovernmental process in the field of higher education.

http://libserver.cedefop.eu.int/vetelib/eu/pub/commission/dgeac/2006_0003_en.pdf

Employment in high technology: highest increase of employment in the high tech knowledge-intensive services / Bernard Felix

Statistics in focus: Theme 9: Science and technology, 1/2006, 8 p.
Brussels: Eurostat, 2006
ISSN 1609-5995, Cat.No. KS-NS-06-001-EN-C

Employment in the manufacturing sector decreased between 1999 and 2004 in the EU-15, especially in the high-tech manufacturing sector. On the contrary employment in total services increased during the same peri-

od, in particular in the High Tech 'Knowledge Intensive Services' (KIS). German regions were in the lead in high and medium high-tech manufacturing in 2004 while capital regions specialised in KIS.

http://libserver.cedefop.eu.int/vetelib/eu/pub/eurostat/2006_0001_en.pdf

EQUAL Success Stories: Development Partnerships working Against Discrimination and Inequality.

European Commission;

Luxembourg: EUR-OP, 2006, 65 p.

(Employment and Social Affairs – Employment and European Social Fund)

ISBN 92-79-00180-9;

http://libserver.cedefop.eu.int/vetelib/eu/pub/commission/dgesa/2006_0004_de.pdf

This publication provides a series of success stories developed within the European Commission's EQUAL programme. Each of these projects has made its own unique and important contribution to overcoming discrimination in Europe. They give just a glimpse of what can be achieved through committed partnerships working together towards a common goal. This European Social Fund Initiative aims to overcome discrimination in the workplace and in accessing employment – a key element of the European Union's strategy to create more and better jobs. By promoting a more inclusive labour market, the EU can increase participation in employment and learning, and maximise the contribution of every individual to the economy and society as a whole.

European ICT skills meta-framework: state-of-the-art review, clarification of the realities, and recommendations for next steps.

European Committee for Standardization – CEN

Brussels: CEN, 2006, 102 p.

(CEN Workshop agreement, 15515)

Information and Communication Technology (ICT) Skills are of strategic importance for Europe. The raising of ICT skills within the EU will form part of the means by which the challenging Lisbon objectives are to be achieved. It is recognized that education and training provision within the EU must be further improved to better match demand for skills, to improve access and equal opportunities, to increase the productivity of workers and raise social inclusiveness. This document contains contributions from Cedefop (Burkart Sellin).

http://libserver.cedefop.europa.eu/vetelib/euorg/cen/CWA15515_ICT%20Skills%20Meta-Framework%20.pdf

Histoire de la coopération européenne dans le domaine de l'éducation et de la formation: comment l'Europe se construit: un exemple / Luce Pépin

European Commission, Directorate General for Education and Culture

Luxembourg: EUR-OP, 2006, 330 p.

ISBN 92-894-8987-1

Cat.No. NC-65-05-311-FR-C

The history of European cooperation in education and training' highlights the fact that it was not until 20 years after the Treaty of Rome that European cooperation in this area began, laying the foundations for a people's Europe by making a direct impact on a growing number of its citizens: tens of thousands of pupils, students and teachers from all EU countries benefited from support for mobility and for transnational projects and cooperation networks.

Implementation of the Lisbon strategy: summary report for the European Council (23 and 24 March 2006) / European Economic and Social Committee.

Luxembourg: EUR-OP, 2006, 117 p.

This report, drawn up by the European Economic and Social Committee (EESC) sets out the results of the EESC's consultation of its partners, throughout the Member States and at European level, on the implementation of the Lisbon Strategy and the role of the social partners and other components of organised civil society. It includes the Committee's observations and proposes. It is divided into 3 parts: 1) part one sets out the EESC's point of view and the main conclusions of this joint undertaking; 2) part two presents the reports by the EESC's partners in the 25 EU Member States, plus the contributions of the Bulgarian and Romanian ESCs; 3) the last part covers the stance of the liaison group between the EESC and European civil society organisations and networks, and is entitled 'On the future of the Lisbon Strategy'.

http://libserver.cedefop.eu.int/vetelib/eu/leg/ETVNL/Lisbon_Summary_Report_06.pdf

Press Release & Documents of the conference available in es, de, fr, hu, it, and pl from Internet at:

http://eesc.europa.eu/lisbon_strategy/events/09_03_06_improving/index_en.asp
[cited: 05.2006]

Recent developments in the European sectoral social dialogue.

