

PROGRAM

**EFFECTIVENESS OF LEARNING AND
EFFICIENCY IN VET SYSTEMS**

**Interdisciplinary Congress on Research
in Vocational Education and Training,
Berne/Zollikofen, Switzerland**

March 25 – 27, 2009

SFIVET
Swiss Federal Institute
for Vocational Education and Training
Berne/Zollikofen, Switzerland

Congress on Research in VET: [congress-09\(at\)sfivet-switzerland.ch](mailto:congress-09@sfivet-switzerland.ch)
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Editors of the journal will follow the paper presentations during the Congress to later invite authors of outstanding contributions to publish their papers (contact: www.ervet.ch).

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Welcome Address

The Swiss Federal Institute for Vocational Education and Training (SFIVET) is very pleased to be able to organise and host this 1st Interdisciplinary Congress on Research in Vocational Education and Training in Switzerland. The scientific program will provide an excellent opportunity to explore and share the many facets of current international research work which is undertaken to enhance the effectiveness of learning and the efficiency in systems of Vocational Education and Training (VET).

The Scientific Committee was truly surprised and pleased to receive so many symposia and paper proposals addressing important issues and research questions within the different Congress domains that were listed in the call for papers. The contributions selected for the final program offer a rich and varied picture of research findings and methodological approaches which will hopefully stimulate fruitful and interesting scientific discussions as well as further exchange in and across the different networks of researchers who attend our Congress.

A line of sessions is dedicated to macro-level research investigating economic or sociological factors that influence VET systems and subsequent transitions to the labour market or to contexts of further education. Other symposia and paper sessions present studies from educational or psychological perspectives which address a wide range of questions regarding the nature and quality of teaching and learning in VET systems. The respective main topic areas are (a) the development and measurement of professional identities and competencies of learners as well as of responsible teachers or trainers, (b) the support and integration of learning across different contexts by means of new information technologies, (c) potentials and limitations of workplace learning, (d) specific modes and domains of learning, and (e) considerations related to individual differences, diversity and to students at risk.

Symposia and thematic paper sessions are framed by four keynote addresses given by internationally distinguished invited speakers with whom the Swiss research networks focusing on VET have established contacts to promote scientific work in this field.

For a country like Switzerland where VET holds a very prominent position within the education system, and particularly for SFIVET which engages, on a national level, in development and research activities as well as in basic and continuing training of VET professionals, it is a pleasure and an honour to host this Congress. We consider it as a great opportunity to share scientifically based knowledge and experience with other national and international researchers that may eventually contribute to shaping more effective and efficient VET systems. In this spirit, I wish all the participants and guests an inspiring Congress and a pleasant stay in Berne and at our institute.

Ursula Scharnhorst
Chair of the Congress
Head of the Division of Research and Development of SFIVET in Zollikofen

Congress Committee

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EPFL Lausanne

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Keynote Addresses

Martin Carnoy, Stanford University

Vocational Education: Is There a “Best” Model in the New Global Economy?

Vocational education and training, or education and training intended to prepare individuals directly for particular types of jobs, has been an integral part of the education discussion since the 19th century. The main concepts underlying vocational education are two: (1) an important contribution of public education to society is preparing young people with work skills that—on one hand—help promote industrial and other production and—on the other—increase employability of labor (see, for example, Offe, 1973), and (2) many young people are not sufficiently academically inclined to prepare for more intellectually-based professional jobs requiring university education, hence would do better to take more practical education and training associated with lower level technical, skilled trade, or semi-skilled service work. All societies use VET to develop labor for the workplace, but there are big differences among countries in the role that VET plays and how it is organized.

In this paper, I argue that social conditions in a country are a major factor influencing this role, and that the main conditions are the attitude of young people and employers toward taking risks in the labor market, and values regarding social stability versus mobility. I also argue that there are both positive and negative aspects of systems that rely heavily on highly organized VET systems like Switzerland's, and positive and negative aspects of more loosely coupled (flexible and risk oriented) and less pervasive systems such as in the United States.

Finally, I try to make the case that changes in the world economy are increasing the benefits to more flexible education and training and are thus reducing the benefits to highly structured VET systems. A major issue remains whether risk-averting societies are willing to give up the greater efficiency of more flexible systems in order to maintain collectivized risk.

Martin Carnoy

Dr. Carnoy is a labor economist with a special interest in the relation between the economy and the educational system. To this end, he studies the US labor market, including the role in that relation of race, ethnicity, and gender, the US educational system, and systems in many other countries. He has studied extensively the impact of vouchers and charter schools on educational quality, and has recently focused on differences in teacher preparation and teacher salaries across countries as well as larger issues of the impact of economic inequality on educational quality.

James W. Pellegrino, University of Illinois at Chicago

Assessment as a Trojan Horse for Educational and Training Programs

One of the most challenging aspects of designing, implementing, and/or evaluating any educational and training program is adequately defining the nature of the knowledge, skills, and competencies we expect from the students who complete the program. Often we rely on vaguely worded standards documents or curriculum frameworks and then use tests and assessments that seem “reasonable” or practical to measure performance but which have serious conceptual limitations and interpretive shortcomings. In this presentation I will discuss how a careful focus on issues of assessment is critical to the success of educational and training programs. Assessment is the “Trojan Horse” that forces us to engage in a serious conversation about the claims we want to make about students as a result of the educative process and the forms of evidence that would support such claims. When we take issues of assessment seriously we are simultaneously led to consider those instructional activities and features of a learning environment that will contribute to the desired student learning outcomes. I will attempt to illustrate these ideas from work underway using an “evidence-centered design” process to frame the goals of instruction in areas as diverse as digital literacy for middle school students to nano-scale science and engineering education for students in grades 7-16 to Advanced Placement high school courses in physics, chemistry, biology and environmental science. The issue then becomes one of how these evidence-centered design concepts play out in the realm of vocational and technical education and how issues of assessment can help clarify goals, purposes, and procedures.

James W. Pellegrino

James W. Pellegrino is Liberal Arts and Sciences Distinguished Professor of Cognitive Psychology and Distinguished Professor of Education at the University of Illinois at Chicago . He also serves as co-director of UIC’s new interdisciplinary Center for the Study of Learning, Introduction, and Teacher Development. James W. Pellegrino’s research and development interests focus on children’s and adult’s thinking and learning and the implications of cognitive research and theory for assessment and instructional practice. Much of his current work is focused on analyses of complex learning and instructional environments, including those incorporating powerful information technology tools, with the goal of better understanding the nature of student learning and the conditions that enhance deep understanding. A special concern of his research is the incorporation of effective formative assessment practices, assisted by technology, to maximize student learning and understanding.

Simone Volet, Murdoch University

Before Promoting Collaborative Learning in Professional Education: Legitimate Questions to Ask

The value of group learning activities, in comparison to competitive or individual forms of instruction, is widely acknowledged in the educational literature. All recent theories of learning, such as social constructivism, socio-cognitive, situative and sociocultural perspectives, are grounded in the view that learning is fundamentally a socially mediated process. Yet, the typical group work activities designed by teachers in professional education may not necessarily lead to students learning collaboratively. This presentation will address a number of legitimate questions to ask before promoting collaborative learning in professional education. These relate to the nature of productive collaborative learning, how it emerges and is sustained in naturalistic learning settings, how students conceptualise effective learning from each other, and how productive collaborative learning can best be induced in professional education.

Simone Volet

Simone Volet is Professor of Educational Psychology. Her research, grounded in socio-cognitive, sociocultural and situative perspectives on learning, focuses on: the integration of cognitive, metacognitive, motivational and social aspects of learning at university and other adult learning settings; effective collaborative learning in student-led group activities at university; social dynamics of group work; learning and teaching in culturally diverse contexts; social cohesion on multicultural campuses; and the internationalisation of higher education curricula. She currently serves as a member of several international editorial Boards as well as several international and national scientific research advisory Boards. She is also past president of the Educational, Instructional and School Psychology Division of the International Association of Applied Psychology (IAAP). She was the first author of the journal article that received the inaugural "Outstanding Publication Award" of the European Association for Research on Learning and Instruction.

Etienne Wenger, Scientific Advisor

Communities of Practice: A Social Discipline of Learning

The complex challenges we face today urgently call for new models of how we can learn individually and collectively. We have quite rigorous models to consider the informational and cognitive aspects of learning, but we need to become more disciplined about considering its social dimensions. One model with the potential to do this is provided by communities of practice and the attendant learning theory. These communities are as ancient as human kind. Yet they represent a model of learning that is extraordinarily aligned with the new geographies of connectivity and identity emerging at the dawn of the 21st century. This keynote address explores some dimensions of this social discipline of learning, as well as new approaches to learning challenges it is inspiring in business, government, education, and world development.

Etienne Wenger

Etienne Wenger is a thought leader and consultant in the field of learning systems. He is the author and co-author of seminal books on communities of practice, including *Situated Learning*, where the term was coined, *Communities of Practice: learning, meaning, and identity*, where he lays out a theory of learning based on the concept, and *Cultivating Communities of Practice*, addressed to practitioners in organizations who want to base their knowledge strategy on communities of practice.

Program of Wednesday, 25th March 2009

Wednesday, 25 th March 2009		Room
11:00 –	Registration	Piazza
11:45 – 13:15	Lunch	Piazza
13:15 – 13:45	Welcome Address Ursula Renold Director, Federal Office for Professional Education and Technology OPET, Switzerland	Aula
	Opening Address Ursula Scharnhorst Chair of the Congress, SFIVET, Switzerland	
13:45 – 14:45	Keynote Martin Carnoy Stanford University, United States	Aula
15:15 – 16:45	THEMATIC SESSION 1 An integrated learning approach for the effectiveness of technologies in a dual VET system across contexts Chair: Friedrich Hesse, University of Tübingen, Germany Discussant: Heinz Ulrich Hoppe, University of Duisburg, Germany <i>Using DBR and mobile technology to assess apprentices' help-seeking at the workplace and to foster their autonomy</i> A. Cattaneo, J.-L. Gurtner & E. Motta <i>"Let's Write Together": Computer supported writing to learn in VET</i> M. Gavota, M. Betrancourt, A. Cattaneo, C. Arn, D. Schneider & U. Richle <i>Boundary objects in the design of education interventions</i> P. Jermann, G. Zufferey, A. Lucchi, M. Sanz & P. Dillenbourg	Aula
15:00 – 17:00	THEMATIC SESSION 2 Identity dynamics in transitions Chair: Tania Zittoun, University of Neuchâtel, Switzerland Discussant: Laurent Filliettaz, University of Geneva, Switzerland <i>From school to work: interaction and participation in vocational educational and training situations</i> B. Duc <i>Is a technical school a bridge between school and work? A case study.</i> A.-N. Perret-Clermont & J.-F. Perret <i>Dropping out of vocational education and training: Identity dynamics and relational issues.</i> J. Masdonati & N. Lamamra <i>The place of work in the transition to professional life</i> T. Zittoun	214

Wednesday, 25 th March 2009		Room
15:00 – 16:00	<p>PAPER SESSION 1</p> <p>Training decisions of firms</p> <p>Chair: Jürg Schweri, SFIVET, Switzerland</p> <p><i>Apprenticeship training in Germany – Is there a change from an investment- towards a production-oriented strategy?</i> H. Pfeifer, G. Schönfeld & F. Wenzelmann</p> <p><i>Complementarities between apprenticeship training and firm sponsored continuing training?</i> J. Mohrenweiser</p> <p><i>A German-Swiss comparison of the firm's training decision</i> S. Mühleemann, H. Pfeifer, F. Wenzelmann, G. Walden & S. Wolter</p>	N106
16:05 – 17:05	<p>PAPER SESSION 2</p> <p>Models and measures of identity and competence development</p> <p>Chair: Lars Balzer, SFIVET, Switzerland</p> <p><i>Valued and valuable professional identity in vocational education and training (VET): collective representations among trainees, trainers and teachers.</i> D. A. Castelli Dransart, V. Perriard, V. Zbinden Sapin, J. De Puy, B. Gay-des-Combes & M.-C. Monin</p> <p><i>Motivation, identity and competence development</i> L. Heinemann</p> <p><i>Output quality of in-company vocational education and training from a stakeholders' point of view</i> M. Ebbinghaus</p>	N106
17:15 – 17:30	<p>POSTER SESSION</p> <p><i>Skills development: Attitudes and perceptions</i> M. Gosling, K. Shoesmith & T. Kennedy</p> <p><i>The transition to VET and the future evolution of the number of VET beginners in Switzerland</i> L. Gaillard & J. Babel</p> <p><i>The Swiss VET System</i> SFIVET / OPET</p>	Piazza
17:30 – 19:00	<p>Welcome reception (Sponsored by ERVET)</p>	Piazza

Program of Thursday, 26th March 2009

Thursday, 26 th March 2009		Room
08:30 – 09:30	<p>PAPER SESSION 3</p> <p>Aspects of matching skills, labour market needs and outcomes in VET</p> <p>Chair: Annina Eymann, SFIVET, Switzerland</p> <p><i>Skill obsolescence, vintage effects and changing tasks</i> S. Janssen</p> <p><i>Labour market outcomes: the relationship between education types and literacy scores</i> J.-M. Falter & C. Pasche</p> <p><i>Money matters – Evidence from a large-scale randomized field experiment with vouchers for adult training</i> S. Wolter & D. Messer</p>	Aula
08:30 – 09.30	<p>PAPER SESSION 4</p> <p>The impact of different systemic changes in VET</p> <p>Chair: Christoph Arn, SFIVET, Switzerland</p> <p><i>Examining the impact of a systemic change professional development initiative for vocational education and training (VET) trainers in Western Australia</i> R. Saunders</p> <p><i>Transition and permeability in vocational education and training in Germany and Switzerland – a comparative perspective</i> B. Siecke</p>	214
08:30 – 09.30	<p>PAPER SESSION 5</p> <p>Aspects related to individual differences and diversity in VET</p> <p>Chair: Hansruedi Kaiser, SFIVET, Switzerland</p> <p><i>Smart heads and golden hands. An empirical study on educational processes of gifted juveniles in the Swiss vocational education system</i> M. Stamm, M. Niederhauser & R. Müller</p> <p><i>Impact of precocity in mathematics and reading on the transition from compulsory to post-compulsory education and beyond</i> M. Stutz & M. Stamm</p> <p><i>Cultural diversity and gender in VET: Identification and analysis of organisational and pedagogical arrangements for cultural diversity and gender integration</i> B. Pfister Giauque, E. Flamigni & Romaine Schnyder</p>	N106
09:45 – 10:45	<p>Keynote</p> <p>James W. Pellegrino University of Illinois at Chicago, United States</p>	Aula

