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Franz Kaiser & Susann Krugmann (Eds.)

# Social Dimension and Participation in Vocational Education and Training

Proceedings of the 2nd conference
"Crossing Boundaries in VET"

**Institut für**
*ibp* **Berufspädagogik**

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# Introduction

One year after founding the Institute for VET at the University of Rostock and two years after the first "Crossing boundaries in Vocational Education and Training - Conference" in Bremen the conference with focus on social dimension and participation took place in August 2017 in Rostock. We invited researchers from the field of vocational education and training as well as from adjacent disciplines to participate and contribute presentations for the conference with respect to the following reference levels.

Boundaries defining and shaping the field of vocational education and further training (VET):

*Systems:* Socio-culturally different VET systems have evolved along conceptual lines. The comparison of different skill formation systems and governance of VET systems are on the one hand of theoretical and on the other hand of practical importance in the context of economic development and international cooperation. The comparison allows for the identification of strengths and needs of improvement and the recognition of gaps. In a comparative perspective with regards to the current state as well as the necessary/possible developmental directions for the respective systems, the question of support of educational justice and a successful transition to the labour market arises.

*Institution and Agency:* The different VET systems are defined by the interactions of the involved institutions, stakeholders and participating individuals. These are not only an expression of professionalization they also indicate the systems boundaries and interfaces. These inter-institutional spaces of open or closed discourses, depend to the regional and national culture and the political mission statements of the collaboration partners. Which rules have been established? How do educational institutions and labour institutions communicate and interact? Which cooperation's and transitions are possible or would be needed to increase participation?

*Practice and Actors:* In the institutions or systems of rules, practices have been established to cope with the central questions of teaching, learning, and competence development. Practices of teaching and learning can help to lower boundaries of qualification and employment biographies. What is needed for teacher training, students` collaboration and for research itself to cross institutional boundaries or to focus central conflicts and contradictions to encourage the individual person to face them? How to ensure the aim of 'Bildung' in VET-Didactics and the culture of interaction? What are the different formal and informal practices, how do they relate to each other, and what developments are evident for social inclusion and public welfare?

The three reference levels are influenced by conceptual ideas, terms, and constructs. In 2017 we will focus on conceptual ideas and structural approaches that are helpful for crossing boundaries towards democratic society with well trained and self-confident workers as well as sustainable development. Therefore it has to be discussed which developments are evident, and which of these are fit for future requirements and the specific history of their region? Collaboration in the Baltic region is given a special attention in the conference, discussed by researchers from Denmark, Sweden, Estonia and Germany (see programme in the appendix), as well as the discourse about European research strategies in VET, moderated by Barbara Stalder, Christof Nägele and Michael Gessler.

This issue introduce 44 research papers from 17 countries which have been presented on the International VET-Conference *Crossing Boundaries in Vocational Education and Training: Social Dimension and Participation* from 16th – 18th of August 2017 in Rostock.

Last but not least, we thank for all the help of the student assistants and colleagues of the Institute for Vocational Education (ibp) and the Chair of Business, Economics and Entrepreneurship Education.

# Welcome Speeches

# Welcome Speech from Federal State Government of Mecklennurg-Western Pomerania

**Kurt Schanné**
Head of Division for Politics and Planning in Higher Education,
Ministry for Education, Science and Culture Mecklenburg-Western Pomerania

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Dear Rector Schareck,
Dear Professor Kaiser,
Ladies and Gentlemen,

Thank you very much for having invited me to open this conference. On behalf of the Secretary for Education, Science and Culture Birgit Hesse I welcome you to Mecklenburg-Western Pomerania. I'm very pleased to see, that so many national and international guests have come and thus express their affinity to the conference theme, but also their interest in Rostock.

Mecklenburg-Western-Pomerania is one of the sixteen states that form the Standing Conference of the Ministers of Educational and Cultural Affairs of the "Länder" in the Federal Republic of Germany. It's president has taken up the cause of vocational education in this year. On the occasion of the accession to the presidency Dr. Susanne Eisenmann expressed her intention to foreground vocational education with its manifold career perspectives. She intends a modernization of vocational education which has to address both strong performers and weak performers. At the end of May she hosted a well-attended conference, in the course of which vocational education was stressed to be equivalent to higher education. Mrs. Eisenmann said: "It is an ideal way and not a number-two choice." Confronting the current trends of digitalization, but also the integration of immigrants, vocational education faces new challenges to be met.

Mecklenburg-Western Pomerania also highly estimates vocational education. Both parties in government brought up this issue in parliament´s debate and invi     ted the schools of general education to extensively and equally inform the pupils about vocational and higher education. This is in the light of the demographically induced shortage of potential apprentices in the state. This situation even concerns to very important economic sectors. It requires to make the most of the limited "human capital". In this context it's so important to offer the pupils good chances when leaving school. In the government´s opinion the passage from school to vocational education should have to be smoothly possible. And so should be the still unaccustomed change from higher education to vocational education. In this context let me recommend also two-track qualifications and dual university courses. There are altogether nine dual university courses in Mecklenburg-Western Pomerania. This number should be considerably expanded.

Ladies and Gentlemen,

in addition to the enterprises the vocational schools are the second element of the vocational education. In the recent 15 years the number of vocational students has decreased by more than 50 % in Mecklenburg-Western Pomerania. In no other federal state the reduction has been so dramatic.

Since 2006 this reduction has led to an unavoidable incremental process of concentration of the vocational schools in the state. This development among others aims at better adjusting and bundling the rare resources of the state and the institutions supporting the public and private schools. This is to achieve the best effort possible, to provide planning certainty to all concerned parties. Developing the vocational schools towards regional vocational training centres, involving further profiling the vocational schools according to professions and occupational groups – all this shall increase the quality of the vocational education.

Since the number of vocational students has become stable there is no need for further concentration of school locations at the moment. The challenge is to durably ensure the actual school network which was established due to the above mentioned demographic problem.

According to no. 248 of the current agreement on the coalition the coalition partners are aiming at ensuring the vocational schools in their contemporary structures for the long term and to provide the prerequisites for an increased planning certainty.

Ladies and Gentlemen,

highly qualified and motivated teachers are the heart of good vocational schools. The state has made an agreement with the University of Rostock and the University of Applied Sciences Neubrandenburg about the education of vocational school teachers in the following subjects

- economy and administration
- electrical engineering
- information technology
- metal technology
- agriculture
- health care
- social work.

With regard to the diversity of the occupations that require formal training this can cover an important part, but not at all the whole range of occupations.

Therefore, the state is on the way to attract interested women and men from other federal states by means of publicity campaign as well as to audit and implement complementary measures of qualification. To provide instruction at a high level is the essential thing all year long. As for the school year to come this demanding task is fulfilled, but it will be a new challenge every year.

To answer a lot of the questions concerning vocational education, the new Institute of Vocational Education here in Rostock is a very important partner for us. The institute educates the up-and-coming young teachers and it is part of cooperative measures of further training. Regarding to research it deals in questions of professionalization, vocational guidance and occupations development. As a scientific institute it promotes the relevant expert dialogue in Mecklenburg-Western Pomerania and it gives important advisory support to the Ministry of Education.

Many thanks for all this, dear Professor Kaiser. Let me also express my gratitude to all organizers of this conference, especially to Mrs. Krugmann. I wish you inspiring discussions and a nice stay in Mecklenburg-Western Pomerania.

# Welcoming Address from Institute for Vocational Education

**Franz Kaiser**
Director of Institute for Vocational Education
University of Rostock

Our rector, Prof. Schareck, Mr. Schannè, Ladies and Gentlemen,

Colleagues, Friends and dear Guests,

I am very pleased to welcome you today to the conference „Crossing Boundaries in VET: Social dimensions and participation" at the University of Rostock. Also on behalf of our co-organizer, the ITB at the University of Bremen, dear Prof. Michael Gesssler and colleagues, I would like to welcome you here.

The conference follows the first "Crossing boundaries Conference" held two years ago in Bremen and is, like this, intended as a free exchange across borders to the challenges of vocational education and training. With this second conference we start a new conference series on VET-research and I'm happy to tell you, that the next conference will take place in Valencia in spring 2019 managed by Prof. Fernando Marhuenda.

Feel free here to approach each other, find partners and new friends who, like you, are joined in the common effort to promote participation and social justice in vocational training.

You will find opportunities for this not only in the discussions and breaks, but also in our supporting program during the guided city tour this morning, this evening or even tomorrow, when we go on a boat trip together.

Let me first say a few brief words about our young institute, we founded last year. You're holding the first publication in the new series of "Rostock Papers on Vocational Training" in your hands right now. Our seven employees, whom we have hired in recent years and months, have the task, as was pointed out by the university rector: of training Teachers for vocational schools in the fields of electrical engineering, metal technology, information technology, agriculture, health and social work. In doing this training, we are responsible for the study programme and take on the part of the vocational education and training studies, including the required internships.

We try to align our teaching with our vision of the ideal graduate - who is an accomplished educator, a specialist in his or her professional field of business, a critical designer of vocational education, a supporter of individual development and who has acquired appropriate instruments for both reflection and action

In research, we are currently working on the following topics:

- Choosing careers and vocational orientation
- VET Systems and history of VET
- VET teacher training and Didactics
- Critical theory of vocational education

Now let me also say a few introductory words about our conference. When Michael Gessler approached me last year, and suggested hosting an international conference in Rostock I was initially reserved and concerned about whether we could do really do this. I won't know for sure until Friday afternoon but I'm optimistic!

In the call for papers, we have pointed towards the three levels of treatment of the topic, because we are convinced that the goals of participation and social equity can only be successfully advanced if changes are introduced at all levels of vocational training; changes, which we can support all together with our research and our contributions to development

- In the legal systems of education and training systems, it is possible to facilitate transfers that promote social advancement. Vocational education and training can receive more appreciation and new opportunities can also arise for the qualification of VET teachers.

- By connecting the institutions and actors in vocational education and training, quality can be increased and by understanding the challenges of vocational education and training, energy can be bundled and sustainable concepts can be realized.

- At the level of immediate learning and training, in addition to the professional qualifications for the job, we hope to strengthen the self-confidence of the learner and encourage him or her to become involved with society and in politics at work.

With these priorities we follow in the footsteps of tradition of the Enlightenment and the critical education theory of the Frankfurt School, which marks a fundamental contradiction between Bildung and authority. Let me point out some weaknesses of the current situation of VET in Germany:

The state, that the forming of consciousness is a privilege of the rulers, who are given the means to comprehensively reflect on the empirically given, while the servants as labor force are bound to the material and have no claim to critical reflection, as Heinz Joachim Heydorn 1973 claimed, must be overcome

Although the OECD promotes academic education as a desirable goal of education policies worldwide, VET is still, perhaps even to a growing extent, an educational system for the lower classes. Following the ideas of Heydorn we have to develop VET as an educational system for the lower class to enable its students to reform the empirical given.

Even if, perhaps as a result of Christian ethics in the Western World, work has experienced an upward shift during the past centuries towards seeing it as a meaningful contribution to society, we still observe strong dividing lines between mental labor and physical labor in terms of pay and participation in the composition of the enterprises. Even if orientation towards participation is a major issue in modern companies, it does not appear to have a healthy impact on people's lives – rather it seems to reach out into the entire way of living.

On the other hand, the approaches to a transformation of the economy as a support structure for a life worth living, as was demanded by the Catholic social ethicist Nell-Breuning in the 1980s, are weak. The impact of sustainable development has been highlighted in many areas, but despite all signs of its urgency, sustainable development is still doomed to a shadowy existence in the curricula of vocational and academic education.

I hope that at this conference we will be able to show and learn new ways of dealing openly with the weaknesses and strengths of our different VET systems and as well our approaches and trials and be able to inspire each other.

Last but not least, I am delighted that we, as an academic discipline, can set an example against the national isolationist efforts, which can never please us as a researchers.

I would like to already thank the many helping hands who have made our conference possible: - to the financial sponsors, especially the German research foundation - DFG, the Faculty for Humanities at our university and the Ministry of Education in Mecklenburg-West Pommerania. And I would like to express a very special thank you to Susann Krugmann. She is responsible for organizing the conference and has done so well in the past few weeks that we are able to welcome you here today

# Keynote Speakers

# Labour market outcomes of NQFs

## What is known about what they can and can't do?

Professor Stephanie Allais, Centre for Researching Education and Labour,
School of Education, University of the Witwatersrand

## Introduction

Raising skills levels, reforming education and training systems, and improving qualifications systems are among the policy priorities of most countries around the world. A particular concern for many countries is improving the relationships between education and training systems on the one hand, and labour markets on the other. This is in a context in which work is changing rapidly, and the ways in which labour markets are structured are also changing. Youth unemployment rates are high and rising. Governments have become increasingly focused on reforming technical and vocational education and training (TVET) systems, in the hope that such reforms absorb unemployed youth and lead to economic development. Increasingly, qualifications frameworks have been used as a policy tool to achieve these and other goals. Despite limited evidence supporting the claims made concerning what qualifications frameworks can achieve, they have been taken up with enthusiasm by many governments and international agencies. In most cases they have been strongly focused on the reform of technical and vocational education and training.

This paper reflects on a decade of research into this policy, including two international studies, and explores its limitations, with a focus on the labour market impacts of qualifications frameworks. It starts by presenting the history of the emergence of qualifications frameworks. This is followed by a brief overview of previous research says about this policy mechanism, followed by the main findings of a recent study in 6 countries. The research findings are a conundrum, as policy makers seem to continue to support qualifications frameworks, despite the lack of evidence of success. What partly explains this is that qualifications frameworks represent a range of different kinds of reform intervention—in other words, they are different kinds of policies. This clouds the evidence base. Another explanation is that the problems which policy makers are attempting to solve are so complex and intractable that almost no policy mechanism will succeed—but implementing a framework gives some degree of a sense of agency to policy makers in beleaguered education and training systems.

## Background: a brief history of a recent and rapidly growing policy phenomenon

In contemporary education policy, the term qualification is used to refer to any formal credential that recognizes learning of prescribed knowledge and skills. This is a recent phenomenon. Previously, examinations taken at school and university were, in the main, referred to as certificates, degrees, and diplomas. The term qualification was mainly limited to the certification of knowledge and skills acquired for specific professions and skilled trades. Used in this way, qualifications have had a mediating role between education and training systems and workplaces at least since the 19th century in many countries. Until the middle of the 20th century, qualifications in most countries covered only a relatively small section of the working population, largely the skilled crafts and trades and professions. Most qualifications arose from the specific recruitment needs of employers as well as the efforts of professions and trades to control entry to particular occupations and maintain standards and their privileges. Indirectly qualifications acted as a form of quality control in the areas of work which they covered. They were developed at different levels for different occupations and there was little if any connection between them. Most were closely linked either to apprenticeships controlled by guilds or to the specific colleges and other educational institutions providing the programmes that led to the qualifications.

In the 1970s and 1980s, as governments worldwide increasingly were influenced by the idea education and training could be an important instrument of economic reform. This idea emerged as governments in the developed countries shifted from a focus on full employment through combinations of welfare policies, state spending on infrastructure, and state driven industrialization (Chang, 2002; Crouch, 2011) to controlling inflation, regardless of the effects on employment (Harvey, 2005). Collective welfare provision started to be reduced in

many of countries where it previously existed, under the influence of neo-liberal economic policy (Crouch, 2011). In this context, education started playing a prominent role in social policy: the role of government changed from attempting to create and stimulate jobs to assisting individuals to become 'employable' or to develop 'marketable skills' (Tomlinson, 2009). Economic competitiveness and development has been increasingly seen as dependent on the skills of the labour force, and weak economic development came to be blamed on the lack of appropriate skills in the labour force, in many countries around the world (P. Brown & Lauder, 2001). The notion of an 'education/labour market mismatch' became a dominant trope of education policy reform (Brewer, 2013). Thus, over the past thirty years or so, considerable focus has been placed on the reform of education and training systems in general, on technical and vocational education in specific, and on the ways in which education and training interact with labour markets (Allais, 2014; McGrath, 2012).

It was in this context that the idea of *qualification frameworks* covering all qualifications began to emerge. One of the earliest was the English National Vocational Qualifications (NVQ) framework launched in 1987. This was followed by a fully comprehensive qualifications framework launched in New Zealand in 1992 and a similar one in South Africa in 1995, as well as the establishment of the competence-based training system in Australia, which was driven by the reform of vocational education qualifications. These early frameworks drew their intellectual inspiration from competence-based teacher training models that had been established in the USA (Allais, 2014). A major idea underpinning them was that learning outcomes and competences could be specified by employers to create more *demand-driven* education and training, to end what policy makers believed were education and training systems inappropriately dominated by education providers.

In the late 1990s and early 2000s vocational frameworks were developed in the Caribbean, modelled on the competence-based training model that underpinned the original British National Vocational Qualifications (Allais, 2017). In the same time period, through the 'Bologna process', the idea of levels and learning outcomes was introduced as part of a process of aligning higher education systems within in Europe (Bologna Process Coordination Group for Qualifications Frameworks, 2009; Ravinet, 2008).

As recently as 2004, only five national qualifications frameworks existed, together with a larger number of competence-based vocational education and training frameworks; the latter were sometimes limited to one or more industry or occupational sector.

The adoption of the European Qualifications Framework by the European Union in 2008 led to European countries creating qualifications frameworks. This shifted qualifications frameworks out of the English-speaking countries in which they originated, and placed renewed pressure on developing countries that trade with Europe or receive development aid from Europe to develop frameworks. The European Training Foundation, Cedefop, and Unesco (2013) argue that by 2013 at least 142 countries were developing frameworks, with a focus on labour market mobility, and a recent Unesco report (Keevy & Chakroun, 2015) argues for world reference levels for qualifications.

What is striking about qualifications frameworks is that despite substantial differences in economic contexts and education and training systems across the world, similar reasons are given by policy makers for the introduction of qualifications frameworks. They are seen as vehicles to improve relationships between different sectors of education and training, as well as between different countries; improve relationships between education and training and labour markets; support learners to move between sectors and to enter or re-enter education and training; enable the recognition of prior learning; improve quality and relevance of qualifications by involving industry in the setting of standards or learning outcomes; and improving the status of technical vocational education and training.

**How successful have these frameworks been in achieving their goals?**

There is little published research on the impact of qualifications frameworks. In 2005 Michael Young (2005) provided a comprehensive overview of qualifications frameworks internationally, arguing that all countries implementing frameworks have faced problems. A more recent overview by David Raffe (2012) argues that the evidence, while still inconclusive, shows that the impacts of qualifications frameworks have been less than

expected, have often taken many years to appear, and have been negative as well as positive. The rest of the limited body of research tends to be aligned with one of these broad positions, either emphasizing problems experienced or expression reservations (Allais, 2010, 2014, Bohlinger, 2007, 2012; Bouder, 2003; A. Brown, 2011; Ensor, 2003; Gössling, 2015; Granville, 2003; Hupfer & Spöttl, 2014; Keating, 2003; Lassnigg, 2012; Lester, 2011; Méhaut & Winch, 2012; Phillips, 2003; Pilcher, Fernie, & Smith, 2015; Raffe, 2003, 2011, 2012, Young, 2003, 2005). Research with a positive take tends to *describe* policies and policy goals without substantial evaluation of impact or use of frameworks (for example, Misko, 2015; OECD, 2015).

The disconnect between empirical evidence and policy maker aspiration could partly be the result of the nebulous nature of frameworks; as a recent paper by Nick Pilcher, Scott Fernie, and Karen Smith (2015) argues, it is almost impossible to evaluate them because there is no way of developing a clear yardstick for measurement. A cynic may point to the enormous amount of consultancy opportunities around the development and implementation of such frameworks, especially given that much of the positive documentation comes from organizations involved in their development (for example, Cedefop, 2013, 2015; ETF, Cedefop, and Unesco Institute for Lifelong Learning, 2013).

## Overview of recent the six country study

This section provides an overview of a recent study which looked at qualifications frameworks in 6 countries: Belize, France, Ireland, Jamaica, Sri Lanka, and Tunisia, as well as the regional framework in the Caribbean. It provides a brief overview of the methodology and some of the key findings.

The aim of the study was to understand the extent to which and ways in which employers use qualification frameworks in hiring and promotion decisions, as well as the employment outcomes of graduates of national vocational qualifications. The study was commissioned by the ILO as a follow up to an earlier and larger ILO study conducted in 2009, which found little evidence that qualifications frameworks were achieving their goals (Allais, 2010). One possible reason for the lack of positive evidence in research into qualifications frameworks is that it was conducted prematurely. The new research, therefore, aimed to revisit two of the countries in the earlier study—Sri Lanka and Tunisia—to assess achievements five years later. It also aimed to build insight into the labour market outcomes of qualifications frameworks in countries that were not included in the previous study, but which have well established frameworks or systems of organizing qualifications—France, Ireland. As the Caribbean region has a regional framework which is seen as well-established, Belize and Jamaica were included in the study, to explore their national frameworks and their relationships to the regional framework.

Case studies were developed based primarily on in-depth interviews with key stakeholders, including government representatives from ministries responsible for education and for labour; authorities with responsibility for qualifications frameworks and for vocational education; providers; employer representatives; trade union representatives; and experts such as academic researchers or policy advisors. 10 interviews were conducted in Jamaica, 4 in Belize, 11 in France, 10 in Ireland, 22 in Sri Lanka, and 9 in Tunisia. 3 interviews were also conducted in Guyana, with a view to understanding the regional Caribbean framework. Interview data was supplemented by analysis of publically available policy documents, evaluations, and research. In all cases there did not seem to be monitoring and evaluation systems in place to measure impact of the qualifications frameworks in the study. A few tracer studies were found in Jamaica, from which some analysis could be extrapolated. There were a few instances of surveys conducted, for example of graduate or employer satisfaction, also in Jamaica.

The data obtained, both from official documentation and interviews, enabled us to build some degree of a picture of the systems in the different countries, from which we could make inferences about potential labour market outcomes. A few key empirical findings are presented below.

### A focus on technical and vocational education and training

TVET was the main focus of qualifications framework in all countries. Key imperatives were bringing order to complex and fragmented provision as well as improving relationships with workplaces. Three of the countries (Belize, Jamaica, and Sri Lanka) only have TVET frameworks at this point, with some amount of lower-level

professional education included. The framework in France is intended to include all education and training except the school system although it has historically not included higher-level professional education. Two, Ireland and Tunisia, are comprehensive frameworks in the sense that they encompass the entire education and training system. But it is the educational provision outside of school and university systems—at colleges, in workplaces, in non-governmental organizations, and so on—that is generally complex and sometimes fragmented. So, even though the Irish framework is comprehensive, attempting to create coherence in TVET has been a driving force it its development. Over the past century various programmes and interventions had emerged attempting to smooth the transition from school to work and attempting to improve the skills of job applicants. A wide range of different types of programmes, providers, and award systems emerged, as opposed to schooling and higher education which both had a strong tradition of nationally recognized certificates and award bodies. A series of different organizations to oversee this 'system' emerged, and were merged, reorganized, and reconfigured over the years. In the early 1990s numerous projects emerged attempting to prepare out-of-work young people for the workplace. The qualifications available in the system did not seem appropriate to award credentials for these training programmes. Various processes culminated in the formation of an Awards body for vocational awards—the National Council for Vocational Awards, established in 1991 to provide certification for the further education and training sector. It was this Council which first developed a ladder of qualifications, in an attempt to bring some coherence to the fragmented provision within further education and training. This ladder of qualifications, with its notion of modules that could be accumulated, laid the groundwork for the Irish qualifications framework.

