

Conference Agenda

The end of VET as we know it? – Skills development in times of technical and social change

Date: Monday, 04/Mar/2019

9:30am - 11:00am	Registration
Piazza	Congress Venue: Eidgenössisches Hochschulinstitut für Berufsbildung (EHB) Kirchlindachstrasse 79 CH - 3052 Zollikofen
11:00am - 11:15am	Welcome & Opening
Aula	
11:15am - 12:15pm	Keynote 1: Christian Lyhne Ibsen
Aula	The Politics of Vocational Education and Training in the Digital Economy
12:15pm - 1:15pm	Lunch
Piazza	
1:15pm - 2:45pm	Symposium 1: Innovation through Permeability? Effects of the Changing Relationship of Vocational and Higher Education on Dual Vocational Education and Training in Germany
Room 117	

Innovation through Permeability? Effects of the Changing Relationship of Vocational and Higher Education on Dual Vocational Education and Training in Germany

Chair(s): **Jakob KOST** (University of Teacher Education Bern, Switzerland)

Discussant(s): **Jakob KOST** (University of Teacher Education Bern, Switzerland)

A fundamental aspect of reorientation within educational pathways is the changing relationship between vocational education and training (VET) and higher education (HE). Promoting permeability between VET and HE pursues several objectives, e.g. to flexibilize and individualize educational pathways, to meet skilled labour needs or to promote educational equity. At the same time, due to changing educational aspirations in favour of HE the vocational training system in Germany is increasingly under pressure.

In the past, little attention has been paid to the specific effects on apprenticeship and further education caused by the shifting demarcations between VET and HE. How does VET change within the course of permeability? Is permeability the key to innovations in the German educational system?

The contributions will discuss these questions and analyse the effects of the readjustment within the German education sector – oscillating between competition, demarcation and cooperation – from an institutional, curricular and didactical perspective:

- Activities in the field of practise supporting permeability will be explored as micro-foundation of **institutional** change. Theories of gradual institutional transformation (e.g. Streeck & Thelen, 2010) and educational innovations (e.g. Bormann, 2011) give ground for this purpose.

- The changing requirements for qualified specialists are starting point for the view from a **curricular** perspective. Based on the theoretical concept of competency-orientation (e.g. Pätzold 2003, Arnold 2012, Schaper 2012) will be examined how VET and HE actors co-create educational programs connecting elements of vocational and academic education.

- Moreover, it will be examined how the **didactic** approaches of VET and HE reciprocally influence each other within dual HE study programmes. The theoretical model of the didactical field by BONZ (2009) and NICKOLAUS (2008) poses the analytical framework.

Finally, the findings of those three paper presentations will be compared to the developments in Austria and Switzerland by the discussant in a conclusive discussion.

Presentations of the Symposium

Effects of permeability on VET – an institutional approach

Barbara Hemkes

Federal Institute for Vocational Education and Training (BIBB), Germany

Since the rigid institutional segmentation between VET and HE is questioned due to technological, economic and social development permeability between the educational sectors has become a mega-trend in educational politics in Germany. But what are the effects of permeability on the dual system of VET in Germany? This question is pursued in a research project investigating educational formats in the context of permeability between VET and HE. So far, representations of permeability in practice from the point of view of VET are scattered and anecdotal - a structured synopsis is not available. Therefore, the aim of the research project is to understand and describe the forms of permeability as social facts in practice using categories as precisely as possible. The expectation is that permeability

can be discovered as an innovation resource for VET, but to what extent patterns can be identified is open. There are several of the options for the changes in the educational system, which have more or less far-reaching implications for VET. What the change to more permeability entails is largely unclear from the point of view of VET. The focus of the research project is to describe how permeability in practice is constructed by the actors in the institutional context of VET, which acts as a framework for orientation on the actions of the actors and on which these actions work. At the same time, the practical field of permeability is linked to the political, social and scientific discourse on permeability. Relevance is given to educational formats as they are considered as re-interpretation of the meaning of VET in the context of permeability. Of particular importance are the coordination modes and governance models with which actors in educational practice overcome their institutional boundaries. The presentation will show intermediate results of the research project.

The German NQF 5 level (DQR 5) as a possible interface for vocational education and training and academic education

Christian Vogel

Federal Institute for Vocational Education and Training (BIBB), Germany

The debate on the traditional institutional separation of vocational and academic (continuing) education has been intensively pursued in Germany for years. Despite policy demands for more permeability in the education system, a genuine curricular and didactic interlocking across educational boundaries are at best exceptional. Previous strategies are mainly limited to opening up educational pathways while maintaining the traditional structure of the education system (Kutscha, 2015, 3).

Due to the structural change towards interconnected, automated production processes and the digitization of entire working environments, the complexity and required level of professional activities are increasing. Higher qualified professionals who have both practical skills and scientific-reflective skills are needed in order to contribute to innovation. Consequently, there is a need for new further education programs that combine vocational training and academic education in order to connect work-related and science-related learning and thus to create individual, flexible learning pathways.

Using the example of composite and micro technology professions, the present article will examine how cross-curricular learning pathways can be implemented by integrating vocational and academic further education programs. Based on the assumption that the principle of competency-orientation applies for both educational areas as a congruent understanding and an educational aim, the focus will be particularly on how the participating universities in cooperation with VET actors succeed in developing and establishing practice-oriented short-cycle training programs. Thereby will be shown how curricula of VET programs and HE programs can be combined in order to create qualification pathways for specialists on the German NQF level 5 (DQR).

Dual higher education study and its effects on the didactical design of dual VET

Kim-Maureen Wiesner

Federal Institute for Vocational Education and Training (BIBB), Germany

The development of hybrid educational programmes at the interface between vocational education and training (VET) and higher education (HE) leads to a parallelization and interlocking of theoretical, science-related learning and vocational, practical learning. Thus, learning does no longer take place at strictly separated learning venues like universities on the one hand and companies or vocational schools on the other hand. It is embedded into an overall concept containing different learning venues instead.

In this context, VET research is mainly interested in questions concerning the design of teaching and learning processes at the company-based learning venue. For example, the question arises, if there is a distinction of learning settings between dual VET and HE within the frame of dual HE study. Can we find different didactical concepts for the company-based training of apprentices and students or do the companies apply one general didactical concept for all learners? Because an academic study aims at the development of scientific proficiency (Article 2 Paragraph 1, HRG) whereas an apprenticeship aims at the development of vocational proficiency (Article 1 Paragraph 2, BBiG). In addition, it is of particular interest, how the didactical design of apprenticeship possibly change under the influence of dual HE study.

The present paper deals with a discussion of these questions mainly based on an ongoing research project, entitled "Company-based training under the auspices of academic education – didactic design of practical phases within dual programmes of HE study integrating VET within technical and commercial occupations". It aims at a description of the design of the company-based training within the scope of dual HE and a determination of effects on the teaching structures at company-based learning venues caused by the parallel offer of apprenticeship and dual HE study by using a qualitative research approach.

Discussion: Innovation and structural conservatism - or the limits of permeability

Jakob Kost

University of Teacher Education Bern, Switzerland

This symposium will establish a multilevel view of the effects of so-called permeable education systems. This is achieved through the simultaneous consideration of structural, curricular and didactic changes that can be observed at the interface between basic and continuing vocational training and higher education. This perspective is suitable not only to replicate the surface patterns of the educational, social, and employment policy discussions of the permeability debate. Rather, it promises to analyse the politically preformed concept of permeability and to point out which observable effects

- both for vocational education and for higher education - result in programmes which formulate the claim to increase the permeability of education systems.

Since the contributions to the symposium will focus on Germany, the discussant's contribution will focus more on the situation in Austria and Switzerland and ask to what extent the reported conditions are to be understood as "local" and in which areas there are comparable developments in neighbouring countries. This may be illustrated, for example, by developments in the access regimes for those with vocational qualifications at universities, by developments in curricula or by apparently changing educational aspirations to the detriment of vocational education and training.

The key topic of discussion will be at which points increasing permeability is actually linked to innovation and where permeability is at its core a structural conservative argument - e.g. if little is changed in the existing regimes for university admission through the establishment of passerelle or entrance examinations.

1:15pm - 2:45pm
Aula

Symposium 2: Facilitating the development and sharing of professional experience on online training platforms

Facilitating the development and sharing of professional experience on online training platforms

Chair(s): **Giulia ORTOLEVA** (Université de Genève, Switzerland), **Vanessa REMERY** (Université de Genève)

Discussant(s): **Alberto CATTANEO** (Swiss Federal Institute for Vocational Education and Training, Suisse)

In recent years, a number of training platforms aiming at the development of professional skills have emerged. These platforms can have different target audiences going from students in training, novices in the workplace or experienced professionals. Integrated into initial, vocational or continuing training, sometimes articulated with hybrid systems, or even designed on the periphery of institutional training by professional corporations, these technological innovations are increasing due to greater accessibility to digital tools. Whatever their form, they induce a new reflection about the design process of adult vocational training and an adaptation of the learning scenarios and activities developed in this context.

Through the papers presented, the symposium aims to open a reflection on the conditions for operationalizing the learning potential of training platforms. We, therefore, aim to examine the design principles that we believe should be taken into account for the development and implementation of such training platforms, as well as the instructional design principles that structures professional learning and development scenarios. In particular, we aim at discussing the forms of engagement and collaboration that they allow between users in terms of the reflection on and sharing of professional experience, and the learning processes that they facilitate or constrain.

Presentations of the Symposium

Computer-supported experience sharing: how can collaboration be enhanced through activity and interface design?

Giulia ORTOLEVA
Université de Genève

In this communication, we will discuss the implementation of a computer-supported collaborative learning scenario aiming at the professional development of apprentices in initial vocational education. In particular, our presentation will focus on the instructional recommendations we could derive from the results of the analysis of collaborative experience sharing activities, aiming at answering the question: How can computer-supported collaboration be prompted and enhanced through efficient activity design? Through our investigation, we could observe the fundamental role of prompts for effective experience sharing. We could observe, for example, how concrete suggestions, based on personal experiences in similar situations, resulted in more effective and useful interactions. Prompts should therefore encourage peer-comments to focus on personal practice. Additionally, questions represented interesting elements of discussion and were an excellent way of getting into the activity in a progressive manner. Finally, flexible and adaptable scripting are particularly recommended for learners to act on the prompts received and adapt them to their needs. The online learning platform should therefore accommodate these prompts in an integrated manner allowing for their flexibility and adaptability (fading away over time, for example). Finally, the integration of the computer-supported experience sharing activity in the class curriculum is also extremely important for learners' engagement.

Appropriation and interactions between users on a sharing professional experience platform for nurses : the case of Tuttis platform

Stephan DATTNER¹, Anais DATTNER², Vanessa REMERY³

¹Founder and President of Tuttis, France, ²CEO and founder of Tuttis, France, ³Université de Genève

The communication is focused on a Research & Development project concerning the ongoing design of a platform called "Tuttis" aiming at sharing knowledge and professional experience. This platform is intended for nurses to develop their skills and improve their professional practice. It aims to support the exchanges, confrontation and sharing of experiences and practices of its users in order to encourage them to develop skills and expertise, in an informal and creative way through mutual assistance and collaboration, and to create new approaches to problem solving.

For the paper, we propose to: 1) Revisit the initial principles that define the design of this platform by integrating the designers' point of view; 2) Propose an analysis of the ways in which users appropriate the platform, in the test phase, based on traces of their online activities; 3) Finally, based on these analyses, identify the transformations that can be implemented to feed the continuous design process and to promote the efficiency of training and work situations for the beneficiaries.

This Research & Development approach is therefore part of a cyclical process of use and identification of new technical and pedagogical solutions.

Design in use of an online platform for sharing classroom experiences in PE

Lionel ROCHE

University Clermont Auvergne, France

Today, we can observe an important development of online platform's use in teacher education. A lot of platform is used all over the world : Myteaching partner (USA), Neopass@ction (France), Zoom sur l'expertise pédagogique (Canada), V-Reflect - Gemeinsam Unterrichtsvideos online reflektieren (Germany). Our contribution will aim to account the design and use of two online platforms during a Video-enhanced Teacher Learning Environment (VTLE) at University. The main goal of this VTLE is to learn to reflect about videotaped teaching situations in Physical Education (PE) teaching in order to learn to teach PE (classroom management, supervise student's learning,...). These platforms were designed from two main principles : a) a design in use approach (Folcher, 2003) and b) based on the analysis of the activity deployed by students during the VTLE. This study was conducted with 15 students during their third year at University. Our framework is "Course of Action" theory (Theureau, 2002) in cognitive anthropology based on the hypothesis of the situated action (Suchman, 1987) and situated cognition (Hutchins, 1995). The theoretical framework allow us to identify student's concerns, perceptions, emotions and knowledge that emerged during the situation. Two main results can be underlined : Firstly we show the use of online platform based on authentic videos of PE'S teaching allow students to share their concerns, emotions lived in teaching situation with their peers about their own teaching but also about teaching situation they can view on video. Based on this result we have designed a second platform centered on student's concerns. Secondly we show that different viewing situation (collective or by pairs) and the use of a second platform allow students to change their concerns during the Video-enhanced Teacher Learning Environment and help them to construct new competencies and knowledge about their own teaching.

2:45pm - 3:15pm **Coffee-Break**

Piazza

3:15pm - 4:45pm **Paper Session 1A: Policy in VET**

Aula

Trajectories of liberalization in collective governance: a comparison of short-track apprenticeship reforms in Denmark, Germany and Switzerland

Gina DI MAIO¹, Lukas Graf², Anna Wilson³

¹University of St. Gallen, Switzerland; ²Hertie School of Governance, Berlin; ³University of Lausanne, Switzerland

Increasing global competition pressures national economies and their training systems to adapt to the changing circumstances. We observe that political economies chose different trajectories of change in their reaction to these challenges. For example, in collective skill formation systems, prior research has identified trends of segmentalism in Germany and embedded flexibilization in Denmark as different ways to deal with global pressures. The studies on Germany and Denmark use the introduction of short-track dual training programs as a key example of such different trajectories of change. Switzerland, another key dual VET country, also introduced standardized short-tracks in the early 2000s. However, we know little about the nature of the reform process that led to the introduction of these standardized short tracks. How can we characterize the trajectory of change in Switzerland? In our analysis, we pay special attention to key actors, such as employers, unions and state actors, their preferences and coalition building in the reform process in the late 1990s and early 2000s.

Cooperation without partners? ICT training in collective skill formation systems

Lina SEITZL

University of St. Gallen, Switzerland

In dual training systems, public and private actors closely work together in order to ensure the supply of skilled labour needed in the economy. This requires very complex coordination processes and entails cooperation dilemmas. Decentralized cooperation is already very complex in traditional industrial sectors. It is even more difficult in sectors with no training tradition, such as in the field of ICT (information and communication technology). This paper looks at the introduction of ICT apprenticeships in three prototypical dual training systems: Austria, Germany and Switzerland. It finds that the state pushed for the introduction of these apprenticeships in order to tackle the lack of skilled labour in this field. The proactive role of the state is surprising, because dual training systems heavily rely on the self-governance of private (business) actors. However, in the case of ICT, firms were poorly organised, which prevented the involvement of business in the set-up of the new training occupation. Although the initiated reforms stayed within the institutional boundaries of the respective training system, the lack of business support resulted in serious problems concerning the attractiveness of the new apprenticeships for students and for firms.