Thursday, 26 th March 2009		Room
11:00 – 12:30	<p>THEMATIC SESSION 3 Informative contributions to VET research from sociological perspectives</p> <p>Chair: Christian Imdorf, University of Glasgow, United Kingdom Discussant: Christian Imdorf, University of Glasgow, United Kingdom</p> <p><i>Access to company-based dual apprenticeships or fully school-based education. Effects of social inequality at the transition from compulsory school to upper secondary education and training in Switzerland</i> S. Hupka-Brunner, S. Sacchi & B. Stalder</p> <p><i>System formation in the Swiss vocational education and training system using the example of commercial and business education</i> S. Burren, L. Criblez & M. Späni</p> <p>Vocational education and training dropout from the perspective of professional socialization N. Lamamra & J. Masdonati</p>	Aula
11:00 – 12:00	<p>THEMATIC SESSION 4 Using ethnography to further understandings of quality and its assessment in VET</p> <p>Chair: Ingrid de Saint-Georges, University of Geneva, Switzerland Discussant: Stephen Billett, Griffith University, Australia</p> <p><i>The efficiency of communication training in the service industry: some answers from a critical ethnography perspective</i> A. Duchêne</p> <p><i>A qualitative approach to vocational training and education: what can we learn about “consequential transitions” from ethnography?</i> I. de Saint-Georges</p>	214
11:00 – 12:20	<p>PAPER SESSION 6 Support and perspectives for at-risk students in VET</p> <p>Chair: Nicole Grolimund, SFIVET, Switzerland</p> <p><i>Factors for success in the vocational education of at-risk adolescents</i> K. Häfeli & C. Schellenberg</p> <p><i>Well prepared for the labour market? Employment perspectives and job careers of young people after a two-year basic training course with Basic Federal Certificate: the case of the retail sales and hotel sectors in Switzerland</i> M. Kammermann</p> <p><i>How to help young people at risk entering the world of work: The project LIFT</i> L. Balzer</p> <p><i>«Illiteracy and New Technologies» (INT) – New media and basic adult literacy</i> A. Hollenstein, A. Sturm & R. Hilbe</p>	N106
12:30 – 14:00	Lunch	Piazza
14:00 – 15:00	<p>Keynote Simone Volet Murdoch University, Western Australia</p>	Aula

Thursday, 26 th March 2009		Room
15:15 – 17:15	<p>SYMPOSIUM 1</p> <p>The bottom-up way: How to formulate, model and measure competencies of teachers and trainers, responsible for apprentices</p> <p>Chair: Sarah Heinzer, University of Fribourg, Switzerland</p> <p>Discussants: Richard Shavelson, University of Stanford, United States Gerhard Minnameier, University of Aachen, Germany</p> <p><i>Individual intentions as a source for the social configuration of knowledge, competence and performance and their impact on learning and teaching</i> D. Sembill</p> <p><i>The advocatory approach to diagnose teaching quality: a contradiction to a bottom-up procedure?</i> F. Oser</p> <p><i>Research- and evidence-based teacher training within the fields of VET</i> S. Weber & F. Achtenhagen</p>	Aula
15:15 – 16:15	<p>PAPER SESSION 7</p> <p>Job demand and mobility after initial VET</p> <p>Chair: Barbara Müller, SFIVET, Switzerland</p> <p><i>Matching the supply of and demand for young people graduating from the vocational track in Spain</i> O. Marcenaro & A. Vignoles</p> <p><i>German apprenticeship training and the skill weights approach – An empirical analysis</i> U. Backes-Gellner, J. Mure & R. Geel</p> <p><i>The returns to occupation-specific human capital. Evidence from mobility after apprenticeship</i> B. Müller & J. Schweri</p>	214
15:15 – 16:15	<p>PAPER SESSION 8</p> <p>Specific modes and domains of learning in VET</p> <p>Chair: Ursula Balmer, SFIVET, Switzerland</p> <p><i>Mathematics for construction workers</i> H. Kaiser</p> <p><i>Effect of a metacognitive intervention on mathematics problem solving in vocational students with learning difficulties</i> N. Kipfer, J.-L. Berger & F. Büchel</p> <p><i>Learning with collaboratively generated graphical representations in the domain of economics and business education</i> C. Aprea & H. G. Ebner</p>	N106

Thursday, 26th March 2009		Room
16:25 – 17:25	<p>PAPER SESSION 9</p> <p>Factors determining VET returns: Wage dispersion and wage growth</p> <p>Chair: Annina Eymann, SFIVET, Switzerland</p> <p><i>Decomposing the dispersion of earnings to analyze the impact of on-the-job training</i> J. Silber, A. Dumas & S. Hanchane</p> <p><i>Differences in wage growth by education level: An empirical analysis of the Swiss dual education system</i> S. Weber</p> <p><i>Knowledge society and the returns to VET for individuals. A multilevel analysis of the German labour force</i> D. Rohrbach</p>	214
16:25 – 17:05	<p>PAPER SESSION 10</p> <p>Technology-supported learning in VET</p> <p>Chair: Christoph Arn, SFIVET, Switzerland</p> <p><i>Collaborative computer-supported writing activities to foster professional procedures learning in vocational education</i> M. Gavota, M. Betrancourt & D. Schneider</p> <p><i>Using a national learning management system in Swiss vocational education</i> D. Petko, T. Moser & A. Frey</p>	N106
19:30 – 23:00	<p>CONGRESS DINNER</p> <p>Restaurant Goldener Schlüssel Bern Rathausgasse 72, 3011 Bern www.goldener-schluessel.ch</p>	Berne

Program of Friday, 27th March 2009

Friday, 27 th March 2009		Room
09:45 – 11:45	<p>SYMPOSIUM 2 Exploring the potentialities and limitations of workplaces as learning sites for newcomers in the profession Chair: Laurent Filliettaz, University of Geneva, Switzerland Discussant: Etienne Wenger, United States</p> <p><i>Becoming at work: Building occupational capacities and identity through work</i> S. Billett</p> <p><i>The distributed nature of guidance at work: a learning resource for apprentices?</i> L. Filliettaz</p> <p><i>Why do more advanced apprentices ask more questions and request more help than others at the workplace?</i> J.-L. Gurtner, L. Mauroux & A. Cattaneo</p> <p><i>Cooperation between school and companies so as to frame students' workplace activities – the case of a cooperative program in an industrial engineer school in France</i> L. Veillard</p>	Aula
10:00 – 11.30	<p>THEMATIC SESSION 5 Competence Profiles and Conceptions as Steering Knowledge for Professionals of Vocational Education and Training Chair: Fritz Oser, University of Fribourg, Switzerland Discussant: James W. Pellegrino, University of Illinois at Chicago, United States</p> <p><i>Development of competence profiles of responsables for in-company training</i> C. Joho & S. Heinzer</p> <p><i>What sports teachers should do and should be able to do: About competence profiles of sports teachers in technical high schools</i> M. Baumgartner</p> <p><i>How competencies develop and how to foster steering professional knowledge</i> P. Salzmann & T. Bauder</p>	214
09:30 – 10.30	<p>PAPER SESSION 11 Competencies in specific VET domains Chair: Marianne Stäubli, SFIVET, Switzerland</p> <p><i>From evaluation to assessment? – Approaches in aeronautics</i> A. Saniter & R. Bremer</p> <p><i>The role of domain competencies for employability in the IT sector</i> S. Ziebarth, S. Schröder, N. Malzahn, S. Zeini & U. Hoppe</p> <p><i>Competing with skills for clothing: A comparative case study on the skill-formation regimes for the garment industry in Bangladesh and Sri Lanka</i> M. Maurer</p>	N106

Friday, 27 th March 2009		Room
10:45 – 11:45	<p>PAPER SESSION 12</p> <p>Educational choices at upper secondary level: Patterns and paths leading to VET or to general academic education</p> <p>Chair: Marc Fuhrer, SFIVET, Switzerland</p> <p><i>Intergenerational links and upper secondary track choice: Pattern and consequences</i> J.-M. Falter, G. Ferro Luzzi & F. Sbergami</p> <p><i>Risk-return trade-offs to complete educational paths: Vocational, academic and mixed</i> S. Tuor & U. Backes-Gellner</p> <p><i>SCELTO: Go for the apprenticeships</i> E. Boldrini, L. Bausch, F. Mulatero & S. Guidotti</p>	N106
12:00 – 13:00	<p>Keynote</p> <p>Etienne Wenger, United States</p>	Aula
13:00 – 15:00	Lunch	Aula
15:00 – 21:00	<p>EXCURSION</p> <p>In the herdman's cottage, dating from 1741, we will be offered an insight into the historical and cultural development of cheese making. On prior request, we can make our own cheese over an open fire and enjoy a Swiss Fondue for dinner. www.showdairy.ch</p> <p>15:00 Departure (car park in front of the SFIVET) 16:00 Arriving at the Emmental Show Dairy 16:00 – 17:00 Guided tour 17:00 – 18:00 Making our own cheese on the open fire 18:00 – 20:00 Dinner 20:00 Trip home 21:00 Arriving at Berne</p>	

Abstracts of Symposia and Thematic Sessions in Chronological Order

THEMATIC SESSION 1: Wednesday, 25th March 2009, 15:15 – 16:45 (room: aula)

An integrated learning approach for the effectiveness of technologies in a dual VET system across contexts

Chair: Friedrich Hesse, University of Tübingen, Germany

Discussant: Heinz Ulrich Hoppe, University of Duisburg, Germany

Considering VET and its quality, two key points can rise as very relevant to work on: on the one hand, the need to better articulate the gap among the three training places (workplace, school, intercompany courses); on the other hand, the need to develop the core competences identified in legal texts as crucial to be a professional in the actual society. Examples of competences are: to be autonomous, to be able to find the right resources to solve a problem, to be able of anticipating different solutions, to articulate theory and practice through abstractions... Our leading house addresses both these points. Can technology foster the collaboration between the actors of vocational training across contexts? Can technology be helpful to capture the complexity of professional situations, e.g. with pictures or small videos? Can technology allow apprentices to develop any of the above mentioned professional competences by introducing writing activities or simulations? Can technology improve VET efficiency and effectiveness by promoting reflective activities?

Starting from the discussion of the research projects carried out in the framework of the "Technologies for Vocational Training" Leading House, we will develop some hypotheses regarding to these questions. These projects all use a Design-Based Research as methodological approach (Brown, 1992; Collins, 1992; DBRC, 2003) and the "integrated learning" approach as pedagogical framework. In 'integrated learning', where are designed to support learning activities, which on their turn foresee multiple modes of social interactions and produce reusable emerging objects integrating across contexts experiences.

Acknowledgments: These researches were made possible through a grant of the Swiss Federal Office for Professional Education and Technology (number BB.2006.0023). <http://dualt.epfl.ch>

Using DBR and Mobile Technology to Assess Apprentices' Help-Seeking at the Workplace and to Foster their Autonomy

Alberto Cattaneo, SFIVET, Switzerland

Jean-Luc Gurtner, University of Fribourg, Switzerland

Elisa Motta, SFIVET, Switzerland

To distinguish when you need help and when you could solve a problem by yourself is both an important competence to acquire during vocational training and a determinant component of self-regulated learning, as this allows you to increase and develop your autonomy in order to be more and more efficient at the workplace. We focused our studies in VET on help-seeking behaviours, a topic mainly studied in academic contexts, starting from a comparison of help-seeking behaviours at school and at the workplace (study 1), and then moving to a technology-assisted ethnographical study of apprentices' help-requests at the workplace, in order to build a taxonomy of help-requests, to examine the relative frequency of the different requests observed, and to investigate the social context and effects on others of the apprentice's help-seeking behaviours (study 2). Finally, we tried to use the results and materials collected at the workplace in order to develop learning scenarios which can be useful for the teaching of methodological and social competences (study 3).

These studies showed that digital technologies offer many possibilities 1. to capture experiences lived at the workplace, using audio/video recorders, as well as to associate the experiences themselves with textual annotations or audio comments, and 2. to re-exploit them vividly at school later on, fulfilling the aim of bridging the gap between school and workplace.

“Let’s Write Together”: Computer Supported Writing To Learn In VET

Monica Gavotta, University of Geneva, Switzerland

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In vocational education, while apprentices receive similar trainings in the school, there is a huge variation in the training they get on the field, depending on the companies in which they work. Each apprentice encounters only a fraction of the experience spectrum he or she could encounter. The aim of the Dual-T project, founded by the Federal Office for Professional Education and Technology, is to develop computer-supported learning design to help articulating the school and the workplace training. In this paper, we present three studies investigating how computer-supported collaborative writing activities can promote experience sharing and reflexive professional development.

The first study investigated the impact of punctual peer writing activities on comprehension of professional procedures. The results showed that learners interventions were valuable and improved the quality of the texts produced about the procedures. The following two studies are still in progress so we mainly focus on design description and objectives. These studies continue the research by bringing a long-term approach of collaborative writing-to-learn activities and shaping similar computer-supported scenarios. The analysis and results will soon be available.