Further, although the aim of comprehensive frameworks is to create order and coherence across sectors, the one operational comprehensive framework (Ireland) experienced tensions between the TVET component of the framework and the rest of the framework. Where comprehensive frameworks are under construction (Jamaica, Sri Lanka, Tunisia), differences between TVET and higher education seem to be sticking points. In all countries the approach to developing qualifications at lower levels was different to higher-level qualifications, with a greater emphasis on competence statements for lower-level and vocational qualifications.

## Mixed views from employers

The small sample of employer interviews conducted across the countries revealed a mixed picture of varying perceptions of the role of qualifications frameworks. Employer support or criticism did not seem linked to any clear evidence for or against qualifications frameworks.

Indeed, in the case of Tunisia is almost entirely support in the *hope* of what a framework might do: A key finding of the research was there has been almost no progress in the development of a framework in Tunisia since the 2010 research and there is very weak involvement of key government roleplayers as well as social partners. The revolution of January 2011 is obviously a factor in the delays, as following it there was general instability as well as increased unemployment, and other more pressing political matters were prioritized by government. Changes within employer organizations and trade unions and changes in critical positions in the ministries involved also hindered progress. There is also disagreement about the role and implementation of the outcomes-based approach from the side of educational providers. There was very limited awareness of the qualifications framework's existence, not only from employers and workers but even from government officials who are nominally involved in its implementation. Despite this lack of progress some employers support the framework in principle, particularly in the hospitality sector, where employers believe it could enhance skills level in the sector, which in turn they hope would encourage foreign multinational chains to invest. Representatives of employers in the sector expect the qualifications framework to uplift the social status attached to jobs in this sector and to vocational paths more generally by providing clarity to pupils and to employers as well as by giving pupils the idea that what they enrol for is understood abroad or even in Tunisia by foreign investors.

In Jamaica the majority of employers interviewed felt that the framework added value, and there were good relationships in certain instances, particularly in terms of employer involvement at the level of boards and councils, as well as in certain areas in the development of curriculum and standards. However, it was also

pointed out that the qualification system introduced a fair amount of complexity. For example, the main national training provider, HEART (Human Employment and Resource Training), is a network of providers, but is also the authority responsible for managing the qualifications framework and quality assuring providers. These two areas of responsibility are separated into different components of the organization. Interviewees criticized the framework, arguing that there are too many programmes offered for a relatively short duration and at lower levels of the framework, and suggested that employers often prefer to use alternate requirements such as the number of senior secondary subjects passed and workplace experience.

Jamaica was the one country with some quantitative evidence from tracer and user satisfaction studies for its national vocational qualifications, albeit with small samples. HEART stated that approximately 65% of their graduates are employed by industry. Feedback from employers obtained by HEART showed a mean of 2.98 on a scale where 4 was the highest rating. Graduates who were employed in Computer Operations, and skilled trades such as Auto Mechanics, Plumbing, Carpentry, etc. received the highest performance ratings by their employers (3.4 and 3.1 respectively, out of 4). However, the role of the qualifications framework in achieving these positive outcomes was not clear; interview data suggests that the role of HEART as a labour market intermediary is a more important factor.

In Belize, an employer interviewee suggested that whilst they value the engagement that they have with the national training provider, they have not yet moved to a point where employers accept all of the qualifications that are on the national vocational qualifications framework. Employers also cite lack of skills as a difficulty in filling positions, and import skilled workers in some instances. Interestingly there were programmes with good labour market outcomes outside of the national vocational qualifications system. For example, the Tourism Board in Belize has a strong focus on ensuring that industry has the requisite human resources in place and in some cases, such as tour guides, they have developed license to practice systems linked to identified training programmes developed with active involvement of the board, providers, and international partners, but not part of the national vocational qualifications.

The case study on Ireland showed limited employer awareness and understanding of the framework itself, and suggests that a multiplicity of rules and lack of flexibility have created problems in implementation at points. An employer interviewee observed that he did not think the National Framework of Qualifications (NFQ) is well marketed or branded, observing that, "if you were to survey Irish enterprise and ask them what is the NFQ is—they won't know." However, public sector employer interviewees in Ireland stated that they have found the framework useful in making their decisions regarding recruitment. Interviewees indicated that they had previously found it difficult to navigate the wide range of qualifications, particularly at the lower levels; now that this wide range of qualifications was on a single framework it is easier for them to understand the level of the qualification and what may be required for particular jobs. A study conducted in 2009 by the then Qualifications Authority suggested that the framework was playing a role in creating understanding across the qualification system, as well as trust, and stability across the education and training system and had considerable potential to be used in recruitment, in developing career pathways, in planning work-based learning and training and in recognising transferable skills (Kelly, 2009).

Ireland seems to have developed a successful approach to analyzing labour market requirements at a national level and ensuring that education provision meets these, through a structure called the Expert Group of Future Skills Needs, which is comprised of representatives of business, employees, education, government departments, and state agencies. The Expert Group advises the Irish Government on skills needs and labour market issues that impact on enterprise and employment growth; the qualifications framework serves as a reference point for the development of qualifications but it is not clear that it is an enabling or constraining tool for the work of this group.

- From the sample of employers interviewed in Sri Lanka there was evidence of limited recognition and acceptance of the national vocational qualifications from the private sector.

There continues to be strong donor support as well as support from international organizations for the building and implementation of qualifications frameworks; in Tunisia donors seemed to have played a driving role in the

framework, and in Sri Lanka they played a major role in the initial development, to the extent that many qualifications have not been updated since the flow of donor funds for this purpose stopped.

## Very limited funtionality of the regional framework in the Caribbean

The regional framework in the Caribbean was investigated as an example of an ostensibly successful or at least well established regional framework. It must be noted that this regional framework is substantially different to other regional frameworks. Instead of being a 'meta-framework', or set of levels against which different countries in a given region can benchmark their qualifications, it is based on occupational standards developed by member states, mainly Jamaica. These are submitted to the Standards Committee of the Caribbean Association of National Training Agencies and the Regional Coordinating Mechanism for Technical and Vocational Education and Training for review, and are then forwarded to the CARICOM (Caribbean Community) Council for Social Development for approval as regional occupational standards. In other words, it is an outcomes-based framework, operating for the whole region instead of for an individual country.

The only problem is that most countries in the region don't actually use it: While all CARICOM countries officially subscribed to the framework when it was adopted in 2002, only five of the 13 countries have actually implemented the associated training, assessment, and certification systems required in order to have the qualifications awarded. Of these five, two joined only in the last year. The Caribbean Association of National Training Agencies has set requirements that must be met if a country wants to offer the Caribbean Vocational Qualifications (CVQs). One interviewee commented that this is a particular challenge where countries are smaller and resources are a real constraint. For example, some of the smaller countries have not had the resources to either train or employ the required number of assessors.

In short, although the framework is one of the older regional frameworks, it is in fact not used by most of the countries in the region, and very little evidence of impact in this regard was found. There were also concerns raised that participating in the framework would not achieve the desired goals in terms of labour mobility. For example, an interviewee from Belize stated that, "the only thing that would change (once Belize can offer the CVQ) is that we would be recognized—the name would be recognized. But Belize people don't move in the Caribbean they only go to the USA, its quicker, its one flight away—so how will it help them?" While Belize intends to persevere with the process of being accredited to offer the CVQs, they are also looking at programmes run by other associations globally, in particular those in the United States, which are sometimes offered in partnership with global partners, with the hope that the graduates can receive additional recognition. There are also particular areas of concern, such as tourism: An interviewee from Belize stated, "we are adamant that you can't have a non-Belizian showing Belize". Interviewees from Jamaica indicate that when Jamaicans apply for jobs elsewhere in the region they are met with resistance even if they can show that they have a competence that is recognized regionally; at the point of this research there had just been an incident when 13 Jamaicans did not have their CVQs recognized in Trinidad, which was seen as indicative of the barriers that individuals face when trying to work elsewhere in the region. There is agreement that countries develop new qualifications for the Caribbean framework in areas which are particular to them; for example, Belize has developed qualifications for drum making. What is not clear is how much this qualification is needed at a regional level, given that it is seen as a speciality area of Belize.

## The nature of the frameworks in the six countries in relation to labour market outcomes

What is clear from the above discussion is that many positive conclusions about value of qualifications frameworks are based on extremely thin or entirely absent empirical evidence. Below I explore whether this research sheds on qualifications frameworks as a growing policy phenomenon internationally, using three main types frameworks discussed in the literature to present some of the key trends found in the research (Allais, 2010; Raffe, 2012). What emerges clearly is how different each country is in terms of relationships between education, qualifications, employer attitudes, and the ways in which work is organized and regulated.

## Descriptive frameworks in the six countries

All countries have some kind of grid or set of qualifications, and some rules about how these qualifications relate to each other. Such grids are never perfect, and are inevitably complex. Clearly a descriptive framework has inherently limited possibilities of impact in the labour market, although a clear and well-understood qualification system does assist students, employers, and teachers. The study suggests that even this limited goal of creating a descriptive framework is not as easy as it sounds when provision is complex, and that sometimes policies which aim to clarify seem to have the reverse effect.

In all the countries except Tunisia there seemed to be some progress in the development of a widely understood set of qualifications, whether for only the TVET system (Jamaica, Belize, Sri Lanka), for the entire education and training system (Ireland), or for mid-level occupational qualifications (France). In other words, all the countries have a framework which is to a fair degree descriptive of their qualification system, and all of them have made some progress in improving how it is understood, or streamlining the qualifications available within it, although not without difficulties.

For example, the Irish framework is an attempt to capture all qualifications on offer in the full spectrum of education and training in Ireland, and improve how they relate to each other. The framework has a degree of prominence in the education landscape, which suggests some degree of success. However, the system has not been without difficulties: the framework has undergone many changes, primarily in terms of institutional configuration but to some extent in terms of the rules and organization of the framework itself. Recent changes in the institutional landscape are seen to have, to some extent, undermined trust that had been built up in previous awarding bodies. This will take some time to re-establish. In other words, in the process of creating a single framework, changes have been made to qualifications which are known and understood, disrupting some of the trust and understanding that exists for specific qualifications. In this sense the current arrangements could be seen as a (perhaps necessary) backwards step in terms of building a nationally understood qualifications system.

In Sri Lanka one of primary purposes of the national vocational qualifications, which were initiated in 2005, was to ensure that the multiple technical and vocational education and training programmes and certificates relate to each other such that learners, the public, and providers within Sri Lanka can understand them. An interviewee from the Ministry of Youth Affairs and Skills Development stated that, "we have been able to establish a unified qualification framework and achieved one of the main objectives of this framework." However, there is still a fair amount of TVET provision outside of the framework, and it is not clear whether labour market outcomes are worse or better for such provision. The *hope* is that the national qualifications framework will lead to more stringent control and regulation of qualifications in general.

In Jamaica and Belize, where TVET provision is small and driven by the national public providers, the frameworks seem well known and accepted; however, comprehensive frameworks are being planned and how this will work is as yet unknown.

The framework in France has wide acceptance in further education and training. Where there is less clarity of is in recent attempts to include higher education and develop correspondence between the French and the European levels; one issue is that in the French grid Master and Doctorate are at the same level, but the European one classifies them respectively at level 7 and 8. A major factor behind its acceptance is the lengthy evolution of the system in a way that brought different stakeholders on board. France has a long history of labour organization and social dialogue. The qualifications system was developed and used by social partners, valued and accepted over time. In this sense there are some similarities to how the Scottish system was characterized in the previous ILO study—in terms of incrementalism—although there is a clear difference, as the French framework goes beyond merely a descriptive framework, in terms of an explicit relationship with work that was absent in Scotland, as is discussed in the following section.

### 'Employer-driven' outcomes-based frameworks

Belize, Jamaica, and Sri Lanka, as well as the vocational qualifications within the broader framework in Ireland, have been developed somewhat along these lines of the national vocational qualifications in the UK as well as the competence-based training system in Australia. However, they are not rigid copies of the UK and Australian models. Some differences include that there does not seem to be a strong separation of learning outcomes from curriculum, and privatization or decentralization of provision do not seem to be a major factor. Assessment and certification are centralized which seems appropriate, especially where there is considerable public provision and where populations are small. The role of industry in leading the processes of designing competence statements or occupational standards is aspired to, but limited in practice in Belize, Ireland, Jamaica, Sri Lanka, and Tunisia. In the main, standards and curricula are developed by TVET regulatory authorities, with some consultation with employers in some sectors. There are small pockets of involvement from employers in the qualification system in Sri Lanka, and employer representation on official structures.

There was a feeling from the interviewees in Sri Lanka that, despite the implementation of a competency-based system, the right qualifications were still not being generated. One interviewee observed that there are challenges with respect to the investigation of demand and indicated that, "students have a difficulty in finding [work] opportunities. We are not matching." This perspective was further evidenced by the myriad of concerns that were raised pertaining to occupations—particularly non-engineering trades—for which there are no national vocational qualifications in place, such as retail skills, visual merchandising, and salesmanship.

### Occupational frameworks

The framework in France is the only example of framework where qualification levels are directly linked to levels of work and pay. However, the qualifications framework did not seem to be the *cause*, but rather the *effect* or *codification* of such relationships.

A regulated occupational labour market and strong collective bargaining has historically enabled the French system to relate qualification levels explicitly to levels in the workforce. What is now recognised as a qualifications framework, the National Register for Professional Certifications (Repertoire National des Certifications Professionnelles, or RNCP) is largely the same qualification system that has been in place in France for further education and training since the early 1970s. In 1969, a grid of 'training levels' was adopted, with the explicit aim of linking the education to the workplace. While duration of education was important, the levels were anchored against definitions of staff in work situations, which were then linked to qualifications. This, as Bouder and Kirsch (2007) point out, was circular: the levels of work were defined according to the levels of education usually required for work at that level. Nonetheless, it seemed to work, in the sense that the relationships are accepted. These levels also formalized what is often seen as one of the important roles of a qualifications framework—comparison across general and vocational education. The implication of Bouder and Kirsch's argument is that the success of the system rests not so much on having the perfect qualification system or perfect occupational standards, but on having a somewhat instrumental or pragmatic approach that has been developed through collective support and understanding, and is constantly being questioned and adapted; a continuing formalization of practice.

While the individuals interviewed within the French system, who were clearly in support of it, did not have specific empirical evidence of labour market impact, the system does seem to be effective in the sense that training levels are understood and accepted collectively. The system is seen to work better in large companies located in sectors where social dialogue is strong. These sectors include metal, automotive repairs, chemicals, and—to a lesser extent—hospitality. Occupational standards are linked to occupational fields as opposed to specific jobs.

There are, of course, problems in France, particularly caused by high and growing unemployment. Policy makers are attempting to counteract this with a focus on training, attempts to reduce the cost of hiring, and reductions of employers' contributions to social security. The introduction and gradual increase of short-term less protected work contracts may contribute in the long-term to undermining the relationships which exist

between education and work. In the European grid, which France is benchmarking its grid against, there are two levels (2 and 1) below the lowest level (5) of the French grid. Because in France the lowest level is the first one protected by collective agreements, adding more levels below it would mean opening room for the 'low skill, low pay' jobs, opposed by trade unions.

There is some tradition of linking qualifications and work levels in Tunisia as well, and it was hoped that the framework would have a regulatory role in the labour market, with the outcome-based descriptors used across the economy in processes of recruitment, promotion, and remuneration. However, the extent to which this actually happens in the labour market seems likely to be limited, based on the limited progress in creating the framework itself.

Policy makers *intend* in Jamaica that the framework could regulate accessing work, if not controlling pay, but there is as yet very little evidence that it is the case.

The Sri Lankan framework is *officially* intended to play this type of role in the civil service through an official requirement for the public administration to hire graduates of national vocational qualifications and to link their employment level and conditions of service to particular qualification levels. The extent to which it happens in practice could not be ascertained, but it would probably only apply to fairly low level civil service jobs, given the low level nature of the qualifications.

## Conclusion: intractable solutions

All of the above could be summed up in the following way: one of the key aims for qualifications frameworks is a desire to bring order to TVET systems, and another is to improve relationships between education and work. Both seem to work fairly well in France, but the framework there is substantially different to the other frameworks. While it seems increasingly apparent that rising education attainment, rising youth unemployment, and the changing nature of work are creating challenges for transitions from education to work in many countries, there is still little evidence to support qualifications frameworks as a way of improving these transitions.

Qualifications frameworks seem to continue to derive popularity from the way they promise to offer simple solutions to very real and complex problems. Unreglated labour markets, the diversity of provision particularly within TVET systems, and qualification inflation, all increase the likelihood of weak relationships between educational provision and labour markets.

Qualifications frameworks which have either succeeded in creating some buy-in and understanding of the national system of qualifications as a whole (such as in Scotland and France) might seem to offer proof that qualifications frameworks can perform this role. Similarly, qualifications frameworks which codify relationships between training levels and employment levels might seem to offer proof that qualifications frameworks can improve relationships between education provision and the labour market.

But the main mechanism which is being used in developing countries, where many mid-level qualifications are not regulated in terms of license to practice or similar requirements, the implicit idea is that getting employers to specify competences will lead to a policy mechanism which plays a similar role to a framework of regulated occupations.This mechanism leads to complexity—undermining the aim of improving understandings of the qualification system—and does not lead to improved labour market outcomes. One problem seen in all the cases is that in the absence of occupational regulation employers tend not to be involved, or to be involved sporadically or inconsistently. Further, if the entrance to occupations is not regulated through licenses to practice, even where employers do specify competences the same employers are unlikely to value such qualifications in practice as they tend to be low level and narrow.

As can be seen above, qualifications frameworks are not a uniform policy framework to improve relationships across education and work: the three-way typology brings out substantive differences. But even focusing on the typology may be misleading, because focusing on types of qualifications frameworks may prevent researchers from really seeing what is happening with the education/labour market interface, and result in no more than descriptive studies. It is always the case that policy mechanisms can be described on paper by policy makers

but not actually implemented or realised in terms of changes to education and training systems. This is a particular problem in this area, because of the extent to which frameworks are presented as a fairly homogenous policy mechanism globally. This tendency is aggravated by the extent to which most of the frameworks are, in reality, not particularly significant parts of the education and training systems. Focusing attention on them, through further research or further development and application of typologies, may reinforce the idea that they are something which exist in their own right, and can be studied as such; the existing research suggests this is not the case.

There are many reasons why graduates with particular qualifications may not get jobs, other than weaknesses of the educational programmes leading to the qualifications, and other than the skills which graduates have as various commentators have pointed out (Collins, 1979; Livingstone, 2012). This was seen in our study: Tunisia, for example, has invested considerably in higher education, with a notable increase in university graduates, who struggle to find the type of employment that they expect—and this situation is increasinly common in many countries around the world. On the other hand Sri Lanka as a rapidly growing post-war economy is absorbing both qualified and unqualified workers.

I suggest that the emergence of qualifications frameworks should be understood as a symptom of underpinning shifts in transition systems; this to some extent explains the popularity of this 'evidence-free policy'. There seem to be two options for policy makers: accept that improving the description of your qualification system is a useful although very minor intervention, do it, but don't make extravagent claims about improving labour market relationships. Or, focus on occupational regulation and license to practice—against the current trend of casualization and breaking up of even professional work—in order to have clear relationships between education and work. Attempts to improve labour market outcomes through employer specification of learning outcomes cannot substitute for broadly supported relationships between training levels and employment levels.

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# Crossing Boundaries: VET, the Labour Market and Social Justice.

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This paper raises a number of questions about VET, followed by sections addressing the labour market, social justice and jobless growth.

I would like to start with two of my favourite quotes both of which raise questions about the way in which think about VET, the labour market and social justice. The first is from Allman, McLaren, and Rikowski, and the second from the Commission on Adult Vocational Teaching and Learning.

> Education plays a key role in the perpetuation of the capital relation; this is the skeleton in capitalist education's dank basement. It is just one of the many reasons why, in contemporary capitalist society, education [*and we might add VET*] assumes a grotesque and perverted form. It links the chains that bind our souls to capital (2003: 149-150).

This quote is salutary and reminds us of the relationship between education the wider economy, offering a corrective to those accounts that too readily associates VET with social justice.

The second quote is from the Commission on Adult Vocational Teaching and Learning (2013:5)

> The best vocational teaching and learning combines theoretical knowledge from the underpinning disciplines (for example, maths, psychology, human sciences, economics) with the occupational knowledge of practice (for example, how to cut hair, build circuit boards, administer medicines). To do this, teachers, trainers and learners have to recontextualise theoretical and occupational knowledge to suit specific situations. Both types of knowledge are highly dynamic. So individuals need to carry on learning through being exposed to new forms of knowledge and practice in order to make real the line of sight to work. (Commission on Adult Vocational Teaching and Learning.

Whilst superficially the *Commission's* position appears progressive it reflects a somewhat restrictive model of VET, being preoccupied with a clear *line of sight to work*. Such an orientation can very easily lead to a narrow focus on the needs of employers. To the extent that creativity and innovation is encouraged and valued this is on the basis that it contributes to successful workplace practices. Critique is encouraged provided it rests within this terrain and is 'business facing', having *a clear line of sight to work* – that is to say, waged labour.

Much the same critique could be applied to models of competency, whilst recognising that this much like VET, is a contested and chameleon like term.

> 'Competence' is the capability of a person (or an organisation) to reach specific achievements. Personal competencies comprise integrated performance-oriented capabilities, which consist of clusters of knowledge structures and also cognitive, interactive, affective and where necessary psychomotor capabilities and attitudes and values, which are required for carrying out tasks, solving problems and more generally, effectively functioning in a certain profession, organisation, position or 'role'. (Biemans, et al, 2009:267–268).

This echoes Fuller and Unwin's discussion of expansive and restrictive learning environments in which some workplaces have cultures that facilitate expansive learning cultures whilst others are more restrictive (Evans et al., 2006:61, Figure 3.2).

There is also an affinity with Winch's discussion of the German notion of Kompetenzen, which suggests a broader understanding of competence than that found in Anglo-Saxon societies. For Winch:

> [Kompetenzen] is more than a bundle of skills, but is unified through a conception of agency which involves planning, control, co-ordination, self-monitoring and evaluation, as well as the performance of a variety of

tasks requiring specific skills. It also includes the ability to appreciate the broader economic and civic implications of occupational action. (Winch, 2012:179) (179)

There are two points to be made. Firstly, "the ability to appreciate the broader economic and civic implications of occupational action" goes beyond Anglo-Saxon, restrictive and narrow definitions of competence and importantly, serves as a critical resource. At the same time, it readily lies within a specific socio-economic context that accepts capitalist relations. At best this resonates with social democracy, or more precisely in the German case, with Christian Democrat versions of Corporativism – or what Bosch and Kalina (2016 refer to as the Bismarckian welfare state.

Secondly, Thelen and Busemeyer (2008, 2011) point to what they refer to as the shift from collectivism to segmentalism in German VET.

In collectivism employers were encouraged to over train thereby producing workers with broad and portable occupational skills whereas in the latter training is organised around internal labour markets and the specific needs of the companies concerned (Thelen and Busemeyer 2011, 69).