Globalization, privatization and collective goods provision: The redefined role of the state in Austria's apprenticeship system

Daniel UNTERWEGER

Universität St. Gallen, Switzerland

Privatization and globalization are often fundamentally connected. Privatization exposes companies to international competition and the pressures of international financial markets, leading to restructuring activities that can be incompatible with the manifold collective goods public sector firms often provide. Austria is a typical case for such developments, as the collective good of apprenticeship training rapidly declined after the privatization of state-owned industries around the 1990s. First, this paper shows how a variety of corporatist and state actors coped with this challenge. Following privatization, public and corporatist actors took over the tasks of the firms and therefore industrial training workshops – leading to a shift in responsibility of VET from employers to the state and labor representatives. Surprisingly, industrial enterprises have in the last years again increasingly participated in these (semi-)public workshops. Second, and most important, this research project examines the factors responsible for initial failure and abovementioned latter success of employer cooperation in dual VET in the face of privatization and globalization. Why did industrial enterprises renew their interest in dual VET? I employ an inter-temporal comparison supplemented by theory-building process tracing (Beach & Pedersen, 2013) to explore the reasons for the change from initial exit to later re-integration of previously state-owned companies. Did public actors simply give in vis-à-vis continued pressure from this newly financialized and internationalized sector, and therefore had to orient the training workshops according to the specific needs of business in order to trigger participation, contributing to tendencies like segmentalism and dualization? Or did power relations change (for example due to a return to consensual, corporatist policy making in a grand coalition), therefore making more coercive re-integration into dual VET possible?

Stakeholders' roles in VET in times of digitalisation – a German-Swiss comparison

Ute HIPPACH-SCHNEIDER

BIBB, Germany

Digitalisation is affecting vocational education and training in numerous ways and on different levels. It is changing didactics by the integration of digital learning media and virtual workshops. It has impact on communication between the people involved, e.g. between apprentices and their in-company learning place by using digital platforms and cloud techniques. The learning contents are even more under pressure to become updated and adjusted to technological change than in previous years.

The different stakeholders that are involved in the VET system have their specific perspective on these issues according to their roles and develop ideas for strategies how to cope with the challenges caused by the fast technological changes in the companies which have direct impact on VET. These various recommendations and suggestions in times of fundamental changes in technology and work processes might lead to a modification on system level as well by reshaping the role of stakeholders and their interaction. The current forms of cooperation and established roles could alter, which consequently would imply changes of the governance structure of the VET system.

The aim of the project which forms the basis for the conference paper is to identify signs for changes of the governance systems of VET in Germany and Switzerland by analysing recommendations and strategies of the different stakeholders.

3:15pm - 4:45pm
Room 117

Paper Session 1B: Technology in VET

Video-annotation as a support for teaching practices analysis

Elena BOLDRINI, Alberto CATTANEO, Alessia EVI-COLOMBO

SFIVET, Switzerland

Reflection on action can be fostered through receiving formative feedbacks provided by an agent and progressively through self-generated feedbacks. In a situation-based instructional approach, the analysis of authentic video-recorded situations experienced by professionals constitutes a valuable means for supporting feedbacks and self-observation. This can be additionally reinforced by the use of video-annotation as a tool supporting focussed and evidence-based feedback. In the field of teachers training, exploiting video-annotation for teaching practices analysis is a well-established training method. Nevertheless a lack of studies on the effects of video-annotation for delivering feedbacks and its application in the specific field of in-service VET teachers has to be pointed out.

Authors designed a study with 36 teachers attending a training including hetero-analysis and feedbacks on teaching situations first (in couples) and finally a self-analysis on one's own lesson. Two conditions were foreseen, i.e. teachers providing feedback on video-recorded lessons supported by video-annotation and teachers delivering feedback on the basis of a direct observation of peers' lessons.

The study aimed to i) test the feasibility of the instructional model to be steadily integrated in the teacher education program; ii) evaluate the impact of video analysis and annotation on teachers' reflective capacity, as well as iii) assess the effects of using video-annotation on the quality and quantity of feedbacks.

Preliminary results reveal i) a positive evaluation of the training by the participants, witnessing its usefulness and positive cost-benefit ratio; ii) in terms of development of reflective skills, teachers working in the video-annotation condition were able to identify more indices in a video-recorded lesson and to rework them in terms of alternatives of actions more than the colleagues working in the direct observation condition; iii) analysis on the quality and the quantity of reciprocal feedbacks are in progress and will be presented at the conference.

Exploring visual languages across vocational professions: Implications for education and the design of learning activities

Alessia Eletta Coppi¹, Alberto Cattaneo¹, Jean-Luc Gurtner²

¹EHB, Switzerland; ²University of Fribourg, Switzerland

Discovering visual languages across professions is a complex task since it entails discovering a communication system composed of information in image or textual form called representations and also including various kinds of annotations such as marks. Such a task has been previously scarcely considered within research, and basically only investigating white collar professions (e.g., doctors). This leaves us wondering about all the possible shapes of these vocational visual languages and the potential of using these images to foster learning. For this reason, the current research aims to investigate commonalities and differences of visual languages across VET professions to identify ways that could help students achieve profession-specific skills. To this aim, 55 semi-structured interviews have been conducted within eleven professions from the areas of Craftsmanship, Industry, Health and Services. The interviews were audio-recorded and analyzed with NVivo through a coding scheme which served as the main reference for the analysis. Results showed the use of different types of drawings such as technical drawings, body evaluation forms and illustrations. For sketches, participants indicate the practice of creating sketches depicting objects to produce. For photos, they portrayed things to remember or pay attention to. Participants across professions use annotations such as notes to specify details of their job. On the other side, they also report profession-specific annotations such as mathematical symbols or marks. In terms of commonalities, participants within technical professions indicated a shared use of both representations and annotations. Conversely, other professions had very specific visual languages hardly shareable across professions. These results helped in discovering the visual languages of different professions and this knowledge will be used to implement educational activities based on specific skills needed in different professions such as observation skills with the use of VET-specific educational technologies.

Using Hypervideo to support students' reflections on work practices

Marco PERINI¹, Alberto Cattaneo², Giuseppe Tacconi¹, Francesco Tommasi¹

¹University of Verona, Italy; ²Swiss Federal Institute for Vocational Education and Training

According to several exploratory studies, the HyperVideo (HV) seems to be particularly effective in highlighting the existing connections between the classroom and work context, between authentic work situations and theoretical subjects. In particular, the video annotation (an HV' feature) seems to facilitate the student's reflection on practices. Even though several researchers have already studied the efficacy of video annotation, studies concerning the qualitative differences between a reflection process activated by the use of video annotation and a reflection process activated without using it were not found.

Therefore, the present study is focused on the reflective processes activated by two groups of students engaged in a higher education course oriented to the Vocational Education and Training (VET) sector while they carry out a reflective activity on work practices using the video annotation tool: how can the HV be useful for them in order to foster the connection between theoretical concepts and work practices?

Through multi-step qualitative analysis which combined Thematic Qualitative Text Analysis and Grounded Theory approach, a sample of reflective reports drafted by a group of students who employed HV was compared with a sample of reflective reports drafted by a group who did not use it.

The results emerged from a preliminary comparison of the coding frequencies between the students who did not use the video annotation (Group A) and the students who employed it (Group B) shows that reflective reports have peculiar characteristics. Furthermore, the category system emerged could be employed in different contexts (in research or teaching filed) to analyze the content of reflexive-reports on work practices. More detailed analysis of coding frequencies is needed to obtain a comprehensive framework.

Observing like an expert: Effects of using annotations on apprentices' gaze patterns and verbalizations

Alessia Eletta Coppi¹, Alberto Cattaneo¹, Catharine Oertel², Pierre Dillenbourg²

¹EHB, Switzerland; ²EPFL, Switzerland

Visual skills are a fundamental proficiency in many vocations. A lot of studies show that novices and experts differ in visual exploration and understanding of images and that using cues in the form of annotations –like lines or arrows– can be an effective strategy to support visual skills development. However, such studies mainly focused on white-collar professions, leaving vocational education unexplored. Additionally, most experiments made use of non profession-specific tasks. Addressing

these gaps, this study will focus on fashion designers to check if annotations can convey a professional way to look at professional-specific images. The hypothesis is that being exposed to annotated images (experimental group) compared to non-annotated ones (control group) will produce that learners' gaze patterns will become more similar to experts'.

Sample will be composed of 50 fashion design second-year apprentices (equally represented in the experimental and control group) plus n=15 experts. In the pre-test all participants will have to observe and describe a set of five images depicting shirts. In the training-phase the experimental group will first observe a set of five images including annotations and audio description and secondly, a set of annotated images that they will be asked to orally describe. The same is valid for the control condition, but no visual annotations will be provided. In the post-test all participants will observe and describe other five images. Participants' gaze will be tracked with the Tobii eye-tracker.

The study will be run in September 2018 and results of the analysis will be available by the congress date. We predict that in the post-test the experimental group will perform more similarly to the experts compared to the control group. Results will allow us to better understand how observation develops in novices within a specific profession and will help in designing learning activities for improving observation skills.

3:15pm - 4:45pm
Room 214

Paper Session 1C: Quality in VET

On-the-job trainers, their trajectories as possible careers in dual VET system?

Roberta BESOZZI, Nadia LAMAMRA, Barbara DUC

IFFP, Switzerland

In Switzerland, vocational education and training (VET), and in particular the dual system, is the most frequently chosen path for young people leaving lower-secondary education (SEFRI, 2017). In these Swiss dual-track VET programmes, a specific population plays a key role the learning process and in the system in general: on-the-job trainers. Despite, the importance played by the on-the-job trainers in the daily training of the apprentices there is a lack of studies focusing on them (Mulder, 2013; Baumeler, Lamamra, & Schweri, 2014). This contribution is based on the SNF research project (FNS 100017_153323) and in particular on the PhD thesis taking part of it focused on the trajectories and experiences of these "forgotten actors" of the dual VET in the French-speaking part of Switzerland. The aim of this paper is to shed light on how we become on-job-trainer in order to illustrate possible careers in the dual VET system. On the methodological level, this study uses mainly a qualitative approach. The results referred to in this contribution are based on a descriptive analysis, on a thematic content analysis (Bardin, 1986) and a typological analysis (Schnapper, 2012). The main results of the project point out the different kind of mobility (upward, horizontal, and downward) and five types of pathways rebuilt from more specific steps in the work life. These results allow to renew analysis on trajectories in vocational training and to imagine ways of recognition and appreciation of on-the-job trainers' function.

APPRENTICES' PERCEIVED QUALITY OF IN-COMPANY TRAINING AND ITS RELEVANCE FOR LEARNING: A STUDY IN THE TECHNICAL AND RETAIL FIELDS

Matilde WENGER, Florinda SAULI, Jean-Louis BERGER

SFIVET, Renens, Switzerland

The quality of in-company training plays an important role in initial Vocational Education and Training (IVET) dual systems. There is however limited evidence of its association with apprentices' learning processes and perseverance. 320 apprentices in the retail (n=132) and technical (n=188) fields of IVET were surveyed about the perceived quality of their training, their premature contract termination intention, and their learning processes such as help seeking tendencies. ANOVAs and hierarchical multiple regressions were performed on the data. The results revealed some differences between the two occupational fields, as well as main and interaction effects of the perceived quality of in-company training on apprentices' premature contract termination intention and learning processes. Retail apprentices perceive more time overload than the technical peers. Furthermore, both instrumental and expedient tendencies to seek help were more frequent when the relationships with colleagues were good; whereas instrumental help seeking was linked to the trainer's feedback as perceived by the apprentices. The results reveal how in-company training quality matters for the apprentices' learning and persistence, in addition to which aspects of the quality seem to be most important for each occupational field.

What constitutes the quality of training according to apprentices in the Swiss initial VET dual system?

Florinda SAULI, Matilde Wenger, Jean-Louis Berger

Swiss Federal Institute for Vocational Education and Training, Switzerland

This study investigated the apprentices' perceptions of quality in the Swiss initial Vocational Education and Training dual system using both qualitative and quantitative methodologies. The participants were 320 apprentices from two occupational fields (technical fields, n=188 and retail, n=132). The verbal data based on six open-ended questions about the apprentices' perceptions of quality in both school and training company constituted the study material. Data were coded using NVivo11 according to a grounded-theory approach. The results show that a) three levels of codes, representing layers of

environment based on Bronfenbrenner's (1977) ecological system theory, can be distinguished (classes/tasks, persons, system); b) overall, the most frequently mentioned elements reflecting high quality referred to persons, whereas the ones associated to low quality referred mostly to the system; c) the pedagogical skills of the teachers/trainers appeared to be central to the perceptions of quality as they were cited as characterizing both what constitutes a worthy and an unworthy training; d) differences in the elements characterizing quality were found between the two occupational fields. The study sheds light on the quality's aspects as perceived by apprentices and on the differences that can be noticed between occupational fields.

3:15pm - 4:45pm
Room 211

Paper Session 1D: International Studies in VET

New Models of VET to Assist Workforce development Projects

Isabel DILLENER, Marcel Ricou, Anthony Tyrrel

Millennium Challenge Corporation, United States of America

From the lens of developed countries it is easy to define VET "...as a way of adequately preparing young adults for the world of work and for society. It is about coping with insecurity and disruption, building new technological and social competences as well as developing creativity for innovation." (SFIVET conference promotional material). In the context of developing countries, however, VET can be defined more broadly and be more complex.

The Millennium Challenge Corporation (MCC) is a U.S. Government aid agency with a singular mission to reduce poverty through economic growth. MCC forms partnerships with low and middle-income countries committed to good governance, economic freedom, and investing in their citizens. MCC develops five-year grant agreements called "Compacts" with these eligible partners, using its unique model based on country ownership and data-driven project design and selection.

This presentation will show how MCC's intervention in TVET has changed over the past decade. The presentation will review MCC's lessons from its first generation of VET interventions, specifically drawing on the evidence generated in its independent evaluations conducted in El Salvador, Mongolia, Morocco and Namibia. Many of these early interventions focused on facilities and equipment upgrades with capacity building, but, in many cases, did not directly address key issues of labor market relevance and governance.

The presentation will show how MCC applied the lessons and, beginning in Georgia and continuing in Morocco, El Salvador and Cote d'Ivoire, has developed an approach focussing on relevance to labor market needs and on private-sector governance. Key aspects of this new model are its flexibility to adapt to changing market demands in developing countries; its ability to leverage in-kind and cash resources from the private sector; and the manner in which it integrates both soft/life skills and continuing education into offerings.