Boundary objects in the design of educational interventions

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The Swiss dual model for vocational training relies on a combination of authentic practice in the workplace and conceptual learning at school. Apprentices work four days per week in a company and spend the fifth day in a professional school. The switching of context from the company to the classroom entails some difficulties for apprentices. A case study conducted at the outset of the project in the field of logistics showed that conceptual knowledge acquired in school is not always applicable in the company for social (decisions are taken by the management) or technical (high automation leads to deskilling of the workforce) reasons. On the other hand, school does not always provide opportunities for reflection by contextualizing teaching with regards to the apprentices' experience. Bridging this abstraction gap with technologies constitutes the main problematic of our research.

Following a design-based research methodology, we co-designed an intervention in a real-world setting with two teachers from a professional school. This contribution highlights the role of boundary objects (Star & Griesemer, 1989) in the iterative process of analysis, design, implementation and redesign which characterizes the approach. Boundary objects are narratives, events or technological devices which play a central role in the resolution of tensions as novelty and differences in points of view arise. At each phase of the project, boundary objects helped building shared understanding between the protagonists of the project.

THEMATIC SESSION 2: Wednesday, 25 March 2009, 15:00 – 17:00 (room 214)

Identity dynamics in transitions

Chair: Tania Zittoun, University of Neuchâtel, Switzerland
Discussant: Laurent Fillietaz, University of Geneva, Switzerland

In Switzerland, adolescents enter in vocational education and training (VET) at the end of compulsory education, or alternatively, after vocationally oriented transitory programs. The transition from school to vocational forms of education brings important changes in the daily life of these young people. VET demands the participation to new social settings, new modes of interactions with adults and peers, and the acquisition of specific forms of social and technical competencies.

From a psychosocial, or sociocultural perspectives, the transitions in which engage young learners engage three types of interdependent developmental processes: (i) the actual acquisition of knowledge and competencies (social, technical, theoretical); (ii) processes of identity re-definition (e.g., from pupil to apprentices; from “disqualified by school” to “responsible worker”, etc.); (iii) processes of meaning making, by which young people can confer sense to these changes, for instance through a time-oriented narrative, or through other means of symbolisation. This symposium proposes to focus on the identity dimension of VET. Each of the papers will develop its own perspective on the processes of change engaged in the transition to VET, yet the focus of their analysis will be the dynamics of identity.

The symposium thus has two goals. Firstly, the symposium aims at giving a better view of the extent to which actual learning processes, or the dynamics of commitment into a program, are connected to, or dependent on identity dynamics. Secondly, because the authors of the papers belong to different research traditions, the symposium also aims at highlighting a range of methods by which identity processes in VET can be studied. The two goals have scientific implications, as they participate to the development of the growing field of studies on transitions, and educational ones, as it might help to identify key aspects of learning processes.

From school to work: interaction and participation in vocational educational and training situations

Barbara Duc, University of Geneva, Switzerland

In a context characterized by job insecurity and instability, change from school to work is not only an important socioprofessional transition but also a fundamental issue both for individuals and for society. In this view, vocational education and training (VET) systems are considered as a way to gain access to the labour market. Do the conditions offered by VET systems facilitate this transition? How do they prepare young people to enter the professional world? How do they support learning and professional socialization?

To address these issues, we propose to focus on the Swiss “dual” system of VET, in different technical fields. We concentrate on the apprentices’ experiences in settings proper to this context (vocational schools, training centres, workplaces), and more specifically on their participation in contrasted communities of practice.

In this contribution, we propose to analyze a set of audio-video data documenting the activities of two apprentices in ordinary training situations during their first and their third or fourth year’s apprenticeship. These recordings show how they interact with experts both in enterprises and training centres. Through an analysis of verbal and non-verbal interactions in which the apprentices engage, we examine how they participate in different communities, that is the roles and places proposed to them and the roles and places they identify with in different activities. In our view, this allows us to observe in situ how professional socialization occurs.

This analysis enables us, first, to underline the collective and dynamic dimensions of participation. Then, the study of two contrasted trajectories of participation allows us to sustain our reflection on learning and professional socialization processes in VET situations. Finally, we try to stress how an analysis of local participation phenomena contributes to have a better understanding of transitions from school to work.

Is a technical school a bridge between school and work? A Case study

Anne-Nelly Perret-Clermont, University of Neuchâtel, Switzerland

Jean-François Perret, University of Neuchâtel, Switzerland

The recent development of computer-supported technologies has profoundly affected workplaces and is transforming, sometimes inconspicuously, the social organization of the professional field and of education. Schools and political authorities are aware of the need for changes. They would like to provide the students with opportunities to develop the necessary competencies, skills and attitudes that will permit them to «join society». We will present in our communication some results from an intensive field study that lasted three years at a technical school in the Arc jurassien, in a moment of important change in the technological equipment of the school. Our intent is to reconsider here some analyses about the impact of the machines that compose the workshop of the school on the construction of professional identities. We will show that the tools within the school are systematically discussed by the students (and also by the professors) in connection with the “real” machines that they think find in their future workplace. In the eyes of many students, a machine that is not recent or “à la pointe” is not adapted to a good vocational training. If the machine has been designed specifically for a didactic use, the learning activities are not always perceived as really relevant. This kind of observations leads us to reconsider the question of the “authenticity” to take into account several dimensions of the authenticity of a learning activity, in order to think the role of a technical school as a bridge between school and work.

Dropping out of vocational education and training: Identity dynamics and relational issues

Jonas Masdonati, SFIVET, Switzerland

Nadia Lamamra, SFIVET, Switzerland

The dual vocational education and training (VET) system is considered a favorable environment for the professional socialization of young people. However, it may not be exempt from shortcomings, especially when apprentices live a crisis situation or when they encounter difficulties during their on-the-job training. These difficult situations lead sometimes to VET dropout, which might undermine the construction of young people’s personal and occupational identity, and point out a failure in the way the profession was trained. A qualitative study is carried out on the process and the consequences of VET dropout, from the apprentices’ point of view. It consists in a content analysis of 46 semi-structured interviews, conducted with learners who dropped out during the first year of VET. This study made it possible to understand the way in which young people experience and explain their dropping out. It also detects the links between dropping out and identity dynamics. Results indicate a great heterogeneity in the situations described by the apprentices, as well as in the way they experience VET and VET dropout. However, the difficulties the apprentices encountered during their VET are often related to their particular status. Actually, they are no more pupils, but not yet considered as real skilled workers, and are therefore in a weak hierarchical position in the company. Moreover, results stress the key role of relational issues for the learning of a profession. In fact, a problematic interaction between the on-the-job trainer and the apprentice can undermine an effective learning of the profession, which often leads to dropout.

The place of work in the transition to professional life

Tania Zittoun, University of Geneva, Switzerland

In a series of studies on transitions in the life course, we have examined the various resources that might facilitate identity processes, knowledge acquisition and the processes of sense making in which people have to engage. We have hence shown how institutional settings might facilitate, or support the school-to-work transitions processes in which young people are engaged. We also showed that significant adults might play a key role in these processes; and interestingly, that young people might find in cultural elements such as books, music or films, symbolic resources which help them to better understand the transition to work in which they are engaged, or to redefine themselves.

However, an exclusive focus on the vocational transition might prevent researchers to see that young people's life is not limited to their VET experiences. Actually, people are engaged in more general developmental processes and life experiences, of which the vocational ones are only one aspect. Consequently, the vocational skills and identities that the young person develops might as well just be components of a potentially richer and multifaceted identity.

In this paper, we propose to consider the narratives of young people engaged in VET1. We will examine: (a) What are the frames of experience in which these young people have daily activities? (b) In what respects do these activities, and their specific cultures, participate in the identity definition of these young people? (c) Consequently, what relative importance has the vocational training in the daily experiences of these young people? On this basis, we will reflect on the processes whereby a professional identity can be developed in VET. This will lead us to ask in what respect key components of the process of becoming a professional might lay outside of the professional experience.

THEMATIC SESSION 3: Thursday, 26th March 2009, 11:00 – 12:30 (room: aula)

Informative contributions to VET research from sociological perspectives

Chair: Christian Imdorf, University of Glasgow, United Kingdom

Discussant: Christian Imdorf, University of Glasgow, United Kingdom

Sociological thinking can contribute considerably to better understand VET structure and processes. However Sociology has not played a major role in the emerging Swiss VET research programmes so far. Both its potential and usefulness within VET related scientific knowledge production seem to be underestimated. The symposium highlights how sociological research can contribute to comprehend the emergence and contexts of VET structures and the social effects they exert on VET actors (including students) – the latter considered as a crucial variety of VET ‘effectiveness’. It intends to show that we need to consider VET actors as socially embedded if we want to analyse the ‘efficiency’ or the functionalities of VET systems. Four current research projects showing the interplay between social VET actors and structures in Switzerland shall be presented and the different educational relevance of their findings – its implications for learning contexts and teaching – will be discussed. The presented four research projects will focus school to VET transition, the socio-historical construction of commercial training, the role of productive work in VET, as well as apprenticeship and dropout.

Access to company-based dual apprenticeships or fully school-based education. Effects of social inequality at the transition from compulsory school to upper secondary education and training in Switzerland

Sandra Hupka-Brunner, University of Basel, Switzerland

Stefan Sacchi, University of Zurich, Switzerland

Barbara Stalder, University of Basel, Switzerland

The Swiss educational system on the upper secondary level is heavily focussed on the dual form of VET (vocational education and training), which is highly segregated and specialised and closely linked to the labour market entry. Therefore, transition to upper secondary education has a crucial impact on later employment chances, income, and life chances in general. This is also the moment where youths are directed into two different forms of educational programmes: School leavers can either opt for company-based “dual” VET or for exclusively school-based programmes. It is important to differentiate between these types of programmes, because companies’ selection procedures follow another (i.e. market/economy oriented) logic than do admission regulations of exclusively school-based programmes. In addition, fully school-based programmes in Switzerland are oriented towards students with high school achievements and offer better career perspectives. Finally, the two forms of educational programmes mirror the strong gender segregation.

In our paper we analyse chances of transition in the context of the two forms of upper secondary education programmes mentioned above, taking into account both, school and family background (esp. the of Bourdieu’ian capitals) of school leavers. To test our hypothesis, we draw on data from the Swiss longitudinal youth survey TREE (TRansition from Education to Employment), using the method of event history analysis. As expected, social, cultural and economic capital affect the access to dual and school-based programmes differently. Cultural capital seems to foster access to school-based programmes, whereas economic capital stronger promotes access to dual apprenticeships. Also, the effect of school competencies as measured by PISA varies between the two programmes. Finally, women as well as certain groups of migrant youth more often enter school-based programmes than non-migrant men with similar family background, school marks and achievements. In case of migrant youths, this is possibly a reaction to their poor chances to gain access to dual apprenticeships.

System formation in the Swiss vocational education and training system using the example of commercial and business education

Susanne Burren, University of Applied Sciences Northwestern Switzerland, Switzerland

Lucien Criblez, University of Zurich, Switzerland

Martina Späni, University of Applied Sciences Northwestern Switzerland, Switzerland

System formation within commercial & business education differs from that within other vocational educational fields in Switzerland. An important difference is that the former not only developed as part of the field of vocational training in the narrow sense of the word (apprenticeships, professional and vocational examinations/*Fach- bzw. Berufsprüfungen*), but also as part of the general training system in the early stages (e.g. in the form of cantonal commercial schools (*Handelsschulen*), graduation from which gives access, albeit limited, to university). A reconstruction of the options within the commercial & business education system not only exemplifies long-term differentiation but also hierarchical processes within the general education and vocational training fields. The first part of this presentation introduces a phase model of system formation within commercial & business education. It is built around the genesis of the standardisation process of the particular educational types as a representation of the generalisation and consolidation of career profiles and graduations. The focus is on the location and hierarchical structuring of specific new educational and certification options. In part two, we will discuss an example of these processes of differentiation and hierarchical structuring, which is both interesting and informative from a historical point of view: the development of the full-time educational options at upper secondary level. This second part aims to a) give a historical and statistical overview of the differentiation of the full-time educational options at upper secondary level in Switzerland (*niedere, höhere Handelsschulen, Wirtschaftsgymnasium*), b) give possible reasons for participation in both strands of the educational system – as opposed to other vocational fields – and c) discuss the current situation against the background of the historical development.

Vocational education and training dropout from the perspective of professional socialization

Nadia Lamamra, SFIVET, Switzerland

Jonas Masdonati, SFIVET, Switzerland

This contribution is based on the results of a qualitative research focusing on the process and the consequences of vocational education and training (VET) dropout, from the apprentices' point of view. It comprises 46 semi-structured interviews, conducted with apprentices who dropped out during the first year of VET. Five main reasons seem to explain dropout: relational issues, learning difficulties, transition problems, working conditions and external factors.

The contribution aims at analyzing the reasons of dropout from the perspective of professional socialization. In other terms, can dropout be explained by the non-integration of norms, standards and values of the world of work? In this sense, dropout could be the symptom of a failure of work socialization ("socialisation *par le travail*"). Additionally, the world of work is analyzed as a place where domination is exerted. This domination can be seen through the organization and the division of work. We maintain that the confrontation with this violence can shock young people. Moreover, we wonder if the failure of the professional socialization can sometimes be analysed in terms of a refusal of the norms and values of the world of work. Actually, when refusing these norms, adolescents may also be rejecting professional social standards.

THEMATIC SESSION 4: Thursday, 26th March 2009, 11.00 – 12:30 (room 214)

Using ethnography to further understandings of quality and its assessment in VET

Chair: Ingrid de Saint-Georges, University of Geneva, Switzerland

Discussant: Stephen Billet, Griffith University, Australia

A range of approaches can be used to approach quality of teaching and learning in VET. In this symposium, we discuss one of them: the use of “ethnographies of learning”.