The point is VET is always set within socio-economic and historical conditions, with the shift from collectivism to segmentalism reflecting a change in the balance of power between labour and capital. This also aligns with the competitive strategy of particular firms who respond to the broader context in which they are placed, the particular institutional complementarities (Kenworthy, 2004) as well as the specificity of the accompanying institutional and partisan politics (Busemeyer, 2015; Thelen, 2014). This is a context that is both spatialised with respect to the national, regional and local settings, but is also globalised

We could think about the way in which social democracy has been undermined by neo-liberalism. Sweden would be a case in point and illustrates the impact of neo-liberalism upon a specific social formation and the way in which social democratic concessions have been eroded. Much the same questions could be raised about German corporativism.

Harvey (2014:158-159) amongst others have commented on wage repression in Germany in the early years of the 21st century. In 2008 Solow commented on the significance of low waged work in Germany, with the International Federation of Red Cross and Red Crescent Societies (IFRC) commenting

*Even in Germany, almost 600,000 working people had to ask for additional benefits to pay their bills in August 2012.* (International Federation of Red Cross and Red Crescent Societies, 2013, 20)

Relatedly, Brown, Lauder and Ashton (2011) have commented on the importance of international flows of labour in the skill strategies of organisations which reduce training costs. Such processes are allied to the hollowing out of the class structure, a shrinking middle class, the significance of mini-jobs, the encroachment of work upon our lives related to the intensification of labour and increased levels of exploitation and precariousness. These processes have to be set within German mercantilism and its particular relation to the Euro. In addition, Thelen (2014, 13-14) touches on both the importance of flexibilisation as well dualization, whereby core workers are covered by collective agreements alongside an unorganised and unregulated periphery. It is important to acknowledge that VET through its very construction and accompanying social relations lurches towards a form of labourism. In 1983 Ralph Miliband, described this as "an ideology of social reform, within the framework of capitalism, with no serious ambition of transcending that framework" (293).

Notwithstanding its contradictions, the point I am trying to make is that VET is a contested terrain and whilst within specific constructions progressive possibilities reside these are dependent on the particular context in which they are placed. For example, expansive version of VET that embraces notions of citizenship, democracy and individual development are conditional upon the balance of power between labour and capital present within the social formation, and indeed beyond.

## VET, the labour market and social justice

Here I address the relationship between VET, the labour market and social justice. The starting point is with the UK and in particular, England as a case in point. This is a social formation marked by under and unemployment and a labour force that is both over educated and over qualified. Within this society, there has been a hollowing out of the middle class and an increasing polarisation of income and wealth allied to increased precariousness of employment. The current fear is that these features will be exacerbated by globalisation and the consequences of Brexit.

There was a time when pundits argued the English labour force was under-skilled and in need of up-skilling. Currently the rhetoric is that people have developed the wrong skills which is reflected in the notion of a skills gap. This debate is not restricted to England but has a wider purchase in relation to the way in which we think about the labour market and social justice. The above characteristics could be seen as a feature of liberal labour markets or as Esping-Andersen suggests, a liberal welfare regime. Notably Esping-Andersen suggests there are three broad versions of welfare regimes, the liberal, the social democratic and the corporatist, with these being set within very particular pattern of institutional and societal arrangements.

Esping-Anderson lassociates the Anglo-Saxon societies to the liberal welfare regime. However, it is important to acknowledge that in the years immediately following the end of the second world war, it would not have been fanciful to describe an English social democratic welfare regime or settlement (Education Group, 1981). This settlement was interrupted by Thatcherism and the ascendancy of the New Right. Rather than regime I prefer the notion of settlement. The point being that settlements are not only negotiated but have to be constantly re-secured. They are therefore always vulnerable and in danger of unravelling. Notably, in relation to Thatcherism, the New Right and neo-liberalism, this settlement has never been fully secured and is on-goingly contested (Johnson, 1998), though there has been an attempt to render it hegemonic and embed it in common sense.

Neo-liberal concerns have impacted upon Germany and continental Europe in relation to t competitiveness, the market, and austerity. IFRC notes the salience of mini jobs, low waged work in Germany, with Streeck commenting on the significance of cuts in welfare and the decline of the middle class, which articulates with the consolidation state. Streeck (2014) has discussed the shift from a tax state to that of a debt or consolidation state in which the aim is to service debt whilst maintaining competitiveness.

> Consolidation as a confidence-building measure proceeds, almost as a matter of course, not by raising revenue but by cutting expenditure… **A budget surplus is preferably used to pay off debt or cut taxes, to suppress political temptations to restore previous spending cuts**. (my emboldening) (Streeck, 2016: 122-3)

It is important to acknowledge that capital is not all of a piece and that the above processes will be played out differentially in relation to the specificity of the particular social formation and labour market. Jessop (2015) for example draws our attention to the differences present within neoliberal capitalism – his variegated neoliberalism - referring to the distinction between the finance dominated versions found in the US/UK as against German neo-mercantilism.

One of the successes of neo-liberalism has been to break down national borders whilst simultaneously emphasising the importance of regionalism and localism. On a simplistic level this can be seen in England in the division between north and south, with the former having higher rates of disadvantage in terms of unemployment and restricted labour markets. Paradoxically, and despite the rhetoric, such regional disparities are also found in continental Europe, East and West Germany being a case in point.

Social geographers (Martin and Morrison, 2003) draw our attention to the spatial and constructed nature of labour markets as well as their porosity. Alongside a local labour market that features low waged intermittent work, or indeed no work at all of the type that Shildrick et al (2012) discuss in the north of England, there may be other workers lodged within a global labour market of high skilled/waged work. Such global and local labour markets may in some senses overlap but will also be on-goingly constructed and subject to change (Martin and Morrison, 2003). This means that within a social formation, areas of full employment and putative skills

gaps/mismatch sit alongside regions/localities characterised by multiple disadvantage and the lack of decent jobs.

**Jobless growth**[1]

It has been argued that globalisation in the 1970s was linked to de-industrialisation which led to low waged manufacturing processes being relocated in the emerging economies.

This impacted most heavily upon US and UK's manufacturing sectors. It is also allied to changes in technology and the accompanying changes to labour processes. This can be seen both in the spectre of 'jobless growth' as well as the way in which the internet can effectively lead to a 24 hour labour process that follows time zones and reflects the compression of time and space.

This has consequences for the global labour market with respect to particular skills and can be seen in the manner in which design processes can be distributed across the globe resulting in a high skill/low wage nexus (Brown, Lauder, and Ashton, 2011). In addition, Brown et al (2011) draw our attention to digital Taylorism, that is to say the use of digital technologies to deskill and standardise formerly skilled jobs of knowledge workers.

This represents, in part, the hollowing out of middle level jobs but also moves in the direction of 'technological unemployment' with digitised jobs leading to a loss of employment (Peters, 2016).

In some of the arguments that stress technological unemployment there is an element of determinism whereby digitalisation and the increasing use of algorithms carries with it the inevitability of job losses. Frey and Osborne write, citing a technical report produced by McKinsey Global Institute (MGI),

> Estimates by MGI (2013) suggests that sophisticated algorithms could substitute for approximately 140 million full-time knowledge workers worldwide... The trend is clear: computers increasingly challenge human labour in a wide range of cognitive tasks. (2013, 19)

Not dissimilar arguments are a feature of recent research addressing robotisation (Ford, 2016), the fourth industrial revolution, or what some term the second industrial age (Brynjolfsson, and McAfee, 2011, 2014) together with those that discuss 'job polarisation' (Heyman, 2016). There are three points to be made. Firstly, such processes have an impact on the graduate labour market. Commenting on over-education/qualification in the UK, Green, Felstead, Gallie, and Henseke, (2016:128) suggest,

> The number of graduates in the labour force has begun, especially in recent years, to outpace the number of graduate jobs. This is why, increasingly, some graduates are finding themselves in lower-ranking jobs… by the middle of the 2000s it became evident that there was an increasing dispersion in the graduate pay premium.

The dispersion of this pay premium is related to the subject studied, the university attended, the individual's race and gender as well as their class origin (DBIS, 2016; Reay, David, and Ball, 2005).

Unsurprisingly, labour market analyses are predicated upon waged labour and therefore underestimate the significance of unwaged work. For example, user activity on the Internet can be construed as a source of 'free' unwaged labour as it may contribute towards the profits of capital, as can the development of open source software (see Avis and Reynolds 2017; Frayssé, 2015). Standing (2014) also reminds us of the unwaged work of the unemployed searching for paid labour.

In addition, it is important to acknowledge forms of labour that are unwaged but which are in many senses 'productive' in as much as they produce value for participants and contribute to wellbeing. The domestic labour of women would be a case in point as would other activities in the wider community – volunteering, visiting neighbours, caring for the environment and so on. The important point is that there is an infinite potential for 'productive' labour - what could be described as 'really useful labour' in a capitalist and post-capitalist society.

Rustin (2013) for example, calls for a different economic and institutional architecture that would prioritise the cultivation of human needs and capacities and necessitates the re-evaluation of the way in which we understand

economic relations and growth. This argument faces in several directions at once. It could align itself with Marxist conceptualisations of 'species being' and 'unalienated' labour. Alternatively, it could sit alongside an inclusive capitalism predicated on a model of 'workfare' with all the difficulties this portends. The danger is that leftist strategies can easily fold over into a form of capitalist reformism rather than one committed to revolutionary reformism predicated on an anti-capitalist stance.

To engage in 'really useful labour' necessitate the financial resources that would facilitate access to these opportunities. The difficulty is that most lack the resources, or where they do exist, these are in the form of workfare. To address this issue requires a fundamental rethinking of the nature of waged work, demands the provision of a universal basic income (Standing, 2014), and a revolutionary desire to struggle towards for a post-capitalist society.

Although it is correct to argue that over-qualification and underemployment are features of many western labour markets, it is incorrect to imply that there are insufficient opportunities, the need for graduate level labour, or indeed any type of 'productive' work. In this instance 'productive' work is synonymous with 'really useful labour'. This type of analysis demands that we address the distinction between waged work/labour and unwaged work/labour and their validation. With respect to waged labour, whilst many on the left condemn exploitative and oppressive labour, they nevertheless come near to celebrating such work in its absence (see Avis, 2014).

Exclusion from waged labour is seen to carry a raft of negative social consequences deemed harmful for both the individual and society (see for example, Wilkinson and Pickett, 2010). A rather different emphasis that draws on 'really useful labour' resonates with Marx's imaginary of 'unalienated' labour. For Marx labour is central to our 'species being'. Italian workerism, cognitive capitalism and antiwork (Weeks, 2011) offer a rather different view of waged labour. These analyses question the productivist and economistic assumptions that underpin much of the debate and are particularly salient in the current conjuncture facing western economies. Blacker suggests,

> The current neoliberal mutation of capitalism has evolved beyond the days when the wholesale exploitation of labor under-wrote the world system's expansion. While "normal" business profits plummet and theft-by-finance-rises, capitalism now shifts into a mode of elimination that targets most of us – along with our environment – as waste products awaiting managed disposal. (Blackler, 2013, p1) (and see Marsh, 2011)

Those neo-liberal processes that have hollowed out middle level occupational positions and exacerbated the development of a polarised labour market and income distribution have created a socio-economic context in which the winner-takes-all, referred to by Piketty as 'meritocratic extremism' (2014:416).

Such a context questions the myth of meritocracy. Many of those who are located at the margins of the class structure, will materially experience the collapse of the opportunity structure (Brown, 2013). The result is that aspirations for mobility will be stalled, or the aim may be to avoid downward mobility in what is experienced as an increasingly precarious and insecure situation. Roberts (2016) has drawn our attention to similar conditions facing East German youth and suggests this anticipates all our futures in the west rather than being a glitch in the modernisation of the former GDR.

There is a reformism here that calls for a politics of access and a fairer distribution of life chances set within a flatter distribution of income and wealth. This can easily fold over into a social democratic concern with equal opportunities, a stance that stops short of a revolutionary and anti-capitalist project. This is what Lingard, Sellar and Savage (2014) refer to as an equity model of social mobility, predicated upon individualism and the development of human capital which reduces social mobility to a technical issue. At best such a version has an affinity with a social democracy that seeks to soften structural inequality without posing a significant challenge to patterns of inequality that are grounded in capitalist relations. Notably, the struggle between labour and capital may result in an apparently more egalitarian social formation as it did following the end of the Second World War when the balance of power between labour and capital shifted in favour of the former. However, such gains have been reversed, or at least stalled in the current conjuncture in an increasingly polarised social formation in which the antagonistic relations between labour and capital have shifted in favour of the latter. Whilst such

processes are most acutely felt in Anglophone societies, they are also present to a lesser extent in continental Europe.

As against an equity model of social mobility an equality model is predicated on a much broader, philosophically and politically informed understanding that goes beyond technicism and individualism and offers a challenge not only to neo-liberalism but presage post-capitalism. A hollowed out and polarised class structure offers limited upward mobility. An equity model can only serve to justify and entrench inequality under the illusion of meritocracy.

Byrne (2017) in a critique of Wilkinson and Pickett's *The Spirit Level*, (2010) sets this within a Fabian and technicised discussion of inequality that seeks to minimise the inequities of capitalism but nevertheless leaves these relations in place. In this sense social democracy represents an ideology that celebrates a move towards a more egalitarian social structure whilst simultaneously attempting to secure the interests of capital.

The limits of this reformist politics set in the current context in which class structure is being hollowed out, could prefigure a rather different class politics. Byrne (2017) in a paper which references the past as well as the present seeks to resuscitate the notion of the aristocracy of labour.

He uses this term to refer to those in the top half but outside the 'top decile and certainly the top 1 per cent' (111) of the income distribution. This group depends on its income from waged labour but has experienced a decline in real wages, facing growing insecurity and whose children face an uncertain future. Brown (2016) in a rather different vein refers to 'a crisis in middle class reproduction that has yet to find expression in class opposition' (205).

Byrne's analysis suggests a common cause across the gradients of class structure amongst those who have to sell their labour in order to survive. Perhaps the specificity of the current socio-economic context prefigures this possibility. The alternative is a politics that continually shuffles class positions in a hierarchy, for as Brown reminds us 'positional conflict and inequalities in power are defining features of the competition for livelihood within capitalist societies' (2016, p202).

Such a stance poses questions about the way in which we conceive capitalism and the possibilities for its reform/transformation. The issue is whether we conceive neo-liberalism as a distinctive form or merely an expression of the logic of the system that is driven by the pursuit of capital accumulation.

In the latter case the particular variety of capitalism is the outcome of the struggle between capital and labour and the subsequent balance of power. This means that in those forms akin to social democracy there is a constant struggle by capital to reassert its power, and under neo-liberalism by labour to constrain the power of capital. This toing and froing fails to resolve such tendencies and can only be addressed in a post-capitalist society forged through struggle.

## Towards a conclusion

In this lecture I have explored the relationship between VET, the labour market and social justice, by placing the discussion in the wider socio-economic and political context and the changing nature of waged labour. This sits alongside not only the intensification of labour but also the expulsion and marginalisation of particular groups of workers from employment – the notion of surplus labour. This is particularly salient in relation to questions of social justice, leading to restricted opportunities for social mobility and thus the entrenchment of inequality. Importantly, such processes need to be placed in their spatial and global context within particular social formations - if you like the pattern of social relations. So for example one cannot make sense of Germany's position without considering local, regional, national and global relations, acknowledging these are framed by neo-liberalism. I guess the key question is whether capitalism is all of a piece, or whether some form of reinvigorated egalitarian capitalism promises social justice. A possibility which I doubt.

## Notes

1. This section draws upon Avis (forthcoming)

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# Work 4.0 – new challenges for participation and qualification

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## Introduction

With the debate on Industry 4.0, the potential automation of human labour is returning with a new and almost forgotten vehemence. The last few years have seen a widespread discourse of Industry 4.0 (Pfeiffer, 2017), inspiring recent studies to predict future job losses on an unprecedented scale, the most influential one being that by Frey und Osborne (2017), who predicts that 47% of jobs in the US labour market are at risk of computerisation. This study predicts that those who work with machines and in the production sector will bear the brunt of these developments. Frey and Osborne estimate that 98% of such jobs may be susceptible to automation.

In the eyes of most labour market statisticians, production and machine-based work is monotonous, repetitive, and physically challenging; the loss of such jobs is therefore not on the whole seen as problematic in itself. This article will critically discuss recent labour market research on the potential for automation through new technology and then challenge its distinction between routine and non-routine by qualitative research, revealing an unexpected relevance of non-routine work especially in highly automated and digitalised work environments (*section two*).

As it is nonetheless difficult to argue against the ever more objective-seeming quantitative data on the basis of qualitatively dense empirical studies, *section three* introduces an index that highlights living *labour capacity* rather than routine activity. This novel methodological approach uses the presented qualitative results to construct an index that tries to measure the otherwise "unmeasurable". Utilising 18 indicators from the 2012 BIBB/BAuA Employment Survey (Rohrbach-Schmidt and Hall, 2013), the labour capacity index (LC Index) unveils the extent to which individuals are confronted with complexity, unpredictability, and change in the workplace today. *Section four* presents some results for machine related work in production, *section five* discusses these findings and possible consequences for the design of work environments in the Industry 4.0.

## The Limits of the Notion of Routine – and beyond

Frey and Osborne (2017) derive their conclusions on digital technology's associated effects on the labour market on the basis of US labour market data and the views of technical experts. The authors set out from the assumption that there are barely any remaining limits to computerisation; tose engineering bottlenecks, i.e. tasks that make automation more difficult or delay its implementation, include perception and manipulation tasks, creative intelligence tasks, and social intelligence tasks (cf. Frey/Osborne 2017, S. 264). What particularly interests us here is the question of routine. Frey and Osborne (2017) subscribe to certain distinctions that almost always form the basis of assessments of the effects of technological change. For example, Autor et al. (2003) introduced a classificatory distinction between non-routine (analytic or interactive) tasks and routine (cognitive or manual) tasks and indicate two effects of computers: *substitution effects* (routine tasks are automated) and *complementarity effects* (support is provided for non-routine tasks).

Ultimately, all task-based approaches set out from the hypothesis of routine-based technical change (RBTC) (Fernández-Macías and Hurley, 2014, p. 37) and almost always equate routine with repetitive, monotonous work. In these studies, machine-based labour is seen as particularly susceptible to automation, in two respects: first, such work is held to consist largely of routine tasks; second, production is seen as the most important area of application for new developments in Industry 4.0 automation and robotics.

The author's own workplace investigations (Pfeiffer, 2016) have nonetheless shown that things are not so simple. A typical automobile assembly line in a German car manufacturing plant is already over 95% automated, and there is on average one employee for every robot. But the work done by such employees is far from routine. They supervise eight robots, and in a normal work day intervene in this highly complex process between 20 and

30 times. In order to do so, they not only require a great deal of specialist knowledge (about controlling robots, for instance, or welding technologies) but also context-specific knowledge (concerning quality control, for example, and upstream and downstream processes), as well as experiential knowledge (about the causes of previous disturbances, wear and tear, the way materials react to temperature changes, and so on). Their frequent interventions are sometimes responses to irregularities or disturbances, but mainly serve to ensure that these do not arise in the first place. What we encounter here, then, is a striking contradiction: while in highly complex and heavily digitised production environments the significance of living labour is quantitatively decreasing, its role in maintaining these complex production processes is becoming ever more important. This fact nonetheless remains invisible to most statistical approaches to the issue.

Contrary to what is implied by Frey/Osborne (2017), experience here would then seem to be an expression of non-routine activity and its importance in complex and heavily automated and digitised working environments (Hirsch-Kreinsen 2016). This was already shown by studies conducted in the 1980s on the transition from traditional machines to CNC tools (Böhle and Milkau, 1988) and on the management of complex operations in the process industry (Böhle, 1994). These studies indicated the importance of 'subjectifying work action', whose central dimensions include holistic perception, an explorative and dialogical approach, intuition and instinct, and an empathetic bearing. While specialist theoretical knowledge and routine-based practices are important in standardised processes and repetitive, unchanging tasks, subjectifying action helps employees to deal with the (as yet) unknown. The notion of subjectifying work action thus recalls those aspects of knowledge and action that figures such as Polanyi (1983) and Dreyfus (1992) identified as hidden and informal and—as genuine human capacities—superior even to intelligent forms of technology. A range of empirical studies have lent further weight to the notion of subjectifying work action and highlighted its significance in various work-related tasks, particularly in non-routine situations. *From the perspective of qualitative labour research, then, the customary distinction between knowledge work as a non-routine activity and production work as a routine activity does not stand up to close scrutiny.*

More recent studies have also demonstrated that the increasing globalisation and standardisation of production systems, along with their associated technological transformations, have made production work more complex and thereby increased the significance of non-routine activities. The importance of a 'high-tech instinct' was indicated by Bauer et al. (2006) in their study on process chemistry—an area marked by particularly high levels of automation and the early introduction of process management IT systems. Other studies have shown that in automobile assembly and serial production processes, employees increasingly have to deal with more rather than less complexity (Levitt et al., 2012), even when carrying out so-called 'simple' work. Such developments have been observed in the very areas in which robotics have long played an important role (Pfeiffer, 2016). Qualitative studies at the shop floor level and in the production sector have arrived at very different conclusions than quantitative labour market research, which tends to make rather far-reaching predictions about automation-induced job losses on the basis of its findings. What qualitative studies bring to light, then—namely the ongoing centrality of living labour, even for value creation—vanishes when we adopt a quantitative perspective. What is crucial here is that the significance of living labour[1] cannot simply be described as a residual element that has somehow retained its relevance. The *increasing qualitative significance of living labour in the face of its quantitative reduction is rather an immanent consequence of the contradictions in the dominant modes of production and the current leap in productive forces resulting from digitisation.*

## Measuring Non-Routine

Given the qualitative studies on the significance of non-routine tasks in production work presented in *section two* are of empirical relevance, is there a way to quantify the share of non-routine and therefore human labour

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[1] The notion of *living labouring capacity* stands for the use value of the commodity that is labour power (for a more detailed theoretical development see Pfeiffer (2014), which draws on Kluge and Negt (2014)). On the theoretical elaboration of this analytic concept, living labouring capacity is developed, by applying subjectifying work action, through the active appropriation of the object and means of work (whether material or immaterial) within a historically concrete form of labour organisation.

that is not that easy to replace? In the present section, we shall do this on the basis of the 2012 BIBB/BAuA Employment Survey (Rohrbach-Schmidt and Hall, 2013). This is an occupation-based representative survey that has been repeated at regular intervals since 1979. The survey asks around 20,000 employees in Germany about changes in their work and their occupational roles. The aim of the now introduced steps is *not* to predict the probability of automation in light of new technologies, but rather to highlight the limits of such forecasts. The following elaboration of an appropriate index attempts to make human living labour 'measurable', Our starting point here is the contemporary qualitative research outlined in *section two*. The index we will establish should incorporate both situational and structural challenges for employees resulting from complexity, change, and unpredictability in the workplace (for a detailed presentation cf. Pfeiffer and Suphan, 2015). The *labouring capacity* index (LC) is comprised of three components and a multiplier, and is generated as follows:

**Formula for Calculating the Labouring Capacity Index**

$$LC = \left( \frac{\overline{sitCOM} + \overline{sitUP} + \overline{strCOM}}{3} \right) \cdot rEX = [0;1]$$

Whereby:

$$\overline{sitCOM} = \frac{1}{3} \sum_{i=1}^{3} x_i = [0;1]$$

$$\overline{sitUP} = \frac{1}{7} \sum_{i=1}^{7} y_i = [0;1]$$

$$\overline{strCOM} = \frac{1}{7} \sum_{i=1}^{7} z_i = [0;1]$$

**Formula 1: Calculating the LC-Index**

The *sitCOM index component* stands for '*situation-specific handling of complexity*'. Here, three items measure the frequency with which employees engage in situation-specific problem-solving and decision-making activities, both alone and in collaboration with others.