A Case Study on Supporting and Hindering Factors for Apprenticeships in European Shoe Industry

Andreas SANITER

Universität Bremen, Germany

Alternating learning pathways like apprenticeships are considered as a promising approach to reduce youth unemployment and to match learning outcomes and labor market needs. Thus, apprenticeships are high on the agenda of many national policies as well as on European level. The European ministers responsible for Vocational Education and Training (VET) agreed for example in their Riga conclusion: "[To] Promote work-based learning (WBL) in all its forms, with special attention to apprenticeships, by involving social partners, companies, chambers and VET providers [...]" (EU 2015).

On the other hand, the statement from the call for papers "The integration of teaching and learning across different learning locations (school and workplace) remains a challenge in the practices of VET." is considerably true in countries with long traditions in apprenticeship like Switzerland or Germany – but is even more challenging in countries without this tradition like Romania and Portugal.

We are investigating the supporting and hindering factors of apprenticeship-schemes in Romania and Portugal in our current research and development project "ICSAS" (ICSAS 2018). Leading questions are:

- * What could be learnt via work-based learning? (learning potentials of real work-processes)
- * What should be learnt via work-based learning? (according to national regulations and curricula)
- * Which measures are necessary for a smooth implementation of alternating learning pathways?
- * What has (not) been learnt in an alternating pilot phase of 1 year?

Preliminary findings reveal that learning potentials of workplaces in Germany, Portugal, and Romania are very similar, that VET-regulations in Portugal and Romania are flexible enough to allow such innovative approaches – but that there is the need of narrow guidance and engaged support by all stakeholders due to the lack of tradition.

EU 2015: http://ec.europa.eu/dgs/education_culture/repository/education/policy/vocational-policy/doc/2015-riga-conclusions_en.pdf, p.8, consulted 11.09.2018

ICSAS 2018: <http://icsas-project.eu/>, consulted 11.09.2018

Skills Development in fragile context - an approach to bridge education and economic development

Stefan Wolf¹, Nicole RUDNER²

¹TU Berlin, Germany; ²Consultant, KfW

Our paper we want present during the conference based on a research done in the context of and at the boundaries of international development, education and economic and social well-being in developing countries with a specific focus on the MENA region and Sub-Sahara-Africa Countries.

We have done reviews of the existing literature both from the education in emergencies with a specific focus on skills development/TVET and from the political sciences and international development politics of state fragility. We summarize the findings from the reviews with a first approach of the different context of fragility and the different roles of skills development/TVET in specific context of crisis and instability in regions of the global south.

With a second perspective, we introduce the economic development approaches from international development cooperation for these specific regions in their context of crisis and fragility in our research.

With these findings from the literature and also based on reflection of practical experiences in the development field in economic development and international comparative education of the authors we have conducted a case study in East Africa region with field trip, document analyses of policy papers of government and conceptual approaches of different actors from the development cooperation agencies, and interviews with local experts and stakeholders both from the region and from the development agencies.

At the end we propose new attempts to bridge the economic development and skills development/TVET to cope with the fragile context in the regions. We setup an approach to think different and more open-minded of the intertwining of TVET and economic development against the mainstreaming container-thinking and separation of the two important fields of development cooperation.

The research was funded by a German development cooperation agency.

6:00pm - 7:30pm

Social Programme

Bern - UNESCO Old Town Stroll

Meeting point: in front of the Tourist Office (Bern - Main Station Building)

Date: Tuesday, 05/Mar/2019

8:45am - 9:15am Piazza	Registration
9:15am - 10:15am Aula	Keynote 2: Elsbeth Stern Educational Neuroscience: A field between false hopes and realistic expectations
10:15am - 10:45am Aula	Coffee-Break
10:45am - 12:15pm Room 117	Paper Session 2A: Teaching and Learning in VET

An Overly Ambitious Project? Students' Perspective on Theory-Practice-Transfer in Dual Higher Education

Philipp EIGENMANN, Jane OVELIL

University of Zurich, Switzerland

In the Swiss context, combined study-work programs in higher education are considered a rather young phenomenon. Students of such practice-integrated courses acquire work-related skills in addition to an academic Bachelor's degree and therefore signalize high employability. As part of an evaluation, these students have been interviewed and asked for their experience and assessment of the study model. The paper is based on the well-known finding that coordinating theoretical studies and practical vocational training is one of the main challenges in combined study-work programs. Analyzing the students' perspective on this issue, three aspects are to be highlighted:

First, students advocate a close link between theory and practice. A high practical component of the study model is a frequently cited reason for choosing the program. Second, the same students express dissatisfaction about the lack of instructions on how the transfer of theory and practice can be achieved. And third, providers of combined study-work programs have very different views on how scientific (or academic) higher education teaching should be. Finally, it is concluded that the students' individual contribution to linking theory and practice is a largely decisive success factor in combined study-work programs in higher education.

Educating for dynamic vocations: how to design responsive VET?

Loek FM NIEUWENHUIS^{1,2}, Aimee Hoeve¹, Femke Nijland², Hester Smulders³, Haske Van Vlokhoven¹

¹HAN university of applied sciences Arnhem and Nijmegen; ²Open University, Heerlen, the Netherlands; ³ECBO, expertise centre on VET, the Netherlands

This paper deals with an interactive design-based research project, in which 10 VET-teacher teams develop feasible protocols for responsive curriculum development. The teacher teams participate in a joint professional learning community. Researchers are involved in this community, supporting protocol development and interactive learning.

The research part of the project deals with describing the design process for the responsive protocols, to follow the design process over time and to evaluate the protocols-in-use through the lens of three stakeholder groups (teachers on feasibility of the protocol, employers on adaptivity of the curriculum and students on attractiveness of resulting learning processes).

The paper will present the results of the first round of data collection (planned for summer 2018). The second round of data collection is planned for summer 2019. So an first overview of design considerations will be presented, including evaluation results, combined with process information on the learning processes in the professional learning community.

Understanding Adult learners' sense-making to inform pedagogical innovations in blended learning: Two cases from Healthcare and ICT Industries

Xiaofang Bi

Institute for Adult Learning, Singapore

The purpose of this paper is to share the preliminary findings on adult learners' sense-making to inform pedagogical innovations in blended learning. Taking IAL's expanded definition of blended learning, we consider blended learning to be any combination of classroom, tech-enabled learning and workplace or work-based learning.

The project investigates Singapore adult learners' learning experiences in blended learning environments focusing on how they 'experience' and 'translate' their learning in and across blended environments and the implications of these processes for pedagogical practices and beliefs. For this project, we understand learning as a process contributing to an increased capability to act differently in the environment (Owen, 2017); the learning process involves sense-making. Weick (1995) describes sense-making as the process by which people give meaning to experience. If we consider experience as a process of "transforming collective cultural experiences (knowledge, skills and normative directions) into individual experience, constituting individual subjects in doing so, and at the same time changing social practices" (Salling Olesen, 2017), this means we need to understand the dynamics involved in these processes. More specifically, we need to understand the processes of sense-making

and how the context – the affordances of different learning environments, the inhabited pedagogical practices and curriculum designs, the individual biography, agency, identity and dispositions – mediate sense-making for individual and collective subjects. Our preliminary findings from healthcare and ICT industries surfaced that learner's agency, affordances in blended learning environments, e.g., pedagogical practices, curriculum designs and various support provided in these environments are interrelated and shaped with and by each other to mediate adult learners' sense-making process. Such findings are expected to make significant contribution to the curriculum design in blended learning and inform practitioners to adopt the most effective pedagogical approaches to better facilitate adult learners' sense-making in blended learning environments.

Retention of Vocational Teachers in the United States: A Longitudinal Case Study of One University

Christopher John ZIRKLE

The Ohio State University, United States of America

Retaining highly-qualified vocational education teachers is crucial to the continued supply and reduced demand of these types of teachers. This retention study examined demographic data and emerging trends of vocational education teachers and analyzed those teachers who completed teacher preparation as part of an alternative teacher licensure program. Some of the emerging trends included shifts in retention rates during certain school years, years in which enrollment was highest for each gender, and changes in employment status within education. Conclusions and discussions derived from the study were a need for teacher educators to become aware of a diverse classroom of alternative vocational education teachers, the variability of vocational education teachers completing continuing education and degree requirements, and a need to examine legislative policies that impact retention rates.

10:45am - 12:15pm
Room 214

Paper Session 2B: VET Systems

Rising tide effect or crowding out—does tertiary education expansion lift the tasks of workers without tertiary degree?

Tobias Schultheiss, Curdin Pfister, Uschi Backes-Gellner

University of Zurich, Switzerland

An extensive literature examines the effects of tertiary education expansion on wages of workers with and without tertiary degree. However, the question how tertiary education expansion affects the tasks of these workers remains unexplored. We examine whether such an expansion crowds out sophisticated tasks such as R&D in jobs of workers without tertiary degree or elevates the content of their tasks via a rising tide effect. In particular, we analyze the effects of the establishment of Universities of Applied Sciences (UAS), a large tertiary education expansion in Switzerland, on R&D tasks of workers with apprenticeship training. Job ads provide us with information about the demand for R&D tasks. To estimate causal effects, we exploit the quasi-natural variation in time and location of the establishment of UAS campuses and perform difference-in-differences estimations. We find that firms demand more R&D tasks of workers with apprenticeship training after a tertiary education expansion. Our results therefore show that instead of crowding out, tertiary education expansion lifts the tasks of workers with apprenticeship training via a rising tide effect.

The Limits of Decentralised Cooperation: The Promotion of Inclusiveness in Collective Skill Formation Systems

Giuliano BONOLI¹, Patrick EMMENEGGER²

¹University of Lausanne, Switzerland; ²University of St. Gallen, Switzerland

Collective skill formation systems have a good reputation. They manage to provide access to good quality training and employment to many young people including those who are academically less strong. For instance, they are associated with lower rates of youth unemployment, as they facilitate the transition from education to the labour market. Unsurprisingly, the EU is strongly pushing member states to develop and strengthen dual training in the framework of collective skill formation systems. Yet, structural economic trends (e.g. knowledge economy) and social developments (e.g. migration) are putting pressure on the integrative role of collective skill formation systems. Firms require increasingly skilled workers, and this makes apprenticeships less numerous and more demanding. As a result, weaker students have more difficulties entering the system. In response to this, countries relying on collective skill formation systems have been developing tools that aim at making their training systems more inclusive. These interventions must be crafted very carefully, as too much intrusiveness in the delicate equilibria on which collective skill formation systems rest may in fact destroy them.

The objective of this paper is to examine, on a theoretical basis first and based on several empirical examples next, the issue of how collective skill formation systems balance economic objectives (strengthening a country competitiveness by providing a well-trained workforce) and social objectives (make sure that young people have access to good quality training regardless of their abilities).

Transition from school to work in the context of the Federal VET Certificate: Influencing factors and subjective reasons of premature interruption of training

Isabelle Bosset², Claudia HOFMANN¹, Barbara Duc², Nadia Lamamra², Kurt Häfeli¹

¹Interkantonale Hochschule für Heilpädagogik, Zürich, Switzerland; ²Institut fédéral des hautes études en formation professionnelle, Lausanne

Our contribution is based on an ongoing, longitudinal, mixed-methods study that deals with training paths in low-threshold VET programmes. Here, we look at the transition process of youths with special needs in the 2-year Federal VET Certificate. In the quantitative part, we focus on premature interruptions of training (PIT) and on the influencing factors that may lead up to a PIT and those that may prevent it, as well as levels of perceived "fit" and satisfaction with the training. In the qualitative part, we look at the apprentices' subjective understanding of the phenomenon of PIT, its reasons and the process leading up to it. The results confirm what has been identified in the literature for 3 or 4-year Federal VET Diploma. However, two aspects are salient in youths' discourse about their experience: choice by default and stigmatization of this VET programme. Finally, mixed methods allow for a deeper understanding of the 2-year track and more generally of the transition issues its vulnerable public faces.

10:45am - 12:15pm
Aula

Symposium 3: Crises and reforms in vocational educational and training: a look from the past into the future

Crises and reforms in vocational educational and training: a look from the past into the future

Chair(s): Lorenzo BONOLI (SFIVET, Switzerland)

Discussant(s): Jürg SCHWERI (SFIVET, CH)

In recent years, major technological and social changes have given rise to a certain concern regarding the "survival" of VET as we know it today, and in particular in its dual organisation.

However, a look at the history of VET shows that such concerns have emerged on several occasions. Technological and socio-economic changes emerged in different periods have often put into crisis the organization of VET and have pushed towards the adoption of reforms.

Between past and present, our symposium will identify four key moments, or four "critical junctures", in the evolution of VET, three in the past and one in the present, which have raised and are raising concerns about the survival of the field and at the same time have opened and open the way for reforms.

The first three presentations will focus on the origins of the crises and the measures that have been taken to resolve them. They will focus on the Swiss case, but with also a look at the international situation. More specifically, they will cover the period of institutionalisation of VET between 1880 and 1930, when the crisis of traditional forms of apprenticeship under a master pushed towards the establishment of national vocational training systems. The second covers the period of expansion of vocational training between the 1950s and 1980s, a period marked by the Sputnik Shock and the response of educational policies relaunching the sector. The third period will cover the years 1980-2004 and will focus on the problems of governance of the system leading to the threat of a "cantonalisation" until the revival of the system with the 2002 law. Finally, the fourth period will take into consideration the current situation, to present the main difficulties encountered today and the trends emerging at European level in response to these difficulties.

Presentations of the Symposium

The "first death" of the apprenticeship. From the crisis of the traditional apprenticeship under a master to the institutionalisation of the dual model.

Lorenzo Bonoli

Sfivet, CH

Towards the end of the 19th and the beginning of the 20th century, in most European countries, we witness a deep crisis affecting the traditional forms of initiation of young people to professions which had their origin in the apprenticeship model of medieval guilds. The causes of this crisis can be easily identified in the socio-political and economic disturbances caused by the French Revolution and the Industrial Revolution. These disturbances raise a series of complex issues surrounding the initiation of young people to professions. Political issues (who should control the field?); economic issues (how to make vocational training an effective economic policy tool?); social issues (how to ensure acceptable learning conditions and good prospects for professional integration?); and pedagogical issues (what form of teaching should be preferred to ensure the effectiveness and quality of learning?).

The response to this crisis situation took shape in most European countries through state intervention in the organisation of the field. But this intervention is carried out according to modalities specific to the various countries. In Switzerland, state intervention is gradual, first at cantonal level and then at federal level, and will never take the form of a total takeover of the domain. Since the first cantonal laws, the field has been the subject of collaboration between public authorities (municipalities, cantons) and private authorities (professional associations and companies). A collaboration that will make it possible to set up the public-private partnership and the dual apprenticeship model that we still know today.

Based on an analysis of written documents published between 1880 and 1930 in Switzerland, this presentation aims to reconstruct how the public debate of the time, on the one hand, describes the

crisis situation of traditional learning and, on the other hand, prefigures the measures that will be taken to reform the field.