Ethnographic research prioritizes the experience, perceptions and practices of actors in their specific contexts of action. It investigates them through a set of well-documented and precise procedures for data collection. While ethnography is being used in many disciplines (developmental psychology, sociology, anthropology, science studies, education, learning sciences, etc.) and there are leading international journals and publication in the domain of ethnography and education, application of ethnographic procedures to the VET field remains scarce. Ethnographic methods however provide complementary tools to more traditional approaches in the VET domain: by providing a multifaceted view of learning and a more comprehensive picture of the everyday practices in which educational actors are engaged, it is in a position to interrogate the effects of educational policies and practices for example, or to challenge or confirm results from experimental studies, thus providing a more robust picture of the realities of vocational education and training. The papers in this symposium have in common that they draw from actual samples of their own ethnographic research in various contexts of vocational training and education 1) to discuss methodological and theoretical issues arising when developing ethnographies concerned with the ways people learn; 2) to question what counts as efficiency in a VET program.

The efficiency of communication training in the service industry: some answers from a critical ethnography perspective

Alexandre Duchêne, University of Teacher Education, Fribourg

In this paper, I will analyze some communication training programs provided in the service industry in Switzerland from an ethnographical perspective. I will address three central questions related to the form and content of these programs : a) how is communication training conceived, by whom and for what purposes? b) What language conceptions are generated in these training programs? c) How is communication training linked – or not – to actual communication and language practices at stake in the workplace? These three questions are strongly linked to the broader issue addressed in the panel, that is to the way ethnographic research can provide elements of answer to the efficiency of vocational training. Through this critical inquiry into the interrelation – or in some cases lack of interrelation - between effective practices and communication training programs, I shall highlight the importance of the ethnographical perspective in order to understand what counts as efficiency for both the institution and the social actors engaged in the construction of the training programs and those who receive the training.

A qualitative approach to vocational training and education: What can we learn about “consequential transitions” from ethnography?

Ingrid de Saint-Georges, University of Geneva, Switzerland

This paper discusses the potential usefulness of an ethnographic approach to study how apprentices build meaning across sites of learning in a dual vocational system involving spending time both in school and in the workplace. Excerpts drawn from ethnographic fieldwork in the vocational field of car-mechanics are analyzed as an exemplar 1) to present procedures and techniques associated with the ethnographic approach, 2) to point to the limitations and ethical issues inherent to it, 3) as well as to illuminate some of the challenges associated with multi-site learning. Detailing how connections are made—or not made—by apprentices between school practices and work practices, it is argued, is informative both for curriculum design as well as for easing the sometimes difficult school-to-work transitions. Regarding curriculum design, the results of the analysis point to the need for developing a reflexive, intermediary space – a “third space” in the dual system – where the challenges and contradictions arising from multi-site learning can be discussed, processed and made sense of. The discussion also suggests that this “third space” could in turn serve as an alerting device to identify individuals at risk of dropping out of the system and to devise corrective actions to address the dropping out process.

SYMPOSIUM 1: Thursday, 26th March 2009, 15:15 – 17:00 (room: aula)

The bottom-up way: How to formulate, model and measure competencies of teachers and trainers, responsible for apprentices

Chair: Sarah Heinzer, University of Fribourg, Switzerland
Discussants: Richard Shavelson, University of Stanford, United States
Gerhard Minnameier, University of Aachen, Germany

The current symposium focuses on new not yet considered research approaches to topics in vocational education and contributes importantly to the debate on quality in (vocational) education. Teachers' professionalism and improvement of teaching competencies are not only studied by means of a bottom-up procedure but by discussing different methods and research approaches out of a multiple and international perspective. So a first contribution emphasises the importance of individual intentions as a source for the social configuration of knowledge, competence and performance. It will be shown that the construction of knowledge is a dynamic process additionally influenced by emotions and motivations.

In a second contribution the question of teachers' professionalism and needed competencies is approached by a bottom-up oriented way including the involved persons and studying the real "emergency room" of teaching and training situations. As Bessoth and Weibel (2000) emphasize in order to enhance teaching quality a teacher should know about needed qualification and competencies in situations of insecurity and spontaneity. Finally, the third contribution looks at the research-based and evidence-based teacher training for VET in relation to the development of expertise. The focus will be on the question how researchers and the results of their studies can be made useable and fruitful for teacher actions. To know about needed competence profiles, to formulate and measure those, to stimulate or control for intentional, emotional motivational processes and to combine research and evidence means to better understand what quality is requiring. These aspects will be the central focus of this symposium.

Individual intentions as a source for the social configuration of knowledge, competence and performance and their impact on learning and teaching

Detlef Sembill, University of Bamberg, Germany

This lecture will base on four main theses:

1. Conceiving individual performances as an expression for the corresponding competencies, it is indispensable to take emotional and motivational aspects into consideration.
2. Actual competencies are a social constitution of all individuals' intentions which are involved in the process of vocational education.
3. Knowledge (re)construction is not only social but also fluid and temporal and therefore a dynamic process.
4. To aim for complexity (concerning theses 1-3) we have to risk disorder on the one hand, but then look for controlling on the other hand.

These four theses will be substantiated; their importance for the development of competencies and performances will be discussed and also didactical consequences will be taken into account. Based upon the statements a bottom-up model of institutionalized teaching and learning processes shall be presented. Consequences for empirical research are to be outlined.

The advocacy approach to diagnose teaching quality: A contradiction to a bottom-up procedure?

Fritz Oser, University of Fribourg, Switzerland

Quality in schools and instruction calls, since the recent decade for new and convincing answers. So far no clear agreement about a sole way of measurement has been found. In this symposium contribution we will on the one hand present an overview on trials and errors in measuring teaching quality and on the other hand we will discuss whether a bottom-up procedure is contradictory to the assessment of quality in vocational education. We will show that the bottom-up way and the inclusion of the vocational teachers themselves into the process of competence profile development is a precondition for a new discourse about quality. The current project is part of a 12 year research program, called “Professional Minds” in order to enhance the quality of instruction by using tailored competence profiles in VET classrooms. The quality question can not be discussed separately of the teaching practice and the emergency situation (vocational) teachers are confronted with. Therefore, a multiple perspective is necessary. We will present our stepwise approach to the measurement of quality by means of a Delphi-Study, diagnostic-instruments, model testing, diagnosing quality by means of video vignettes and expert ratings as well as intervention studies.

Research- and evidence-based teacher training within the fields of VET

Susanne Weber, University of Munich, Germany

Frank Achtenhagen, University of Göttingen, Germany

Central topics of the actual international debate on teachers’ professionalism are the problems of research-based and evidence-based initial and lifelong teacher behaviour. Research-based in this context means that teacher education is grounded on “continuous research-based inquiry in academic disciplines including educational sciences, and these all provide a basis for the improvement of the curriculum in teacher education” (Niemi, 2008, p. 63). This statement is important as it tackles the subjectmatter content knowledge dimension as well as the general pedagogical knowledge, the pedagogical content knowledge and the curriculum knowledge (cf. Shulman, 1986). Decisive is that all central domains of teacher knowledge have to be taught in a way that corresponds to scientific standards of the committed scientific disciplines, e. g. an overcoming of a separation of scientific topics into science for professionals of the discipline and “science” for teachers. On the other hand, the emphasis on the scientific basis of – especially – the educational dimensions of teacher education, which comprises also the pedagogical content knowledge, is necessary as the research basis within and for teacher education has to be strengthened. This statement refers to the quality of university studies and following training programs as well as to the possibilities to read and understand research results and also to act as a researcher – which mainly implies to follow accepted standards of educational research.

The research-based approach of teacher education has to be related to the evidence-based approach as teachers always use their own experiences and base their teaching on their convictions. Our paper focuses on selected aspects of this discussion: presenting first empirically proven results.

SYMPOSIUM 2: Friday, 27th March 2009, 09:45 – 11:45 (room: aula)

Exploring the potentialities and limitations of workplaces as learning sites for newcomers in the profession

Chair: Laurent Fillietaz, University of Geneva, Switzerland

Discussant: Etienne Wenger, United States

Research conducted in the field of workplace learning has recurrently shown that workplace participatory actions (Lave & Wenger, 1991) and working lives in general (Evans, Hodkinson, Rainbird & Unwin, 2006) are associated with complex forms of learning. It has also been proposed that these forms of learning are not simply developed through a direct access to practice, but that specific conditions may enhance or restrict the potential learning outcomes associated with the workplace : the availability of expertise; the willingness of experts to provide adequate guidance; the willingness of professionals to engage into learning processes, etc. (Billett, 2001). In this symposium, we would like to address these general issues from one specific perspective : that of newcomers in various professional domains. Are workplaces adequate sites for learning when it comes to train novices? Are there specific potentialities or limitations associated with workplaces regarding this type of learners? What kinds of recommendations could be made in order to enhance the learning potentialities associated with workplace experiences for newcomers?

In order to address these issues, we propose to investigate different empirical domains associated with specific institutional and cultural environments (apprenticeship in initial vocational training; workplace training in higher education, etc.). These domains will provide empirical data for addressing various issues associated with workplace learning: tensions between workplace practices and other forms of learning associated with prior experiences; tensions between workplace cultures and specific needs associated with newcomers; tensions between various facets of identities in the process of entering the profession, etc.

These issues will be investigated from the perspective of a plurality of theoretical and methodological perspectives: vocational didactics, applied linguistics, anthropological theories of learning, etc.

Becoming at work: Building occupational capacities and identity through work

Stephen Billett, Griffith University, Australia

The process of novice workers building occupational capacities and identity constitutes dual processes and trajectories comprising workplace participatory practices (Billett 2002). On the one hand, there are the kinds and qualities of activities, interactions and support afforded by workplace settings that mediate and regulate novices' learning experiences. Then, there are personal bases by which individuals elect to engage with and learn through these experiences. In the process of learning for work and developing an occupational identity, these contributions comprise a duality that is both interdependent and relational. These are exercised in negotiations between how workplaces afford opportunities to participate and learn and how individuals elect to participate in what is afforded them. Yet, this also acknowledges two distinct trajectories for novice workers that may or may not be parallel and/or consonant. There is progression with the development of the capacities (conceptual, procedural and dispositional knowledge) that permits individuals to practice the occupation. Yet, there is also a personal pathway of constructing and adopting an occupational identity (i.e. vocation) through participating in and securing the competence to particular instances of the occupational practice. This process of becoming and being is central to individuals' engagement with, continuity in and trajectory beyond their initial preparation, yet can be distinct from, although related, to the formation of occupational capacities. The paper draws on a program of inquiry into learning in workplaces that has progressively investigated issues of skill formation in, through and for workplace across a range of industry sectors, and also the formation and transformation of occupational identity. The conceptual heritage used to elaborate these processes and trajectories include cognitive, socio-cultural and cultural psychological perspectives, as well as anthropology and sociology.

The distributed nature of guidance at work: a learning resource for apprentices?

Laurent Fillietaz, University of Geneva, Switzerland

This paper aims to contribute to a better understanding of the actual conditions in which guidance is provided to apprentices within Swiss firms. It analyses guidance at work drawing from methodological tools and theoretical notions borrowed from applied linguistics and the ethnography of communication. It reflects critically upon the advantages and limitations of a practice-based VET system that gives much weight to the workplace as a natural learning site for newcomers in the profession. More specifically, the presentation focuses on guidance as a dynamic and collective form of support provided to apprentices in ordinary work situations. Even though apprentices are under the supervision of one main supervisor within the workplace they train in, a number of other colleagues, experts, peers, etc. interact with them as they are engaged in a complex web of collaborative tasks. In that context, we ask: What kinds of guidance do apprentices receive from the various categories of workers they interact with? How do they manage the contradictions that might arise from this distributed nature of guidance at work? In what ways do these distributed forms of guidance constitute support or obstacles for their professional socialization? In this paper, we propose to address these issues, and others, analysing a corpus of video recordings documenting the ways apprentices interact with supervisors or experienced colleagues in various professions contexts (car mechanics, automation). The analysis will consist in two case studies, showing highly contrasted patterns in the way experienced workers provide guidance to apprentices.

Why do more advanced apprentices ask more questions and request more help than others at the workplace?

Jean-Luc Gurtner, University of Fribourg, Switzerland

Laetitia Mauroux, University of Fribourg, Switzerland

Alberto Cattaneo, SFIVET, Switzerland

Whenever learning is conceived as resulting from a successful transmission of knowledge, questions raised by the learner are generally considered as signals of either bad communication by the teacher or, more often, of bad understanding of the message by the learner. In those models of learning emphasizing the active role of the learner, such as constructivism or self-regulated learning, questions and requests raised by the learner have received a more positive status.

At the workplace, apprentices are supposed to learn their profession without much teaching; questions should therefore logically be welcome and facilitated. Our observations, collected both from 65 hours of recordings of car mechanics apprentices at work and through questionnaires, show however that, if apprentices do indeed ask more questions at the workplace than at the vocational school, many organizational and psychological reasons tend to keep the number of actual questions and requests lower than what apprentices would have liked to. Our observations also show that beginners ask less questions than more advanced apprentices and that the nature of questions and requests change over the years. These evolutions can be related in part to the kind of tasks given to the apprentices in their different years of training and to the physical settings in which they have to be accomplished, on the one hand, but also to the evolution of the position and status of the apprentice over his four years of training within the same company. These results will be interpreted in light of the guided learning framework (Billett, 2000; Rogoff & Gardner, 1984) and of the legitimate peripheral participation model (Lave and Wenger, 1991), and discussed within the interaction of affordance and engagement model recently proposed by Billett (2001).

Cooperation between school and companies so as to frame students' workplace activities – the case of a cooperative program in an industrial engineer school in France

Laurent Veillard, University of Lumière Lyon 2, France

Cooperative education is a pedagogical approach combining classroom-based education with practical work experience. This pedagogical trend is now widespread at a university level in France. Since the beginning of the nineties, many Bachelor and Master programs, as well as engineer schools have decided to set up their courses with a view to facilitating students' school- to- work transitions and newcomers' efficiency in workplaces. Our presentation will focus on a three-years engineer course which is organised in a cooperative mode (alternation of periods of 1 month at school and 1 month in a company).