Seven further items make up the *sitUP index component, and measure 'situation-specific unpredictability', including improvised action under pressure*.

The *strCOM index component*, likewise comprised of seven items, measures 'increasing structural complexity' and thus the changes in the tools, objects, and organisation of work over the last two years, insofar as these were accompanied by increased stress levels. Finally, the rEX multiplier stands for the 'relevance of acquiring experience'.

The LC index can be calculated for a total of 17,479 cases. This yields a score of 0 for 16.9% of the workers surveyed, and a score of under 0.5 for a further 9%. Respondents with below the theoretical average values would seem to require a very low or—by comparison with the comparatively coarse items—unobservable level of living labour capacity. By contrast, high scores were recorded for 48% of workers and very high scores for a further 26%. The measurable index scores (LC > 0) are normally distributed. The LC index mean score was 0.56 and exhibited a slight tendency toward higher index scores. Overall, an LC index score of over 0.5 was registered for the occupations of 74% of all workers surveyed. The majority of employees in Germany had therefore developed informal skills to help them deal with unpredictability, change, and complexity. This high score shows that the contrast usually drawn between routine and non-routine tasks is inadequate.

## Non-Routine and the highly automated shop-floor

The industrial branches of automotive and mechanical engineering (and within these, the domains of production and assembly) are key to the implementation of Industry 4.0 and novel approaches of automation and robotics. Of all respondents we now consider mechanical and automotive engineering (N=1.196), along with machine-

based occupations—i.e. those that in the study discussed above (Frey and Osborne, 2017) are regarded as highly routinized and particularly susceptible to automation.

The LC index comparison however shows that these core industrial branches exhibit well above average mean LC scores, at 0.65 ($N_{LC}$ =1.070, SD=0.249). In contrast to the above studies, this suggests that it is precisely in such heavily industrialised and highly automated industrial branches that employees are called upon to exhibit an above-average level of non-routine activity.

We shall now turn to the LC index scores generated for occupations that are particularly relevant to Industry 4.0 and/or quantitatively significant within the two industry branches. Three occupations were selected from the areas of metalwork and electrical work, and one from the field of technological development, construction, and production management. Alongside we also included IT occupations, which have acquired greater strategic significance in the context of Industry 4.0.

The index scores for the selected occupations were well above the mean theoretical and empirical LC scores recorded for all employees. Furthermore, surprisingly high scores were recorded for machine and production-based occupations. The LC scores for the occupations in 'metal production/metalwork/metal engineering (øLC=0.61, SD=0.269; $N_{LC}$=115) and 'mechanical and automotive technology' (øLC=0.65, SD=0.258; $N_{LC}$=319), as well as those recorded in the areas of 'mechatronics, energy, and electrical work' (øLC=0.73, SD=0.167; $N_{LC}$=61) and 'technological development, construction, and production management' (øLC=0.70, SD=0.196; $N_{LC}$=124) were not only well above average, but also just as high as the scores recorded for the occupations in 'information and communications technology' (øLC=0.71, SD=0.182; $N_{LC}$=34).

This clearly shows that employees in the automotive and mechanical engineering branches—even those engaged in machine and production-based work—are often confronted with unpredictability, change, and complexity. The idea of dull routine work therefore does not apply here, and the quantitative figures support the above qualitative research.

## Coping with automation is more than routine

Automation first of all aims to replace workers, and those in production again are seen as the first to go according to recent studies like that by (Frey and Osborne, 2017). Their conclusions on the replaceability of human labour by robotics and 4.0 automation are based on a notion of routine work that has been neither empirically nor theoretically validated, but contradicts qualitative research in the area, which showed that it is precisely in highly automated environments that non-routine action plays a central role. We then quantified that by inventing an index that makes evident what so often is overseen and neglected: phenomena of living human labour.

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Session 1.1
**Communication and conflicts**

# Theme-Centered Interaction (TCI) as a structured-methodical approach to develop the reflexivity and formative capacity of VET teacher students in a democratic culture

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**Abstract:** Vocational education and the acquisition of democratic competence in the sense of a critical, self-reflective planning ability are rarely observed in context. The following article shows the importance of combining these aspects as well as the significance of the implementation of corresponding contexts and alternative forms of both learning and teaching. Theme-Centered Interaction, or TCI, was developed in the USA in the 1960s. This article discusses the method and its implementation in the degree program for vocational teachers at the University of Rostock, Germany. This exemplification illustrates how learning in its form and attitude can promote critical self-reflective potential. Acquiring democratic competence in society can be experienced by the students in a practical way. Furthermore, there is the possibility to learn both basic theories and practical skills.

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Prof. Franz Kaiser is a full professor and director of the Institute for Vocational Education at the University in Rostock, Germany. His lectures and research focus on occupational research, curricula and training regulations development, group dynamics, VET teachers, international research in VET, time concepts and the critical theory of 'Bildung'.

## 1 Introduction

Academic teacher-training in Germany targets the acquisition of theoretical knowledge, models and concepts that form the basis for the subject matter if they are connected to the teaching subject. Traditionally, education and teaching methodology are studied together. While the work of education / vocational pedagogy depicts the theoretical foundation of teaching, learning and self-reflectivity, the technical methodology mediates the factual and reflective knowledge that is required for the subject-specific courses.

The following article refers to a standard seminar of the course of study for vocational teachers within the framework of the basis module „didactics and methodology of the vocational education" at the University of Rostock. First, the area of tension between emancipation and vocational education will be outlined. Afterwards, the approach of the Theme-Centered Interaction, its genesis as well as the ethical and practical principles will be presented. This approach is connected with the goal of promoting democracy in teaching- and learning concepts in vocational education. Finally, insight is given in the practical seminar work and a connection to the general goals of the degree program for vocational teachers at the University of Rostock.

## 2    Democracy and Vocational education

Educational systems are part of the culture of a country which have adapted to political structures and the aims of education in general. The goal of vocational education changed with the historical revision of and in post-Nazi Germany. After this revision, the goal of vocational education was not only to create and develop qualified skilled workers who fulfilled instructions,  but also to enable these workers to make autonomous decisions in real vocational situations. The vocational ability to act does not only mean developing a qualified workforce that carries out commands: vocational education should also enable the skilled workers to make autonomous decisions, including the capacity to substantiate the decisions regarding to technical and social competence.

The first writings on this issue were published in the 1970s. They implied the political relevance of the vocational education and criticism about the existing approaches and conservative traditions in the vocational education linked to the classical vocational education theory, for example from Kerschensteiner. Wolfgang Lempert verified the massive command structures in training situations in a highly elaborated methodological study on apprenticeship training that contradicted with a democratically-emancipative apprenticeship: a quotation of an apprentice: "To parry is in a higher position than the actual learning. … The individual never comes into its own." (Lempert 1974, p.161).

The current aims, where the role of the operational training supervisor and the vocational school teacher merge into the role of a learning facilitator (which can already be found in the ideas of Kerschensteiner in 1904). It is the combination of professional qualifications with regard to complex work processes, and less the training of basic skills; it is the connection of problem-solving with social learning processes. "Their task (that of the trainers) is to open up working situations, so that the comprised requirements are made accessible for the learner and the ability to learn is supported in these situations. Connected to that is the conviction that learning processes cannot be done from the outside but it's important to remove learning barriers in the learning situations." (Bauer et.al. 2004, p.152) The social change to democracy, the coherent change in the mentality of trainers and teachers, the increasing importance of team work and the expansion of scope at the workplaces all contributed to this change. (Billet 2011).

Learning should no longer only follow the didactic principles of knowledge transfer of conditioned learning contents, but should instead create acquisition situations that grant access for the individual learner. Vocational didactics must therefore change in order to enable biographical and cooperative learning forms, where the other learners become promoters and knowledge carriers (peer learning). Consequently, learners and teachers are both part of a lively learning process.

## 3    Theme-centered Interaction as an approach to authority-free learning

Theme-centered Interaction, or TCI, is a method of the pedagogical-therapeutic group dynamic, based on the findings of psychoanalysis and the human psychology. It was developed in the in the USA in the 1950s and has now spread in pedagogical therapeutic areas in Europe. The goal of this approach is the promotion of integral working and learning processes by authentic meetings among each other, where individual personal experiences, the thematic or rather the negotiating "It (task)" and the interactions within the group in the context of the given frame conditions should be considered equally and brought into balance.

The „It (task)" is sidelined by personal and emotional aspects and becomes equal to them. TCI offers lively and varied training to promote the personal development of all participants in the process. It is not only these impulses from human psychology which are essential for the development of TCI; they are intertwined with the biography of Ruth Cohn. She was Jew who fled from the Nazi terror regime to the USA in 1941. There, after

she met Fritz Pearls and Carl Rogers, she enhanced the psychoanalytic approach into a pedagogical approach to reach the greatest possible number of people. She realized the importance of a pedagogical approach in order to handle the traumata and disapprovals, evoked by National Socialism and the cold encounter culture of capitalism (Cohn 1969).

The encounter culture of the TCI, initially based on therapy and cooperative supervision, helps to offer meetings at the same eye level. The individual is respected in his or her individuality and can or should express emotions and thoughts about a certain topic. At the same time, the individual is sensitized to the "inner world" by drawing attention to his or her own body and spontaneous creativity. The appreciating encounter culture thus made aware one individual and the others for each other and offers the condition for an open handling of tasks and issues that connect and merge particular persons within the group. At the same time, attention should be drawn to the „globe", the whole issue of the world with the goal of promoting the growth of all (nature and humans) and the disposal of the forces that aim against that growth. The practice of TCI can occur in a self-help group but also in further training of managers, political civic involvement or teaching situations with older pupils/students and in vocational training situations (Kaiser 2009). The ethical value orientation that takes aim at the protection of all living and the promotion of growth and the knowledge that becomes effective in the four factors of encounter situations, are both essential:

- I (the individual in a group that can participate in learning situations with all its facets in a self-reflective way)
- We (a group of all participants that encounter in an open culture)
- It (the task and subject that connects the group and the thematic of every tutorial)
- Globe (the sum of all group-surrounding factors, from the room to institutional rules or the political situation)

The task of a leading person of a TCI learning situation is to build a dynamic balance between these aspects (no factor should be neglected) and to lead the group in a participative way (Braak 2015). „The leading persons are participative members that are responsible for structures, for the dynamic balance in the process and consideration of the individuals and their needs. " (Hintner et. al. 2009, p.183).

In order to cultivate this lifestyle, it is helpful to act with the group, to take an interest in the experiences of members, to make statements about yourself, to be authentically visible and to establish a transparence about your own actions.

## perception schemes
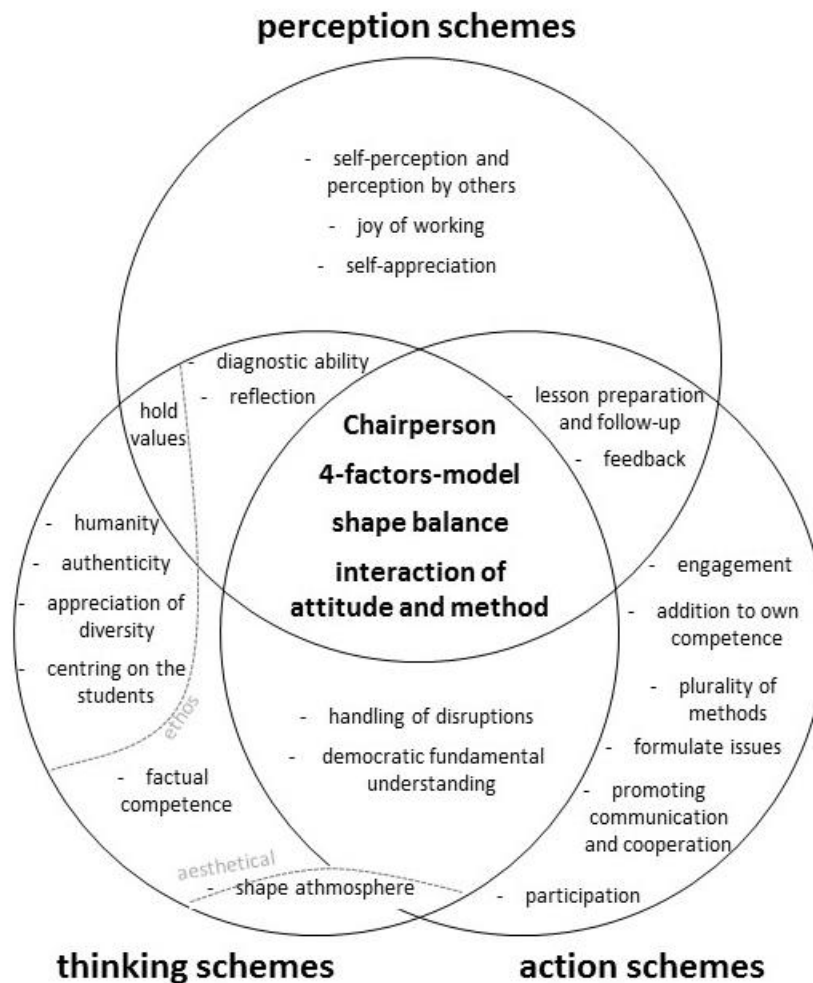


Figure 1: The TCI-Habitus From: Ewert 2008, p. 183

After a few years of practice, a habitus generates for the leading persons who practice TCI. Ewert converted it into a chart and transferred the basic approaches and positions of the TCI to the actions of respondent teachers by resorting to Bourdieu's habitus concept (figure 1). He could show that the practice of TCI has influenced the habitus of the teachers towards engagement, democratic fundamental understanding and humanity.

## 4    Learning TCI in the context of the degree program for vocational teachers in Rostock

The degree program for vocational teachers in Germany consists of a vocational first subject (e.g. electrical engineering, metalworking, health care etc.), a second subject in general education (Mathematics, German, Philosophy, Physical education etc.) and the studies in educational science, predominantly in vocational education.

Altogether, the following competences should be developed:

- subject-specific competencies (first and second subject)
- knowledge of technical and organizational development of particular occupational areas (teaching methodology of vocational first subjects)

- organizational capacity to teach didactics, methodology and teaching methodologies (vocational education and subject specific teaching methodology)
- pedagogical ability to reflect and act (educational science and teaching methodology)
- formative capacity in school organization and the advancement of the vocational training system (educational science)

The specialist qualification in Germany's largely uniform degree program model is dominant, while educational science plays a smaller part. There is little space for the reflection of one's own comprehension of being a teacher and being in a leading position at many study locations, because the emphasis is on dealing with educational models and theories. The TCI seminar is part of a two seminar module on didactics and the methodology of vocational education that students study in the fourth semester. In this module, different didactic approaches are discovered and the first placement in a professional facility is prepared. While one seminar in this module aims at the specific action- and activity-orientated learning in VET and the corresponding activity theory as well as the concept of learning areas, the TCI seminar aims to promote sensitivity for group processes in class as well as the reflection of one's own performance and its biographical origin.

The encounter structure in this seminar is created through a "circle of chairs" that facilitates participative management. In the first seminar hours, the theory of the TCI is studied and the learning process is enriched with forms of practical experience that follows the rules of TCI. For example, students reflect upon their biography and the groups in which they work and live by working with pictures. They also reflect on experience practice and encounter situations for the strengthening of the open exchange among each other and learn subject formulations that help to both guide and connect the group.
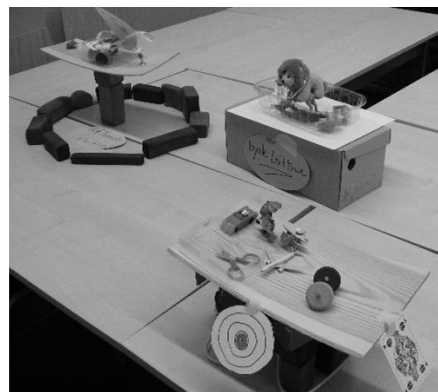


Figure 2: Collegial interaction and sculptures to "our vision of a good leading"

The creative confrontation with the own way of leading and the mentality behind occurs in a concentrated manner in the block seminar (figure 2). Here the students try to develop units independently which they then lead and get feedback on.

In the following lessons these units are reflected upon and the application areas of the TCI, its skills and assisting tips and its strength and weaknesses are carved out.

In this way students encounter themselves and others and have the experience that learning can be arranged in a way that makes the comprehension of the participants visible. Thus the students get a new insight to themselves and each other and can develop new images of a cooperative encounter that does not follow the ordinary authoritarian power gap. Furthermore, social issues, such as sustainability, for example, are discussed (Kaiser 2016a).

## 5   Conclusion

The promotion of an emancipative education in vocational education, according to the ideas of Critical Theory of the Frankfurt School (Kaiser 2016b) is dependent on a critical societal analysis and a reflection of one's own role and that of the school by teachers. The development of democratic learning- and teaching forms is important as well, to encourage the apprentices in the VET-system to express their contradictions in several situations. Therefore its helpful to have freedom of hierarchy in learning situations to try out the needed skills and competences.

The right to receive "Bildung" cannot be separated and only reserved for general education. "Bildung" unfolds at  work, on the job, when qualified, skilled workers are allowed to construct critically. In order to encourage such actions, the workers need to acquire analytical competence as well as the experience of appreciated tuition that mediates and enables them to experience how important the individual is. The individual has the right and the obligation to interfere in every living context and to campaign for the development of everyone. This includes but is not limited to immediate colleagues, working conditions or the customs and component suppliers of their own corporation (Kaiser 2016b). For this purpose it is necessary to establish a basis of a serious participative form of teaching for students of vocational education and to communicate with them about their values and their performance orientation in an open discourse. It is a welcome side effect that we strengthen and encourage the personal relationships in the group of students in an early phase of the degree program.

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# Nonviolent communication – a communication concept for social inclusion and self-confident workers in Vocational Education and Training

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**Abstract:** The presentation will answer the question how Nonviolent communication (NVC) helps to prevent and solve conflicts in Vocational Education and training. NVC (sensu Rosenberg) is a communication tool to prevent and solve conflicts in VET. Based on two surveys the presentation shows explorative results of two main aspects: First: How can NVC help to prevent and solve conflicts in VET? Second: IS NVC an effective tool to improve self-confidence and social inclusion of workers and students?

**Bibliographical notes:**
Markus Dormann has studied sociology and vocational and educational training. He worked as a teacher and is now working as scientific assistant at the chair of Economics and Business Education at the Otto-Friedrich-Universität Bamberg, Germany. His research interest focuses on conflict management in VET, communication competences of teachers and digital transformation and learning.

## 1 Introduction

Crossing boundaries in VET is always connected with communication between workers, students, teachers or trainers and all stakeholders of the vocational system. Based on accelerated social, economic and technical change the importance and complexity of communication seems even to increase. In this case globalization and digital transformation seems to transform the way we communicate. On the one side, we can observe the change of the way we speak (video conferences, communication via social networks). On the other hand, the recipients of our communication are changing (for example in intercultural teams). These changes happen in companies and in schools as well.

These changes are producing an increasing number of conflicts as well. As soon as different actors communicate, the different thinking, imaginations, observation, feelings and volition of participants could easily harm at least one actor's needs: as a result, interpersonal conflicts could emerge (Glasl 1999, 14). Such conflicts are subjects of many scientific disciplines e.g. psychology, sociology, political science, economy and educational science. Although consequences of conflicts are not always negative, they even can improve working conditions (Simmel 1908; Dormann 2017a). Conflicts in the VET-sector often lead to stress, non-attendance, disturbed collaboration, mobbing, terminations or even violence in everyday work (Bitschnau 2008).

It should be mentioned that such kind of negative effects occur to both, students and teachers. For both these kinds of conflicts are enormously burdening and demotivating. Additionally, figures show very intensive conflict costs for companies (KPMG 2009).

## 2 Research question

The research question is which communication model could be helpful and practicable to prevent and handle such conflicts in VET. In this context NVC seems to be a very effective tool to solve and prevent communication

conflicts in the institutions of the VET. Marshall Rosenberg (Rosenberg 2012, 2013) founded the communication conflict model in the 1980s. Since the development of NVC, the model has been implemented successfully in different conflicts all over the world e.g. political, institutional and interpersonal conflicts. Next to its efficiency in conflicts, NVC seems to have the potential to help workers and students to strengthen their self-confidence and social inclusion (Dormann 2017b). Self-confidence and social inclusion can be improved, because NVC communication is based on common needs of the communicators. These common needs connect the communicators even in complementary communication (Watzlawick et al 1967) and difficult situations. In addition, the humanistic approach of NVC is closely connected to self-confident workers and social inclusion (Bühler/Allen 1974, 7; Rogers 1983). The NVC model itself is based on four steps: Observing, identifying and expressing feelings, identifying and expressing needs and formulating requests. Furthermore, empathy and attitude is important to practice nonviolent communication. Next to the idea to resolve and prevent conflicts there seem to be another effect of using NVC.

Although the number of NVC trained companies, trainers, workers and teachers is enormously increasing worldwide, there is a lack of empirical results regarding efficiency and effectiveness of the model. Following questions should be answered:

• How can NVC help to prevent and solve conflicts in VET?

• Is NVC an effective tool to improve self-confidence and social inclusion of workers and students?

## 3 Methodology

In the study, the results of 41 qualitative interviews with NVC-trained teachers (the interviewed teachers had between six and one hundred days of NVC-training; many teachers participated in long-term courses with certified NVC-trainers) will be presented. The half-standardized interviews were subject to a structuring content analysis (Mayring 2015; Kuckartz 2014). To improve the validity, the intercoder consensus of the different categories was considered.

The presentation results will be completed by a second interview study. Based on nine expert interviews with certified NVC-trainers, explorative results can be shown how NVC in companies is working. The interviewed NVC experts worked in different companies and industrial sectors.

## 4 Results

It is possible to identify framework conditions and obstacles using NVC in companies and schools. In school, these results are closely connected with learning effort, absences and the gaining of social competences. Next to these outcomes, the interviewed teachers speak about possible changes in the communication culture and the willingness to collaborate. It seems to be evident that there were a couple of counterarguments like the time-consuming use of NVC, the need for training, the fear of losing control in the classroom. There are three levels counterarguments. On the level of the teacher, the level of the school system and the level of the NVC-model by itself.

Beyond that it will be possible to describe impacts of NVC in companies on the level of the workers (e.g. increase of motivation, increase of self-confidence or transparency), teams (e.g. improved collaboration, time saving effect) and the company at all (e.g. change of the communication culture, motivation, increasing creativity). Another important question is to identify key figures. These key figures should be able to measure the impact of the communication model. It is possible to identify hard and soft factors. Hard factors can be revenue, staff turnover, and sickness figures. Soft factors are factors like wellbeing or employee satisfaction.

## 5 Theoretical and educational significance of the research

The presented results are one of few empirical results regarding the NVC model in vocational education context. So far, there are only some empirical studies proving the impact of NVC in VET.