Expansion and Consolidation - From Sputnik Shock to the Generalization of Vocational Training (1950-1980)

Philipp Gonon

IFE, University ZH

The creation of open framework legislation played a decisive role in establishing and expanding vocational education and training in Switzerland. Starting with the first Swiss Vocational Training Act in 1930, continuous growth took place after the Second World War, and in particular in the late 1950s and early 1960s. Thanks to VET legislation at national level, which was very early on an international level, Swiss VET was gradually expanded and led to new legislation in 1963 that placed greater emphasis on technical and higher VET (Gonon 2012). Vocational education and training legislation is essentially oriented towards support legislation that encourages actors to create apprenticeships within the framework of certain quality requirements and to establish new and additional offerings in basic and continuing vocational education and training in view of changes in the world of work (Richli 2008). The "Sputnik shock" not only boosted the expansion and generalisation of grammar schools, but also vocational training.

The extension of the Swiss Vocational Education and Training System. Internal Consolidation as the Basis for Connectivity to European Education and Labor Market (1990-2002)

Lea Haegi

IFE, University ZH

Although Switzerland has had a Federal Act on Vocational and Professional Education and Training since the early 1930s, non-academic vocational training in Switzerland was not subject to this uniform legal basis until the most recent reform in 2002. Before that, the scope of the Federal Act on Vocational and Professional Education and Training covered only the professions in the major sectors of industry, trade, commerce, agriculture and domestic service, whereas health, social affairs, the arts and public service professions (railway, post, customs and police) were subject to cantonal jurisdiction. This fragmented responsibility led to a crisis in the governance of vocational education and training in the 1990s. In principle, Confederation and representatives of the cantons were on the same page: the division of responsibilities between the Confederation and the cantons should be unbundled and financial flows simplified. In which form this should be given, however, was highly controversial.

The aim of my research is to identify and reconstruct mechanisms and practices which, in the context of this education policy negotiation processes, allowed certain arguments to have a more effective impact on the design of legal bases than others. From a theoretical point of view, I refer the sociology of conventions, while the methodological approach is based on a hermeneutic-reconstructive interpretation.

The current state of research already shows that the scope of those arguments which were oriented towards European developments and the connectivity of Swiss diplomas in the education and labor market reached the greatest extent. Initial analyses of written documents show that various forms of influencing the rejection of the cantonalisation of vocational education and training have been used.

Apprenticeships in Europe 2008-2030

Jörg Markowitsch

3S Wien

The Great Recession of 2008/2009 resulted in rapidly rising youth unemployment in many European countries in particular in Southern Europe. In the aftermath of the crises the apprenticeship systems of the German speaking countries as well as of Denmark and the Netherlands have been highly praised for their positive impacts on the labour market entry of graduates, sheltering them from unemployment and unskilled jobs and ensuring their entry to skilled positions on the occupational ladder. This has led to a Europe-wide renaissance of apprenticeships which culminated in the foundation of the European Alliance for Apprenticeships (EaFA) in 2013. The EaFA is a platform which brings together governments with other key stakeholders to strengthen the quality, supply and image of apprenticeships in Europe. Since then the diversity of apprenticeship approaches in Europe came into focus and many activities to set-up and improve apprenticeships have started. Despite political will it seems that apprenticeships in Europe have lost ground at the expense of higher, school-based vocational education. The traditional model of apprenticeship as a specific type of programme (and qualification) which aims to qualify people for jobs as skilled workers has obviously become less important. Instead a model in which apprenticeship is seen as a mode of learning which includes on and off-the-job learning, but which is not restricted to the level of skilled workers and a particular type of programme or level seems to take over. This trend is clearly visible in countries such as Finland, France or the UK. But there are also strong signs in Austria, Germany and Switzerland which seems to put a foreseeable end at VET as we know it. Based on various comparative studies of apprenticeships and scenarios for VET the contribution discusses the future of apprenticeships in Europe paying particular attention to Switzerland.

12:15pm - 1:15pm

Lunch

Piazza

1:15pm - 2:45pm

Paper Session 3A: Skills mismatch, skills gaps and skills shortage

Technological change and occupational mobility: A task-based approach to horizontal mismatch

Manuel AEPLI

SFIVET, Switzerland

Many economists claim that new technology has replaced manual tasks in highly developed countries over the last decade(s). One channel how such technological change may affect individuals' labour market outcomes is involuntary horizontal mismatch: If a person's acquired manual skill bundle becomes outdated, the person may be forced to accept a position in an occupation she/he has not formally learned and where her/his skill bundle is less valuable. In this paper, I first aim to analyse how technological change affects an individual's probability of being horizontally mismatched. Second, I aim to estimate the extent to which such horizontal mismatches translate into wage penalties. I propose an instrumental variable (IV) approach to map this mechanism and obtain causal estimates on wage penalties due to technological change. Hereby, my preferred estimation reveals a wage penalty of roughly 10.6 percent for individuals that are horizontally mismatched. This estimate is considerably higher than coefficients revealed by fixed effect (FE) estimations applied on the same sample. I argue that this is the case because FE estimations fail to disentangle diverging underlying mechanisms pointing in different directions.

Skill specificity of upper-secondary training occupations and the gender pay gap

Miriam Grønning, Irene Kriesi

SFIVET, Switzerland

By channeling young men and women into different occupations vocational education and training (VET) produces income inequalities (Busch, 2013). At the same time, due to the high occupational specificity of most training occupations, VET diploma holders generally have favorable income prospects at labour market entry (e.g., van de Werfhorst 2002). However, whether the positive relationship between specificity and income differs between the genders is not known. Therefore we ask: 1) Do the VET training programs chosen by young women and men in Switzerland differ regarding their degree of specificity? 2) Does this difference affect the pay gap between the genders? 3) Are the returns to occupation-specific and general skills gendered?

Estévez-Abe (2005; 2012) argues that specific skills are more gender-discriminating and favor men. The reason is that general and specific skills differ regarding their portability and atrophy rates. We therefore posit that the training programmes chosen by young men are characterised by a higher level of specificity and a lower share of general education than those chosen by young women, and that the resulting differences in skill mix explains part of the pay gap between men and women. We also hypothesize that specific skills provide higher returns for men than for women.

We use individual level data from the Swiss Labor Force Survey in combination with collected data from VET ordinances on the share of general and specific training in each training occupation. Our sample consists of approximately 6500 federal diploma holders in employment who trained in one out of 214 training occupations. Results are based on multilevel regression models. The preliminary findings show that the income disadvantage of women with VET is partly due to females clustering into training occupations imparting more general and less occupation-specific skills. Furthermore, the returns to different types of skills are clearly gendered.

Competence Development in a Digitised Work Environment and Possible Consequences for the VET Using the Specialist for Warehouse Logistics as an Example

Inga SCHAD-DANKWART

Federal Institute for Vocational Education and Training (BIBB), Germany

The increasing digitisation of the production and service sector affects the working conditions of many employees and creates new skill and competence requirements for professionals. In order to find out which competences and skills professionals will need in a digitised working environment, a profound analysis of the ongoing changes in different occupations is necessary. For a better understanding of the changes and requirements caused by the digitisation, in this case the results of the occupation "specialist for warehouse logistics" are given as an example. Comparing the occupation-specific results with the results of further eleven researched occupations, similar trends in the changes within the occupations can be observed. At the same time, however, the effects of digitisation on occupations vary a lot. For this reason, the first step is to consider occupation-specific measures before general recommendations concerning the next steps in the organisation of initial and continuing education and training and in the further development of systemic framework conditions can be made.

Critical aspects of vocational learning for second language learners. Results and analyses of two Swedish studies.

Ingrid HENNING LOEB

University of Gothenburg, Sweden

This presentation reports of results of two Swedish studies on VET for students with immigrant background. In Sweden, VET has increasingly become regarded as a rapid path for immigrants to employment and integration.

The role of language in learning and the interrelationship between content and language has been pointed out (e.g. Bloome 2005; Cummins 2001; Gibbons 2006) for some years. Also, the OECD has advocated language and content learning in all school subjects. Yet, there is little research on language and content learning in VET. However, as e.g. as shown by Billett (e.g. Billett 2011) and Sandwall (Sandwall 2013), vocational language is intrinsic, the role of vocational educators is crucial for positive learning results, and the students' opportunities of guidance and language interaction of greatest importance for the development of vocational knowledge and skills.

The two studies were motivated as Swedish VET teachers face significant challenges in order to improve the learning possibilities for young students and adults with immigrant background. For both studies, educational settings and teachers known for their ambitions of developmental work were selected.

The use of the theory practice architectures (e.g Kemmis & Smith 2008) was used in both studies, and provided a framework to identify critical enabling and constraining arrangements and conditions. Different concepts from content and language learning studies were used to analyse interactional situations enabling student learning and participation (e.g. concepts provided by Bloome 2005; Cummins 2001 and Gibbons 2006)

Different techniques for field work (Czarniawska 2007) were used in both studies, including audio recordings of VET teachers' instructions and their dialogues with students. Significant forms of scaffolding for the second language learners in VET were identified. These will be and will be presented and analyzed, together with excerpts showing teacher instructions and teacher-student interactions.

Learning to use technical and multimodal texts. A case-study in a French secondary vocational school in the field of car repairing

Laurent VEILLARD¹, Patricia Lambert²

¹Université Lumière Lyon 2, France; ²Ecole Normale Supérieure de Lyon, France

Literacy skills are becoming increasingly important in all professional practices, even in craft trades and small structures, including low-skilled workers' activity. This evolution challenges usual ways of training young people for the world of work. In France especially, the division is still quite strong in the VET curricula (at upper secondary level) between practical and technical subjects on the one hand and general language skills on the other. Generally, technical and practical trainers have to take in charge this professional literacy dimension but are not really prepared to teach this subject to students whose language skills (especially writing skills) are generally low. In our communication, we focus on scholar pedagogical practices that are supposed to enable students to learn how to use technical and multimodal writings to perform usual maintenance operations on cars. We study these practices from ethnographic observations in a school workshop, within a French vocational training course in the field of car repairing (CAP, which is the lowest professional degree in France). Our results uncover an invisible pedagogy concerning the way writing documents must be used during practical sessions. These results lead us to reflect on what can be improved in the practical session to avoid moments where learning opportunities are low for students.

Migration and Skill Formation: Integration Pre-Apprenticeship in Switzerland

Annatina AERNE¹, Giuliano Bonoli²

¹University of St.Gallen, Switzerland; ²University of Lausanne, Switzerland

Switzerland has received a wave of refugees in the last couple of years. The peak of new asylum applications had been in 2015 (39'523 new applications), but Switzerland remained above European average with 2.2 asylum applications per 1000 inhabitants also in 2017 (Staatssekretariat für Migration (SEM), 2018). These refugees bring a considerably different skill set with them. As their reason to relocate is not economic by definition, refugees' integration into the local labor market is not easy.

In the presence of this challenge, the Swiss Federal Ministry has launched an "integration apprenticeships" (Integrationsvorlehre, INVOL), starting in August 2018. This program prepares refugees to join a normal apprenticeship after one year. The program is an example of collective skill formation, upon requirement by SEM it has to include a practical part, with at least 8 weeks of training in a firm. The federal level subsidizes each apprenticeship with CHF 13.000 per candidate.

The development of the program relies strongly on the participation of the organizations of work (OdA). OdAs initiate the development the INVOL curriculum and ensure the provision of training places in the firms. Upon the conceptualization of these curricula, employers' organizations submit the programs to the cantons, which then submit the programs to the Federal Government to the Secretariat for Migration, SEM.

The question this paper answers is which factors are important for the relevant actors (cantons, OdAs) to participate in the programme?

Drawing on semi-structured interviews with organizations of work (OdAs) as well as cantonal representatives, the paper formulates three hypotheses: (1) skill shortages are an important motive for

OdAs. (2) the financial incentive of CHF 13.000 is important for cantons and OdAs, and (3) certain industries try to access cheap labor through this vocational program.

1:15pm - 2:45pm

Aula

Symposium 4: Research on vocational didactics - Berufsfelddidaktik

Research on vocational didactics - Berufsfelddidaktik

Chair(s): **Antje BARABASCH** (EHB, Switzerland)

Discussant(s): **Phillip Gonon** (Universität Zürich), **Barabasch Antje** (EHB)

Based on the ongoing research within the Leadinghouse for the didactics of occupations in Switzerland, this symposium presents first results of the work of the consortium in four presentations. Topics to be addressed include teachers' responses to the need for vocational specific didactics versus general vocational didactics, the reasons for an underdevelopment of vocational field didactics within VET teacher education in the country, the integration of innovations in VET teacher education and the discussion around a specific didactical approach, namely the learning field approach to be applied in vocational education and training. We would like to discuss these issues within the context of Switzerland and together with the audience in a comparative perspective.

Presentations of the Symposium

Conceptualizations of teaching methodologies in vocational education: One general teaching methodology or specific teaching methodologies for different occupations?

Seraina Leumann, Anna Keller, Antje Barabasch
EHB

In the context of Swiss VET, teachers for around 230 occupations are educated in teacher education institutions. Besides general pedagogical knowledge teachers need to acquire skills on how to teach aspects of a particular occupation. Nowadays, no systematical elaboration of teaching methodologies for all of these occupations exists. This raises the question on how teachers can be prepared adequately for their teaching activities in VET schools. One pragmatic approach is to group similar occupations on the basis of their professional field (e.g. healthcare or services) and to elaborate specific teaching methodologies for these groups of occupations. However, grouping occupations into different professional fields is also judged negatively since there are various common topics or aspects across professional fields as for example the competencies 'working together with a client' or 'organizing different tasks meaningfully'. As a consequence, a main question is to what extent the teaching methodology for each of the 230 occupations or for groups of similar occupations is or has to be specific and to what extent the teaching methodology of vocational education could be conceptualized as one teaching methodology that refers to the challenges of vocational learning in general. In the literature as well as in practice different arguments for both of these positions can be found. In the presentation, arguments and examples for both positions will be displayed and discussed, based on interviews with 17 VET teacher trainers from different training institutions in Switzerland.

The call of the labour market to the vocational education

Daniel Degen, Jürg Arpagaus, Janine Gut
PH Luzern

An innovation-driven economy constantly triggers new trends and developments in professional practice. Digitalization can be seen as such a trend, which significantly increases dynamics in many occupations and evokes the requirement of new skills in the labour market. It is therefore essential that vocational schools continually adapt their learning content to these developments and requirements. However, teachers in vocational education and training are guided by the curricula, which are updated no more than every five years. According to a preliminary study by the Lucerne University of Teacher education, companies complain about a lack of actuality of learning content in vocational education, particularly in the IT sector. Institutionalized and solid information channels between the professional practice and the vocational schools are largely lacking. Existing interfaces to organizations in the world of work (OdA) or via personal networks are usually unable to ensure that the educational content is kept up to date. The same applies to the cooperation between learning places, which is mainly carried out in the sense of an agreement in problem cases and has hardly any function in the coordination of learning contents. However, it is in the profession of a teacher, to obtain information about methodical-didactical and professional developments, to evaluate them, to process them and to integrate them into their lessons. Therefore, this study investigates adaptive interfaces between vocational schools and the labour market with regard to learning contents as well as methodics and didactics. Based on a two-stage survey process of qualitative and quantitative research, approaches and processes are discussed that could ensure and reinforce the integration of innovations in the labour market into vocational education.