The overall aim of the course is to train engineers, both able to manage complex production systems and to improve them, in their various aspects: organisational, technical and economical. Each student is supervised by 2 tutors: a supervisor from the school; and an engineer from the company. Within the workplace, the students' tasks and working conditions are not only defined by the company tutor, but must also be consistent with school recommendations. More precisely, trainers are convinced that each student must follow a specific trajectory in the company to become a particular type of engineer.

In this presentation we will try to answer two types of questions about the cooperative program:

How can schools and their industrial partners (companies which are engaged in this teaching program) collaborate? Is it possible for companies to satisfy the school recommendations while complying with its social and technical constraints and specificities?

What do student's activities really consist in? What types of knowledge and skills do they acquire in companies? Are these knowledge and skills consistent with the school's official pedagogical objectives?

To answer these research questions, we have developed a theoretical framework based on the work of anthropologists like M. Douglas (1999) and J. Lave (1991) and French didacticians as Y. Chevallard (1992) and G. Sensevy (2001). Our methodology is based on two case studies. We have followed and observed two students' complete trajectories (3 years each) in two different industrial workplaces (pharmaceutical products; paper industry).

Our case studies show that school recommendations often go against the social, technical and economic organisation of the companies. According to the specificities of the companies, students engaged in the cooperative program have developed quite different skills and knowledge in the workplace. For example, one student has built strong industrial project management skills, whereas another has become progressively more and more expert in a narrow technical domain (cleanness of paper). These results point out that cooperation between schools and companies with the view to creating and managing training programs is complex. It ideally needs a strong mutual understanding, which proves difficult considering the specific constraints of each type of institution.

THEMATIC SESSION 5: Friday, 27th March 2009, 10:00 – 11.30 (room 214)

Competence Profiles and Conceptions as Steering Knowledge for Professionals of Vocational Education and Training

Chair: Fritz Oser, University of Fribourg, Switzerland

Discussant: James W. Pellegrino, University of Illinois at Chicago, United States

The research project “Professional Minds” – embedded in the Leading House “Quality of Vocational Education and Training” - is running since six years. Thus, sustainable and deepened research including multiple perspectives and coming out of different applied methods, has become possible. In the current symposium we will present the abundance of the project and how we deal with the complexity of the vocational field. A first contribution will focus on competence profiles for vocational trainers and line managers in companies. By means of a Quasi-Delphi-Study and the analysis of videotaped training situations, a set of accepted and theoretically deepened competence profiles could be developed and validated. In the Swiss dual system, besides the in-company training, the young learners go to vocational school during two or three days per week. The following contributions will thus focus on competencies and competence profiles of vocational teachers. The second contribution deals with competence profiles and steering knowledge of vocational sports teachers. We will present an effective and practice-based way to develop and validate competence profiles for vocational sports teachers. The modelling, measurement and especially the implementation of competence profiles for vocational school teachers in the practical field will be pointed out in the third contribution. In a pilot intervention study with future vocational school teachers we carried out a specific training unit for the competence profile “giving supporting feedback”. Before and after the training, the students’ competence level and performance level was measured. First results will be presented. The last and fourth contribution focuses on conceptions and competences of vocational school teachers while dealing with cultural diversity and gender in vocational education and training. Therefore, about 20 vocational school teachers and ten key actors in three French speaking cantons of Switzerland were interviewed. First results suggest little awareness and consideration of diversity of vocational school teachers.

Development of competence profiles of responsables for in-company training

Corinne Joho, University of Fribourg, Switzerland

Sarah Heinzer, University of Fribourg, Switzerland

The aim of this project – belonging to the research project “Professional Minds” – is to identify challenging educational situations in companies and to develop out of them a set of validated and theoretically depend competence profiles for vocational trainers and line managers.

The development and validation of competence profiles for vocational trainers and line managers is an important condition for a highly qualitative vocational education. In a first step, based on Shulmans (2007) signature pedagogy and the situated learning approach (Lave & Wenger, 1991; Greeno, 1998) the phenomenology of the work place learning could be modelled. It could be shown, that the vocational trainers have at least three different functions in respect to a successful vocational education and that the line managers are especially important to foster implicit learning processes. In a second step, on the basis of challenging acting situations, competence profiles were formulated by means of three different approaches.

First of all, the competence profiles for vocational school teachers – developed in another subproject of the project “Professional Minds” – were analysed and partially adapted to the context of vocational education in companies. Secondly, competence profiles for vocational trainers and line managers could be derived from the education manual for future vocational trainers, published by the Swiss German Conference for Vocational trainers. The third approach mainly consisted of a Quasi-Delphi-Study. In the three first Delphi-rounds with twelve persons (six vocational trainers and six line managers), important acting situations were collected, categorised and competence profiles were developed out of them. In a fourth Delphi round, the generated competence profiles will be validated with vocational trainers and line managers (n=200). We expect to have a set of important

and accepted competence profiles for vocational trainers and line managers as a result of this study. In the education and advanced education of vocational trainers and line managers, these competence profiles must be developed systematically. They are the basic elements for a professional vocational education.

What sports teachers should do and should be able to do: About competence profiles of sports teachers in technical high schools

Matthias Baumgartner, University of Fribourg, Switzerland

This survey, which leans on "*Professional Minds: Acting Situations and Standards for Teachers and Trainers in Vocational Education and Training*" (Oser et al, 2007), is a contribution to the improvement of sports lessons in Technical High Schools and discusses the topic of which competence profiles sports teachers must dispose of, so that he can hold his lessons aim-oriented, ethically justified and effective. The method being applied in this study is the Delphi-procedure (Bortz und Döring, 2005, S. 261), which contains four phases. In the first phase, action patterns and action situations were valued by four level scales which were collected in a computer based procedure by 30 sports teachers. 200 actions situations and action patterns resulted from this procedure and were subordinated to the provisional situations classes and actions classes. In the second phase, 8 experts valued in a discursive procedure on the one hand the temporary action classes. In the other hand, the experts named other action situations from their experts' knowledge. After this process a total of 274 action situations and 248 action patterns were given, which were subordinated to the validated 28 situations classes and 21 action classes. In the third Delphi round, 7 experts developed competence profiles from the available action situations and situation classes. These competence profiles were validated by sports teachers (n=150) during a fourth Delphi round using a computer based questionnaire. The results will be integrated into the sports teaching education at our partner institution, the Federal College of Sports and will serve as an orientation frame for the master course studies.

How competencies develop and how to foster steering professional knowledge

Patrizia Salzmann, University of Fribourg, Switzerland

Tibor Bauder, University of Fribourg, Switzerland

The development and measurement of teaching competence profiles is an important condition for professional, ethically legitimated teacher acting. In the training and advanced training of vocational school teachers, these competence profiles must be developed systematically. The research team of the project "Professional Minds" developed and validated a set of 45 competence profiles for vocational school teachers and diagnostic instruments for their measurement.

In a pilot intervention study with 44 future vocational school teachers (29 in the experimental group and 15 in the control group), the competence profile "giving supporting feedback" has been implemented in the practical field. The core of the intervention consists in a competence profile-specific training unit, combining theory and exercises. Before and after the training, the teacher students' competence level is measured by means of the developed and validated diagnostic instrument "giving supporting feedback" based on the "advocatory approach". Additionally to the measurement of competence development, the question whether and how the competence development influences the teacher's performance in real classroom situations is of interest. The student teachers' performance was videotaped by their mentors during two practical lessons – once before and once after the training unit and analysed by the research team by means of an elaborated category system. We expect the results that competence development of future vocational school teachers can be initiated by means of a competence profile-specific teaching unit and that competence development has a positive effect on performance development.

**Abstracts
of Papers and Posters
in Alphabetical Order**

Learning with collaboratively generated graphical representations in the domain of economics and business education

Carmela Aprea, University of Mannheim Germany

Hermann G. Ebner, University of Mannheim Germany

Learner-generated graphical representations (e.g. knowledge maps, mind maps, concept maps) are receiving increased attention in educational research and practice, mainly because they are deemed to foster deep and meaningful learning. Moreover, contemporary scholars assume that the beneficial effects of learner-generated representations can be increased, if they are combined with collaborative forms of learning. To further investigate these suggestions within the domain of economics and business education, an experimental study with 169 business school students was conducted. In this study, cognitive learning outcomes of subjects from three treatment groups (text plus experimenter-provided graphic group; individually mapping group, and collaboratively mapping group) were contrasted. The results of this study indicate that learner-generated graphical representations are of specific use for promoting long-term retention of central text ideas, and that their collaborative generation is particularly effective with respect to accuracy and elaborateness of newly acquired knowledge. Furthermore, the collaborative learning setting is most profitable for students who can be considered as low-achievers in terms of prior economic knowledge.

German apprenticeship training and the skill weights approach – An empirical analysis

Uschi Backes-Gellner, University of Zurich, Switzerland

Johannes Mure, OPET, Switzerland

Regula Geel, University of Zurich, Switzerland

Apprenticeship training in a dual system, i.e. the acquisition of practical skills during on-the-job-training combined with the acquisition of necessary theoretical background knowledge at vocational schools, plays a crucial role in occupational training in German-speaking countries. Fundamental for this form of training is on the one hand the willingness of firms to invest in apprenticeship training. On the other hand, in view of the increasing competition at the labor market and the fast technological changes, mobility after completion of apprenticeship training is becoming more and more important for the worker's willingness to participate in apprenticeship training. Our theoretical and empirical analyses show that the more uncommon or the more specific qualifications in an apprenticeship occupation are the higher is the training investment share a firm has to bear. At the same time, an increasing specificity of qualification requirements reduces the mobility of the employee. Obviously, there exists a trade-off: if training should become less specific in order to prepare employees for technological changes, occupational mobility might increase, but, at the same time, firms would reduce their training investments.

How to help young people at risk entering the world of work: The project LIFT

Lars Balzer, SFIVET, Switzerland

The pilot project LIFT (Leistungsfähig durch individuelle Förderung und praktische Tätigkeit - Performance by individual support and practical activity), maintained by the network NSW/RSE (Netzwerk für sozial verantwortliche Wirtschaft – Network for socially responsible economy) from 2007-2009, designs, implements, tests, and evaluates new approaches to strengthen young people at risk, in collaboration with schools, school authorities, parents, professional experts and others.

Main goal of the project is to significantly increase the chances for young people to find a good place in the world of work after school.

Key concepts of the project are:

- a) focusing on young people at risk not to find their place in the world of work after school
- b) early detection of them (from the 7th grade) to systematically train self and social competence and aspects of performance in school, personal responsibility, and motivation
- c) letting the young people collect practical experience at work in local firms during some weeks
- d) establishing a local economy-network

The project LIFT is still running, so no final results can be presented. Therefore, this paper emphasizes on the concept of the project as well as on the concept of the evaluation, which is conducted by the Swiss Federal Institute for Vocational Education and Training (SFIVET), including very first evaluation results. Also, the importance and chances of such a project to the practical field as a promotional and integration concept of young people at risk are discussed.

SCELTO: Go for the apprenticeships

Elena Boldrini, SFIVET, Switzerland

Luca Bausch, SFIVET, Switzerland

Fulvio Mulatero

Sabrina Guidotti, SIC-Ticino, Switzerland

Within the broad field of research on the transition from education to the labour market, the SCELTO project focuses specifically on the transition from lower secondary (which marks the end of compulsory education) to upper secondary level when students make their educational and/or occupational choices. The SCELTO project examines the situation in the Canton of Ticino, which differs from the rest of Switzerland. As it happens, the Canton of Ticino has the lowest rate of direct transitions from lower secondary to vocational school. This is due to a strong preference for selective schools, where the solid curriculum of general education courses is intended to prepare students for university. The SCELTO project pursues two main objectives: i) conduct a research survey; and ii) use these survey findings to highlight possible operational strategies that will encourage more students to enrol in vocational schools not because poor academic achievement in lower and/or upper secondary education leaves them with no other alternative but rather because they fully understand the benefits of Swiss vocational education and training programmes (VET programmes). Using qualitative and quantitative analysis, the research survey seeks to determine the factors that influence a student's decision to enrol in either a selective or vocational school at the end of compulsory education. The research survey also takes a look at the impact that their decision has had in the first year of upper secondary. The survey sample is comprised of around 200 students, together with their parents, and individuals responsible for providing educational and occupational guidance, be it teachers assigned to such tasks (n=7) or guidance counsellors (n=3) working in local guidance counselling offices at middle schools (n=3).

Valued and valuable professional identity in vocational education and training (VET): collective representations among trainees, trainers and teachers.

Dolores Angela Castelli Dransart, University of Applied Sciences Western Switzerland, Switzerland

Valérie Perriard, University of Applied Sciences Western Switzerland, Switzerland

Véronique Zbinden Sapin, University of Applied Sciences Western Switzerland, Switzerland

Jacqueline De Puy

Benoît Gay-des-Combes

Marie-Cécile Monin

The paper will present main findings from a two and a half years (2005-2008) empirical study carried out in the French-speaking part of Switzerland. The research investigated collective representations of the professional identity among different groups of actors, within two vocations (polymechanics = PMC and socio-educational assistants = SEA) in the VET system. A qualitative approach was adopted and data collected in order to grasp and portrait the major components of the professional identity. A thematic content analyse allowed modelling of 4 main cross-sectional identity components which articulated in two different professional profiles: the first one for PMCs and the second one SEAs. This result (?) is related to the type of activity and the various work settings, but it is also influenced by the recent creation of the SEA profession. Professional profiles for both vocations, which are primarily conveyed and valued by groups of actors in the VET system, will be presented. While the SEAs' professional profile is still largely under construction and in a negotiation phase, PMCs' professional profile appears to be more consistent, even though facing transformations.

Findings should provide guidance for maintaining and improving the quality of teaching and training, as well as adequate adjustment between vocational education, training and professional integration.