European Commission, Directorate General for Employment and Social Affairs
Luxemburg: EUR-OP, 2006, 92 p.
ISBN 92-79-00242-2
Cat.No. KE-70-05-625-EN-C

This documents reports on the last developments in the sectoral dialogue. The main outcomes for lifelong learning are training initiative to opening up opportunities for young people and disadvantaged sectors of the workforce, so that they can benefit from good employment prospects and their own personal development.

http://ec.europa.eu/employment_social/social_dialogue/docs/sectoral_sd_2006_en.pdf
Last visit to page: 05/2006.

Summary of responses received to the Commission's consultation on the EQF [European qualification framework] during the 2nd half of 2005.

European Commission, Directorate General for Education and Culture
Brussels: European Commission, 2006, 26 p

This paper summarising the responses to the EQF consultation process is based on a preliminary report prepared for the Commission by the Pôle Universitaire Européen de Lorraine and an analysis by Cedefop . The Commission consulted the 32 countries participating in the work programme Education & Training 2010, the European social partner organisations (employers and trade unions), European associations and NGOs in the area of education and training, European industry sector associations and DG Education and Culture committees and networks. In general, the EQF is seen as a constructive initiative which should contribute significantly to the transparency, transfer and recognition of qualifications within the European labour market. The EQF is also seen as an initiative which should stimulate national and sectoral reform processes.

http://libserver.cedefop.eu.int/vetelib/eu/pub/commission/dgeac/2006_0002_en.pdf

From the Member States

DE **Berufliche Qualifizierung als Wegbereiter für erfolgreiche Innovationen / Dieter Spath; Till Becker**

[Vocational qualification paving the way to successful innovation.]
Wirtschaft und Berufserziehung, Vol 58, No 2, p. 8-13
Gütersloh: Bertelsmann Verlag, 2006
ISSN 0341-339X;

The authors describe the triggers of change in work and learning and look at the increasing demands being made on companies in terms of the following areas: the information explosion in knowledge work, ability to innovate, changing employment conditions. One way of overcoming these tasks is work related learning. The authors explain the demands being made on employees in this new world of work.

Education is not a commodity: how we wish to work and live tomorrow: a polemic paper on vocational education and training / Alex Bolder

Vereinigte Dienstleistungsgewerkschaft - Ver.di; IG Metall - IGM;
Berlin: Ver.di, 2006, 116 p.

Commissioned by the trade unions ver.di and IG Metall, 4 academics have produced a polemic paper on vocational education and training. This publication represents an involvement in vocational education and training policy on the part of academic advisory circles. The paper points out aspects of policy which are worth retaining as well as identifying areas where bold reform measures are needed.

http://www.igmetall-wap.de/publicdownload/bildung_ist_keine_Ware.pdf
Text from application. Last visit to page: 03/2006.

EL **Draft of the Joint Ministerial Decision about the system of accreditation of Support Services Professionals (SSP).**

National Accreditation Centre of Vocational Training Structures and Accompanying Support Services - EKEPIS;
Athens: EKEPIS, 2006, 20 p.

This document includes the draft of the Joint Ministerial Decision drawn up by the National Accreditation Centre for Continuing Vocational

Training (EKEPIS). It regulates the system of accreditation of support services professionals, taking into account the national policy and European strategy for employment and for combating social exclusion and discrimination. The aim of the system is the upgrading and quality assurance of accompanying support services. Specifically, accompanying support services are defined as the actions/measures that target individuals or groups and aim at their social and occupational integration. Specifically, the decision presented here defines: a) the conditions and procedures of entry into the introductory EKEPIS register of support services professionals, b) the conditions and prerequisites for participation in training programmes intended for support services professionals and their trainers, c) the process of certification of support services professionals and their trainers, d) the conditions and procedures of entry into the EKEPIS register of certified support services professionals, e) the procedures of entering and updating the data about support services professionals who have been included in the Registers.

IE Building learning organisations through networking: final report of the NCPP/FÁS Learning Network Project.