Resilience of vocational field didactics in Switzerland

Markus Maurer, Karin Hauser
PH Zürich

In this contribution the author inquires into the institutional preconditions for the establishment and further development of didactics within the occupations at the example of three apprenticeships in Switzerland.

Following the arguments in the literature on the genesis of vocational didactics (e.g. Terhart, 2011), so would the training of teachers be the primary base for its development. Comparing Germany with Switzerland it becomes obvious that the development of vocational didactics is not particularly developed. A central reason is the marginal didactical specialization of VET teachers anchored in a particular occupation.

Nevertheless, in Switzerland there are a few VET programs for which didactical training is more advanced. The three examples introduced within the presentation are commercial/business education, health education and agricultural education. The genesis of these VET programs corresponds with a specialization of teacher education. During the time of educational reforms since 2002 the foundations for vocation specific teacher education programs have been abolished and replaced by a one curricula for all. The relative strong didactical foundation in these vocational domains continues to exist to different extents.

Using the historical-institutional framework of Hall (2010) and Thelen (2004) the author argues that these differences can be explained with three factors: 1) the amount of apprentices in the occupation and the need for VET teachers, 2) the influence of higher VET programs in the vocational domain, and 3) the existence of further education for VET teachers.

Facets of vocational and learning field didactics (Berufs- und Lernfelddidaktik)

Philipp Gonon, Lena Freidorfer-Kabashi

Universität Zürich

The didactics of vocational education and training (Didaktik beruflicher Bildung) subsumes various didactic approaches and models for vocational learning and teaching (cf., for example, Nickolaus, 2008; Rebmann, Tenfelde & Schlömer, 2011). These range from science and subject-oriented and vocational field didactic concepts to design-oriented didactics and the concept of key qualifications. Accordingly, the didactics of vocational education and training are as heterogeneous as a scientific discipline, since they combine different didactics of vocational fields, related sciences and didactics of in-company learning (Tramm, Casper & Schlömer, 2018). Not least due to the curricular reform decision of the Conference of Education Ministers in Germany in the mid-1990s to introduce the learning field concept for the school-based part of vocational education and training, the academic and implementation-related discourse over the past 20 years has focused above all on cross-vocational field concepts for learning field and action-oriented didactics.

In Switzerland, the current terminological focus of the scientific debate is on vocational field didactics. However, the main focus is on higher vocational education and training at tertiary level (Rosen & Schubiger, 2013) and not yet systematically for initial vocational education and training at upper secondary level.

The aim of the article is to specify the concept and scope of the conceptual facets of vocational and learning field didactics and to classify them within the didactics of vocational education and training. Following this, the state of research and the reception of the learning field concept as an innovator for a modern curriculum development oriented to the needs of the working world are presented. Finally, the prospects for vocational field didactics in Swiss vocational education and training and training of teachers arising from this reform concept and its implementation are discussed.

2:45pm - 3:15pm Piazza	Coffee-Break
3:15pm - 4:15pm Aula	Keynote 3: Alexandra Spitz-Oener The Task-Flexibility of Workers: Implications for Wages and Employment
4:20pm - 5:50pm Aula	Paper Session 4A: Education and wage effects
	<p>Returns to Higher Professional Education in Switzerland</p> <p>Fabian SANDER, Irene Kriesi EHB Zollikofen, Switzerland</p> <p>In Switzerland vocational education and training (VET) diploma holders may enter a vocationally oriented track of the tertiary education system, called professional education (PE). PE teaches in-depth vocational knowledge and prepares for managerial positions. It accounts for one third of all tertiary-level students and includes Federal and Advanced PE Diplomas and Professional Education colleges. Neither the determinants nor the returns of this type of education are well investigated. Little is known whether the returns to professional education differ between occupations and how such differences can be explained. Our research question is two-staged: Firstly, we will investigate the size of the long-term returns to professional education considering the development of upper-secondary occupational training over time. Secondly, we ask whether there are differences on an occupational-group level in the wage increase due to PE and how such differences can be explained. To answer our first question, we refer to Becker's (1962) human capital theory. He argues that people get more productive through more education. For the second question we use the task-based approach of Autor et al. (2003), which assumes higher wages in occupations with less manual and routine tasks. Analyses are based on the Swiss Labor Force Survey from 1991(1995)-2016 and data of the German Institute for Employment Research. In order to estimate the effect of PE on yearly gross income we apply a novel experimental design by creating a quasi-panel dataset, whereby distributed fixed effects show the long term income development after earning a professional education degree over a period of 25 years. Compared to other studies, this approach allows the estimation of causal effects on the cohort level over time.</p>

Occupational group differences are estimated on the level of individual data. Preliminary results show positive effects of PE on income up to 16%, with considerable variation between occupational Groups.

An analysis of medium-term labour market and earnings effects of university compared to higher technical education

Hector ESPINOZA, Stefan SPECKESSER

National Institute of Economic and Social Research, United Kingdom

This investigation takes a deeper look into the value of Level 4 plus qualifications in England, exploring differences in earnings profiles between vocational and academic programmes. This takes the form of estimating the returns to education (similar to Brunello and Rocco, 2017). We use NPD-ILR-HESA-HMRC linked data for a cohort old enough -KS4 leavers in academic year 2002/03- to see the medium-term differences in labour market outcomes when choosing between these tracks. We address the selection problem with a control function approach that takes proximity to education providers as an instrument. Focusing on the sub-sample of males, the regression analysis shows that by the age of 30, the early advantage (i.e. higher returns) associated with vocational education tends to disappear. However, substantial differences across subject areas need to be considered.

Do You Get What You Expect? Analysing the Consistency between Income Expectations and Returns to Training.

Marion THIELE¹, Caroline WEHNER^{1,2,3}

¹Federal Institute for Vocational Education and Training (BIBB), Germany; ²Maastricht University;

³Institute of Labor Economics (IZA)

Lifelong learning is becoming increasingly relevant because of social and economic developments such as demographic change and the associated prolongation of working life or the shift towards knowledge-based services and digitalization. Despite the great importance of non-formal continuing vocational training (CVT), only little is known about the role of individual expectations regarding the returns to CVT, for CVT participation and the actual returns to CVT. We contribute to the literature by analyzing (1) the relation between socioeconomic characteristics of employees and their income expectations, (2) the association between income expectations and CVT participation and (3) whether income expectations are consistent with actually achieved income returns to CVT. The empirical estimations rely on longitudinal data from the National Education Panel Study (NEPS) Adult Survey (SC6). We use a largely homogenous working sample of part- and full-time employees in stable employment for at least three years and have detailed information about their individual and job characteristics. To answer our questions, we make use of ordinary least square (OLS), linear probability, fixed effects and random growth regression models. Moreover, we distinguish between company-based and individual CVT. Our results show that higher formal qualification, age or tenure are negatively associated with income expectations related to CVT, while being younger or less educated is positively related to income expectations. Moreover, we find that positive income expectations are positively related to company-based CVT participation. Finally, our findings suggest that the members of our working sample are able to assess individual returns to CVT adequately. Based on fixed effect log gross hourly wage regressions, we find that CVT participants with positive income expectations experience a wage increase by 3.7%. However, controlling for unobservable individual factors affecting the wage growth rate, we find that only individual CVT yields wage returns (4.8%).

4:20pm - 5:50pm
Room 117

Paper Session 4B: Transitions and guidance in VET

From Dreams to Reality: Market Forces and Changes from Occupational Intention to Occupational Choice

Katharina JAIK^{1,2}, Stefan C. Wolter^{1,3,4}

¹University of Bern; ²University of Zurich; ³Swiss Coordination Centre for Research in Education;

⁴CESifo & IZA

This study empirically investigates whether the relationship between the fraction of filled apprenticeships in a particular occupation in the past and the fraction of prospective apprentices having very early intentions to train in this occupation has an impact on the decision to change the intended choice of occupation. We use a unique dataset from Switzerland containing detailed information on students' early occupational "dreams" (ages 13-14), before they undergo intensive career counselling, and combine it with information on their ultimate choice of occupation at the end of compulsory schooling (ages 15-16). The estimation results show that although the majority of students revise their initial intentions, those students who dreamed of learning an occupation with more training positions filled in previous years than peers interested in learning this occupation have a significantly higher probability of choosing their dream occupation. Conversely, students who wished to train in an overly popular occupation have a higher probability of delaying the transition to upper-secondary education for at least one year, instead of switching to another occupation. In addition, we find on an aggregated level that a favourable situation on the apprenticeship market for a particular occupation ultimately increases the premature contract termination rate due to a person-occupation-mismatch.

The Effects of Praise for Intelligence on Students in Vocational Education

Jaap GLERUM^{1,2,3,4}, Sofie LOYENS^{1,2,3}, Remy RIKERS^{1,2,3}

¹Roosevelt Center for Excellence in Education; ²University College Roosevelt, The Netherlands;

³Utrecht University, The Netherlands; ⁴Scalda, Secondary Vocational Education and Adult Education, The Netherlands

Various studies failed to find a positive relationship between mindset and academic performance. The present study investigates the effect of different kinds of praise on 108 students in vocational education in the same way as the original mindset studies did. Students worked on a set of Raven's Standard Progressive Matrices and got either praise on effort, praise on intelligence, or were in the control group.

Results were not in line with mindset theory. We did not find a firm relation between praise on effort and a mastery oriented response. Possible explanations for our findings are discussed. While many previous studies, using a variety of measurement instruments, did not succeed in confirming the relation between mindset and academic performance, this study showed that even by following the same procedure as Dweck's original experiments, we were not able to replicate her findings for vocational education students.

Gender segregation in the field of social care - the relevance of gender for the transition to tertiary education

Belinda AESCHLIMANN, Ines TREDE, Marianne MUELLER, Joerg NEUMANN

Swiss Federal Institute for Vocational Education and Training, Switzerland

Transitions into tertiary-level education are of special interest in the field of social care, as the skilled labour situation is tense and the demand for certified workers is increasing. Although women are predominant in the social sector (87%), there are structural differences in the allocation of men and women to different work areas and positions within the field. In this respect, our study examines how gender-typical educational and career choices affect the assignment of men and women to their position within a gender-segregated occupational field.

Our dataset consist of a sample of apprentices (n=1600) who were close to obtain their certificate in social care work. We use this dataset to analyse gender-typical educational and career choices. After graduation, social care workers can choose between three different career options: 1) work in the occupation they were trained in, 2) study a tertiary level (professional college or university of applied sciences) or 3) leave the field of social care. Our results reveal that career decisions differ between men and women. Gender-specific patterns that lead to horizontal and vertical gender segregation can often be identified both in the chosen work area within the occupation as well as further education intentions. While women (in particular if they are working in child care) tend to remain in the field they were trained in and have less intentions for further training on tertiary level, men are generally more mobile. Overall, our results provide deep insights into the mechanisms of gender-specific segregation in the field of social care and can thus explain gender-specific structures in the occupational field. Implications for the practice and further research questions will be discussed.

Enhanced Inclusive Learning (EIL): Well-being, performance and perceived support (e.g. compensation for disadvantages) of adolescents with disabilities in upper secondary education

Claudia SCHELLENBERG, Annette KRAUSS

University of Special needs Education, Switzerland

Different research results indicate that at upper secondary level there is an increasing heterogeneous group of young people with various problems (emotional/behavioural problems, learning disabilities, Ravens-Sieberer et al. 2015). However, compared to primary and secondary school, there are less support measures available (Pool Maag & Jäger, 2016). One exception is the 'compensation for disadvantages' (Nachteilsausgleich) for adolescents with a certified disability. There are, to date, no studies available on how support measures (and specifically "compensation for disabilities") are being applied. Therefore, the present study examines the situation of adolescents with disabilities at upper secondary education. Their wellbeing and coping with school and workplace demands, as well as their perceptions of the support they get, are considered. One focus lies specifically on adolescents with compensation for disadvantages. Teachers views on the implementations of support measures are also part of the study. Within a cross-sectional design, we collected data from learners in vocational education and training and students in baccalaureate schools (n = approx. 600), as well as teachers (n=approx. 40) from the German speaking part of Switzerland. The survey was implemented in 40 classes (the whole class was investigated); in each class there was at least one adolescent with "compensation for disadvantages" (n=approx. 40). The expected outcome of this project is increased knowledge of adolescents with disabilities and emotional/behavioral problems and inclusive learning strategies at upper secondary school level. The results are also of interest for adolescents without disabilities: Improving the know-how of inclusive learning environment is of use for all students.

**4:20pm - 5:50pm
Room 214**

Paper Session 4C: Governance of VET

Reforming small occupations: continuity and change.

Carmen BAUMELER, Sonja ENGELAGE, Alexandra STREBEL

Eidgenössisches Hochschulinstitut für Berufsbildung, Switzerland

Collective skill systems rely on institutional arrangements among a multitude of actors. In Switzerland, occupational associations are responsible for defining the occupations' training content and creating apprenticeship positions. They are important for fostering companies' contribution to VET, representing their members' interests in the national arena, and working together with public authorities to design and implement VET policies. In the aftermath of the Swiss VET policy reform of 2004, all occupations needed to be reformed and the number of occupations reduced, for example, by creating occupational fields. The increased pedagogical requirements and administrative workload put small occupational associations under pressure. However, after ten years, different outcomes (creation, maintenance, and disruption of occupations) are visible. With the theoretical framework of institutional work and based on a qualitative comparative case study, this contribution depicts the reform processes of three different occupational associations and identifies commonalities and differences between the three cases.

Making sense of decentralised cooperation. The case of Swiss organisations of the world of work.

Alexandra STREBEL¹, Patrick EMMENEGGER², Lukas GRAF³

¹SFIVET, Switzerland; ²University of St.Gallen, Switzerland; ³Hertie School of Governance, Germany

Organisations of the world of work (OdA) are private intermediary organisations that take over various important functions in the Swiss vocational education and training (VET) system. In contrast to the German system, there are fewer regulations with regard to how these organisations are to be structured, firms' membership is voluntary, and labour unions are less systematically represented. In addition, in 2002, the last VET reform led to the creation of several new organisations and, thus, increased the already high level of heterogeneity among these important stakeholders. Our contribution addresses the question of what types of intermediary organisations foster employer cooperation in the Swiss collective skill formation system. Based on a comprehensive data collection, we analyse the 155 OdA, which are responsible for developing training content for at least one of the 230 initial VET occupations. We provide an overview of OdA organisation types and analyse these organisations drawing on two dimensions widely used in corporatist research on business associations: generalisability and governability. We find that OdA are often highly generalisable organisations in terms of membership but an important part of OdA are narrowly specialised on interest representation in VET. Moreover, our findings point towards a low governability because an important part of OdA is not a member of peak-level associations and shares the responsibility for an occupation with other OdA. Yet, OdA's governability is supported by their cooperation with the state. Overall, we provide insights into the complex organisational structures, which allow decentralised cooperation and underpin Swiss employers' voluntary contributions to the collective good of VET.