Output quality of in-company vocational education and training from a stakeholders' point of view

Margit Ebbinghaus, Federal Institute for Vocational Education and Training, Germany

Output quality constitutes one of the major topics of the current debate on vocational education and training in Germany. Although it is to expect that the stakeholders participating in this debate apply differing degrees of significance to the various aspects of output quality, these positions are only seldom expressed explicitly. This has acted as the background to develop an instrument that is able to reveal the significance of major dimensions of output quality of in-company vocational education and training for various groups of stakeholders. The development of this instrument was based on a theoretical framework which specifies output quality in terms of five dimensions: company, occupation, continuing training, society and personality related results. A brief scale was generated in respect of each dimension and was presented to a sample of a total of 318 experts from five different stakeholder groups in order to evaluate the relevance of the respective dimensions. The verification of the structure and reliability of the five theoretically developed scales proved unsatisfactory. Therefore further calculations were conducted, leading to a structure involving four scales: "world of work related results", "life world related results", "performance related results" and "company related results". The reliability of all four empirically developed scales reached values in excess of $\alpha = .60$. The company related results scale provides the greatest level of potential for differentiation between the stakeholder groups, while the performance related scale provides the lowest degree of potential in this regard. In overall terms, the findings are encouraging in terms of further development of the set of instruments.

Intergenerational links and upper secondary track choice: Pattern and consequences

Jean-Marc Falter, University of Geneva, Switzerland
Giovanni Ferro Luzzi, University of Geneva, Switzerland
Federica Sbergami, University of Geneva, Switzerland

Intergenerational mobility has often been investigated by computing educational attainment correlations between parents and children. However, parental choices may influence children education at earlier stages. This is the case in Switzerland where decisions about secondary school track take place between the age of 10 and 15, depending on the cantons. While this choice may be affected by innate ability, parental background may also affect the upper secondary school track. We first investigate the importance of parental background over the last 6 decades with the help of the Swiss Household Panel data. Next, we try to disentangle between ability, as measured by a cognitive test score, and parental background. Finally, the impact of school track decisions on wages is investigated. Our results show that the impact of parental background is specific to educational tracks and gender. The importance of parental background on educational inequality greatly depends on the opportunity to pursue tertiary education. Our analysis also indicates that parental background effects are mostly independent of cognitive ability, while this is not the case of gender or nationality effects. Finally, the impact of parental background on wages, through upper secondary educational attainment, is smaller in Switzerland than in other countries.

Labour market outcomes: the relationship between education types and literacy scores

Jean-Marc Falter, University of Geneva, Switzerland
Cyril Pasche, University of Geneva, Switzerland

It is undisputable empirical evidence that higher educational attainments provide better labour market opportunities such as higher wages or lower unemployment risks. Yet, it is less well known what drives these educational premiums. In this contribution, we investigate jointly the impact of cognitive skills and education on wages with the help of data from the Swiss sample of the Adult literacy and lifeskills survey (ALL). ALL is a database containing objective measure of skills measured by literacy and numeracy tests. Our research follows the footsteps of a burgeoning economic literature on employer learning, i.e. the dynamic relationship between skills, education and labour market experience. Therefore, we estimate the monetary returns to observed skills (literacy and numeracy scores) and their evolution with labour market experience and job tenure. Our main focus is to compare various educational level such as secondary vocational education (either dual or full-time schooling), high school degrees, tertiary vocational education and university degrees. Recent evidences show that the type of schooling is more relevant than its length in the Swiss context, especially with respect to vocational education as the latter seems to produce flatter age-earning profile. We also explicitly model private and public information by decomposing total work experience between public experience i.e. work experience with prior employers and current job tenure.

The transition to VET and the future evolution of the number of VET beginners in Switzerland

Laurent Gaillard, Swiss Federal Statistic Office, Switzerland

Jacques Babel, Swiss Federal Statistic Office, Switzerland

Since 2004, the Federal Statistical Office (FSO) has published on a yearly basis scenarios for the evolution of the whole educational system in Switzerland (www.eduperspectives-stat.admin.ch). In particular, forecasts are produced for vocational education and training (VET) and other secondary level II education and training programmes. They are mainly based on an analysis of comprehensive surveys carried out over the past 25 years by the FSO. Although these data do not lend themselves to longitudinal studies, they permit to measure transition rates to the secondary level II and offer a unique opportunity to follow the dynamics that affect VET in Switzerland.

In this context, an understanding of the transition from compulsory schooling to secondary level II education and training is of crucial importance. Entry into VET, which in Switzerland involves most of the population, has evolved as a result of a variety of influences, the most important factors being school demographics, the economic climate and structural trends. The role of all these factors is studied on the regional scale (the seven main regions of Switzerland), taking into account the differences between VET domains and the interplay between VET and other types of education and training. We also investigate the role of sociodemographic factors affecting this transition, such as gender and nationality. The results of these analyses are compared with other studies and used to improve the quality of the forecasting model.

Collaborative computer-supported writing activities to foster professional procedures learning in vocational education

Monica Gavota, University of Geneva, Switzerland

Mireille Betrancourt, University of Geneva, Switzerland

Daniel Schneider, University of Geneva, Switzerland

Founded by the Swiss Federal Office for Professional Education and Technology, the Dual-T project aims at developing technology-enhanced learning designs that will help to reinforce the articulation across the different training places in vocational education.

Our general working hypothesis is that collaborative writing activities about professional experience can support the apprentices' domain knowledge and skills acquisition, as well as help them integrate the content studied in school with the actual practice at the workplace.

In this paper, we present the technological aspects of the design as well as the results of a study carried out with dental care apprentices involving collaborative descriptions of procedures.

The results provide useful information concerning the feasibility of the learning design. The adopted and customised platform (ELGG) proved to be appropriate in supporting collaborative writing to learn activities of the study we conducted. The collaborative design we implemented successfully fostered knowledge sharing and building within the population and furnished us valuable information for future design of this type of activities.

Skills Development: Attitudes & Perceptions

Matilda Gosling, City & Guilds Centre for Skills Development, United Kingdom

Kate Shoosmith, City & Guilds Centre for Skills Development, United Kingdom

Tara Kennedy, City & Guilds Centre for Skills Development, United Kingdom

This international survey explores the key issues, challenges and foci of both employers and professionals working in the skills development arena, with the aim of using the results to improve the policy and practice of skills development internationally. The research took place in four stages: desk research, qualitative research (focus groups and in-depth interviews), quantitative research (survey) and synthesis of results. Four concerns common across countries were found – quality of provision, supply and demand of skills, employer engagement, and the esteem attached to vocational education and training. Detailed highlights include:

- Employers believe that vocational education and training gets employees ready for the workplace, and that they get a return on their training investment.
- Esteem is improving, but the biggest perceived barrier to higher esteem lies in parental attitudes.
- An international ‘skills crisis’ presents challenges for future skills policy.

Factors for success in the vocational education of at-risk adolescents

Kurt Häfeli, Interkantonale Hochschule für Heilpädagogik, Switzerland

Claudia Schellenberg, Interkantonale Hochschule für Heilpädagogik, Switzerland

While exploration of the problematic transitions between obligatory schooling and working life have in recent years centred primarily on risk factors, the focus has increasingly shifted towards protective factors and resilience (“resistibility”). This study will also investigate why it is possible for a group of adolescents to successfully complete a course of vocational training and make the step from school to working life despite having a disadvantageous starting position. For this purpose, 30 predominantly Swiss studies will undergo targeted comparative analysis in order to determine the relevant “success factors” for the transition from school to working life. The studies will be analysed according to content and (a part of the studies) meta-analytically compared. It is shown that the success factors differ not only according to points in time (transition of the first threshold, during the vocational training, transition of the second threshold), but can also be subsumed into various areas. The areas of influence are: Person (the adolescent), family/parents, schools/teachers, peers/leisure time, counselling and intervention programmes, companies and administration/politics. The success factors are presented according to each area and the recommended course of action taken for their promotion in school and training.

Motivation, identity and competence development

Lars Heinemann, University of Bremen, Germany

When analysing apprentices' motivation and the development of their occupational identities, one tends to look at these concepts as individual inputs into the process of acquiring competences in a development from novice to expert. But as developing competences is intrinsically linked to acquiring a professional identity as a member of a community of practice, such an identity is an aim of vocational education as well. Apprentices' motivation, too, is not a static factor, but changing during the apprenticeship in terms of extent as well as in terms of the normative sources of motivation – 'abstract' work in itself, the organisation or the profession.

These changes, then, can be empirically analysed according to organisation of learning processes at the company and/or at school as well as in their relation to the development of vocational competences.

In a recent study (Rauner/Haasler/Heinemann/Grollmann forthcoming), we developed a new model of competence measurement that was tested at 300 apprentices in the German Land Hesse. Here, we were able to relate competence development, organisation of work and learning and motivation and identity of apprentices in electronics.

Moreover, we conducted a study of 1.500 apprentices in the town of Bremerhaven, where we looked for relations between vocational identity, motivation and the organisation of work and learning (Heinemann/Rauner, forthcoming) in more than 50 professions.

The paper will present the main findings and point at further roads of investigation.

«Illiteracy and New Technologies» (INT) – New media and basic adult literacy

Armin Hollenstein, University of Berne, Switzerland

Afra Sturm, University of Applied Sciences Northwestern Switzerland, Switzerland

Robert Hilbe, University of Berne, Switzerland

Literacy is a mark of our society where the use of scripture and additional sign systems becomes characteristic and written content is steadily gaining importance. Having adults in mind, the concept of literacy itself is widening: beyond the mastering of language and every-day-mathematics in reading and writing, a knowledgeable use of information and communication technology becomes a necessity. This paper focuses on processes of lifelong learning aiming at basic adult literacy, as it is set into practice by the project «Illiteracy and New Technologies – INT». INT combines research and development in the field of privately and professionally motivated adult learning to master minimal literacy competencies. We describe pedagogical and technical aspects of the ICT-supported framework applied by INT. Our emphasis lies on the research perspectives in adult learning regarding the effectiveness of the applied literacy courses and concentrating on psychological constructs like attribution of failure, self-efficacy, habits, and motivation. Qualitative data describe learning processes and attained skills; quantitative results confirm the effectiveness of the courses regarding reading and show biographical facts and psychological aspects like self-efficacy as significant predictors for the learning processes. The paper presentation ends with an outlook on further demands for research and development in the field of basic learning in adult literacy.

Skill obsolescence, vintage effects and changing tasks

Simon Janssen, University of Zurich, Switzerland

Human capital is no doubt one of the most important factors for future economic growth and well-being. However, human capital is also prone to become obsolescent over time. Skills that have been acquired at one point in time may perfectly match the skill requirements at that time but may become obsolete as time goes by. The more innovative an economy is, the more likely it is that particular technological or methodological skills become obsolete. Thus, in the following paper, we not only study the depreciation processes of workers performing different types of tasks with different skill requirements over a period of more than 20 years, but also how workers adapt to it by systematically changing their work tasks to overcome the negative consequences of skill obsolescence and depreciation in their initial stock of human capital.

We argue that two types of tasks have to be distinguished: knowledge-based tasks on the one hand and experience-based tasks on the other. We show that the human capital of people performing knowledge-based tasks suffer more from depreciation, as the human capital of individuals performing experience-based tasks. Moreover the data indicates that individuals to get around the negative depreciation effects by changing their task portfolios over their career.. We see that older people focus more on experience based tasks whereas younger workers perform knowledge based task to a higher degree.

Mathematics for construction workers

Hansruedi Kaiser

Numeracy skills are essential in the workplace context and will become more so because of the fact that math is a component of most jobs with the increasing use of technology. What makes it difficult to teach these skills is the fact that traditional school mathematics is a powerful analytical tool but not very handy in everyday situations. In order to successfully train intellectually less flexible learners, the training should be very closely adapted to the demands of everyday work life. In cooperation with a building contractor we therefore tried to develop and train a specific form of "construction workers mathematics". First experiences and results are presented.

Well prepared for the labour market? Employment perspectives and job careers of young people after a two-year basic training course with Basic Federal Certificate: the case of the retail sales and hotel sectors in Switzerland

Marlise Kammermann, Interkantonale Hochschule für Heilpädagogik, Switzerland

The two-year basic vocational education leading to a Basic Swiss Federal Certificate (Eidgenössisches Berufsattest, EBA) established by the new Vocational Training Act (Federal Assembly of the Swiss Confederation, 2002), which replaces the former elementary training, is intended in particular to ensure an increased employability of young people, as well as improved access to on-going education – for example the transition to basic vocational training with the Swiss Federal Certificate (Eidgenössisches Fähigkeitszeugnis, EFZ).

Within the framework of a longitudinal investigation, the aim of the presented study is to pursue the vocational development of graduates of the two-year basic training prescribed by the new Vocational Training Directives (Federal Assembly of the Swiss Confederation, 2003). By means of longitudinal and comparative methods, the study provides information about the occupational situation, mobility and flexibility of persons with the new two-year vocational qualification, up-to-date information about the vocational careers of under-achieving young people, and preliminary insights into new forms of education and training.

Data analysis and discussion of this presentation will be based on two theoretical models, the concept of professional competencies (berufliche Handlungskompetenz) and the concept of segmentation of the labour market (Arbeitsmarktsegmentation)

Effect of a metacognitive intervention on mathematics problem solving in vocational students with learning difficulties

Nadine Kipfer, SFIVET, Switzerland

Jean-Louis Berger, University of Michigan at Ann Arbor, United States

Fredi Büchel, University of Geneva, Switzerland

Most of the students in low vocational tracks present substantial learning difficulties. Some of these students are characterized as very passive when confronted with material to learn, when reading or when solving problems. Our central hypothesis is that they can become more strategic learners if they follow a training developing metacognitive control, metacognitive knowledge, and cognitive strategies.

In this presentation we report the implementation of a metacognitive intervention module in classes realized by teachers who received a special 5-days training before, and we evaluate the efficiency of this training. Our results show that this training improved not only the quality of the strategies applied by the students but also their performance. The efficiency of the training will be contrasted with the effects of a teaching style enriched by metacognitive prompting and mediation principles (Feuerstein, Rand, Hoffman, & Miller, 1980). The results will be discussed especially with regard to their educational implications for vocational students with learning difficulties and to the means to help them developing their learning potential.