National Centre for Partnership and Performance - NCPP; Training and Employment Authority - FÁS;
 Dublin: NCPP, 2006, 1 folder + CD-ROM

This report describes a collaborative action research project involving the National Centre for Partnership and Performance (NCPP) and FÁS-Training and Employment Authority. The objective of the project was to identify and promote effective learning in public and private sector organisations in Ireland. The project examined how organisations learn, how they use learning to improve their processes to meet their changing business needs and how organisations can achieve greater added value from learning interventions. A critical part of this project was the establishment of a practitioner network to facilitate understanding and awareness of the potential of learning in the workplace. The report comprises an analysis of the project and case studies which derived from the practitioner network.

Monitoring Ireland's skills supply: trends in education/training outputs / Vivienne Patterson; Jasmina Behan

Training and Employment Authority - FÁS, Skills and Labour Market Research Unit; Expert Group on Future Skill Needs;
 Cork: FÁS, 2006, 64 p.

The Monitoring Ireland's Skills Supply report is the first in a series to be published annually, and provides a detailed overview of the trends in Ireland's education and training output. The objective of this report is to provide an indication of the supply of skills to the Irish labour market from the formal education system. It is aimed at informing the formulation of policy in the area of education, labour market, immigration, as well as providing information to career guidance groups and students. The report collates the most up-to-date information from a wide range of education sources and from different education levels, including further education. At each level, the supply of skills is examined in terms of: graduate output trends, student inflows, gender, discipline/subject area, first destination following graduation from higher education and international comparison.

http://www.skillsireland.ie/press/reports/pdf/egfsn0601_monitoring_irelands_skills_supply.pdf
Last visit to page: 05/2006.

NCGE In support of guidance: policy and practice 1995-2005.

National Centre for Guidance in Education.

Dublin: NCGE, 2006, 44 p.

The main roles of the National Centre for Guidance in Education are to support and develop guidance practice in all areas and levels of education and to inform the policy of the Department of Education and Science in the field of guidance. This document describes the work of the Centre over the past ten years. It has produced guidelines in relation to training and qualifications, the provision of guidance for adults in education, information technology in guidance, links between formal and non-formal guidance, and the international dimension of and the resourcing of guidance. NCGE has a European role, functioning as part of the Euroguidance Network. In this role it has contributed to the mobility of European learners and workers and has hosted major EU guidance conferences during the Irish Presidencies in 1996 and 2004. In its ten years, NCGE has undertaken a series of EU funded projects - PETRA, Leonardo, Employment Youthstart - relating to the provision of guidance to marginalised young people.

<http://www.ncge.ie/documents/NCGE%2010%20PUBLICATION.pdf>
Last visit to page: 05/2006.

LT **Profesijos vadovas 2006 / Miniotiene Neringa; Dzemyda Ignas; Rudzenske Dovile (eds.).**

[A guide to the profession.]

ES Leonardo da Vinci programos koordinavimo paramos fondas [EU Leonardo da Vinci Programme Co-ordination Support Foundation], Profesinio orientavimo iðteklø informacinis centras (Lithuanian National Resources Centre for Vocational Guidance);

Vilnius: ES Leonardo da Vicio programos koordinavimo fondas, 2006, 493 p.

ISSN 1648-9454;

This is a fifth issue of the guide containing information about professions that can be acquired in vocational schools, professional colleges and colleges. The guide contains special chapters on vocational training of handicapped, studies in universities, labour market vocational training together with coordinates of vocational guidance and counselling institutions.

NL **Internationale leerwegen en het Internationale baccalaureaat: Advies.**

[International pathways and international baccalaureat: advice.]

Onderwijsraad

In this recommendation, the Education Council advocates the development, throughout the entire education system, of several international learning tracks. Until this has been realised, the International Baccalaureate (IB) should be thrown open as it currently offers access to children of parents working abroad. These secondary school pupils can only follow a two-year pre-university education programme. The Advisory Council feels that the IB should remain effective until new international learning tracks have been developed. The Council is, however, in favour of setting certain conditions for qualifying for IB. 'Offering this opportunity is in line with government policies geared to creating more diversity, more autonomy for schools and more freedom of choice for parents and school participants.'

http://www.onderwijsraad.nl/pdfdocs/internationale_leerwegen_en_het_internationale_baccalaureaat.pdf

Last visit to page: 05/2006.