Vocational education and training for adults - standardised recognition and validation of prior learning

Evelyn TSANDEV, Patrizia SALZMANN

Swiss Federal Institute for Vocational Education and Training SFIVET, Switzerland

Vocational education and training VET is traditionally associated with young people. However, training and qualifying adults has become increasingly important due to social and technological change, which leads to the fact that linear careers are becoming rarer and people are more frequently forced to reskilling and upskilling (SBFI, 2014). In this context, recognition and validation of prior learning is of great importance (Bohlinger & Münchhausen, 2011). This project borrows from the theoretical concept of lifelong learning (Commission of the European Communities, 2000). It investigates whether and how validation and recognition of prior learning can be standardised towards acquisition of a desired vocational qualification. While individual recognition and validation of prior learning is already possible for adults in many areas, the approach of standardization is new. A key advantage of standardising the validation procedure is that adults are informed of the prior learning outcomes that are taken into account towards acquisition of a desired vocational qualification already at the very beginning during the information and advising phase. In this project, a standardised validation procedure is established and tested for 12 occupations in which there is a high demand from adults. The method consists in document analysis and the results are recorded in occupation-specific validation-tables, in which the recommended competencies for recognition and validation are listed. These tables apply to all persons with appropriate previous education. While standardised recognition and validation of prior formal qualifications seems feasible, obstacles become visible with regard to non-formal continuous education and training.

Validation of non-formal and informal learning at VET-schools – a Bremen approach to support unskilled workers by getting a formal degree (KofeBS)

Vivian HARBERTS

University of Bremen, Germany

The main goal in the KofeBS project is to develop and test a competence assessment procedure for the identification of individual competences in order to define post-qualification measures which prepare a participant to attend the final external exams of a regular apprenticeship (Externenprüfung).

The target group consists of unskilled workers and employees without a vocational qualification (Bundesministerium der Justiz und für Verbraucherschutz).

What's new in this approach is, that for the first time competence assessment is carried out by teachers at selected VET schools in Bremen. Furthermore teachers have been involved in developing the assessment tool in order to include their professional experiences.

So far, the occupations: industrial mechanic, machine and plant operator (focus on metal technology and food), salesman, retail trader, warehouse specialist and specialist for warehouse logistics are covered by KöfeBS. It is a project funded by the European Social Fund (ESF), which is carried out under the umbrella of the state program "Continuing with Education and Counseling" of the Senator for Labour, Economics and Ports of the City of Bremen.

First results whether the assessment procedure works as well as hindering factors regarding the use of competence assessment at VET-schools have been identified. The presenter hopes to benefit from the experience exchange of neighbouring countries which have more experiences with validation of informal and non-formal learning.

4:20pm - 5:50pm
Room 211

Paper Session 4D: VET in the professions

Inclusion in vocational education via VR technology in the case of automotive technics

Eckart DIEZEMANN¹, Tim Homrighausen¹, Jan Spilski², Felix Hekele², Dirk Werth³, Simon Bender³, Markus Schäfer⁴

¹Universität Siegen, Germany; ²CCS TU Kaiserslautern; ³August Wilhelm Scheer Institut;

⁴Kreishandwerkerschaft des Märkischen Kreises

In order to enable flexible learning and inclusive educational pathways within Vocational Education and Training (VET), new technological advance such as virtual reality (VR) are promising prospects. In the scientific project InKraFT (Inclusion in vocational training in the particular case of automotive mechatronics using virtual reality technology), founded by the Federal Ministry of Education and Research (BMBF) partners from VET, psychology and applied computer science develop and evaluate a VR-enriched online-learning environment on the basis of the benchmarking of Universal Design for Learning (UDL) addressing people with physical, mental or social impairments. The project started in October 2017, currently empirical research is being conducted and technical solutions are being developed by the involved partners. The developmental part of the project is being based on various empirical studies with craftsmen and student populations. This involves the generation of inclusion scenarios drawing from the theoretical framework of UDL. The scenarios are flanked with qualitative interviews which are led with affected people and further experts in the respective field of work. On the other hand, a requirement analysis is being conducted to identify key physiological and cognitive requirements on inclusive learning and development settings within this field of technical VET. The data obtained by this analysis will be used to develop a VR learning environment, with the goal to create a platform at the end of the project which can meet the special requirements of people with disabilities to facilitate inclusion and support systems in a traditional technical craft. This contribution describes the project's aims and concept and puts up first data and an outlook for discussion.

Further education in a demanding occupational field: the case of early childhood education and care in Switzerland

Manuela WALLIMANN, Michael GEISS

University of Zurich, Switzerland

Nowadays, childcare is considered a demanding task. In Switzerland, vocational education and training in the field of early childhood education and care was fundamentally reorganised a good ten years ago in order to meet these new demands. A profound initial training and a constant further qualification is expected from the personnel. In Switzerland, however, there is still no overview of continuing education opportunities for skilled employees in day care centres. We present first results from a project which wants to close this gap. On the basis of an empirical analysis of the course programmes of various training providers, we discuss the strengths of the current educational landscape and identify areas where there is still room for improvement. Firstly, we are interested in which providers are active in this field at all. Secondly, we investigate which topics are covered and where there are hardly any offers. Thirdly, we are interested in the forms and costs of the courses offered. Methodically we orientate ourselves on the programme analysis, in which each individual course is coded according to different aspects. The project is dedicated to course offers throughout Switzerland, with a comparison of German and French-speaking Switzerland being of particular interest. In addition to the program analysis, we conducted interviews with the heads of the day care centers and other care facilities to reflect the needs of the field. We will also give a little insight into the analysis of these interviews. The project is thus tackling a field that has so far been little investigated for Switzerland and which will certainly become increasingly important in the future.

Challenges for VET in retail and bricklaying in a time of economic change and technological revolution

Alexandra FELDER, Kerstin Duemmler, Isabelle Caprani

SFIVET, Switzerland

Economic change and the "technological revolution" profoundly affect the world of work, and these trends can be observed in almost all economic sectors (Aeppli, 2017). However, if we take a closer look, these changes and developments do not have the same consequences for all occupations.

Based on an ongoing research project interested in the development of apprentices' occupational identities in retail and bricklaying, the aim of this presentation is to show how various vocational education and training (VET) experts perceive the recent developments within their trades. Both occupational domains currently face profound transformations including technological developments, a rationalization of professional activities and an increased business competition.

The challenges that experts perceive for the future of VET in these trades can be described on a general and a trade-specific level. First, our analyses highlights a growing awareness for the well-known challenge – the adjustment of VET to the reality of the world of work, or in other words, the general dangers of a possible "mismatch" between VET and the skills required by the companies. Second, the results obtained out of the expert interviews differ between VET in retail and bricklaying. While the use of technology (ex. databases) seems to rise in importance for retail clerks and requires an adaption of the apprenticeship, the main challenge for bricklaying consists of whether the apprenticeship program can still offer training in the variety of work tasks although companies require a more specialized workforce. Finally, these profound transformations do not only raise questions how to adapt the apprenticeships but also what this means for the development of apprentices' occupational identities.

Mobile technology in school-to-work transitions: Insights from health profession contexts

Christoph Pimmer¹, Urs Gröbriel¹, Adomola J. Ajuwon²

¹School of Business, University of Applied Sciences and Arts Northwestern Switzerland, Switzerland;

²College of Medicine, University of Ibadan

Background and rationale:

In times of socio-technological transformation, digital media hold the promise to better connect learning across schools and workplaces. Most of the research has focused on the use of digital platforms within education programmes and has paid limited attention to school-to-work trajectories. In particular, very little is known about how mobile instant messaging tools, a technology that has transformed global communication practice, might be leveraged to support learning and professional development during this critical phase.

Approach and methods: Against this backdrop, the use of moderated WhatsApp groups to support learners, newly graduated nurses from Nigeria, in their school-to-work transitions by comparing an intervention (n=145) with a control group (n=90). In the intervention group, moderators shared relevant knowledge, provided support and stimulated autonomous, peer-to-peer-based discussions and knowledge sharing during 6 months. Data was gathered in the form of online surveys and analysed using the programme R.

Results: The results show that participants in the moderated WhatsApp groups had significantly higher levels of resilience, and knowledge, and, at the same time, fewer feelings of professional isolation and of anxiety during the job application phase than the control group. No significant differences were observed with respect to the self-perceived application of school knowledge in practice settings, anxiety at the beginning of the new job, job satisfaction and job retention.

Conclusion: The findings underpin the potentialities of moderated WhatsApp groups in support of learning and professional development during school-to-work trajectories. They have particular relevance for low- and middle-income countries in which a limited number of other support structures is in place.

7:15pm - 10:00pm

Congress Dinner

Restaurant:
Goldener Schlüssel Bern
Rathausgasse 72
3011 Bern

Date: Wednesday, 06/Mar/2019

8:45am - 9:15am Registration

Piazza

9:15am - 10:45am Paper Session 5A: Competence Development in VET

Aula

Task composition and vocational education and training – A firm level perspective

Anett FRIEDRICH

Federal Institute for Vocational Education and Training, Germany

Besides skills and competences, tasks play a major role for employment opportunities of young adults. Technological change leads to a decline in the demand of cognitive routine and manual routine tasks, whereas the demand for non-routine tasks namely analytic and interactive tasks increases (Autor et al., 2003; Acemoglu and Autor, 2011; Spitz-Oener 2006 for Germany). So far, there has been little discussion about the relevance of tasks for vocational education and training. Thereafter, the aim of my study is to examine the effect of firms' tasks composition on the decision to provide apprenticeship training and on the educational level of new apprentices. I use the BIBB Establishment Panel on Training and Competence Development to estimate a Logistic Random Effect Models. Preliminary results show that, firms' share of analytic and interactive tasks has no significant influence on the probability of offering VET. Nevertheless, I can show that firms' task composition has an effect on its decisions concerning VET. High shares of non-routine tasks come along with a higher demand of apprentices with an upper secondary school-leaving certificate.

Imparting diagnostic competence to apprentices for car mechatronics – the TPACK model as a didactic response for VET teachers for car mechatronics?

Erika Edith GERICKE

Otto-von-Guericke-University Magdeburg, Germany

The world of work has changed dramatically in the motor vehicle sector within the last twenty years. Many mechanical automobile components have been replaced by electronic ones, such as the fuel injection and ignition systems by the engine management systems. Thus the working content and the work processes have changed and the so-called 'diagnostic competence' has become a central goal when training apprentices for car mechatronics. The focus of this contribution is on Germany vocational teachers for car mechatronics: their challenges and strategies on teaching automobile electronics and imparting diagnostic competence. The data used for this contribution consists of ten lesson observations in the 2nd/3rd year of training for car mechatronics, three guided interviews with VET teachers for car mechatronics and three guided interviews with apprentices for car mechatronics. Illustrated on a specific learning situation its shall be shown how the TPACK model by Koehler/Mishra (2009) provides a framework for VET teachers in creating learning situations, where it is possible for apprentices to develop the much sought-after diagnostic competence. Finally, the goal is to discuss to what extent the TPACK model can be used as a didactic response for VET teachers for car mechatronics.

Future Vocational education and training (VET) within restaurant- and food processing in Norway.

Bjorn EBEN, Halvor SPETALEN

OsloMet, Norway

Future Vocational education and training (VET) within restaurant- and food processing in Norway.

Norway stands at a crossroad regarding its organising and curricula for vocational education and training (VET) programmes. The aim of this study is to give research-based input to ensure coherence between tasks performed by professionals in practice and the content of the new curricula being introduced in 2020.

Research question: What is the required expertise for professional practice within the restaurant and food branch (RF)?

Autumn 2016 a survey amongst 394 RF-employees was conducted. To map the frequency that skilled and non-skilled employees conducts various tasks. We will also conduct text analyses of what the RF-industries state the required competences should be for skilled professionals.

The results of the statistical analyses are completed. There are few significant co-variations between tasks and if the participants are skilled professionals or not distributed in various professions within restaurant and food production industry.

However, the central question is; what is considered relevant competence today and in the future. Skilled RF- professionals should possess professional competence, digital competence and an understanding of sustainability, which benefits the company. Further, an adaptive competence to understand how to accommodate the customer's needs is seen as increasingly important to develop.

Is it possible to develop workplace-based learning and that the skilled employee is given the role of "master" with responsibility to educate for specific techniques needed in a given company, or another angle could be the Swiss model where the pupil acquires knowledge and certificates at different levels for different tasks? We think this and many other questions need to be discussed now that we are

implementing a new curricula to ensure that the curricula and school based VET programmes are relevant, and the content must be centred around actual work tasks.

9:15am - 10:45am
Room 117

Paper Session 5B: Technology and Integration in VET

A literature review of research on the merging of work- and school-based learning and teaching through computational technologies

Martin Dobricki, Alessia Evi-Colombo, Alberto Cattaneo

Swiss Federal Institute for Vocational Education and Training

Currently work is increasingly changed by the use of computational technologies. Vocational education therefore needs to be adapted accordingly. This adjustment can be achieved by using computational technologies to couple the learning and teaching of apprentices with the work for which they were, are or will be trained. The investigation and development of such work-school integration in vocational education requires information on the corresponding state-of-the-art in computational learning and teaching. The objective of the literature review we present here is to provide an overview of this state-of-the-art. For this purpose, we have selected articles published in the past five years following a stepwise procedure. First, a query was performed on English texts in the following literature databases: ERIC, Education Research Complete and PsycINFO. Second, from the resulting set of abstracts those peer-reviewed publications were selected that were on vocational education, the inter-connecting, bridging, or merging of work- and school-based learning and teaching through computational technologies, and which involved results of empirical studies. Our full-text analysis of the selected papers suggests that the current state-of-the-art of work-school integrating vocational education in most cases consists in teaching students through different kinds of digitally augmented video-captures of their work experiences. In the case of «hypervideos», this may be understood as a kind of low-immersive mixed Augmented and Virtual Reality simulation inside which observers do not or only weakly manage to experience themselves to be present. Hence, it may be worthwhile to study if increasing this sensation of being present within a hypervideo scenario involves that the merging of work- and school-based learning and teaching is enhanced.

DIGITAL WORK TOOLS AND TASKS: FIRM-LEVEL EVIDENCE FROM GERMANY

Sabrina Inez WELLER, Felix LUKOWSKI, Myriam BAUM

BIBB, Germany

The ongoing computerization of our economy leads to a transformation of the world of work. New technologies and new working requirements result in changes in employees' task composition.