The presentation shows how NVC helps to prevent and solve interpersonal conflicts and changes communication in EVT (e.g. appreciation of communication partner; symmetric communication; clarification and transparency of conflicts). It will be shown how NVC can help to improve self-confidence and social inclusion. Based on the data, hypotheses can be formulated regarding the effectiveness of NVC as a communication model and a model to strengthen self-confidence. Based on the growing number of NVC trained teachers and workers it seems to be helpful to produce reliable knowledge to the communication model.

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Session 1.2

**CBET and qualification framework and their impact**

# Linking the VET system to the labour market: the 7-step model

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**Abstract:** The paper presents the 7 step-model, a framework for the development of a strategic approach that seeks to ensure that quality VET exists to support the development of a competent workforce. It fosters the development of evidence-informed VET policies and pursues to ensure a strong link between the education and training system and the labour market. The model has proven to be an effective methodology that can be used by a wide range of stakeholders to achieve a variety of education or employment objectives. It offers, in particular, a common and consistent approach that is, at the same time, flexible and adaptable to the different national VET systems.

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## 1    Introduction

The Education and Training policy in Europe recognises that a strong system of vocational education and training (VET) is a precondition for a sustainable economic and social development (European Commission, 2009). The Copenhagen declaration (2002) points out in particular the necessity to develop tools that improve sectoral identification and anticipation of skill and competence needs, the promotion of guidance and counselling, adult training and validation and recognition of informal learning.

Nowadays, policy makers and practitioners acknowledge that VET plays a key role in the integration of individuals into the labour market, by also providing the skills and competences essential for innovation and entrepreneurship. In the longer term, in fact, it is not certain that the skills and qualifications provided by the national educational system in Europe will be able to satisfy current and emerging needs in the labour market.

This poses a major challenge and underlines the importance of the role of lifelong and work-based learning in up-skilling the labour force and enabling individuals to anticipate labour market reorganization.

In the light of this, there is the need to ensure a dialogue between the VET providers and the labour market with the view to promote a transparent and flexible VET systems - with clear learning and career pathways - and ensure the development of a competent workforce with the right skills and competences in line with the expectation of the employers. A flexible VET system, that has the capacity to respond to the requests of the labour market, is regarded, in fact, to speed up the transition from education to work (CEDEFOP, 2013). In addition, it supports the establishment of a competent workforce through fit for purpose training and qualifications aligned with the expectations and realities of the labour market. Finally, it gives to the learners the opportunity to re-contextualise their theoretical and practical knowledge in the new social and economic contexts in order to gain suitable and effective skills (Griths and Guile 2003).

## 2    The 7-Step model

As reaction to the necessity to facilitate mutual exchanges between the VET systems and the labour market and, thus, support the development of a competent workforce in Europe, EOSE (2015) has developed a methodology called «7-step model». The model provides a framework for the development of a strategic approach that is expected to: provide a coherent framework that ensures that quality VET exists to support the development of a competent workforce; understand and anticipate realities, changes and future skills needs of the labour market; engage relationship between sector stakeholders; organise the sector in support of EU policies and strategic initiatives (such as EQF, ECVET, etc.); promote transparent and flexible education system and career pathways; match education to the labour market through fit for purpose qualifications; support transparency and mutual trust of qualifications.

The model is based on the development of industry-led occupational standards specifying the principles of performance that people are expected to achieve in their work, and the knowledge and the skills they need to perform effectively. Standards identify the competence needed in a particular sector, sub-sector or occupation and are valuable resources ensuring that VET outputs meet the labour market requirements.

Seven interconnected steps are at the heart of the model. They can be briefly described as follows:

STEP 1 - Labour Market Intelligence (Research the sector)

It is based on the collection of data from various sources using a range of techniques to be able to understand the characteristics of the sector and its current labour market (paid and unpaid), to assess the potential for growth and change and to identify the priorities areas. The main use of this information is to describe the relationship between employers and occupations and to assess how well the labour market is functioning, the existing and emerging skill shortages and training requirements, the appropriateness of the existing VET systems, and the prediction of current and future skills priorities.

 STEP 2 - Occupational Map (overview of the sector)

It is a natural progression from Step 1; both steps can be combined to provide a comprehensive and concise overview of the sector, the employment related issues, the common job roles and key occupational areas; the Occupational Map contributes to the context and background for the development of occupational standards and education and training strategies for a sector, a sub-sector or an occupation.

STEP 3 - Occupational Descriptors (job descriptions)

Step 3 consists of developing occupational descriptors for the main occupations and job roles identified within the occupational map. Occupational descriptors identify key tasks, skills and attributes that relate to a specific occupation as well as knowledge, qualifications and career routes, and therefore become a useful reference point for the development of occupational standards and qualifications and identifying career routes.

STEP 4 - Functional Map (graphic breakdown representation of all functions and work activities)

The Functional Map is a graphic representation that describes the work activities taking place across an occupational sector; it sets out a framework from which occupational standards can be drawn and developed but they are not the occupational standards themselves. The Functional Map begins by defining a *key purpose* for a particular sector or occupation and would normally expand through *key areas*, *key roles*, and *key functions*.

STEP 5 - Competence Framework / Occupational Standards (competencies, skills and knowledge)

The Competence Framework is made up of occupational standards which are units of competence which describe the skills and knowledge necessary to work in a sector; the occupational standards are an extension of the Functional Map where each *key function* is simply broken down further to a level which describes what individuals in any occupation should be able to do, the standard they should achieve and the knowledge and understanding they need.

STEP 6 - Guide to Learning Outcomes (support development of learning programmes and courses)

It is the point in the strategy where there is cross over from the area of employment to the area of education; it describes the guidance from the sector to education and training providers and national qualifications authorities concerning the development of learning programmes which help people reach the competence required for employment in the sector (matching the requirements in the occupational standards).

STEP 7 - Quality Assurance Process (Accreditation / Verification)

The last step embeds a crucial process that shall: ensure the efficient implementation of VET systems (it is directly related to the verification and accreditation of qualifications being delivered by training or education providers); promote confidence amongst employers, professionals, providers and the public; ensure VET providers issuing certificates are subjected to a quality assurance process that can be trusted to ensure consistency.

## 3    The application of the 7-step model: lessons learnt

The 7-step model was tested through two specific EU projects – LLL Sport (EC agr. 2009 - 5146 / 001 – 001) and VSPORT+ (ECEA agr.  518911-LLP-1-2011-1-FR-KA4-KA4MP). Both projects had a specific focus on sport and active leisure, a sector in which organisations are increasingly seeking a range of competent and qualified individuals with new skills, who are often difficult to find in the established European labour market. The application of the model enhanced the capacity of the sector to evolve and fulfil its potential; it also supported the development and the implementation of an integrated methodology for VET across the whole sector and its sub-sectors. In addition, the model was adopted in several EU countries such as, France, the United Kingdom and Italy as a framework to ensure a strong link between the area of education and the labour market. Recently, it has been officially recognised as a valuable methodology and supported by the European Commission and CEDEFOP.

From a scientific point of view, the model has proven to be an effective methodology that can be used by a wide range of stakeholders to achieve a variety of education or employment objectives. It offers, in particular, a common and consistent approach that is, at the same time, flexible and adaptable to the different national VET systems. Additionally, used as a whole process, the model is ideal for stakeholders to give strategic

leadership and modernise the vocational training and skills system in their sectors or to ensure qualifications and skills are relevant to the challenges and opportunities of the modern society. Finally, the framework offers a cascade process, based on logically interconnected stages, that offers guidance in the identification of the skills and competence needs (for a sector, or sub-sector or occupation) and the following definition of the occupational standards and the corresponding learning outcomes.

The efficacy of the model is closely linked with two crucial aspects: an evidence-based approach and a sector approach. Generally, there is a lack of proper research informing the VET strategies and policies. This is certainly a problem that limits the efficacy of the VET systems in responding to the needs of the labour market. On the contrary, Step 1 and Step 2 seek to provide a comprehensive and concise overview of a sector (or sub-sector) by gathering information through both qualitative and quantitative methods. This represents a fundamental base of knowledge that gives guidance and orients the following steps. In addition, in the application of the model, the adoption of a sector approach is a fundamental pre-requisite. To this aim, all the relevant stakeholders are gathered together to discuss and drive forward key issues in a sector, particularly around employment, education and training. Stakeholders include employers, social partners, governments, training providers, universities, etc.  They are directly involved in all the phases, through a participative approach, both as key informants and strategic leaders that orient the process. Albeit the involvement of such a large variety of stakeholders is a prerequisite, it must be underlined that, in many sectors, it is rare for different stakeholders to speak to each other: this may represent a possible barrier and a limitation in the application of the model.

Broadly, it must be emphasised that the 7-step model has been designed to be a general methodology that can be applied to a range of sectors and national contexts. The evidence gathered so far are encouraging and have proven the adaptability of the model. However, every context and sector is different. Thus, on-going validation of the model will be required to determine in which contexts and sectors can be used as a reliable and valid methodology.

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Session 2.1
**Teacher Training**

# VET teachers researching and/or drawing upon research: Australian VET teachers crossing the non-reflective to scholarly boundary

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**Abstract**: This paper addresses the proposition that there is VET enrichment gain in Australian VET teachers engaging in research and drawing upon the research of others as a component of their professional practice. And, emphasising that this is research in progress, the resolution is indicated as emerging from teachers valuing being scholarly in so much as engagement 'in' and 'with' research is scholarly, being supported by a VET delivery environment which nurtures this occurrence, and the key influencing stakeholders having knowledge of and respect for the motivations which apply. This isn't a surprising insight, but the processes to achieve the goal are easier said than done – VET teachers aren't a homogeneous group and the VET system is conflicted in that it has professional development and vocational currency, un-resourced, expectations. Accordingly, it is suggested that LCM Achievement Model (Hughes 2007) has application as and inclusion in the mediating tools/artefacts in an Activity System (Engestrom 2001) and has '*boundary crossing*' resonance with Maslow's Hierarchy of Needs.

**Keywords:**

Vocational education and training, Reflective teacher, Scholarly, Organisational achievement

## 1    Introduction

Following an Australian Government sponsored, 1986 joint Australian Council of Trade Unions and Trade Development Council Mission to Western Europe (Commonwealth of Australia 1987) there have been intermittent pulses of vocational education and training (VET) reform in Australia. Whilst the Mission terms of reference were largely directed at Australian international competitiveness, matters relating to VET (as now manifest in Australia) were prominent in the explorations made in the visits to  Sweden, Norway, Austria, West Germany and the United Kingdom. The shift from time-based training to competency-based training (CBT) and the restructuring of VET delivery under the influence of successive governments are, to a degree, consequential upon the 1986 mission.

In large part, the changes in VET delivery have been driven, seemingly, by a government(s) professed belief that competition (including contestability for government funding) in the VET marketplace is good - hence the introduction of private providers in competition with publically funded providers identified as Registered Training Providers (RTOs). At March 2017 – 42 public RTOs and 4594 private RTOs.

Arguably, in the interest of reducing costs and quickly recruiting large numbers of teachers, the competitive/contestable VET environment has led to a shift in the training of VET teachers. This shift has been

from VET teacher training being a two year program of vocationally aligned pedagogical learning coupled with mentor supported classroom experience (somewhat akin to apprenticeship) to a Certificate IV in Training and Assessment which although nominally (in various iterations) of approximately 300 hours[2] has been delivered in as little as 10 days. The outcome is that there is uncertainty regarding VET teacher disposition toward being reflective/scholarly in their teaching practice – both pedagogically and vocationally current.

> *"So in my days of teacher training - Was getting a critique a form of reflective research into the way in which you educate? - which doesn't happen anymore. I mean our training of teachers has gone downhill terribly… My training as teacher, as a VET teacher was two years – part time teaching and going to Hawthorn Institute of Education. Now it is an eleven week program to get a TAE Cert IV. And I think, you know, that's to the detriment of VET training. But in those days when we did that sort of training was that reflective research to have people come in and critique your teaching style; and you to get feedback on it and then develop from there. And that was a sort of a form of reflective practice. Those things have of all disappeared."*

<div align="right">(VET teacher, Provider A, first meeting, 182)</div>

Also, casualisation of the VET workforce (teachers and other professionals) – suggested as exceeding 223,000 in 2011 (Productivity Commission, 2011, p. 31) within which, anecdotally, there are now increasing numbers of casual teachers. The casualisation, seemingly and anecdotally, primarily, driven by VET provider sustainability matters in the quest for lowering costs of delivery. However, there is the possibility of arguing that casual (generally now referred to as sessional) teachers who are concurrently employed in the vocation (employment focus of the learning) are vocationally current in a way that a contracted (staff) teacher may not be. However, the matter of sessional teacher commitment to teaching is problematic especially as reliance is upon VET teachers to design and deliver a quality learning and assessment experience to meet defined competency standards. If teacher pedagogical learning has been shallow from what model do they draw in their delivery of learning?

> *"And we are probably relying a lot more on sessionals – which are great. They bring in some very valid points because they are current. They are probably still working in the industry – which is good. But, say, for us* [staff teachers] *to develop resources and all that it impacts us because a sessional – no matter who or what they are – they are only going to come in to do what they have to do. They are not going to spend the time and develop resources and … "I am not paid to do that"* [sessional teacher voice]*. And I sort of can understand that factor."*

<div align="right">(Teacher, Provider A, first meeting, 193)</div>

Accordingly, the question arises – Be it a staff (contracted) teacher or a sessional teacher - Where is the balance between a VET teacher seeing themselves as first a teacher or, alternatively, seeing themselves as first vocationally identified? e.g. 'Am I a teacher of plumbing or a plumber who happens to be a teacher?' (generalising of an indicative stance). In either case, VET delivery in Australia assumes a teacher (staff or sessional) to be pedagogically capable and have (to a degree) scholarly commitment. Noting that, in this paper, 'scholarly'- as applied to a VET teacher - is taken to imply being critically reflective in one's teaching practice and to thus – as part of practice - research and draw upon the research of others as informs rich delivery of

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[2] Nominal hours are a device set for government purchasing of training delivery purposes. Interestingly, and adding to Australian VET delivery uncertainties, in recent times the notion of volume of learning has been introduced as advisory and for a Certificate IV is suggested as between 6 months and two years. This said, there is indication of potential remedial action (ASQA 2017).

learning and reliability of assessment. And, further, noting that monitoring of VET provider quality compliance is transitioning from a focus upon systems and processes to a focus upon learning outcomes (Couldrey, 2017).

The above said, there is an appearance that the Australian VET system is now in a recovery mode from some of the outcomes of reform which have led, in some instances, to questioning the reliability of qualifications awarded in terms of asserted competency. Although I express this as a personal view, there is logic in the proposition that a VET teacher being somewhat scholarly has a place in strengthening VET delivery even if recovery is not in mind. Accordingly, I applaud the emerging use of '*scholarly*' as a desirable attribute of Australian VET teachers - albeit softly spoken and more by inference than overt declaration. And, the recent establishment of the VET Practitioners[3] Research Network (VPRN – www.vprn.edu.au ), arising from key VET interests, is a manifestation of this trend and adding to the timeliness of my researching VET teachers as reflective practitioners.

## 2    Informing Research

This paper, in addressing the 'why' and 'means' of VET teachers crossing the non-reflective to scholarly boundary is informed – in so far as being 'educationalist' valuing the 'E' in VET has connection to being scholarly - by recent research into VET when well taught adding to social capital (Hughes & Hughes 2011, 2012, 2013). However, the principal informing research is the current (on-going and referred to in this paper as *VET teachers and research*) exploration into VET teachers researching and drawing upon the research of others as part of their professional practice. These explorations have been ethnographic in character and employed activity theory as the prism through which insight has been achieved. Also, outcomes from ethnographic research into the relationship between lifelong learning and organisational achievement (Hughes 2007) is drawn upon in offering an approach to motivating and supporting VET teachers in their boundary transition.

## 3    Being Scholarly – researching and drawing upon research

What is to be gained by vocational education and training (VET) teachers crossing the boundary from non-scholarly to scholarly? Noting that a VET teacher researching and drawing upon the research of others as part of their professional practice is, for-the-moment, the target scholarly activity

*To be or not to be scholarly? - That is the question*

(With acknowledgement of William Shakespeare – Hamlet, Act 3, Scene 1)

In response, it could be said that scholarly – in a VET teacher sense – is to do with being a conscious and reflective lifelong learner in respect of both learning facilitation (pedagogical matters) and evidence-based vocational directions for students – this being markedly different to a circumstance where a teacher is just in instructor mode in respect of transfer of knowledge and skill. I emphasis both 'conscious and reflective' and 'evidence-based' as a device to differentiate between the vagaries of a VET teacher who unknowingly adjusts their teaching practice in response to circumstances and a VET teacher who is purposeful and consciously informed in such adjustment. Noting that in the course of the current *VET teacher and research* exploration, the notion of VET research (as conducted by teachers) being purposeful has emerged as a significant, valued, quality – i.e. the VET teacher (in scholarly mode) is deliberately – purposefully - focused upon adding to their pedagogical capability and/or vocational currency – thus setting this apart from what may the case for a university lecturer where engaging in research has broader 'adding-to-knowledge' scope. In essence, being VET scholarly is shifting from the limited 'tacit, unconscious, knowing' domain to expanded 'explicit, conscious',

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[3] In Australia, a VET practitioner is taken to refer to teachers and those such as heads of department and others in roles not necessarily engaged in teaching but closely connected to VET delivery.

knowing (Maira & Scott-Morgan 1997) and thus increased likelihood of enriching of VET delivery – especially, as this expanding of VET delivery knowledge and drawing upon others is likely coupled with sharing between colleagues and, potentially, entwined with vocational currency matters .

Non-scholarly / Scholarly Boundary

**TACIT     Domain**
Unconscious VET delivery knowledge & action

**EXPLICIT Domain**
VET scholarly conscious & purposeful nowledge & action with respect to delivery

Maintaining scholarly momentum – refreshing and expanding tacit knowledge and action

Some knowledge and action retiring back into the tacit domain and, hence, meriting explicit refreshing from time to time

Figure 1 – Crossing the VET teacher non-scholarly to scholarly boundary (acknowledging Maira and Scott-Morgan 1997, p. 222)

Interestingly, in the course of the *VET teacher and research* exploration the matter of VET teacher resilience has emerged as meriting further inquiry.

> " ... whether you are seeing as a vocational person or a teaching person. Because, for me, if I lost my job here today where would I go then to find another. I couldn't .... Or it would be hard for me to find another VET related job in [location redacted]. And I might be able to do something, you know, across the road there or for another training provider - there is not that many here. And if I did – if I got a job at [organisation identity redacted] say teaching high risk or something that would be at a much  lower pay rate and I would have to wait ... I would do that until I go back to industry. And so you are actually left hanging in a way. Am I a teacher? Am I a [tradesperson]? Or whatever else I am. So where do I fit in? Do I go to try and get work with the [local] factory or something like that as a trainer as, you know, running their training department – you know. I thought of ... these are kind of different avenues."

(Teacher, Provider B, first meeting, second tape 372)

Whilst the above contribution to conversation was directed at concern regarding VET teacher employment security, and in the context of advantage accruing to a teacher by themselves engaging in further learning and expanding scholarly capacity, the thought arises that teachers engaging in research and drawing upon the research of others has the potential to increase personal resilience across a broad spectrum of VET circumstances – including having confidence in one's place in a changing (and sometimes challenging) VET environment. In this respect, the *VET teacher and research* group conversations did address the 'Rule', 'Community' and 'Division of Labour' elements of an Activity System (as Engestrom (2001) derived from Cultural Historical Activity Theory) and drawn upon by me (Hughes 2015) as a device for scoping the VET environment with a view to a teacher engaging 'in' and 'with' research to their personal and VET system benefit.

## 4    Crossing the 'not-scholarly' to 'scholarly' boundary

Figure 2 illustrates a *VET teacher and research* informed transition from a VET teacher being non-scholarly (as they see it), to partially scholarly, to valuing oneself as consciously scholarly. Noting that the informing conversations pointed to many VET teachers actually engaging in reflection, non-formal research, and acting in a scholarly manner, but not identifying this as such. An outcome of this was a senior VET manager convening a second, group sharing, conversation with the title '*Why do VET teachers not participate in research as an activity … or do they?*'. The outcome was confirming that there is a base of unconscious scholarly activity from which to build and the task may be more of an awakening nature than a new direction.



For some (maybe many) VET teachers a, seemingly, unconscious scholarly disposition upon which to build.

Nurturing valuing of what is already known and can be done. And such being an outcome from scholarly enquiry and practice – albeit unconsciously derived. Note: Drawing upon the research of others beckons as a first step toward being more fully scholarly.

Confirming valuing of being acknowledged as scholarly. Importantly, including VET system acknowledging a VET teachers commitment to researching and drawing upon the research of others as part of their professional practice.

Expanding breadth & depth of what is known and can be done. Coupled with VET status strengthening and thus enriching pride-in-self as a VET teacher.

Figure 2 – Boundary crossing: Non-scholarly to Scholarly

Figure 2 illustrates a two-step process in motivating and supporting a VET teacher to transition from not recognising their scholarly disposition and/or actually rejecting the notion of being scholarly to having pride in being valued as a scholarly contributor to VET delivery in Australia – the amalgamated breadth of which being the transition boundary.  In this respect, there is much to be gained by nurturing circumstances where those teachers who are so engaged can share with colleagues their experiences and outcomes. For example, in the course of the *VET teacher and research* conversations it became evident that where a teacher was engaged in research as associated with achieving further qualifications and/or had been awarded research scholarships, it became evident that they have much value as 'follow-me' motivators; and, possibly, mentors for colleagues embarking upon 'knowingly' being scholarly. However, coupled with this, it has become apparent that there is much frustration with scholarly effort not making a difference either in a personal (to the teacher) sense or in a VET system sense. It may be that the voices expressing the importance of research having a purpose were, in part, venting frustration with them not being able to make a difference – the VET system seeming to be deaf to their offering. Further, it could be that this VET system deafness is culturally embedded – i.e. the VET system does not encourage teachers to be researchers and therefore is not awakened to listening to their voice.

> *I would research if the research was purposeful and would make a difference – Will they listen to me?*

(Composite paraphrasing of a recurring teacher views)

*"There's a cultural aspect isn't there. That culturally it's not expected of us that we would be engaged in research as you would expect of university lecturers or university trainers. That in the VET sector there is not an expectation that research is part of our job role. So, therefore, it's kind of endemic within that culture that we don't do it."*

(Teacher, Provider B, second meeting, 163)

## 5 Potential relationship to Maslow's Hierarchy of Needs – worthy of reflection & exploration

In the course of the VET teacher and research exploration, teacher uncertainty about their career future given the staff reduction consequences of 'contestability' and seeming, VET system, acceptance of shallow learning and assessment offerings, gives rise to the thought that teacher engaging 'in' and 'with' research has potential for strengthening 'employability' resilience in respect of teaching as a career and/or returning to the 'tools' in some way as a retreat back to their previous vocational employment or new non-teaching employment. Accordingly, as there is an appearance of resonance, Maslow Hierarchy of Needs derived questions are offered for consideration and inviting further exploration.