AT Optimising cooperation between part-time vocational schools and company-based training: surveys and analyses of pedagogical aspects to improve the quality of initial vocational education and training / Arthur Schneeberger; Alexander Petanovitsch; Sabine Nowak

Bundesministerium für Bildung, Wissenschaft und Kultur - BMBWK; Institut für Bildungsforschung der Wirtschaft - IBW;
Vienna: BMBWK, 2006, 82 p.

Within the framework of apprenticeship training (the dual IVET system), part-time vocational school fulfils both supplementary and independent tasks in the interest of the young people's general education and vocational training. In this work, part-time vocational school with the training enterprises forms part of a legal, institutional and regional network: Key prerequisites for success are information and contacts. Part-time vocational schools form an integral part of the economic life of their respective site. Direct contact with the training enterprises in the region is a key prerequisite to ensure they optimally fulfil their educational task. This normative provision may be considered the starting point of the present empirical study of the relationship between part-time vocational schools and training enterprises in six large apprenticeship occupations.

FI Accreditation model for study programmes in hotel and restaurant services: Leonardo-project/Quality in VET-schools.

Helsinki: Finnish National Board of Education, 2006, 71 p.
ISBN 952-13-2632-8; ISBN 952-13-2633-6;

Accreditation system is a relatively new phenomenon in most vocational education and training systems in the European countries. Higher education accreditation has already long tradition though. Also in hotel and restaurant field there has been accreditation system earlier. The applied model for accreditation was developed within the Leonardo da Vinci project 'Quality in VET-schools' (FIN-02-B-F-PP-126704 2002-2005). The aim of this project was to produce models, tools and measures for developing and assessing the quality of educational institutions. The function of accreditation model developed within the project is, in particular, to bring international accreditation of qualifications to schools, to promote student mobility, quality management and related knowledge in education organisations. Accreditation is based on a voluntary assessment of the quality of study programmes in hotel and restaurant services and on a certification awarded on the basis of this assessment. This handbook has been designed to help VET providers in hotel and

restaurant field to prepare and apply for accreditation. The guidelines are intended especially to assist VET providers to: apply for accreditation of a study programme in hotel and restaurant services, plan and implement self-evaluation before application for accreditation, develop quality assurance policies and procedures appropriate to their own context, identify best practices and exchange information and experiences, discuss and co-operate with other VET providers and enterprises in the field of hotel and restaurant services.

<http://www.edu.fi/julkaisut/accreditationverkko.pdf>
 Last visit to page: 05/2006.

- SE **Vägledaren: i utbildning och arbetsliv.**
 [Guidance: vocational training and working life.]
 Sveriges Vägledarförening, SVF;
 Njurunda: SVF, 2006-
 ISSN 0347-4771;

This is the journal of the Swedish Association of Guidance Counsellors, (SAGC) was founded in 1975 and is a non-profit making organisation whose goals are to: Influence society to eliminate educational and occupational injustices and to further everyone, rights to opportunities in education, training and work. Stimulate discussion and debate on issues concerning educational and vocational guidance. Improve educational and vocational guidance with regard to content, ethics, methods and organisation. Encourage research on educational and vocational guidance. Support the members of the association in other principle matters than those that can be referred to the trade unions. Encourage co-operation between all counsellors. Actively strive for co-operation between other countries in questions concerning educational and vocational guidance.

- UK **A European inventory on validation of non-formal and informal learning / John Konrad**
 ECOTEC Research and Consulting;
 Birmingham: Ecotec, 2006

The research on identification and validation of non-formal and informal learning in Malta is still at the embryonic stage: there still exists a gap between the stated and written policy and the implementation process; the prevalent concern for government and private entities is the acquisition of skills outside the formal system

of education for employability purposes only; and recognition of non-formal and informal education/learning is a process that is not as yet linked to validation and accreditation.

http://www.ecotec.com/europeaninventory/publications/inventory/chapters/euro_inv_uk.pdf

Last visit to page: 05/2006.