This paper analyses the influence of digital work tools on routine, manual, interactive and cognitive tasks, based on German establishment data (BIBB Establishment Panel). Employee groups with different skill requirements are distinguished (employees performing simple, qualified and highly qualified tasks). We show that the usage rate of work tools increases with rising skill requirement level in routine, manual and non-routine tasks. Software is the most important work tool among all skill groups and tasks. Our results show that software substitutes for human labour in performing routine and manual tasks and complements for human labour in performing non-routine tasks. Work tools of the category "Measurement devices and Diagnostic tools" complement for human labour in performing non-routine tasks. The ongoing computerization of our economy leads to a transformation of the world of work. New technologies and new working requirements result in changes in employees' task composition.

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A Comparative study of Technical and Vocational Education and Training (TVET) in South Africa, Zimbabwe and Botswana: A lesson to learn from each other

Moses Makgato¹, Jerald Hondonga², Sylvia Ramaligela³

¹Tshwane University Of Technology, South Africa; ²Tshwane University of Technology, South Africa;

³University of Limpopo, South Africa

Technical and Vocational Education and Training (TVET) is aimed at equipping students with sustainable occupational skills for economic growth and solving socio-economic problems of inequality, unemployment and poverty. The majority of TVET lecturers on vocational occupations are not practically hands-on competent, hence they cannot produce competent skilled youth for employment. There is a need for cooperation between countries to strengthen the professional profile of TVET lecturers. Both initial teacher training and continuous professional development for TVET lecturers and teachers is imperative to bridge the teacher/lecturer occupational skills gap. This can be done by facilitating their working in industry regularly for a certain periods to get hands-on experience

and up to date knowledge of the developments in the world of work in their teaching areas, which again helps them to support learners in linking theory and contemporary practice. Collaboration of colleagues at the different levels is another way of improving and sharing skills. The purpose of the paper is to present comparison of TVET provision in South Africa, Zimbabwe and Botswana. The presentation will focus on, (1) TVET systems (2) Skills Development and citizenship (3) Funding of TVET Programmes (4) TVET teacher/lecturer education and training (5) Challenges faced by the countries in TVET. This study identify gaps and share good practices between the countries to improve efficiency in an effort to produce quality and employable graduates. The methodology of obtaining data was Literature review. The findings indicated that lecturing staff at TVET colleges in the three countries are inadequate and those available lack teaching qualifications and many do not have industry experience. It was also found that there are challenges in funding and lecturer/teacher training. However, there are much to learn from each other, because the countries are at varying status in all aspects investigated.

Training activities of German companies: VET 4.0?

Regina FLAKE, David B. Meinhard, Dirk Werner

German Economic Institute, Germany

The digitalization in companies triggers many transformation processes. To analyze how the digitalization has influenced the training activities of German companies, the German Economic Institute (IW) has initiated a representative company survey. The results of the survey show that while almost all companies use digital technologies, only five percent of companies which provide training have dealt intensively with the digitalization of their training activities. There are large differences depending on the company size, the number of digital technologies used as well as the sector the companies are acting within.

Despite the low share of companies with a strategic approach to digitalization in training, most companies have already changed training activities. More than 60 percent of companies state that they have adapted their training contents, more than 55 percent have prepared their trainers and almost 40 percent have introduced digital teaching and learning techniques. Most often companies state that their apprentices have actively brought in their ideas and experience in the field of digitalization (66 percent).

One reason why the digitalization has not yet changed the training activities of German companies more intensively could be that companies need more support. 63 percent of companies state, for example, a need for more training for their own trainers.

In Germany, there is a broad discussion whether the existing occupations in the German dual VET system are still adequate regarding the market needs or whether new occupations need to be designed. The results reveal that the demand for soft modernization of existing occupations and the introduction of additional modular qualifications is higher than the demand for new occupations.

In sum, the study shows that the digitalization in dual VET in German companies is in progress but much more needs to be done. Furthermore, especially small and medium-sized companies must not be left behind.

9:15am - 10:45am
Room 214

Paper Session 5C: Education Employment Linkage and Continuing Education

A Configurational Analysis of Vocational Education and Training Programmes: Types of Education-Employment Linkage and their Explanatory Power

Ladina RAGETH

KOF ETH Zurich, Switzerland

To deepen scholarly understanding of unfavourable youth labour market outcomes of vocational education and training (VET) programmes, this paper develops an empirical typology of VET programmes in developed countries. Building on a theoretical framework that draws on the theory of social systems, the paper analyses the linkage between actors from the education and employment systems in VET in preventing unfavourable youth labour market outcomes, such as unemployment and skills mismatch. Based on empirical data on the largest upper-secondary VET programmes in 18 countries or states within them, this paper identifies five real types of VET programmes. These real types represent different combinations of the education-employment linkage in any process phase of curriculum design, application, and updating. Importantly, this paper provides evidence that only real type VET programmes with a strong education-employment linkage throughout the entire curriculum process are associated with high youth labour market integration.

Retention of skilled workers – the role of employer-supported continuing education

Marianne MÜLLER, Ines Trede, Jörg Neumann

EHB, Switzerland

Skills shortage is a widely discussed topic in Switzerland. Various occupational sectors are affected by a tense skilled labour situation. Using the social sector as an example, our contribution examines on the basis of the human capital theory how employers' support of continuing education influences the long-term intentions of employees, either to remain in the social sector – in the current occupation or in another social occupation - or to leave the sector. Our data set consists of a cross sectional web-based survey of the workforce (N=3590) in the Swiss social sector. Our analysis reveals how the

support of company-internal continuing education motivates employees to stay at the current workplace in the present occupation, whereas the support for company-external further training can encourage employees to change to another occupation within the field of social care. Overall, our results show that the promotion of field related continuing education can be an instrument for retaining skilled workers in the social sector – either in the present position and occupation or in another occupation within the field of social care - and thus reducing the skill shortage in an occupational sector.

Investigating the image deficit of VET: occupational prestige ranking depending on the type of education and the skill content of occupations

Aurélien ABRASSART¹, Stefan C. WOLTER^{1,2,3}

¹University of Bern; ²Swiss Coordination Centre for Research in Education; ³CESifo & IZA

Vocational education and training (VET) often suffers from a lack of social standing among students and their families. Parents have been shown to discard vocational education because of social status maintenance considerations. How adults perceive the social prestige of occupations might therefore be key in understanding the reasons of the image deficit of VET. While the existing literature on occupational prestige ranking stresses the role of the salience in science or the training intensiveness of occupations for the perception of their social prestige, it fails at accounting for the distinct types of knowledge involved and the variety of the skill content of occupations. As we argue here, the type of knowledge (academic vs. vocational) certified through the education system is reproduced at the occupational level through various dimensions of the skill content of occupations that might be key in addressing this question. More precisely, differences in the salience of physical tasks and cognitive skills should be particularly relevant. We contribute to the literature by analyzing a unique data set in Switzerland, a country characterized by a well-established and -functioning vocational education and system, based on a survey of adults' perception of the social prestige of occupations requiring academic or vocational education. As we show, occupations requiring vocational education are in average assigned a lower prestige, all other things being equal. Disentangling this effect using several dimensions of the skill content of occupations, we find that the sophistication of skills performed within occupations, whether manual or intellectual, clearly improve the social prestige of the occupations investigated. These findings have important implications for the future of VET.

9:15am - 10:45am
Room 211

Paper Session 5D: International and Comparative Education in VET

Skilling India for the Future of Work

Sabeena Mathayas, Srikar Gullapalli

National Skill Development Corporation, India

Agendas on the future of work, digital transformation, P/VET, and skill development are primarily led by industrialized economies, with less focus on the impact of automation on emerging markets like India. The latter impact can be substantial and deserves greater analysis. India's national flagship skill training and certification program, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), provides skills to 2.3 million people at the bottom of the pyramid (like school dropouts). It aims to prepare them for life-long careers in various occupations. Hence, allocation of PMKVY's programmatic resources should take into account the likelihood that those occupations would be automated away. Mapping occupational roles in PMKVY against the Frey-Osborne index of susceptibility to computerization, we find the average probability of automation of PMKVY's occupational roles is 63%. When weighted by the number of people trained in each role, it is 71%. We know that skilling people in 'automatable occupations' reduces the long-term sustainability of their employment. But we also find that a 10% increase in automation probability is associated with 0.8% reduction in short-term placement rate. At the district level, we find that an increase of 10 percentage points in automation probability is associated with a larger decrease of 2.1 percentage points in placement rate. This indicates that there is an independent effect of automation on placement by the 'mix' of occupational roles offered in each district. Without making a statement on net employment, the findings have strategic implications on resource allocation under PMKVY and directly impact public policy design and implementation strategies to inform skill acquisition for India's youth and future of work.

Workplace learning complexities and prospects: Ugandan agricultural vocational placement stakeholders' empirical insights

Robert JJUUKO

University of Groningen, Netherlands, The

Just like elsewhere in Sub Saharan Africa, Uganda's vocational and professional education and training sector grapples with a huge task to use workplaces as meaningful learning environments for its students. This paper examines the vocational placement component of diploma level agriculture courses by a public agricultural college to assess the educative power of this form of workplace learning. The college is the main case study within a framework of a 4-year PhD qualitative research on Ugandan young people's agricultural education and employment transition.

The paper draws from empirical insights of 60 case study college stakeholders in the categories of students, graduates and vocational placement supervisors. I structure my analysis and interpretation of the stakeholders' experiences from a social constructivist perspective in contributing to the search

for an appropriate workplace pedagogy for better delivery of vocational education in Uganda and similar contexts.

Curriculum change in uncertain times for TVET: dilemmas of an evolving education and training landscape in South Africa

Joy Cecelia PAPIER

University of the Western Cape, South Africa

The South African education and training landscape has undergone significant change in the past decade. Significant policy shifts have brought vocational training into sharp focus as the national authority for TVET attempts to position public vocational colleges as part of what government has defined as the 'post-school' sector.

At present the policy roadmap is in process of being finalised in a 'national plan' which contains far-reaching proposals for TVET that have critical implications for what colleges will offer, and to whom. While it would seem desirable to make good decisions for the future based on robust research, there is not sufficient local empirical evidence that is able to inform definitive decisions for our institutions, particularly at a curriculum level.

This paper therefore adopts a comparative stance in order to sketch the particularities of the South African TVET environment in relation to student intake, qualifications and curricula issues, and student outcomes (intended and actual). Curriculum debates and the intended outcomes of TVET are therefore intertwined, and arguments that are aligned to current international discourses are highlighted herein. South African studies to a limited extent have probed the concerns and needs of employers of TVET graduates; the trajectories of TVET graduates; the expectations and aspirations of TVET students; student performance at TVET colleges and academic and psycho-social support; work based and work integrated learning; and competency development approaches. This paper lifts out the findings of these local studies in order to perceive how they potentially inform debates on 'what' TVET colleges should offer, and to discern what underpins their findings. TVET is a highly contested space, and future generations of hopeful young people depend on responsible and thoughtful decisions being made.

10:45am - 11:15am Piazza	Coffee-Break
11:15am - 11:45am Aula	Best Paper Award
11:45am - 12:45pm Piazza	Lunch
12:45pm - 1:45pm Aula	Keynote 4: Leesa Wheelahan A new start to VET? Rethinking vocational education through the capability approach
1:50pm - 3:20pm Aula	Symposium 5: Innovative video uses for VET purposes: addressing contemporary educational challenges Innovative video uses for VET purposes: addressing contemporary educational challenges <i>Chair(s):</i> Simon FLANDIN (University of Geneva, Switzerland), Alberto CATTANEO (Swiss Federal Institute for Vocational Education and Training) <i>Discussant(s):</i> Hans van der Meij (Swiss Federal Institute for Vocational Education and Training) Technical and social change requires VET innovations in many practical contexts such as: (i) those in which no stable and established knowledge curriculum is formalized and available yet, such as in emerging or transforming activities (e.g., higher education), (ii) those subject to rapid knowledge improvements (nay "disrupted" by technological development), that can lead for examples to declining craft trades, (iii) those characterized by particularly complex, dynamic, evanescent, multi-finalized situations (e.g., crisis situations), (iv) those characterized by recurrent situations in which operators are subject to contradictions in injunctions that can generate dilemmas (e.g., in contemporary systems of healthcare, execution of court decisions,...), (v) those characterized by the necessary management of unexpected - or unthinkable - situations, combined with high stakes or even high risks (relating, for example, to health and safety of property and persons). One key aspect stands in the development and the dissemination of VET-relevant, formal and informal methods aiming at enhancing learning and development (i) "from within" the community of practice (that supposes design-based collaborative research), (ii) by fostering both trainers' and trainees' imagination, invention, and creativity (not only preformatted knowledge acquisition), and (iii) in authentic/ecological settings (not separated from real life practices). As "artifact of practice", video recordings have well-documented effects in VET situations (attention capture, remembering, resonance of concerns, mimetic immersion, self-projection, vicarious experience, re-enactment, perspective shift...) that makes them appropriate to support such VET methods, through adequate instructional design and in particular to address the contemporary educational challenges populating the different contexts mentioned above. This symposium presents and discusses four contributions aiming at (i) analyzing a vocational issue needing to be addressed in an educational perspective, (ii) designing and testing an innovative video-

based tool, environment, or method adopted within the concerned VET context, (iii) scanning the dedicated literature to derive design principles likely to be generalized.

Presentations of the Symposium

Video-supported collaborative learning: A literature review towards the identification of sound pedagogical models for conceptual thinking and professional development

José Ramos¹, Alberto Cattaneo², Frank de Jong³, Sirpa Laitinen-Vaananen⁴, Äli Leijen⁵

¹Universidad de Evora, ²Swiss Federal Institute for Vocational Education and Training, ³Aeres Applied University Wageningen, ⁴JAMK University of Applied Sciences, ⁵University of Tartu

Although for many people video is proven to be central both in private and professional life as a means to communicate, to entertain, and to learn, when it comes to this last function the available and established pedagogical models refer more easily to individual than to collaborative instructional and learning strategies. In order to fill this gap, we conducted a structured literature review to scan how video technologies have been used to support collaborative learning in order to facilitate professional development, as well as which models of collaboration have been successfully established. 474 contributions have been screened, 100 of which were finally included in a detailed review. Results highlight 5 different ways of using video for supporting collaborative learning, as well as 13 underlying pedagogical approaches, the combination of which will give directions for building practice-oriented design principle on the effective implementation of video-supported collaborative learning.