Matching the supply of and demand for young people graduating from the vocational track in Spain

Oscar Marcenaro, University of Malaga, Spain

Anna Vignoles, Institute of Education, United Kingdom

There is particular policy interest in the extent to which education and training can affect the length of time taken by young people to find a job and the quality of the job that the person can secure. We analyze the time taken by Spanish graduates from the different vocational tracks available to find a job and also estimate the wage differential earned by young people graduating from these different vocational tracks. To do this we use various quantitative models and make use of the first survey specifically designed to conduct this type of analysis (ETEFIL, 2005).

Competing with skills for clothing: A comparative case study on the skill-formation regimes for the garment industry in Bangladesh and Sri Lanka

Markus Maurer, University of Zurich, Switzerland

One major aspect of economic globalization, the removal of barriers to global free trade, drastically increased competition in traditionally low-skill industrial sectors and thus the skill-needs of developing countries. Therefore, governments in developing countries find themselves urged to ensure a sufficient amount of skills, necessary for the survival of these industries. This is specifically true for the garment industry, which has experienced increased competition since the quota-regime for this trade was recently phased out.

As there is hardly any empirical evidence on such processes, the paper presents the results of an exploratory comparative case study that analyzes how actors both in the private and the public sector develop and change the skill-formation regime for the garment industry in Sri Lanka and Bangladesh. The broader analytical aim of the paper is, however, to present a theoretical model explaining genesis and change of skill-formation regimes in countries with a weak administrative and political regime and with a production regime that is characterized by export oriented, labor-intensive manufacturing industries.

The paper, thus, makes an important contribution to the congress by looking at training systems and processes in developing countries. The study underlying the paper is a contribution to the literature on skill-formation in developing countries, which has, so far, produced very limited empirical evidence on how the respective skill-formation regimes actually develop and change and on how employers' association influence training policy. The theoretical model also lays the foundation for future comparative research in this field. Furthermore, the findings presented in the paper will help to refine programs and policies related to skill-formation in developing countries and to make them more relevant for industrial needs in general, not only for the ones of the garment sector.

Money matters – Evidence from a large-scale randomized field experiment with vouchers for adult training

Dolores Messer, University of Berne

Stefan Wolter, University of Berne

In most European countries, public subsidies encourage adult people to engage in continuous training. Although a huge variety of instruments are used to stimulate continuous education, almost none of these instruments are thoroughly evaluated. Hence, not only the effectiveness of the millions of Euros spend every year by governments is unknown but there is also a serious lack of information about the optimal design of such instruments.

The proposed paper makes would make use of information gathered in a unique large scale randomized field trial, specifically set up to analyse the mechanisms and the usefulness of vouchers to stimulate the engagement of adults in continuous education. The experiment was “blind”, following the so-called “gold-standard” of evaluation instruments, but very rarely achieved in social experiments. In the experiment a randomly selected group of participants (2'400 people) in the Swiss Labour Force Survey (SLFS) was given vouchers to be used for adult education. The vouchers were given to them as a gift for their regular participation in the survey. The rest of the participants in the survey (some 14'000 people), used as the control group, did not receive vouchers. Both groups, the treatment and the control group were not informed about the experiment and no information about it was disclosed to the public.

The experimental group was then randomly divided in six sub-groups, according to two parameters of the vouchers, nominal value and counselling. Three nominal values were used (120 Euros, 450 Euros and 900 Euros) in order to analyze the price-sensitivity of the demand and half of each sub-group got the offer for free counselling.

All participants of the SLFS were surveyed before the experiment started and at the point of time when the validity of the vouchers had expired. The first results in a nutshell are that the voucher had a significant causal impact on participation in training modules. Nevertheless, the increase was partially offset by a dead-weight loss in excess of fifty percent. There was significant price-sensitivity of demand and the vouchers of the lowest nominal value, although used, did not have any causal impact on demand. People with tertiary degrees used the vouchers more frequently than other people but the windfall gain in this group was almost ninety percent. The offer for free counselling was also used but had also no causal impact on the redemption rates of the vouchers. Contrary to commonly shared beliefs among practitioners and policy-makers, money mattered much more than counselling. Finally an analysis of the type and nature of courses taken by people with vouchers shows that the demand is not just more of the same but that there was a pattern that is different than the one observed in the control group. We believe that this unique experiment is potentially of great interest for economic policy and science. For economic policy because voucher models already exist in half a dozen of European countries and millions of Euros are spend every year on them without any evidence on their effectiveness. The results of our experiment show that most of these real models have features that can not be judged as efficient when compared to our results. For scientific purposes our experiment is groundbreaking as it shows the potential gains in insight when appropriate models of social experimentation are applied to questions that in the past were only researched with ex-post methods.

Complementarities between apprenticeship training and firm sponsored continuing training?

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We show that motivations for apprenticeship training are not homogeneous: some firms follow an investment strategy and others follow a substitution strategy. We derive an empirical method to identify different training strategies which can be used with publicly available company data. According to our classification, we find that in Germany 18.5 percent of all companies follow a substitution strategy and 43.75 percent to follow an investment strategy; the rest is mixed or undetermined. In a second step we estimate complementarities between apprenticeship training and firm sponsored continuing training. Thereby we study the different behaviour according to both training motivations.

A German-Swiss comparison of the firm's training decision

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The training decision of a firm can be characterized either by an investment or a production strategy. A firm trains according to the latter strategy, if the costs of training are outweighed by the value of the apprentice's productive contribution, whereas a firm makes a net investment in training otherwise. Even though Germany and Switzerland have very similar apprenticeship systems, the firm's observed training motives differ sharply. Applying maximum likelihood selection models, our results suggest that features of the labor markets and institutional settings can explain the different training behavior of firms in the two countries.

The returns to occupation-specific human capital. Evidence from mobility after apprenticeship

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Using a longitudinal dataset based on the PISA 2000 survey, we analyse the incidence of occupational mobility in the transition from apprenticeship to work and its effects on apprentices' wages in Switzerland. The share of occupation changers amounts to about 10 percent of the two-thirds who are employed one year after graduating from apprenticeship. Based on OLS estimates, those staying in their occupational field, but changing firm, earn about 5 percent more than their colleagues who change firm and occupation. Full-time VET school students change occupation more often, but earn less than firm-trained apprentices irrespective of occupational change. While accounting for apprentices' ability does not change the picture, accounting for the endogeneity of occupational change tends to increase the estimated wage differential between occupation stayers and changers. This indicates that occupation-specific human capital is an important component of apprenticeship training.

Using a national learning management system in Swiss vocational education

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Since 2004, Swiss schools have been able access a learning management system provided by the federal government and the cantons. In 2008, more than 1400 educational institutions from primary to post-secondary education actively use this platform called educanet2 (www.educanet2.ch). A research project, funded by the Swiss National Science Foundation, examined how schools and teachers make use of this system. Analyses are based on online-surveys sent to administrators (N=292) and teachers (N=1380) working with educanet2. Additionally, in-depth case- studies on schools intensively using the platform were conducted. Institutions of vocational education show a distinct pattern of use, incorporating educanet2 more often in teaching and less for administrative tasks than other schools. Analyses clarifying this observation are on the way and will be presented at the conference.

Apprenticeship training in Germany – Is there a change from an investment- towards a production-oriented strategy?

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The motive of German firms to train apprentices has been discussed in several recent works, whereas no clear message emerges on whether the majority of German firms rather trains to cover current production needs or to secure access to skilled labour. The paper addresses the question, which training motive prevails in Germany and whether there has been a shift away from an investment-oriented towards a production-oriented strategy in recent years. For this purpose, we compare results of two enterprise surveys on costs and benefits of apprenticeship training conducted in the years of 2000 and 2007. On an overall level, net costs of firms have dropped significantly between these years. At the same time, retention rates have not changed significantly. The paper analysis this development using regression techniques and discusses possible reasons for the observed change in firm behaviour.

Cultural diversity and gender in VET: Identification and analysis of organisational and pedagogical arrangements for cultural diversity and gender integration

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This research paper explores the issue of teachers' competences and conceptions regarding the integration of qualitative and quantitative minorities. By focusing on teachers' everyday practices, on the tools which they acquire during their education or which they develop based on their teaching experience, this project aims to increase the level of knowledge of what is done – or what is not done - regarding the issues of awareness and consideration of diversity in vocational education and training. This research is based on qualitative methods, that means interviews and in site observations.

Knowledge society and the returns to VET for individuals. A multilevel analysis of the German labour force

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There is a sustained transformation process towards the knowledge society in the OECD area: As national accounts data demonstrate increasing shares of the countries' total employment and gross domestic product result from knowledge industries, i.e. the knowledge sector. However, it is an open question which types of qualifications can be expected to undergo a rising, versus declining, demand in advanced labor markets. Broadly speaking, with regard to the structure of changes in the demand for skills an upgrading thesis in opposition to a polarisation thesis are discussed in the literature. Against the background of these different assumptions, hypotheses on the labour market outcomes (rewards) of VET qualifications in knowledge societies can be derived.

These hypotheses should be tested with a representative sample of 20,000 German wage earners (BIBB/BAUA-Erwerbstätigenbefragung 2006). In a first step the qualification and occupational characteristics of people engaged in the knowledge sector as compared to services, industries and agriculture have to be inspected. To obtain empirical evidence on the implications of the knowledge society transition for the labor market values of VET qualifications, it is planned to compute multilevel analyses regressing individual income on individual (i.e. type and level of qualification, self-reports on educational job requirements, work experience etc.) as well as firm effects (i.e. the affiliation to the knowledge sector, firm size etc.).

From evaluation to assessment? – Approaches in aeronautics

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The main reason for the reliability and success of cross-OECD comparative studies in general education is not only the transnational agreement about educational standards but also the comparability of educational systems. This is not met in vocational education: Systemic differences between dual, modularized and school-based vocational education and training are obvious and generate serious obstacles in finding standards compatible to the respective national curricula (cf. Bremer 2005). Our projects pursue an approach that is independent from national curricula: Our analysis of systemic differences in four countries and the degrees of freedom in the organization of the apprenticeship within the respective frameworks has confirmed these expected systemic differences. But we found an amount of common core tasks performed in all four countries by skilled workers – so the different tracks of apprenticeship should lead to the same result. In a small empirical study we have identified the characteristic approaches of differently advanced apprentices. Significant national differences in the acceptable solutions were found but almost no differences in the good solutions – so it seems that different tracks do lead to comparable results. We commend our methodical approach as a basis for assessing and recognizing learning outcomes on a sub-level of national qualifications.

Examining the impact of a systemic change professional development initiative for vocational education and training (VET) trainers in Western Australia

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The professional development of vocational teachers and trainers is increasingly viewed as an integral part of improving teacher quality and effectiveness.

Models of professional development are wide and varied and much debate surrounds the power of different models in terms of transforming individual practice and ultimately having a positive impact on student learning. Designing and implementing teacher professional development programs based on research and theory is a complex and demanding process but measuring the impact of such programs can present even greater challenges.

This paper will outline a mixed methods approach taken to examine the impact of a four year systemic change professional development initiative, designed to extend the instructional practices of thirty vocational teachers working in eleven tertiary and further education colleges in Western Australian (TAFEWA).

The methods used to examine impact were adopted in an attempt to recognise and examine the complex nature of the change process as a personal, emotional, behavioural, systemic and dynamic process which occurs over a period of time.

The paper will focus on:

- the research context – the Australian vocational education and training system (specifically Western Australia – TAFEWA),
- the research design – outlining research methodology which includes the use of;
 - the Concerns Based Adoption Model (CBAM) instrumentation - Levels of Use (LoU) and Stages of Concern (SoC),
 - in-depth interviews examined by means of narrative analysis,
 - classroom observations, and
 - reflective interviews;
- results from the study.

Transition and permeability in vocational education and training in Germany and Switzerland – a comparative perspective

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Flexible transition is one of the key aspects of policy objectives in the context of the European Union. In the paper, this topic will be specifically analysed in relation to the borders between school education, vocational education and training (VET) and higher education in Germany and Switzerland. In Germany, there remains a considerable lack of permeability in the structures of the VET system, especially in the area of transition from school to work and in the pathways from vocational education and training to higher education. In comparison, there have been several different attempts in Switzerland to address the challenge of flexible transition, including the establishment of new structures in the vocational training system. For example, the formation of two-year basic training courses and the Federal Professional Baccalaureate have been designed to lead to more flexible and permeable pathways. This paper aims to contribute to current debates and initiatives by suggesting possible changes for, and perspectives on, increasing permeability within transition pathways in the VET systems of both countries. In this comparison, common features as well as differences in meeting the challenges will be outlined and discussed.

Decomposing the dispersion of earnings to analyze the impact of on-the-job training

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This paper proposes a new methodology to analyze the impact of on-the-job training on the dispersion of earnings. The approach is based on a systematic use of the concept of Shapley decomposition. In a first stage the so-called Shapley decomposition gives an exact breakdown of the overall dispersion into between and within groups components, the groups being those who received and did not receive training. In a second stage a Shapley decomposition is again applied to derive first the contribution to the between groups dispersion in earnings of differences between the groups in the regression coefficients, of the between and within groups dispersion in the explanatory variables and of the dispersion of the unobservables. A similar Shapley decomposition is also applied to derive the determinants of the within groups dispersion in earnings. The methodology is then applied to French data, more precisely to the 2000 Adult Education Survey and the 1999 and 2000 Labour Force Surveys. The 2000 Adult Education Survey complements the 2000 Labour Force Survey in the sense that it reports quite detailed information on the participation of individuals to training programs after they finished school, the period covered going from January 1999 to March 2000. The survey provides also information on the socio-demographic characteristics of the individuals, their job and the firm in which they work. The 1999 and 2000 Labour Force Surveys on the other hand give information on the wages of the individuals. In addition to estimating ordinary least squares regressions we plan to use also a model in first differences, the rate of growth of wages being the dependent variable. Such an approach will allow us to control for an eventual selectivity bias, as it is likely that participation to training is not exogenous.