International Journal of Action Research

Praise for „International Journal of Action Research“

Orlando Fals Borda, *Universidad Nacional de Colombia, Colombia*

To me, the journal is at the forefront of our field, and it helps me in understanding certain theoretical problems we are experiencing here in Latin America. Moreover I appreciate, that "International Journal of Action Research" is providing a forum for a North - South dialogue, which we all need so urgently.

Davydd Greenwood, *Cornell University, Ithaca, N.Y.*

The International Journal of Action Research is a unique resource for action researchers. ... The journal is masterfully edited.

Bjørn Gustavsen, *Work Research Institute, Oslo*

The International Journal of Action Research is a valuable contribution to the growing discourse on action research. It has its roots in the industrial democracy movement, which initially centred in Tavistock and then took roots in Norway in the 1960s. For the contemporary discourse to be fruitful, this mix of the new and the historical is a necessity.

Selected Highlights IJAR, vol 2, 2006

Olav Eikeland: Phronēsis, Aristotle, and Action Research (1)

Klaus Dörre, Klaus Kraemer, Frederic Speidel: The increasing precariousness of the employment society: driving force for a new right wing populism? (1)

Marianne Kristiansen, Jørgen Bloch Poulsen: Involvement as a dilemma Between dialogue and discussion in team based organizations (2)

Bjørn Gustavsen: Learning Organization and the process of regionalisation (3)

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Thematic Review

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(Massimo Tomassini)

European journal of vocational training Call for articles for the thematic issue on

assessment,
recognition/validation and
certification of informal
learning/knowledge/
competences

If you would like
to submit an article,
the editor
Éric Fries Guggenheim
can be contacted
by e-mail on:
eric.friesguggenheim@
cedefop.europa.eu,
or by telephone on
(30) 23 10 49 01 11
or fax on
(30) 23 10 49 1 17.

Definitions of informal and non-formal learning can be found in Cedefop's report 'The learning continuity: European inventory on validating non-formal and informal learning'. They were occasionally discussed during the second half of the twentieth century, but they have been addressed recently for two main reasons:

- diminishing natural resources and seeking for the alternatives, in particular knowledge;
- lifelong and lifewide learning as a means of improving the position of individuals.

The EU promotes informal and non-formal learning in a number of ways, and in particular through validation. In some European countries systems of assessment, recognition and certification of informal learning have been established to increase the stock of explicit knowledge and to enable its utilisation. This should help individuals to improve their social position and personal wellbeing and to increase their employability and encourage further learning and knowledge acquisition. However, as the report states approaches to validating non-formal and informal learning on the secondary and tertiary levels are still predominantly experimental.

The purpose of a thematic issue is to make a step beyond the above-mentioned Cedefop report. We would particularly welcome proposals from researchers and others who have examined and evaluated how established systems of validation of non-formal and informal learning work in practice. Thus, the articles may address issues such as:

- the attitudes of various social groups, organisations and stakeholders towards the assessment, recognition and certification of non-formal and informal learning (ARCNIL). What is the origin of this terminology? Where and by whom is it used?
- the structure and functioning of the national systems of ARCNIL;
- the role of national qualification standards and the modularisation of education and training programmes in ARCNIL;
- application of ARCNIL in corporations and other organisations;
- the relationship between formal education and training and ARCNIL;
- the social, professional, personal and economic effects of ARCNIL;
- the educational change that is needed to tackle emerging challenges (at the theoretical and empirical levels, at the structural and organisational levels, actor representations, and so on).

Various approaches and forms are welcome:

- policy analyses of value contexts, the attitudes of social partners and other stakeholders, system designs, their functioning, output and outcomes;
- quantitative analyses focused on the functioning of systems in terms of their intakes, the structure of applicants, their success in the process of

ARCIL, the consequences for education, employment mobility and wages, the attitudes and views of participants, etc.;

- evaluation and case studies focused on the national, branch, organisational and other levels;
- discourses based on the literature or on empirical research that raises critical issues and argues for certain solutions, etc.

We would especially like to encourage articles that take a comparative approach to ARCIL, e.g. those which compare national systems, sectoral solutions or cases found in different EU Member States, and those which compare EU countries' solutions with those outside EU. Priority will be given to contributions focusing on VET.

THEMATIC ANALYSIS

ICT in education: the opportunity for democratic schools?

Helen Drenoyianni

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