"PassÉtudiants": using 360° video to design a learning environment for university students

Luc Ria¹, Cyrille Gaudin², Simon Flandin³

¹ENS de Lyon, ²University of Limoges, ³University of Geneva

In France, only 55% of students move into grade two and less than 30% graduate in three years (MESRI, 2018). Some of the difficulties encountered arise from highly renewed practices in higher education (e.g., alternating courses in the classroom and online, using instruments). This communication presents a design-based research aiming at addressing some of the related educational issues. Under development, the PassÉtudiants learning environment aims at helping students analyze problematic, nay critical situations hindering their learning opportunities. The main design principle consists in identifying, portraying and discussing these situations in the platform through (i) video recordings of educational practices (innovative 360° format), (ii) video recordings of students' interviews, and (iii) video recordings of researchers' explanations. Recent findings suggest that 360° format may improve immersive experience during video observation for educational purposes (Daisy Fraustino et al., 2018, Roche & Gal-Petitfaux, 2017, Windscheid & Will, 2018), as well as engagement, attentiveness and learning (Gänsluckner, Ebner, & Kamrat, 2017, Harrington et al., 2018). The instructional value of learner immersion in video-enhanced training has been assessed in various educational fields (e.g., Flandin, 2015; Leblanc & Ria, 2014; Ria, 2018; Seidel et al., 2011). Based on these assumptions, the instructional design aims to (i) immerse students, through video observation, in situations that are paradoxically at the same time known (echoing prior experiences) and unknown (given the variability and complexity of these situations), (ii) enable students to recognize, compare, project themselves into portrayed peers experiences, and (iii) enable students to scaffold their own methodological strategies during courses. Expected outcomes are (i) an empowerment of students toward their educational trajectory, (ii) an increase of individual learning opportunities, (iii) an improvement of learning quality of students, and (iv) a long-term contribution against educational failure and early school/university leaving.

Video-Annotation for Learning and Training: Trends and practical implications. A Systematic Review.

Alessia Evi-Colombo¹, Alberto Cattaneo¹, Mireille Bétrancourt²

¹Swiss Federal Institute for Vocational Education and Training, ²University of Geneva

In a context where the increased popularity of educational video technologies, together with the paradigm of active learning, has led designers to create new digital tools that support learning, as well as competencies development in the workplace, video annotation tools that enable users to annotate shared video content for private or collaborative use, have received a growing interest in education. We critically review literature that reports on the use of video annotation tool with a particular emphasis on learning outcomes and on the features offered by different tools. The systematic review methodology was used, and our literature search resulted in 205 records that were analyzed, with 26 eligible studies meeting all the inclusion criteria. Overall, 20 studies reported positive learning outcomes, 2 reported negative learning outcomes, and 4 studies reported no learning outcomes. However, few studies used a rigorous methodology to assess the learning effects. The analysis of the eleven annotation tools that were used in these studies indicates that some features are available in most tools (like sharing or tagging annotations) whereas some other features (like the possibility to add hyperlinks or videos in the annotations) are fairly uncommon. In the discussion we raise some methodological and conceptual issues that should be addressed in future research and provide some recommendations for the choice of a video annotation tool depending on the chosen pedagogical approach.

Video narratives in professional development: a case study with bailiffs

Juana Sarmiento, Germain Poizat, Marc Durand, Annie Goudeaux

University of Geneva

The communication presents some design principles for video and video editing uses in professional development. They are illustrated with a design-based case study of bailiffs' work at the booth in a Swiss cantonal office. The design principles have been derived from a prior work analysis, its constraints and effects. Recordings are made and films are edited in a way allowing to move away from the faithful presentation of the work practices, and to restore its typical implicit elements revealed by the preliminary analysis. Built like stories, the video narratives are supposed to disturb the trained bailiffs by provoking a mimetic engagement and a re-enactment – i.e. an experience close to the former working experience – when viewing the scenes presented. Viewings are also supposed to trigger appropriation of the typical components of working activity and their expropriation and sharing with other professionals to promote a professional debate and the construction of a community of practice. Finally we discuss the extent to which these stories can be an interesting approach, from the skill development point of view, in a context where professionals constantly face double binds and dilemmas. This research opens new questions on the use of video editing during developmental intervention, and about digital storytelling at work, about work, and within work analysis.

1:50pm - 3:20pm
Room 117

Symposium 6: Learning cultures in enterprises und creativity development in VET

Learning cultures in enterprises and creativity development in VET

Chair(s): **Lene TANGGAARD** (Aalborg University, Denmark)

Discussant(s): **Antje Barabasch** (EBH), **Lene Tanggaard** (Aalborg University)

Creative performance and workers as well as apprentices contribution to innovation are increasingly of interest to the economy. This symposium focuses on the shape of learning cultures in different enterprises and the ways in which specifically creativity development can be supported. The presentations come from Denmark, Switzerland, the United States and France and will tackle the following research questions: How do performance measures shape a certain culture in the department? How do measurement systems and its implicated ideals of learning and good work meet everyday life of employees and their conceptions of learning? Which models of creativity and innovation do exist? How is creativity supported in VET at a Swiss telecommunication enterprise? And: How can a creative learning framework support the job start in the hospitality industry? The symposium intends to discuss these questions further taking many international experiences and approaches into account.

Presentations of the Symposium

Performance measures and organisational culture: Metaphors a performance culture lives by.

Lene Tanggaard, Maria Lyndgaard Pedersen

Aalborg University

And the abstract in its current form: This paper focuses on employees' metaphors used to convey their experiences of learning in a company department organized around and with a high emphasis on performance measures. The paper is based on an on-going participatory action research project within a global company studying the interplay of learning and performance as experienced by employees in the workplace. The research deep dives in to the empirical findings using the employees' own metaphors as entrance points to describe how the performance measures shape a certain culture in the department. Using the metaphors as entrance points to describe the effects of performance measures this paper provides a unique insight into how work is structured and the implications for learning that lies within the way we organise and evaluate work. In particular, the paper is focused around an understanding of how measurements systems and its implicated ideals of learning and good work meets everyday life of employees and their conceptions of learning. Also, the paper will discuss possible balances and conflicts between performance and learning cultures in performance oriented workplaces.

Models of creativity and innovation for VET

Lubart Todd¹, Brandon Thornhill-Miller²

¹Paris Decartes University, ²Harvard University

This paper will examine models of creativity and innovation in order to see how they relate to vocational education. Examples of creativity relevant to various vocational fields will be presented. Then two approaches to foster creativity through training will be proposed. In one approach, the components involved in being creative in a job can be trained. These building blocks, such as mental flexibility, or openness, will then contribute to on-the-job creative thinking. In a second approach, students engage in simulated creative thinking exercises Embedded in job situations. These "scenarios" can Foster creative ability in context-dependent ways. The generalizability of each type of training will be discussed. Examples will be provided.

Innovative learning culture in the Swiss telecommunication industry: Supporting creativity at the workplace.

Antje Barabasch

EBH

The learning of apprentices is always embedded within an overall learning culture of an enterprise. Within the Swiss telecommunication industry the learning culture has changed and responded to the needs of being highly innovative and agile. This includes that creativity development is one of the goals

of competence development throughout an apprenticeship. The paper will present the values, attitudes and beliefs among managers, trainers and employees working with apprentices as well as of apprentices themselves underlying the current learning culture in relation to supporting and developing creativity. It will further present the structural conditions within the enterprise that enable creative work and the socialization within creative work environments. The paper concludes with lessons to be learned for shaping vocational education and training within enterprises or between enterprises.

Creative Education and a Dignified Vocation Journey in the Hospitality and Service Enterprises

Brian LaDuca

Dayton

Dayton's (Ohio, USA) hotel supply is projected to increase between 3.5% and 4% in 2018 alone, but the hospitality and service industries are plagued with high turnover issues due in part to having the highest rates of substance abuse out of the entire American workforce. Dayton leaders have collaborated with the University of Dayton's Institute of Applied Creativity for Transformation (IACT) to design and accelerate development of a new creative education, apprenticeship and ecosystem for Dayton's workforce seeking a dignified vocational journey in the hospitality and service enterprises.

The IACT is one of the United States first academic institutions to develop a sustainable educational framework of transdisciplinary pedagogy for 21st century students to impact today's ever-changing, global world. The IACT's creative methodology, in partnership with Dayton hospitality leaders, will model a learning culture that will create a sustainable and impactful vocational ecosystem for new, dignified service enterprises. What has emerged is Freedom Enterprise, a network of hospitality and service centered enterprises providing developmental support and opportunity for individuals re-entering society from addiction and incarceration. At the nexus is a creative learning framework that will focus on an innovatively designed educational methodology for lifestyle, housing and skills development. Individuals seeking a resilient and dignified service-forward lifestyle will be educated and trained in an apprenticeship modeled after the IACT's world class applied creative framework.

We will look to address how the methodology of a 12-week pilot course for Dayton students focused on the IACT experiential learning of critical perspective, creative confidence and innovative application can innovate ambiguity, empathy and humanity-centered design approaches within vocational training practices of service. Further understanding and research will be needed to understand the application and impact of the Freedom Enterprise pilot curriculum as Dayton citizens give their own time to the apprenticeship program beginning in January 2019.

**1:50pm - 3:20pm
Room 214**

Symposium 7: Integration of young Refugees into VET - Analysis of chances and challenges for success based on the German example

Integration of young Refugees into VET - Analysis of chances and challenges for success based on the German example

Chair(s): **Mona Granato** (BIBB, Germany), **Regina Dionisius** (BIBB, Germany)

Discussant(s): **Ursula Scharnhorst** (EHB, Switzerland)

Between 2015 and 2017, around 1.4 million asylum seekers came to Germany (BAMF, 2017). For these usually young refugees vocational education and training (VET) is one way to develop a professional and social perspective. At the same time, many companies complain that they do not find enough apprentices. The challenges, however, begin with the provision of adequate educational offers for the very diverse group of refugees.

Our symposium therefore focusses on the question, how the integration of young refugees within VET can be successful? From the perspective of companies, VET experts and different local stakeholders, the contributions highlight the following questions:

- How can society and the dual-VET-system offer suitable opportunities for the integration of young refugees?
- Which motivations do companies have to train young refugees?

Which recruitment preferences are linked to their engagement towards refugees? (1st contribution)

- In which way do local stakeholders (vocational schools, labour market agencies, youth welfare) cooperate and cope with the challenge to prepare refugees for training and labour market? (2nd)

- What are, from the perspective of the different VET experts, preferable ways for integration? How are their different preferences linked to ongoing debates within society? What are the impacts of organizational origin on the statements of VET experts? (3rd)

The contributions are empirically based on a qualitative study of local actors and two quantitative surveys (companies, VET-experts), latter using multivariate analyses.

As theoretical framework different approaches are used. Theories about coordination mechanisms, neo-institutional approaches and the principal-agent-theory allow a better understanding of how political governance works in a corporate system like dual VET.

Considering these different viewpoints, the symposium arguing from a governance perspective, brings up the divergent perspectives of VET actors. It shows how differently they cope with the integration of refugees, corresponding to their own logics and institutional interests

Presentations of the Symposium

Task requirements and training motives of companies as reasons for training refugees

Christian Gerhards, Katharina Weis

BIBB, Germany

Since 2015 an increasing number of young refugees of working age are coming to Germany. As qualified participation in the labour market is an important component of integration and only about 20% of the refugees of working age have a formally certificated education, a central role is seen in in-company training. Which factors increase the likelihood of the provision of in-company vocational training for refugees by companies? From the employers' view, refugees could be the less attractive apprentices, because of higher training costs (e.g. language lessons).

As theoretical framework to the question of vocational training of refugees, we introduce explanations via the task approach and the sociological neo-institutionalism.

Relevant activities within one company play an important role in the training of their own future skilled workers. According to the task approach on activity requirements for employees, there could be a higher probability to hire refugees as trainees in companies with manual or routine tasks (e.g. due to lack of language skills).

Sociological neo-institutionalism takes into account that companies follow different logics of rationality. This can also be applied to training motives. As refugees are more likely to finish training prematurely, companies with a "production-motive" – which profit already during training – could have a special interest in refugees as trainees.

The analysis is based on panel data models using data from the BIBB qualification panel waves 2016 to 2018, in which companies were asked about the employment of refugees as trainees.

The results show that there are considerable differences in the training of refugees between enterprises. Tasks and motives play an important role whether or not companies provide vocational training for refugees.

The results broaden the understanding of which companies train refugees and which motivational situations and demands lead to a higher probability to train refugees.

Participation of Refugees in Vocational Education and Training in Germany: What could be the best way to integrate Refugees into the dual VET system from the perspective of vocational training experts?

Regina Dionisius, Mona Granato

BIBB, Germany

Between the year 2015 and 2016 about 1.4 million refugees were registered in Germany. Three out of four are under thirty years old (BAMF, 2017). The integration of these refugees is a challenge to German society and to the dual VET system. There are different expectations linked to the vocational education of young refugees. On the one hand, that those young refugees, when they are skilled, could contribute to diminish the lack of skilled workforce in Germany. On the other hand, that there should be – due to the agreement in German society – enough dual VET places offered by companies to provide "even" young refugees with apprenticeship places.

This contribution argues from a governance viewpoint, inspired by the principal-agent theory and neo-institutional approaches. From the perspective of different groups of dual VET experts (especially employer's, business associations and trade unions), it first focuses on the question, what should be the best way, to successfully integrate young refugees in vocational education and training. In a second step it investigates, how the different expectations and suggestions vary among the different groups of experts.

The analysis is based on a BIBB-survey conducted in 2017 of around 650 VET experts. A factor analysis on 17 items extracted three important factors which represent different lines of argumentation.

It shows that the stakeholders from different groups within the corporate governance system of dual VET still have different interests and that they argue differently due to their organizational aims. However, for the target group of refugees the different viewpoints are less controversial compared to other target groups and topics. Nevertheless the VET experts strongly approve the integration of young refugees into dual VET, even if they have different arguments why this is important.

The Transitions to Vocational and Educational Training for Young Refugees - Governance Structures and Local Cooperation

Sybille Stöbe-Blossey

Universität Duisburg-Essen, Institut Arbeit und Qualifikation,

The integration of young refugees represents an important challenge for the vocational training system. Supporting transitions of young refugees from school to vocational education and training (VET) requires cooperation between actors from different fields of educational and social policy as well as a combination of efforts at the local level.

his paper presents the results of a research project that aimed at analyzing mechanisms of local cooperation between different stakeholders and the importance of this cooperation for the integration of young refugees.

The contribution is part of a proposed symposium dealing with the integration of young refugees into VET. It sheds light, from the perspective of governance, on how local actors are involved in the programs preparing young refugees for VET and thus promote their integration within the VET system: How do these stakeholders cope to improve orientation and access of young refugees to VET and how does their organizational origin and interests influence their cooperation?

The research project was based on qualitative interviews that were guided by a theoretical framework concerning the analysis of cooperation. The interviews focused on the cooperation at the local level – between vocational schools, labor market institutions and youth welfare services – and on the role of local coordination units.

Based on a theoretical framework concerning governance theories, the paper gives an overview of governance structures and outlines problems of governance and requirements of local cooperation. It identifies examples of good practice on the local level and draws conclusions on how to improve vocational orientation and career guidance for young refugees. Special attention will be given to chances and problems of dual VET for young refugees and to the challenges for this system.