In respect of a VET teacher identifying as a teacher (different to one identifying primarily with their 'trade' broadly defined) –

- How threatening to physiological (basic survival) needs is the uncertainty of continued employment in VET?
- What confidence in safety (continued employment) in VET – or other - might accrue from expanding teaching capability by drawing upon VET research?
- Does engaging in research enhance a sense of belonging (strengthening collegiate relationship bonds) in the VET system to personal resilience advantage?
- In what way might sharing one's outcomes from research build self-esteem (contributing leading to applause and recognition) and hence strengthen a sense of career security – in VET and/or beyond?
- Is there a pathway to self-actualisation (fulfilment) by being scholarly in the sense of engaging in research and drawing upon the research of others yielding VET strengthening outcomes?

It is the views expressed by VET teachers who are advanced in further studies and/or active as researching scholarship recipients which particularly prompt these questions. These early boundary-crossing adopters have much value as exemplars and mentors in respect of motivating and supporting others to follow their lead; and a *bring- colleagues-on-board* approach – also as a vehicle to explore 'Maslow' resonance - could be for these research engaged teachers to support others in a case study activity such as, getting-started, suggested by a manager in the course of a VET teacher and research conversation.

*I think a beginning would be, um, in VET, having teachers just put down a case study.... um... as a talking piece even in their own team or department. Because the case study idea would be that this happened. It would seem very, sort of, naive in a way. But it would actually be quite rich if there was a collation of lots of those across streams of vocations or types of teachers or how long teachers had been in ---- [unintelligible]. There would be bodies of work which could inform research. But I think that the case studies approach would work. Even if --- [unintelligible] they wouldn't need to write ... It wouldn't be written for research sake* [in the moment, not necessarily formally identified as such]. *It would be a case study of their class or experience.*

(Manager, *VET teacher and research*, 4th tape, 205)

## 6 Taking action – The LCM Achievement Model

Figure 3 is a generic representation of the LCM Achievement Model (Hughes 2007). The model evolved from research in the water industry, waste management, contract cleaning and, primarily, volunteer fire fighting. In the case of firefighting, the organisation was the Country Fire Authority of Victoria (CFA) and the focus –Sweet Spot in Figure 1 – was retaining a critical mass of approximately 50,000 volunteer fire fighters.

M Quality: Organisation achievement is strengthened by practices that motivate people to draw upon what they know and can do.

C Quality: Organisation achievement is strengthened by practices that nurture an organisation and team(s) culture that is conducive to learning and drawing upon it.

Organisation achievement *sweet spot* as is defined by the particular achievement goal. The aim is to maximise the intersection between

L, C & M

L Quality: Organisation achievement is strengthened by practices that cause people to value their (and others) lifelong learning outcomes as in what they know and can do as individuals and in teams.

Figure 3 – LCM Achievement Model© (Hughes 2007)

Informed by the ongoing *VET teacher and research* explorations, and with the view that a VET teacher researching and drawing upon the research of others is a scholarly practice, the LCM Achievement Model has application as follows –

Drawing upon the environment themes and LCM Achievement Model resonating matters as have emerged in the course of the *VET teacher and research exploration* (Attachment 1) and with the Sweet Spot defined as *VET teachers researching and drawing upon the research of others* –

Attention to the 'L':

According to their initial position in the non-scholarly to scholarly spectrum, supporting/motivating a VET teacher to recognise and value what they already know and can do as a foundation upon which to build and, similarly, to overtly value this in others. Noting that this is grounded in the view that there is a likelihood that teachers are more advanced along this spectrum than what they, themselves, realise. With this in mind, there is *follow-me* gain in causing circumstances where knowingly advanced researching teachers, such as those undertaking further studies (involving research) and/or recipients of researching/travelling scholarships, sharingly engage with their teaching colleagues.

Providing teachers with a forum such as the VPRN is an example of a softly, softly, approach to peer influence. Noting that the *VET teacher and research* conversations point, in some instances, to an inhibiting nervousness regarding a teacher being able to express themselves in formal written report terms. Accordingly, VPRN mentoring type partnerships in undertaking research and then sharing outcomes have much potential value with respect to attention to the 'L' – noting that a case study approach (by invitation to participate) as suggested in the course of current research has much merit.

Attention to the 'C':

There is gain in the culture of VET overtly encouraging and supporting VET teachers to research and draw upon the research of others and that this is a culture of partnership between teacher, provider, and VET system – this is presently not seemingly the case. This said, through overtly nurturing VET teacher engagement 'in' and 'with' research, there is the possibility of addressing the paradox that the VET system requires that teachers engage in continuing professional development and are vocationally current, but doesn't resource this. However, there is a new emphasis upon quality teaching and learning which has the potential to cause a cultural change leading to teachers valuing being recognised and applauded as reflective practitioners – engagement 'in' and 'with' research being a *scholarly* component of this. In this respect, VET moving to being culturally engaged with research may have significant connection to affirming the status of VET as a valued partner – rather than second best - with university in the tertiary education arena.

Attention to the 'M':

Whilst there is a milieu of motivations in play including provider management seeking organisational sustainability, at this point the focus is upon VET teacher motivation to include researching and/or drawing upon the research of others as part of their professional practice; and earlier research pointed to there being latent interest within VET teachers to draw upon research if alerted to its existence and relevant to their teaching circumstances (Hughes 2000) and not unreasonably further burdening them with non-teaching duties such as paper work. Accordingly, partnership beckons between teachers being motivated to draw upon their own resources (time included) to some degree and the VET system contributing in a way which is seen, by teachers, to be equitable.

## In conclusion – for the moment – a sense of PURPOSE

Whilst the *VET teacher and research exploration* is a work-in-progress, the importance of VET teacher engagement 'in' and 'with' research as part of their professional practice being valued by all as purposeful is at the core of this, VET teacher research related, *non-scholarly to scholarly* boundary crossing justification. A VET teacher must see and value the purpose in their engagement, the employing VET provider must likewise see and value the purpose as, indeed, is the case for the VET system which is the shaping and resourcing of the environment partner. In these respects the following extract of conversation is illustrative from a teacher and management perspective.

Teacher: "*Yeh, I reckon that if we all started researching tomorrow and we all started to get really quality information and we brought it to the table, how would it then be disseminated and implemented. I don't see how that would actually unfold at the moment.* "

In response, non-teaching practitioner: "*Because* [supporting the teacher's point] *we have got a scholarship at TAFE where people go overseas. And they do write up what they have done. And I don't know where it goes?*"

(VET teacher and research, 4th tape, 338,)

It is not surprising that throughout the informing conversations the notion of there being a sense of VET purpose has been an overarching theme. However, the obvious is prone to be overlooked. It may be that the embracing – by all – of the importance of purpose is the foundation upon which to construct the VET teacher transition boundary crossing (Figure 2) from *non-scholarly* to *scholarly* in so far as this relates to research engagement. In this respect, 'transition' is purposefully used so as to underscore that this is a process of evolution not revolution. The transition being achieved through progressively motivating and supporting VET teachers to transit from resisting being scholarly to knowingly embracing pride in being scholarly according to where they might presently be on the spectrum. Such transition requiring commitment, time, and perseverance by those engaged.

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# Reconstructing underlying rationalities in TVET teachers' recruitment in the case of Egypt

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**Abstract:** The paper is aiming at analysing the persistence of the low performance of TVET teachers and trainers in Egypt since decades despite different existing reform programmes. The paper is attempting to provide answers to this persistence of low performance of TVET teachers and trainers focusing on the empirical data of the Egyptian case and social theory of political economy and state formation.

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## 1 Introduction

Since the middle of the 1990s the Egyptian population has grown more than 50%. In 2017 Egypt has 92 million inhabitants and keeps growing rapidly by 2% per year. Currently each year 700.000 young people have to be integrated into the labour market. For different reasons the transition of young people into labour market is not functioning. Youth unemployment rate is estimated at more than 40%[4]. The integration of youth has been a main political challenge since decades and the social stability depends on how this challenge is solved.

Effective and strong Technical and Vocational Education and Training (TVET) could offer a perspective for young Egyptians beside the academic education and unqualified-informal work. TVET is considered as a decisive factor in the development of a competitive national economy. According to the Human Capital Theory (Becker, 1993), it is highly important to invest in education to improve the economic and social situation of any country.

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[4] Reliable statistical data on this question is not available. Very likely the problem of youth unemployment and underemployment is even more drastic for certain social groups and/or in certain regions.

Since the creation of the modern Egyptian education system during Muhammad Ali's Rule (1805-1849) until today several reforms have been adopted to implement a broad and high quality TVET system, but none of them have led to a widespread change (Meyser& Wolf, 2014; Schippers, 2009).

TVET is still considered as a second best solution for those students who do not achieve the grades necessary to enter general secondary education. On one hand, TVET graduates have little chances to gain entry into higher tertiary education and, on the other hand, their qualification is very theoretical and prepares them insufficiently to find a qualified workplace (Sobhi & Wolf, 2016).

*Why does the low performance of TVET persist, if there is a political need and will to change this situation since decades?* We discuss this question along the history and empirical data of the Egyptian case and emphasise the importance of the lack of well trained and motivated teachers as one critical restriction to any attempt to improve the quality of TVET. More precisely the question to be answered is: *Why do the low performance of TVET teachers and training of TVET teachers persist?*

Most analyses and recommendations regarding the TVET in Egypt are based on social theories which apply to the developed Western countries, but cannot explain the Egyptian case properly. Referring to the social theory of political economy and state formation, we argue that this persistence can only be explained taking into account the specific structure of the Egyptian society and state, which is a Rentier State.

## 2    Methodology

Based on the considerations of Pierre Bourdieu (1977) that social forms and behaviour must be understood within a given certain society to avoid a deficient – e.g. Eurocentric or economistic – analysis, we combine a qualitative approach to understand the case of Egypt with theoretical considerations to find an explanatory hypothesis to the research question.

To explore the reasons for the persisting low performance of TVET teachers in Egypt we base our argumentation on statistical data published by official Egyptian agencies and international organisations. To find out the social sense behind this quantitative data, we contrast those findings with the perspective of the actors. A total of 83 structured interviews have been conducted with experts, teachers, students at TVET schools and at TVET teacher education faculties in Egypt.[5]

Face-to-face-interviews were necessary, because people in Egypt express themselves better verbally than in written form and many teachers were afraid to send a text criticising the education system or their situation as teachers.

## 3    Technical Vocational Education and Training in Egypt

We focus on the formal TVET at the secondary level. Around 1,6 million students (90% of all TVET students) are enrolled in these three- or five-year school-based programmes under the authority of the Ministry of Education (MoE) (OECD, 2015, p. 40).

### 3.1    Teachers in Technical and Vocational Education and Training

*In Egypt, the image of teachers as low-paid, low-skilled and inexperienced persists […]. This is equally true for TVET teachers and trainers, whose status and career prospects are viewed to be lower than that of general education teachers. […] TVET teachers have lower earnings as they cannot generate additional income from private tutoring, which is more common in general education. (OECD, 2015, p. 126)*

Nearly 150,000 teachers and trainers of TVET are working for the MoE in Egypt. A large number of them are not working in schools, but in administration positions. In addition, the TVET teacher education is very problematic. The respective faculties lack quality of education. These faculties are focusing mainly on technical

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[5] These interviews have been conducted for the PhD-thesis of P. Sobhi during 2014/2015.

aspects and are giving less or no attention to pedagogical and methodological issues, neither to practical internships of prospective teachers, nor to scientific research. Some curricula have not been updated since more than 20 years and there is no connection between the current curricula and the requirements of the labour market.

One critical restriction to improve the quality of TVET is the lack of well trained and motivated teachers. According to an official governmental report in 2015 nearly half of the current TVET teachers and trainers lack pedagogical and methodological qualifications (CAPMAS 2016).

## 3.2  The Teachers' perception of their situation

Most of the interviewed teachers mentioned that they don't want to work as teachers, but there is no other choice for them. The majority of them have another job beside working as teachers because of the low salary. Some even try to hide being a TVET teacher in other working contexts.

Most of the teachers confirmed that they are currently unmotivated in working as teachers for distinct reasons. These reasons can be summarised as follows:

- Almost all of them are not satisfied with their current low salaries. They feel, that they are treated unfairly compared to other jobs in the public sector in Egypt[6]. Working in a second or third job beside working as teachers affects strongly their performance at school.
- Most of the teachers decided to work as teachers to have a secure job at the public secondary schools. According to Takleef law (cancelled in 1998) all graduates from faculties of education in Egypt were recruited as teachers at public schools.
- The majority of the interviewed teachers are not satisfied with the current further training offered by the MoE. The available training programmes are not developed for TVET teachers and are very theoretical and weak.
- The teachers have testified to feel overburdened with the high number of students in classes (in some classes over 60 or 70 students).
- Almost all teachers confirmed that the MoE considers the training of TVET teachers and trainers as subordinate compared to training teachers in general education.

## 4  The theoretical trap of the development axiom

The described persistent weakness of the Egyptian TVET system cannot be explained sufficiently by a shortage of resources. Even though this is an obvious problem in Egypt, other Arab states have huge resources and similar problems. The weakness of the TVET is a result of the specific political and social form of the state: Which is today a decolonised Rentier State with a lack of rents. But in analyses of the Egyptian educational system these specifics are not considered, because they are based on the axiom of a successive development of societies and economies towards what is/was the situation in Northern America and Europe. As Keynes already pointed out, such theoretical premises are mostly unconscious:

> [T]he ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. (Keynes, 1936, p. 383)

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[6]The prices have increased very strongly in the latest years from 2013-2017. Currently inflation rate is estimated at 30% (cf. Bloomberg:https://www.bloomberg.com/news/articles/2017-05-21/egypt-unexpectedly-raises-rates-as-imf-urges-action-on-inflation (28.05.2017)

In the Western modern philosophy, the state is seen as an apparatus that is serving the society, funded by the domestic economy. It is generally assumed that the well-being is based on a prosperous economy and thus one fundamental function of the state is to foster the national economy. The state is characterised by an increasing rationality in the use of resources. In international research on education these assumptions bolster the influential theory of Human Capital (Becker, 1993) and an understanding of education as a mean to achieve individual and general economic progress.

But after the decolonisation the newly formed states stayed under-developed. As this persisting under-development cannot be explained, the recommendations to reform the educational system seem to be repeated endlessly. For example, the OECD report (2015) about the Egyptian educational system ends with a conclusion that sounds like a normative statement:

> *Egypt's future depends in large part on the skills and resilience of its young people. […] The urgent priority for Egypt is to make education and training relevant to its economic prospects. It will need to do so in ways that develop rounded citizens who can work together to build a cohesive society. Effective investment in human capital formation is, therefore, critical. Effective investment means raising the productive capacity of the workforce.* (OECD, 2015, p. 259)

It is the request for another reform to process the shortcomings and to catch up to the developed countries. Very likely this reform won't succeed, as all reforms of the last decades have failed. Referring to social theory of political economy and state formation we will offer an explanatory hypothesis for this.

## 4.1 The Rentier State

Based on the study of the continuing under-development in the Arab Middle East Beblawi and Luciani (1987) presented the Rentier State as an explanatory theoretical concept. In contrast to the developed countries, the Arab States do not rely financially nearly exclusively on taxation of the domestic economy, but receive major revenues from other sources like monopolies on oil production or foreign aid. Such revenues are called rents, because they depend overall on exclusive control and not on rational-economic exploitation (Schmid, 1996).

After the decolonisation, the emerging new states were not an apparatus serving the society, but dominating the society and forming a class structure in which the powerful classes gain and reproduce their power and wealth by controlling the state and not primarily by owning private companies. These classes often use traditional structures and army organisation to reproduce themselves. Their governance tends to be autocratic and they distribute parts of the monopolised resources to the society to create consent, dependence and/or division. Such distributive strategies are social subsidies, supporting permanently inefficient companies or creating jobs in public services.[7]

Related to the Rentier State theory, several social and political characteristics of the so called "under-developed" countries could be explained: different class formation (Elsenhans, 1997; Elsenhans, 2005; Ouaissa, 2004), non-democratic forms of rule (Eckelt, 2011; Schwarz, 2008), foreign policy (Ehteshami & Hinnebusch, 2002; Perthes & Schlumberger, 2007) and external trade (Boeckh, 1996; Richter, 2007).

## 5 Conclusion: State employment as social welfare in a Rentier State

There is no detailed study of the characteristics of general and vocational education in Rentier States like Egypt. The following conclusion is therefore hypothetical and an invitation to others to consider if this approach might

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[7]Since the 1990s Egypt's state expenditure on social welfare to create consent and loyalty was reduced drastically with the decrease of rent income. This lack of resources has not lead "automatically" to a more democratic and more efficient state, but to a more autocratic and direct rule of the military. In current Egypt, the state and huge parts of the economy are under control of the military. The economic basis of their rule are rents from abroad (especially military aid from the USA) and artificial monopolies in the domestic economy (Noll, 2017; Sayigh, 2012).

help to explain their experiences and theoretical problems when working on TVET in "under-developed" countries:

There seems to exist a direct relation between the results, performance and prestige of the TVET and the importance of skilled labour for the national economy. The existence of rents impedes the development of a prestigious TVET system which is closely connected with productive industries. Even if parts of the political apparatus intend to implement broad and high quality TVET they cannot enforce the necessary changes because the administration of education is typically a stakeholder that opposes such changes.

The administration of education is not following the logic of the economy, but its decisions are based on considerations of social politics. The situation of education and recruitment of teachers can be understood as a form of distributive strategies in favour of the middle classes. Becoming a teacher is a safe lifetime job. But since salaries of Egyptian teachers are too low to cover the basic costs of living, a teachers' income is not a real salary, but a form of social welfare from the state for those who study in university, but do not find a better paid job in another sector or abroad. This perception has grown in the last decades and is objectively confirmed by the administrative practices. Under this condition, the teachers' motivation will remain limited, even if the working conditions might improve.

This systematic sabotage of the creation of a productive economy is completely illogical from a Western perspective. But in a Rentier State the political imperative lies in rent-seeking. So, the ruling classes might just not care or even fear the emergence of a productive class as a concurrence for the unstable power constellation.

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# Actual and essential changes in the work of vocational teachers: the case of Estonia[8]

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**Abstract:** Since Estonia regained its independence, many changes in vocational education have taken place: the vocational qualification system, standards of vocational education and national curricula, and new forms of vocational education have all been developed, among others. The aim of this study is to understand which changes VET teachers have really experienced in their everyday work and which changes they assess as essential in their working life. In the study a combined research design was implemented, and quantitative research results based on answers from 501 VET teachers is introduced. In analysing the descriptive statistics, correlation analyses were implemented and the results were described along with the socio-demographic background. Primarily, VET teachers have experienced changes in the teaching process and curricular development, which are caused by the development of the qualification system and standardisation. Student-related changes are rather negative and a large challenge for VET teachers.

**Keywords:** VET teachers, VET educational changes, actual and essential changes, changes in the student population

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## Introduction

There is no doubt that the work of VET teachers is becoming increasingly complex. Globalization and Europeanization create integrative trends through standardised policy instruments implemented through national education policies, which influence the work of teachers (Seddon et al., 2013). VET teachers have perceived their teaching profession as being subject to pressure (Cort and Rolls, 2010; Hughes and Attwell, 2010; Kats et al., 2010; Susimetsä, 2010; Tutschner, 2010).

In reindependent Estonia, the reform of vocational education began with the EU (PHARE) programmes in 1995, which mainly initiated the development of modular curricula (Rekkor, 2014). The very first Vocational Education Institutions Act was also approved (Kutseõppeasutuse seadus, 1995). However, the state-wide reorganisation of vocational education began in 1998, when the conceptual bases of VET were approved and Vocational Educational Institutions Act was improved (Haridusministeerium, 2001). Therefore, vocational education has been promoted and its image has been improved in society through the improvement of its quality and transparency and by making it more current and accessible to everyone who is interested. As a result, the vocational qualification system, standards of vocational education and national curricula have been developed, new forms of vocational education have been introduced, study environments have been modernised, cooperation between vocational educational institutions and companies has been improved and more flexible forms of study have been implemented (including workplace-based study and e-learning) (Estonian Ministry…, 2005; Estonian Ministry…, 2009). Increasing the student-centeredness and variety in the target group of vocational education has also been a main focus (Estonian Ministry…, 2014). Changes in the student population entail many challenges, which demand new pedagogical approaches and new competencies from vocational teachers. Internationalisation is also a serious challenge for vocational teachers, demanding language skills, knowledge of requirements related to their profession in other countries, as well as intercultural communication skills (Sirk, et al., 2016).

It can be concluded from this brief overview that many changes in vocational education have affected its several levels, from national regulations to the practical work of each vocational teacher. At the centre of the changes in vocational education stands the vocational teacher, who is seen as the key person in executing the changes, solving problems and achieving the objectives set (Cedefop, 2012; Singh, 2011). Therefore, agents should first notice, then frame, interpret and construct the meaning of change (Spillane et al., 2002). However, many top-down initiated reforms have not been implemented (Hargreaves and Goodson, 2006) because teachers have not understood how essential the changes are for them and have not adopted the new requirements (Ümarik, 2015, 15; Fullan, 2007). Therefore, it is possible to see in the context of VET that teachers respond to policy regulations differently. Some teachers have more positive attitudes towards the change process and they adopt the changes more easily than others (Vähäsantanen and Eteläpelto, 2009; Rekkor et al., 2013; Tafel-Viia et al., 2012). Consequently, VET teachers' sense-making is a key mechanism for adopting educational change, which is also related to their professional roles because prior knowledge, beliefs and experiences influence the construction of new understanding (Ümarik, 2015; Spillane et al., 2002).

The aim of this study is to understand which changes VET teachers have really experienced in their everyday work, and which changes they assess as essential in their working life.

It is possible to presume that teachers perceive changes differently and attribute various meanings to the changes depending, for example, on the work experience, prior knowledge, ages, gender, language, field of teaching, teaching target groups and school location.

## 1    Methodology

To achieve the aims of the study, a combined research design was implemented which involves consecutive, mutually dependent approaches (Õunpuu, 2014): a qualitative (Grbich, 2007) and quantitative cross-sectional study using respective data collection methods (Creswell, 2012).

The combined research design of the research process is based on the different combined research designs offered by Janice Morse (2010). First, the qualitative study was conducted in 2014 to investigate the experiences of vocational teachers in order to map changes. The results of the qualitative study served as input for the quantitative research for designing the part of the questionnaire that focuses on changes in the working life of vocational teachers. The inquiry took place at the end of 2015. The quantitative research results are introduced in this study.

The quantitative study included all vocational teachers in Estonia. A total of 1,685 questionnaires were sent out electronically in both Estonian and Russian. Completing the questionnaire was voluntary and 501 VET teachers answered the questionnaire (22% of the population).

To analyse the resulting descriptive statistics, correlation analyses were implemented using the IBM software SPSS 23.0. The results were described along with the socio-demographic background (e.g. pedagogical experience, gender, language, age, teaching subject, and working area) using cross tables, and the statistical significance was monitored using Chi-square tests.

## 2    Results

VET teachers have experienced more changes related to their daily duties and pedagogical work, and less changes related to their professionality.

VET teachers have experienced an increase in administrative work, which is seen as not being an essential change (Figure 1). Those teachers who still consider this change to be important tend to be aged up to 34 years old (Sig=0.02), teachers who work in country schools (Sig=0,00) and who teach specialist subjects (Sig=0.01). The duties of group supervisors have a greater variety of activities, and 64% of the respondents noticed that in their work, the responsibility for assuring a good climate in a student group has increased, and 73% have considered this an essential change, especially female teachers (Sig=0,04). Furthermore, 58% of teachers have experienced an increase in work associated with special-needs students and increased responsibility for educating students. According to correlation, teachers who considered the increased responsibility for educating students as important also valued the increased responsibility for assuring a good climate in a student group (r=0.72).