Smart heads and golden hands. An empirical study on educational processes of gifted juveniles in the Swiss vocational education system

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The aim of this longitudinal study is the observation of the performances of gifted trainees during their vocational education. Questions on the factors influencing their excellency as well as on the features composing their profiles are focused. The study tries to explore the factors with the most fundamental effects on excellent achievements and observes therefore the characteristics of juveniles which show excellent achievements. Contradictory to general ability research, gifted apprentices come to a lesser extent from upper- or middle-class but to a remarkable part from working-class and employees' families. They prove to distinguish themselves by positive attitudes towards work and a high willingness to perform. Meanwhile they show a considerable stress-related psychological strain in their firms.

At the beginning of the vocational training (first and second year) the gifted trainees showed considerable better working achievements than the averagely intelligent. In the third year of vocational training a significant change took place. The achievements of the averagely intelligent trainees have grown and slightly over-taken the achievements of the gifted. However, in the fourth year, the gifted trainees caught up again.

The results give claim for the convergence hypothesis which posits that in the beginning of the vocational training, gifted juveniles show better performances than averagely intelligent ones, whereas this differences disappear towards the end of the training. Cognitive abilities turn out to be a relatively weak predictor for excellency with a trend even to the opposite direction. In fact, not those trainees who are having the highest intellectual abilities perform best, but those who are especially motivated and profit of advantageous environment factors (e.g. good working atmosphere) that support out-standing performances.

Our study shows that one important challenge in the field of vocational training is to identify gifted trainees and to support them in a way that allows them to tap their full potential.

Impact of precocity in mathematics and reading on the transition from compulsory to post-compulsory education and beyond

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Margrit Stamm, University of Fribourg, Switzerland

This paper focuses on the transition to high school or vocational training of young persons who were precocious in reading and/ or mathematics. Specifically, we are interested in which career track they follow, how that decision was reached and by whom, and whether they are successful thereafter. Our data are the result of a long-running study tracking the careers of precocious young persons, starting with the first year of their compulsory education. We have found that precocious young persons are over-represented in the academic track and that, although their attainment does not exceed that of their non-precocious peers, precocious young persons are: more reluctant to attend school, especially on the vocational track; more prone to truancy; and less challenged by the curriculum. We are currently validating a regression model of the influence of various factors on these outcomes. The results of this process will be presented.

Risk-return trade-offs to complete educational paths: Vocational, academic and mixed

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This paper investigates the rates of return and the risks of different types of educational paths after compulsory education. We distinguish a purely academic educational path from a purely vocational path and a mixed path with loops through both systems. To study the labor market outcome we compare earnings and calculate net return rates as well as risk measures to investigate whether different educational paths are characterized by different risk-return trade-offs. Our empirical results are based on the Swiss Labor Force Survey (SLFS) and demonstrate that mixed educational paths are well rewarded in the labor market. However, a high return is also associated with a high income variance.

Differences in wage growth by education level: An empirical analysis of the Swiss dual education system

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A new trend of the literature concerned with the returns to tenure argues that some human capital may be specific to the industry of employment. Industry-specific experience is therefore added in the equations used for the estimation of returns to tenure and general experience. Using data from the Swiss Labor Force Survey, we estimate a model that accounts for job tenure, general experience, industry-specific experience, plus occupation-specific experience. This last component has been ignored so far, but seems essential and maybe even more relevant than industry-specific experience in the determination of wage growth over the career. Switzerland is a highly interesting case for the study of earnings, thanks to its dual education system that allows to define education levels by their types. Such a classification goes one step further the usual definition of education levels by their duration only. Consistently with the literature, our results show that more-educated workers gain more from work experience. Moreover, for an equal education duration, workers with more general skills gain more from experience. Vocational training, providing workers with fairly specific skills, leads to a relatively flat wage profile over the career.

The role of domain competencies for employability in the IT sector

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Against the background of the growing lack of specialized workforce in the IT sector, the project KoPIWA, which is funded by the German BMBF, aims at developing a comprehensive model for software supported competency management in the IT and media industry. Particular requirements are derived from the dynamics of "open innovation" developments. Part of this approach is the identification of important competencies for the IT sector. In the current discussion about competencies non-professional competencies such as methodical, social or personal competencies have been put in the focus of interest. We have analyzed a set of 152 digital job offers from the German Digital Economy using data mining techniques to determine the competencies that are the best discriminators of job offers. The results show that professional competencies have an important influence for the distinction of vocational profiles, at least in this sector.

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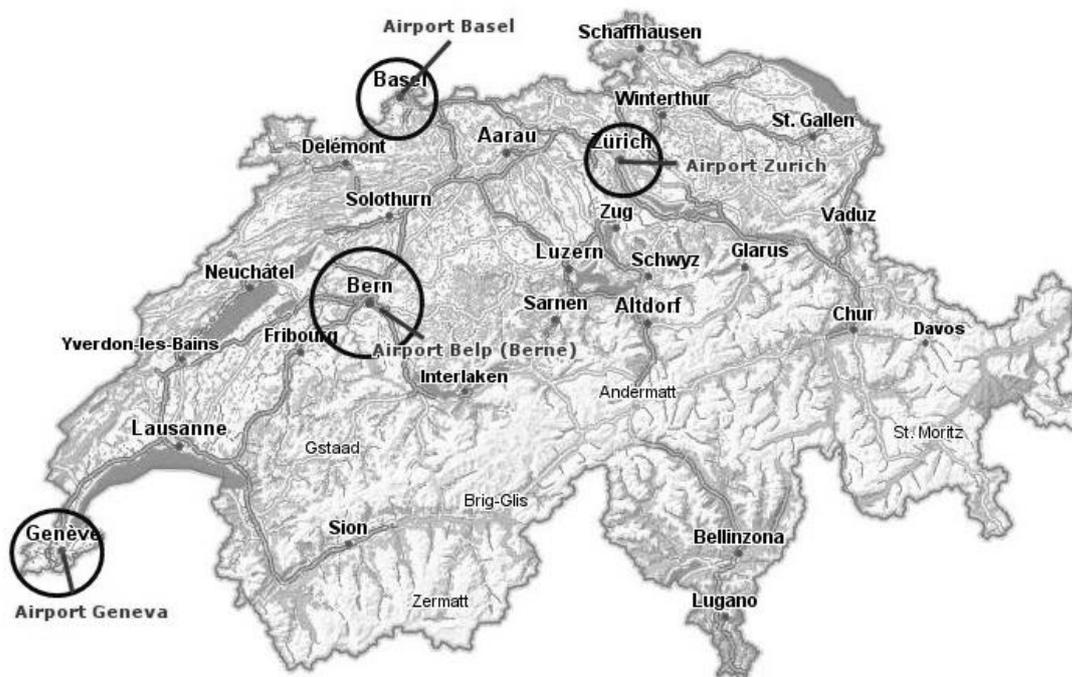
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General information

How to get to the SFIVET

By plane:

Zollikofen/Berne is easy to get to, from the rest of Switzerland and from abroad. Thanks to international airports in Basel, Zürich and Geneva you do not need domestic flights to reach us. Low-fare airlines also operate direct flights to Bern/Belp from international airports (Munich, Brussels).



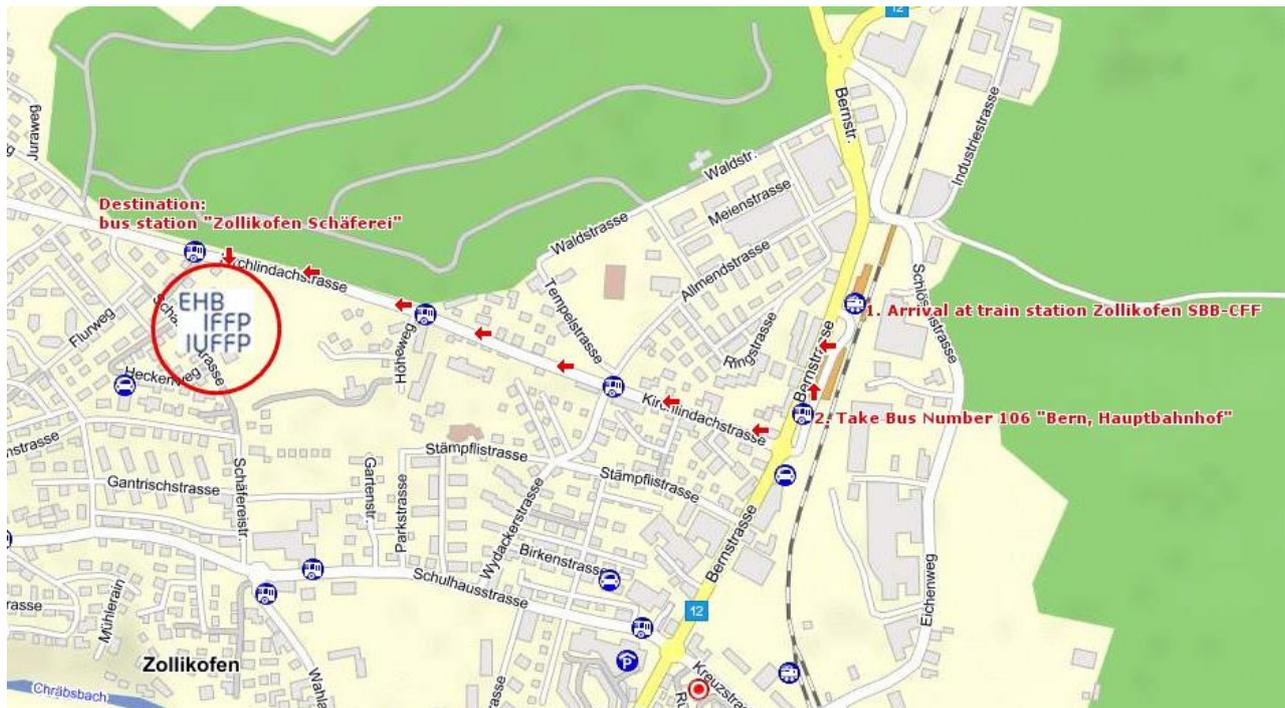
Zollikofen/Berne by train:

The Swiss Railway SBB runs an extensive network of services. Thanks to half-hourly clock face service on most main routes and its punctuality the passenger trains are firm favourites with the public. Please check the timetable under www.sbb.ch. Your destination from the airport is going to be Berne.

After arriving at the train station of Berne, do as follows:

- Go to the RBS-station  (follow the corresponding signs), i.e. a section in the main station of Berne from where suburban railway lines start.
- Take **train number S8** (direction “Urtenen”) and get off at the 3rd station called “**Zollikofen**”.
- Get off the train, take **bus n° 106** (direction “Berne, Hauptbahnhof”) and get off at the 2nd station “**Zollikofen, Schäferei**”.
- Get off the bus, cross the street and walk back about 50 meters – you will see the SFIVET on your right hand side (a modern brick stone building).

Total time from Berne main station: 20 minutes



Zollikofen/Berne by bus:



After arriving at the train station of Berne, do as follows:

- Go to the PostAuto station, which is on the 4th level of the train station building.
- Take bus n° "106" (direction "Zollikofen Bahnhof") and get off at the bus stop "Zollikofen, Schäferei".
- Get off the bus, continue walking for about 50 meters – you will see the SFIVET on your right hand side (a modern brick stone building).

Total time from Berne main station: 20 minutes

Zollikofen/Berne by taxi:

After arriving at the train station of Berne you can take a taxi to get to the SFIVET (CHF 30).

There are different local taxi companies in Berne:

Nova Taxi: (+41) 0800 879 879
Bären Taxi: (+41) 0800 55 42 32
Taxi-Kull: (+41) 0800 830 840

Timetable of the Post Auto n° 106

valid from 25.03.2009 to 27.03.2009

Departure station: Berne main station

Direction: Zollikofen Bahnhof

→ get of at the bus stop „Zollikofen Schäferei“

Departure	Arrival	Duration
07:12	07:29	17 min.
07:42	07:59	17 min.
08:12	08:29	17 min.
08:42	08:59	17 min.
09:12	09:29	17 min.
09:42	09:59	17 min.
10:12	10:29	17 min.
10:42	10:59	17 min.
11:12	11:29	17 min.
11:42	11:59	17 min.
12:12	12:29	17 min.
12:42	12:59	17 min.
13:12	13:29	17 min.
13:42	13:59	17 min.
14:12	14:29	17 min.
14:42	14:59	17 min.
15:12	15:29	17 min.
15:42	15:59	17 min.
16:12	16:29	17 min.
16:42	16:59	17 min.
17:12	17:29	17 min.
17:42	17:59	17 min.
18:12	18:29	17 min.
18:42	18:59	17 min.
19:12	19:29	17 min.
19:42	19:59	17 min.
20:42	20:59	17 min.

Departure station: Zollikofen Schäferei

Direction: Bern Hauptbahnhof (main station)

Departure	Arrival	Duration
07:12	07:36	24 min.
07:20	07:44	24 min.
07:50	08:14	24 min.
08:20	08:44	24 min.
08:50	09:14	24 min.
09:20	09:44	24 min.
09:50	10:14	24 min.
10:20	10:44	24 min.
10:50	11:14	24 min.
11:20	11:44	24 min.
11:50	12:14	24 min.
12:20	12:44	24 min.
12:50	13:14	24 min.
13:20	13:44	24 min.
13:50	14:14	24 min.
14:20	14:44	24 min.
14:50	15:14	24 min.
15:20	15:44	24 min.
15:50	16:14	24 min.
16:20	16:44	24 min.
16:50	17:14	24 min.
17:20	17:44	24 min.
17:50	18:14	24 min.
18:20	18:44	24 min.
18:50	19:14	24 min.
19:20	19:44	24 min.
19:50	20:14	24 min.
20:24	20:48	24 min.