*The teaching process* has become more complex – 82% have noticed the integration of general and vocational subjects, and 84% the modification of student assessment methods according to learning outcomes. Teachers teaching strategies have changed and 70% have experienced that they use more e-learning with other learning methods. All these changes have been perceived as important, especially among female teachers, and this difference was statistically significant. A larger group of teachers with more than 20 years of pedagogical experience considered the change in the integration of general and vocational subjects more essential (Sig=0.01). However, teachers who considered the integration of general and vocational subjects as important also evaluated the modification of the student assessment methods according to learning outcomes as important (r=0.68).

*Curricular changes* have continued over a long period and were dependent on changes in professional standards and EU policy regulations. Therefore, 73% of respondents noticed the transition to the European qualification framework and the application of professional standards; 82% have experienced the application of outcome-based curricula. A little less noticed the replacement or integration of school graduation exams with vocational exams. All these changes were considered important and more female teachers considered these changes as essential. According to respondent age, more teachers 65 years and older considered the application of outcome-based curricula more essential than teachers of other ages (Sig=0.03).
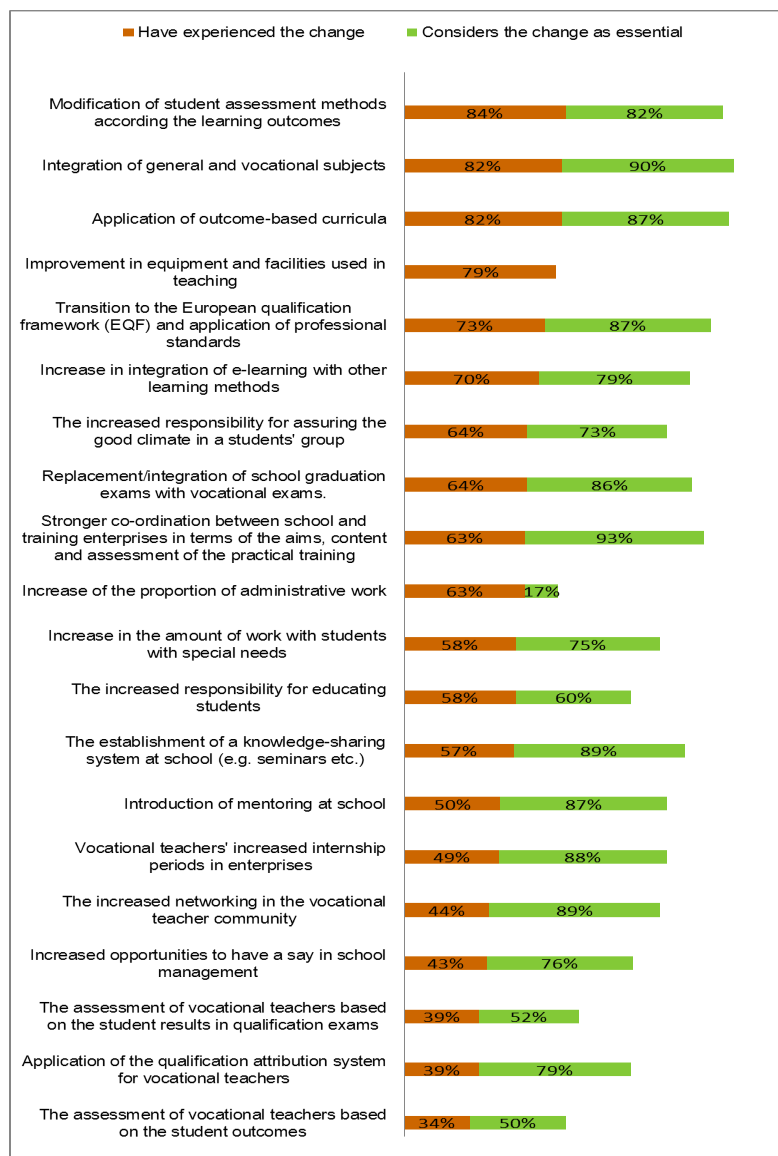
*Figure 1: Changes experienced and considered as essential*

Several *changes in the student population* (Figure 2) have been seen as rather negative developments than positive (like student reading habits, functional literacy, competencies in maths, health, etc). Only language skills have been perceived as having developed positively and Estonian teachers perceive it more positively than Russian teachers (Sig=0.03).
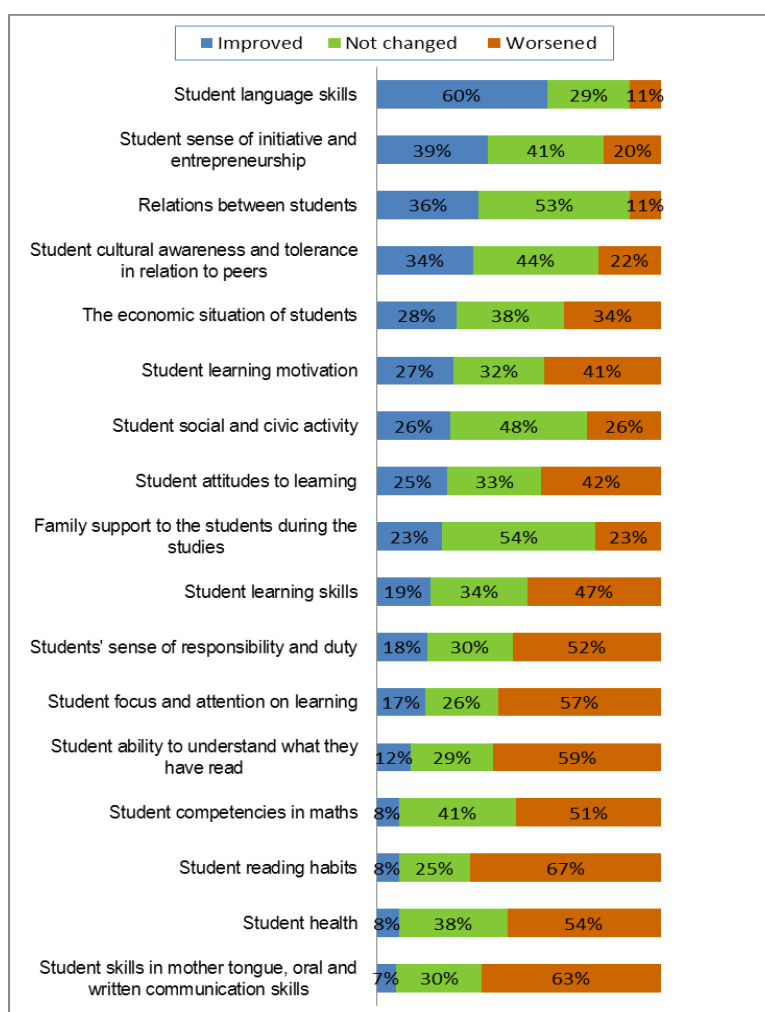
*Figure 2: Changes related to students as perceived by vocational teachers*

The correlation analysis indicated that those teachers who noticed student motivation to learn as having decreased also identified that the students' sense of responsibility and duty (r=0.75), their attitude (r=0.86) and learning skills (r=0.73) have deteriorated. Teachers who experienced student learning skills as having decreased also noticed that the students' sense of responsibility (r=0.65) and their attitude to learning (r=0.71) had worsened. These perceptions depend on the teachers' pedagogical work experience, where teachers with up to 5 years of experience hold more positive views about the changes related to students which were statistically significant. More Estonians teachers have experienced that student competence in maths, ability to understand what they have read and focus and attention on learning have worsened (p<0.05).

*Cooperation* between VET schools and enterprises has improved and 63% of teachers noticed stronger co-ordination between school and training enterprises in terms of the aims, content and assessment of practical training (Figure 1); respondent teachers (especially female, Sig=0.00) also evaluate this as essential.

*Collaboration in school* has improved less (Figure 1). Less than 50% of the teachers have noticed increased opportunities to have a say in school management and networking in the vocational teacher community. Slightly more than 50% of teachers have experienced the establishment of a knowledge-sharing system at school. Both these last aspects have been considered as important (89%) but more female teachers considered networking in the vocational teacher community as important than males (Sig=0.03). According to pedagogical experience, more teachers with experience of 11 to 15 years (84%) and more than 20 years (84%) considered the increased opportunity to have a say in school management as important than others (Sig=0.03).

This value depended also on language, and Estonian teachers (81%) found it more necessary (Sig=0.00) than Russian teachers (48%). In respect to organisational change, mentoring has also been noticed and this change has been pointed out as essential. Estonian teachers (89%) have considered mentoring more important compared to Russian teachers (Sig=0.00), as have teachers of specialist subjects (89%, Sig=0.02) and teachers who work in country schools (93%, Sig=0.04). The teachers who considered mentoring important also evaluated increased networking in the vocational teacher community as essential (r=0.62).

*Assessment and the professional requirements of VET teachers* have been noticed less (Figure 1). Almost half the VET teachers have experienced increased internship periods in enterprises, but 88% evaluate this as essential and more teachers who work in VET schools in the country (Sig=0.02) and with pedagogical experience of 16 to 20 years (Sig=0.04) evaluated it more than others. Less than 40% of teachers have noticed the application of the qualification attribution system for their work and work assessment based on student outcomes or results in qualification exams. From these three changes only the application of the qualification attribution system has been considered important (79%). More Russian teachers (63%) compared to Estonians said that assessments of their teaching work should be based on student outcomes (Sig=0.04). The correlation analysis showed that teachers who found that their work should be assessed based on student outcomes also found that their work assessment should be based on student results in qualification exams (r=0.74).

## Conclusions

From these results we can briefly conclude that VET teachers have perceived and evaluated as essential those changes related to the content of teaching. Changes that have been considered important, but not noticed in their everyday work include: increased networking in the vocational teacher community, increased internship periods for vocational teachers in enterprises, the introduction of mentoring at school and so on. More attention should be paid to building up a stronger and more supportive community of collaboration in the organisation because previous studies have shown that this supports understanding and adapting to changes (e.g. Rekkor et al., 2013; Tafel-Viia et al., 2012; Fullan, 2007; Spillane et al., 2002). The increase in the proportion of administrative work has been considered as irrelevant, but noticed in everyday work. Qualification systems and professional standards development have influenced the teaching process and curricula changes so that most VET teachers have experienced these changes but they have not perceived their influence in their professional lives. Some changes depend more on socio-demographic background; for example, Russian-speaking teachers considered the possibility to have a say in the school administration and mentoring less important. However, changes related to student population are distressing and basic knowledge and skills which should support learning have deteriorated. This situation has hampered teachers in their work but they try to cope with this change (Sirk et al., 2016).

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# Competence Development for Vocational High School Teachers: An Indonesia Case

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**Abstract:** Through Law no.14/2005, the Indonesian government wants to improve teachers quality, by enforcing certification program, providing them CPD and professional allowance. Nevertheless, competence test showed their score of vocational teachers was very low. The more senior, the lower their test scores are

The research question were why teacher certification, CPD, and professional allowances have not improved their competence yet. Why the more senior the lower the competence. This study used a qualitative approach in multiple sites of four vocational high schools in East Java Province.

The study found vocational teachers were still in their euphoria of having good income and they did not think their professionalism yet. The competence updating did not run well, since: not challenging teacher's job and the less effective off CPD.  The training model wass not fit with adult learning style. The pattern of the teacher career did not stimulate them to pursue their expertise.

**Key words**: competence development, vocational high school teachers

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## Introduction

In Indonesia, vocational high schools play an important role in supplying middle-level skill workers. In 2016 there are 13.578 vocational high schools, with 4.684.334 students and 298.896 teachers. Instead of the large numbers, the quality of the graduates has not yet been good. Based on this fact, The President of the Republic of Indonesia issued a Presidential Instruction No. 9/2016 to revitalize the vocational high schools so that their graduates have appropriate competence to the needs of the world of work.

One of the factors mentioned in the Presidential Instruction is that the vocational high schools must have enough number of teachers with good competence. The mention of teachers' factor in the Presidential Instruction is precise, since teachers have important role in education. 50% students' achievement is determined by the performance of teachers (Moursheed, Chijioke and Barber, 2010; Pujiastuti, Raharjo and Widodo, 2012).

Through Law No. 14/2005, Indonesia is trying to improve the performance of teachers by increasing their qualifications of teachers with minimal bachelor degree plus one year professional training program and giving professional allowance as much as one month salary. For existing teachers, the Ministry of Education and Culture has been implementing certification and professional training program since 2007 and giving them professional allowance since 2008.

Some researches show that after the teachers joined professional training program and have accepted professional allowance there has not been any increase of their performance. Teachers' performance is influenced by two main factors, namely the competence and commitment. In 2012 teacher competence test was conducted nationally. An average score nationally for teachers of vocational high school teachers was 49.10. Therefore the Ministry of Education and Culture underwent intensive training conducted in Vocational Education and Development Centre. In 2015, the competency test was done again and vocational school teachers earned a score of 58.30. That was an increase, but still far from ideal.

When the scores are elaborated based on the age of the teachers, it was found that the older the teachers, the lower the score. Vocational teachers with age <30 years get an average score of 60.72; ages 31-35 get a score of 60.28; ages 36-40 get the score of 59.45; ages 41-45 get a score of 56.83; ages 46-50 get a score of 51.32; ages 51-55 get a score of 46.88 and aged over 55 to get a score of 46.32.

This study aimed to find the reason why the teacher certification program, the provision of professional allowances and the training for vocational high school teachers have not yet managed to improve their competence. Why are the more senior the teachers, the lower the competence?

## Theoritical Framework

### *Vocational Teachers' Competences*

In general, teachers must master the material taught, be able to guide students to master the competence in accordance with the curriculum, able to develop themselves as professional teachers, and play active roles in the community in accordance with their expertise (Rakajoni in Samani, Cholik and Buditjahjana, 2016). Flander in Day (2017: 170-171) attributes teacher competence to its responsibilities responsibility for learners: (1) the teacher as guide of learning and development processes, (2) the teacher as educator, (3) the teacher as subject expert, (4) the teacher as orgabizer, (5) the teacher as innovators and researcher; its responsibility for the school and educational community: (6) the teacher as partner of parents/carers, (7) the teacher as a member of teaching team, (8) the teacher as part of external parties, (9) the teacher as member pf educational community; responsibility for society: (1) the teacher as culture participant.

Teachers in Indonesia must have four competences, they are (1) pedagogic competence that the main content is the competence of educate and develop students' potential, (2) professional competence with the main core is the mastery of teaching materials and their support, (3) personality competence that includes the ability to act in accordance with the applicable norm and values, and (4) social competence which includes the ability to interact with the community (Kemdikbud, 2007).  While in Australia, The National Professional Standards for Teachers states that teachers should have: (1) professional knowledge,  professional practice,  which covers: a) plan for and implement effective teaching and learning, b) create and maintain supportive and safe learning environment, and c) assess, provide feedback and report on student learning, and (2) professional engagement which covers: a) engage in professional learning,and b) engage professionally with colleagues and the community (Bostes, 2013).

Vocational teachers have specific characteristics, as Moris (2013) states that teachers of Technical and Vocational Education and Training(TVET) should have: (1) an understanding of occupational profiles and content of the occupational field, (2) an understanding and analysis, shaping and organization of work processes,   providing methodological competencies which are needed and the changes that occur in the occupation, (3)an understanding of the object of professional work, (4) an understanding the processes and nature of the work and work environment, not just the subject area, (5) an understanding and analysis, shaping and organization of occupation-related learning processes, (6) TVET instructor must use their knowledge of the culture, economy and context to develop learning environments which are appropriate for the occupational field, (7) TVET instructor must include the definition of educational goals, the selection of appropriate content and methods of teaching, and (8) possess the ability to apply appropriate procedures for examination and assessment.  Along with that, Kurnia (2013: 20-21) mentions that the competence of TVET teachers in Germany have distinctive competences, they are (1) planning, implementation and evaluation of vocational learning processes, (2) developing education and training programs, (3) planning, developing and shaping of learning environments, and (4) participation in school development.

As technology evolves rapidly toward automation and modulation, manual work is significantly reduced. This change affects the teaching-learning process at TVET, there is a shift from manual skill to the capability of analysis and synthesis (Samani, 2014). Morris (2013) says that there is a paradigm shift in vocational learning, from teaching centered into facilitation centered, teacher centered into leaner centered, reproductive into productive, behaviorism into constructism, and time based into outcome based. Orientation to manual skills with low order thinking shifts into high order thinking skills (Neubert, 2017). Teachers must be able to integrate critical thinking, problem solving and creativity into the learning process (Samani, Suparji and Rahmadian, 2016). Therefore the ability to develop oneself sustainably is very important for teachers.

## Continous Professional Development

Continuous professional development (CPD) is one of the keys in improving the quality of teachers. Various studies show a positive relationship between CPD done by teachers with their students learning outcomes (Kempton, 2013, Kemdikbud, 2015; Seezink and Poel in Day, 2017: 174). In addition, some studies also show some other outcomes of CPD programs, such as the increased knowledge and skills of teachers, their self-efficacy in the teaching of the subject and classroom environment (Rose and Reynolds, 2007; Whitehouse, 2011). Therefore CPD becomes one of the teachers' professionalism improvement programs in various countries (Creemers, Kyriakides and Antonio, 2013).

For vocational education teachers, professionalism improvement should be accompanied by the ability to keep up with technological developments, as technology greatly influences school curriculum and methods of learning (Etelapelto and Saarinen, 2006; Samani, 2016). Schmidt and Cohen, (2014) mentions that in the digital age half the world's population is connected to the internet, and then schools / universities use it for teaching and learning activities.

Teachers will interest into CPD when the program is specific and fit to their need and concern, the ultimate goal is sustainable and clear, it has a clear impact on their careers, and it involves outside experts (Whitehouse, 2011). For TVET teachers who need to train students' skills daily, they require CPD which is closely related to the improving their knowledge, insight and field skills associated with the vocational field taught (Moris, 2013)

CPD can be done through various activities, whether it is formal such as continuing education, non-formal through various forms of training, and informal through research and self-development (MSF, 2010, Kemdikbud, 2015). For vocational education teachers, apprenticeship in industry is one of the most effective ways, especially to keep up with technological developments, as technological developments in industry are always faster than at school (Collins and Halverson, 2009; Samani, 2014).

In Indonesia, the number of large industries which applying new technology is very limited compared to the number of vocational high school teachers, so the opportunity for teachers for internships at relevant industries is very small. Moreover, the industries attention to vocational high schools have not been good, because they do not feel the real benefit when helping vocational high schools (Samani, Cholik and Buditjahjana, 2016). Government encouragement and certain incentives for the industrial world to help vocational high schools is also not yet effective (Kemdikbud, 2016)

CPD requires high self-awareness, because it does not a formal requirement in employment rules (Kemdikbud, 2015). To do CPD teachers must provide special time in while they are busy teaching and they often have to pay personal expenses. Therefore, the "profit-loss" calculations are often used by teachers to decide whether to attend CPD program or not. The "profit-loss" calculations are often associated with the future of their careers (Richter et. all., 2014), which causes a significant difference between teachers who are diligent to follow the CPD program and who are not (Samani, Cholik and Tjahjana, 2016)

## Methods

This study used a qualitative approach in multiple sites of four vocational high schools with various conditions in East Java Province. The four schools were chosen because they have many teachers who have joined certification program and received professional allowance, with varying ages. Data from these schools can describe teachers with different areas of expertise, variations in age and teaching experience.

Data collected through documents, in-depth interviews and cross-validated by focus group discussions, between April up to August 2016. Credibility, dependabiity, and confirmability are implemented simultaneously to ensure that the data collected actually provide a picture of teachers in these schools.

Data analysis was done by qualitative data analysis techniques of Miles & Huberman. Data display, data reduction and conclusion were done simultantously and over and over again, so that resulting a comprehensive conclusion.

## Findings

The study found: (1) vocational teachers were still in their euphoria of having good income, after a long period underpaid. Their lives pattern became more consumptive and most of then did not think about the development of professionalism yet. (2) The updating the competence of the vocational teachers did not run well, due to two factors: the not challenging teacher's job and the less effective teachers' professional training. (3) The more senior vocational school teachers, the lower their level of IT literacy, while teachers' professional developmentprogram, which is implemented by the Ministry of Education and Culture, usedIT more. (4) The pattern of training that have been carried out so far has not been in accordance with the principles of adult learning which should be more attentive to the needs of participants both from the material and method of learning. (5) The pattern of the career of vocational teachers did not stimulate them to pursue their expertise, because their careers leads to structural positions which contains management load over vocational skills.

Those five interrelated factors that caused teachers' motivation to develop their competence did not grow significantly, after recieving professional allowance. Very few of teachers joined seminars, training or even bought books to increase their competence. They joined seminars only when the government appointed them to do so, or when they needed the credit point for their carrier promotion. They used their extra income for improving their living standard instead of doing CPD.

Training material available in the Ministry of Education web was not much used, either because the teachers were not interested or because they were not able to access. School principal and structural position in District Education Office were understood as career path for teachers. That why most teachers who have a good achievement prefer to join training or even continuing education on school management instead of their subject matters. They learned school management as a preparation for their career.

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Session 2.2
**Transfer**

# Policy transfer of German TVET evaluation concepts to China: the example of peer review in TVET

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**Abstract:** Comparative research into TVET and policy transfer focuses primarily on the system level. This study was designed to extend the focus of research work to policy transfer at the institutional level. This paper presents a project that investigated the German concept of peer review in TVET as a potential solution for Chinese TVET schools. The survey investigated the extent to which there is potential to transfer the evaluation concept of peer review in TVET to China.

The study used the concept of lesson-drawing combined with the iterative micro-cycle of the design-based research. The findings showed that not every feature of the peer review model could be transferred to the Chinese context. The peer review concept needs to be adapted and requires a support system. The supporting and inhibiting factors derived from this study enable us to draw lessons about how to support policy transfer at the institutional level.

**Keywords:** policy transfer, lesson-drawing, peer review in TVET, China, prospective evaluation

**Biographical note:**
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## 1    Introduction

Comparative research into TVET and policy transfer focuses primarily on the system level (e.g. Phillips and Ochs 2003). This study was designed to extend the focus of research work to policy transfer at the institutional level (TVET schools). The study surveyed the factors both supporting and inhibiting policy transfer at the institutional level and was designed to provide a 'lessons learned' approach to policy transfer at this level.

One function of policy transfer is to use external policy to overcome challenges in the host country. This paper presents findings from a project that investigated the German concept of peer review in TVET as a potential solution for Chinese TVET schools. Quality assurance in TVET is currently an important issue in China. Teachers in Chinese TVET schools often refuse to implement quality assurance measures and, in particular, quality evaluation activities. One reason for this resistance is the way that quality evaluations are conducted: for example, the Chinese evaluation concept does not take account of the interests and needs of teachers (Yao 2008). Moreover, TVET schools have no scope for tailoring the evaluation process towards their needs. Peer review is one model for evaluating quality assurance in TVET schools and is characterised by features that could be considered the opposite of the Chinese approach of school evaluation. Peer review in TVET is a participative evaluation process which works democratically within a flat organisational hierarchy between the peer team and the TVET school teachers. The peer team as evaluation team are external persons who work in a similar context and have an equal standing with the teachers being reviewed. The peer team visit the institutes which have to be reviewed, and provide objective feedback without assessment at the end of the peer visit (Gutknecht-Gmeiner 2007). The survey investigated the extent to which there is potential to transfer a concept such as the German evaluation concept of peer review in TVET to Chinese TVET schools.

## 2 Research approach

Successful policy transfer depends on the specific context of the country, especially on cultural values and assumptions held about how the world works (Rose 2005, p. 114). Therefore the transfer of policy requires an open approach, which suggests it would be appropriate to use the lesson-drawing approach (Rose 1991a) in the research design.

Lesson-drawing analyses the necessary adaptions and relevant context factors in order to carry out a successful policy transfer. It pursues the question: Under which conditions and to what extent can a policy, which is already implemented in country A, be successfully implemented in Country B? Therefore the approach has a prospective view. The function of lesson-drawing corresponds with the research question of this research project.

The main focus of this study is to evaluate the feasibility of peer review in TVET in the Chinese context. This step is known as prospective evaluation (Rose 1991b, pp. 22-23). The results of the prospective evaluation are the so called lessons, which demonstrate the adaptions required and relevant context factors for a successful policy transfer of the peer review policy in TVET.

This study used the environmental system model as a framework for interpretation (O'Connor 1988) and divided the interpretation framework into a macro level, an exo level, and a meso level. At the macro level, interpretation was based on a Chinese cultural model using findings from international management studies research and Chinese cultural studies. The cultural model was based on the three Chinese philosophical approaches Taoism, Confucianism, Buddhism complemented by Chinese political history (Hoobler and Hoobler 2009; Tang 2015; Lai 2008; Dutton 2005). These approaches adapted the cultural dimensions of Hofstede et al. (2010) and Hall and Hall (1990) to the research objective. At the exo level, China's national TVET system, especially the higher vocational education and training at the bachelor-level, was used as reference. At the meso level, the existing quality evaluation structure within Chinese TVET colleges, especially from the Shanghai region, was used.

## 3 Research method

Peer review as a pilot for policy transfer to China was initiated by German researchers. A Chinese research team trained in the peer review concept implemented the pilot at four TVET colleges in Shanghai. The implementation and evaluation of the pilot took place in 2014 and 2015. The implementation of peer review in the four schools was supported and evaluated by a German researcher fluent in Chinese.

The methodology at the testing stage involved participatory observation and qualitative interviews. Participatory observation was used during the study to document the process of peer review in each of the TVET colleges (Taylor et al. 2015). However, this observation did not provide insight into the mental attitudes of the participants, which was also important for answering the research question fully and comprehensively. The qualitative interview method was therefore used to survey the subjective perceptions and opinions of the participants. In total, four participatory observations and 20 qualitative interviews were carried out. The interviewees were peers, peer review coordinators and principals of TVET colleges. The findings were evaluated using the content analysis method (Schreier 2012).

## 4 Findings

The findings showed clearly that not every element of the peer review model could be transferred to the Chinese context nor would fit into the organisational structure of Chinese TVET schools. The findings of the prospective evaluation were divided into cultural, political, program-specific and pilot-specific factors and interpreted using the environmental system model (O'Connor 1988). As mentioned in the discussion of the research approach of lesson drawing the cultural factors played the most important role.

At the cultural level, for example, the strong hierarchical power structure of Chinese culture in particular made transferring the participatory features of the peer review concept difficult. The high context-related communication style that characterises Chinese culture was both a benefit and a challenge. In the case of the

communication between the coordinator and the participant it was a challenge, because the communication was mainly via e-mail, and partly also telephone calls. Context-related communication modes could not be realised in order to address problems. The peer review feature 'no assessment, only observation as feedback' was easy to implement because of the high indirect communication style. The participants were used to linking the directly spoken with the context to generate conclusions. The contrasting behaviours of Chinese nationals towards both in-group members (such as teachers and students from their own school) and out-group members (such as peers from other schools) enabled open communication between TVET college teachers and students and the external peer team during the peer visit at the TVET colleges. The teachers and students of the TVET colleges saw the peer team as out-group members with in-group knowledges. So they were not pressured to be politically correct when communicating.

At the political level, the full-time school-based training made the adaption of the peer team necessary. The TVET-teachers do not have practical work experience; therefore they need to include company practitioners within the peer team to give feedback from the perspective of companies. Furthermore, a lack of knowledge and experience in peer review in TVET amongst Chinese key actors makes the implementation of this policy difficult, because substitutions were difficult to find.

At the program-specific level, the peers' lack of experience in evaluation methods has been identified as a challenge. The peers were unsure whether they had enough competence to use evaluation methods. This had an inhibiting effect regardless of the different context factors of the countries. In addition, the majority of the participants regardless from which national context wished to receive non-committal recommendations from the peer team, which was not foreseen in this peer review model.

Furthermore, the financial, personnel and time restrictions caused by the pilot had an inhibiting effect, which were not due to the regional difference of the context factors. The restrictive resources were a challenge to the full implementation of all features of the peer review concept. For example because of the financial restriction, it was not possible to invite peers from outside of Shanghai.

In summary, the pilot achieved a positive effect on quality development in the participant TVET colleges and on the peers. The findings indicated that the peer review concept reduces teachers' fears about participating in quality evaluation and increases their willingness to take on responsibility for quality development within their school. The study achieved positive outcomes, such as learning from each other and receiving external, objective feedback. But it is striking that no feature of the peer review in TVET could be transferred one-to-one into the Chinese context. The findings provide lessons for policy transfer which are presented in the conclusion.

## 5    Conclusion

The findings showed that some features of the peer review in TVET were easier to transfer into the Chinese context than others. But as mentioned above, no feature could be implemented without adaption. The paper argues that the peer review concept clearly needs to be adapted to the Chinese context and therefore requires a support system. The supporting and inhibiting factors derived from this study enable us to draw lessons about how to support and adapt policy transfer activities at institutional level. Successful policy transfer needs the support of key actors within the host country. It needs people who are fully behind the policy. Successful policy transfer also needs financial and personnel resources. Especially at the early stage of policy transfer, personnel training and capacity-building networks need resources. Another important point is the time factor. It is not feasible to realise sustainable policy transfer within a few years. Newly implemented policy could lead to new structures. New structures could lead to new actions and reactions of parties concerned. Time is needed to enable new behaviours to become routines and habits (Resnick et al. 2015). The findings showed *inter alia* the importance for sustainable policy transfer of ownership and change management (Stockmann 2013; Kraus et al. 2006).

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# Exploring the relevance of the dual model in Romania's vocational education and training. A policy analysis informed by a qualitative research

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**Abstract:** Vocational Education and Training (VET) witnessed profound changes in the Romanian educational system. It experienced a deep downfall following the crash of the centralized industry. The lack of attractiveness among students combined with the recent need for for workforce among the employers, make VET a field of radical change within the educational policies. This paper explores the main advantages and limitations in implementing a dual system in the Romanian VET, based on a qualitative study including 33 Romanian vocational schools. Data was collected through focus groups and interviews with 250 young people and with 65 teachers and policy makers. The dual model could strengthen the link between schools and potential employers, by improving the quality of training. However, VET system is marked by a rigid administrative, legal and logistic context which narrows schools' efforts to better respond to the young people's needs and to the local need for workforce.

**Keywords:** Qualitative study, Romanian VET, Dual system, Policy, Student attitudes.

## 1    Introduction

Vocational Education and Training[9] (VET) is by far the most heavily reformed area of the Romanian educational system. Starting from early 90's, following the fall of the centralized industry, Romania witnessed a severe decline in vocational education and training. This educational sector lost its social prestige and was considered unattractive from an occupational and economic perspective. For almost 15 years, Romanian VET system has been decoupled from the real demands of the labour market. In addition, it was marked by a high rate of school

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[9] The paper refers exclusively to the school-based VET education at upper secondary level for young people between 15-17 years old, leading to level 3 qualification.

dropout (Jigau and Anghel, 2002). Under these circumstances, it did not came as a surprise that international big industrial companies who recently invested in Romania face the shortage of human resources while searching for qualified employees. The lack of well-trained young people reflect the difficulties of the VET system to provide suitable and sufficient workforce for the industries emerging in the more thriving regions of Romania. With low attractiveness among students and declarative interest among employers, VET is in search of a new policy.

Starting with the school year 2014-2015, VET is organized as part of the upper secondary education, lasting 3 years after the completion of the 8th grade. The studies are completed with a certification exam. Young people who pass the professional qualification exam acquire a Level 3 Qualification Certificate of the National Qualifications Framework (Qualified Worker) and the Europass Comprehensive Certificate Supplement. The first generation of graduates will accomplish their studies in 2017. Until now, very few economic companies implemented together with the educational units some elements of dual system. This involved, among others, signing training contracts with the school; provision of updated equipment for school workshops; securing the protection equipment for students; hiring students half-time in the company, or paying extra hour work.

In mid-2016, the Romanian Ministry of Education (ME), together with the National Centre for the Development of Vocational Education and Training (NCDVET) launched a public consultation with a focus on professional and technical schools, the so called 'Școli Profesionale' (ME and NCDVET, 2016). The document stated the endorsement of dual education for the entire VET system and it was drafted on the basis of an analysis of how the dual system is organized in countries such as Austria, Switzerland, France, Germany and Netherlands. The public debate intended to encompass the views of all actors / stakeholders in the educational, economic, civil society and partner structures at regional and local level. During the public consultation, 846 stakeholders were involved, among whom 29 chambers of commerce, industry and agriculture, and 286 economic companies, who strongly agreed upon the opportunity of the implementation of the dual system in Romania.

As a result, the Romanian Government Decree from 16th of November 2016 modified and completed the National Education Low from 2011, regarding the organisation and development of VET with elements of dual system as an alternative of professional training, starting with the school year 2017-2018, which will facilitate the access of the graduates at a paid job on the labour market. An important dimension of this law is the social inclusion, aiming to reduce the high school dropout rate in Romania and to increase youth employability.

## 2    Methodology

This paper explores the major advantages and limitations in implementing a dual system in the Romanian VET. It is informed by a qualitative study carried out in 33 vocational schools in four development regions of Romania. The study was based on focus groups and interviews with 250 young people in VET schools, aged 16 to 18,. Students' visions on the significance of the practical stages and their perspectives on the employability after finishing school were enriched by discussions with over 65 teachers, educational experts and potential employers. They were asked about the chances young people in VET have to accomplish the recent demands from the labour market.

## 3    Main findings

At a structural level, the VET system seems embedded in a rather rigid administrative, legal and logistic context that limits schools' opportunities to better respond to the young people's training needs and to the local economy. Broadly, these limitations refer to: (1) shifting policy climate on VET that limited the possibility of building up a consolidated VET profile among schools; (2) outdated infrastructure in schools, with weak added value for the labour market integration; (3) insufficient economic support for disadvantaged young people that have to overcome economic barriers in order to attend school; (4) highly bureaucratic and costly system of accreditation for schools, which cannot adequately compete as training providers; (5) an inflexible tenure regime that limits the possibilities for schools to change the specialization, when needed; (6) the aging of teaching staff qualified to train students. Overall, the VET system is highly dependent on the local economic environment and

on the capacity of schools to engage in proactive strategies of attracting entrepreneurs' cooperation. Some isolated examples of good practice in implementing a dual model, are already in practice.

Against the above context, the dual education model has the advantages of consolidating school relations with potential employers and in increasing the level of quality in the training provision. On the other hand, the economic climate of Romania, characterized by small and medium enterprises (SMEs), makes its implementation difficult. Most often, the partnerships are based on personal networks and less on broader frames of institutional cooperation at local level. Where local business networks are scarce, the training of students is a major challenge.

The requirements of the National Education Law regarding the implementation of the dual system in Romania – aiming at poverty alleviation – are not attractive for the corporations and are not realistic for the SMEs. So far, the VET system in Romania incorporated a stock of severe social problems: the majority of students come from rural areas, often from dysfunctional families, with a low socio-economic and educational status, and with very poor educational achievement until the 8th grade. Young people with a disadvantaged background (including young people in state care) are often channelled in VET schools based on geographical proximity, and less based on personal choice. As families may disregard education or cannot afford the costs attached, the risks of school failure and drop-out are high. On the one hand, big companies are interested in selecting competitive young people, who can bring high return on investment. On the other hand, the SMEs, which are struggling to survive, may not be sensitive to the social inclusion dimension of VET or cannot afford its 'costs'. Allocating specialised personnel for training or mentorship, for instance, may go far beyond their possibilities. Conclusions

To sum up, taking into account – the sinuous road of the VET system in Romania from 1990 until its starting point of revitalisation in 2014; the disparities regarding the potential to develop collaborations with the educational units on a dual system basis between SMEs and the big international corporations; the challenges most of the students in the VET system face due to a disadvantaged family environment – the dual system is not entirely transferable because it was designed for economic and legal conditions that Romania does not currently fulfil.

## 4    Acknowledgements

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# Past meets Present – the history of the German Vocational education and training model as a reflection frame to the prospect of the Egyptian model

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**Abstract:** The background of the considerations presented here is the longer time experience to transfer German practice of vocational education and training (VET) to Egypt at various levels, and to work with Egyptian colleagues. Not only Egypt was the country of reflection, experiences with and observations in some other emerging and developing countries gave the background. The observations sharpened the eye for the particularities of the own German vocational education and training. For these reasons, the next sections attempt to combine two heterogeneous perspectives. The view on vocational training in Egypt and the view of the historical development of vocational education and training in Germany are linked in order to formulate and discuss potential possibilities for the further development of Egyptian vocational education and training. It can be assumed that the look back to our history can provide us with more generalized knowledge of how a society can solve the problem, the reproduction of the social workforce for the demands of social development, and how the associated social process is designed. And we have learned that a look into the history of the German VET were very often more fruitful than a look to the present of the current German system with its high complexity and with the huge difficulties to transfer its governance to foreign countries' social environments.

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## 1    Introduction

The background of the considerations presented here is the longer time experience to transfer German practice of vocational education and training (VET) to Egypt at various levels, and to work with Egyptian colleagues. Not only Egypt was the country of reflection, experiences with and observations in some other emerging and developing countries gave the background. The observations sharpened the eye for the particularities of the own German vocational education and training.

At the same time, they have also stimulated a discussion to explore the possibilities of learning from German experiences - with all the specificities and differences - for the further advancement of developing countries' vocational education and training. And we have learned that a look into the history of the German VET were very often more fruitful than a look to the present of the current German system with its high complexity and with the huge difficulties to transfer its governance to foreign countries' social environments.

During this cooperation with Egypt, there were often unexpected moments which reminded one of the historical special feature of the German development of vocational education and training, such as the dignified appearance of a production supervisor and in-company instructor in a textile factory, dressed in a traditional

garment (Galabiyah), instructing the young "trainees" in the skills of textile production. It exemplifies the strong role of traditional patterns of vocational training in modern enterprises. Or the walks through a quarter of the dealers of used automotive spare parts with their integrated workshops, clearly showing the dualistic economic order between traditional and modern sectors (see Lutz, 1984). These observations, which caused uncertainties in a first impression, have led to the following considerations, and stimulated the reflection of how to share experiences and knowledges from the German VET notwithstanding of the deep differences of conditions, backgrounds and socio-economic and cultural environment to other developing and emerging countries to benefit.

But Egypt remains the main reference country for the here given conclusions due to the deep experiences and reflections during a three year R&D project with the construction industry in the country and the additional possibilities to observe social practices of VET in Egypt, and the frequent occasion to conduct interviews and expert talk within that part of the Egyptian society.

For these reasons, the next sections attempt to combine two heterogeneous perspectives. The view on vocational training in Egypt and the view of the historical development of vocational education and training in Germany are linked in order to formulate and discuss potential possibilities for the further development of Egyptian vocational education and training.

However, the range of the perspectives are necessarily limited. The focus of the historical study of vocational education and training concentrates on the development of industrialized vocational training during the proto-phase of the dual vocational training in Germany during the Prussian-German imperial empire. The focus is limited to the German industrial development because of the Egyptian background with greater attention to share German experiences to the Egyptian private industrial sectors. If we would address less industrialized countries e.g. Rwanda or other countries in Sub-Sahara Africa we should limit our focus more on the preparatory phase of German industrialisation from the beginning of the 19th century with the different activities of *Gewerbeförderung* (Promotion of Crafts and Industry) in e.g. Prussia, Baden and Württemberg.

It can be assumed that the look back to our history can provide us with more generalized knowledge of how a society can solve the problem, the reproduction of the social workforce for the demands of social development, and how the associated social process is designed. The academic organized reproduction of the workforce is ignored here.

## 2    Theoretical backgrounds

### 2.1  Epistemological considerations

At this first point, a more epistemological background of the author two theoretical points are to illustrate a bit more: (1) the general cultural studies research perspective is here now applied, which takes a basic assumption of contingency for the development of social processes. In this way, the developmental ambition angled towards rationality at the "endpoint of the path of modernization theories" is no longer in the modernist theory, but preferably the interrelationships between tradition and modernity, as well as the "very specific historical-cultural contexts in which seemingly necessary modern structural decisions take their contingent beginnings, as well as the alternative codes and practices of the present and past, which demonstrate the existence of >multiple modernities<" (Reckwitz, 2011, pp.9, 14, Transl. StW). (2) Additionally and specifically because we are in the arena of development politics we use an epistemic background of a postcolonial theoretical assumption of e.g. R. Grosfoguel, who express the need to overcome the dichotomies between the Eurocentrism and third world fundamentalism, to go beyond the colonial order and the postcolonial certainties, "(…) to progress beyond economic reductionism and culturalism (and how) can we overcome the eurocentric modernity without throwing away the best of modernity as many third world fundamentalists do?" (Grosfoguel, 2009, p. 10) With respect to the postcolonial theory we have to leave our position of better knowing and supremacy of the "western best" encountering experts from developing and emerging countries and move to a position of dialogue and respect

and mutual sharing of experiences of each specific VET regulation and characteristic. Not easy to do so but the only way to succeed in a long term perspective.

But away from the theoretical background back to the theoretical foreground of theories applied for the research of VET systems and its characteristics.

## 2.2   The typology of the different VET models

Taking into account notes of W.-D. GREINERT to an analysis model by C. Offe (1975) on the study of the historical development of vocational training institutions, it can be said that vocational training institutions are concerned with the specific characteristics of "instruments for overcoming social problems" (Greinert, 2015, p. 4). Precisely, it is about the social problem of the necessary qualification for industrial production. Germany's rising industrial society in the nineteenth century, especially towards the end of this century has been faced to a more important extent with these qualification problems (Rinneberg, 1985).

It would be a clear misunderstanding, the work of W.-D. Greinert only assigns a structure-functionalist view to the formation of vocational training institutions, although this may seem plausible on the basis of a first, superficial view of his approach to the explanation of the governance mechanisms of vocational training institutions. The comparative view of the various vocational training systems in the world clearly shows that the old industrialized countries have produced very different solutions which cannot be explained by a structural-functional model of action.

W.-D. Greinert reduced in his contribution, which follows the concept of ideal types by Max Weber, the real diversity of the manifestations of vocational education and training to three basic governance concepts and thus ideal                                                                                                                                                              types. Whereby the concept of governance is meant that the question of "how do the communication partner in the social system of action *vocational education and training* complying with regulations and accepting the same interpretive patterns of their actions?" (Greinert, 1995, p. 31, accentuation in the original, Transl. StW) can be answered by recourse to regulatory patterns.

In the regulatory pattern of the basic type of *tradition*, "traditional, customary legitimate action" determines vocational training, the basic type of the *market*, vocational training "is determined directly by the production factor and by the qualification signals of the labor market", and finally, in the basic type of *bureaucracy*, vocational education and training is regulated "on the basis of legal regulations by the state or the state bureaucracy alone."(All quotations from ibid., p. 32, Transl. StW.). To a clear understanding the explanation of regulatory patterns to govern vocational education and training and the simplifying of three ideal types of the classical European VET governance are analytical tools and not a description of the existing reality of vocational education and training. The French Alternance or the German Dual Vocational Training are mixed forms or can be classified as real types in the sketched concept of Greinert. It must also be emphasized here that the real nature of vocational training systems always occurs in mixed forms, especially for developing countries and emerging countries, but also for classical industrialized countries. In Germany, in addition to the dominant dual training area, there is a fully-schooled training area, e.g. for the expanding economic sector of nursing or care work.

Other, different concepts of the simplification and typologies of vocational education and training systems are discussed alongside the German vocational pedagogy debate, especially in English-language publications of comparative political science (more see, GONON 2013). We have to note especially on a very prominent typology from the comparative political economy. This concept could enlighten the different possibilities of businesses to be involved in VET provision and the relation with the public sector in initial qualification for work and employment (more details see Busemeyer, 2013).

## 2.3   The analytical concept of the historical institutionalism

As well to escape a reduced structural-functionalist view of the vocational education and training regulation but additionally to open the perspectives, the theoretical concept of the historical institutionalism of the comparative political sciences is used here (see Thelen, 1999; Busemeyer & Trampusch, 2011; Busemeyer & Trampusch,

2012; Schimank, 2007). This concept assumes that the development of VET institutions, their stability and change are dependent on long-term processes, the consequences of which are often only apparent from a historical perspective. Their functionality cannot be derived from their current social and functional significance, but only from the historical process. The development of new vocational education and training structures depends on specific, historical settings based on opportunities, actors' constellations and feedback loops of the political process (see Thelen, 1999). The change, triggered by the necessity of institutional orders to adapt to changed social and political conditions, often does not take place in revolutionary upheaval. In fact, it put into effect in small steps, the changes develop only in the long run (see Busemeyer, 2014), especially when there are many social actors involved in the forms of the institutional order.

In the final chapter the findings from a historical perspective of the German VET development are mirrored on the very different order of vocational training in Egypt. The analytical components of the historical institutionalism frame the mirror and we could see some Egyptian specificities with potential better performance of countries' VET. This is connected with the hope, with all restraint, that the knowledge of the historical development of one can help and the other to change their own present and to find shaping options.

Before going deeper into the history of the starting phase of German industrial vocational education and training model, however, the present situation of Egyptian vocational education and training, including its frameworks and conditions, will have depicted. At the end, both perspectives are reunited and with an outlook forward to the future shaping of the Egyptian VET system we will finalize.

## 3    The structure of the vocational education and training system in Egypt

Egypt, the most populous country in the Arab world – today's population is about 92 million inhabitants with an estimation to reach the 100 million in the beginning 2020th years, is endowed with many resources. The important national economy, whose second-largest trading partner 10 years ago was still Germany - in 2012, still only fifth place - has long been in the focus of German federal foreign policy. In 2016 the trade volume between the two countries increases back to the position of the beginning 2000th years when Germany was the second important economic partner worldwide, with an overall trading volume of 5.5 billion Euro.

Already in the 1950s the still young German Federal Republic began the first activities to support the economic and social development of Egypt. Due to the important strategic role of Egypt, other donor nations have also provided many development, economic and military aid funds to Egypt.

### 3.1    The vocational education and training system of Egypt

Especially the education sector was supported by international development agencies. In Egypt, for example, a highly complex network of public and private educational institutions has developed - from the private primary school through public training institutions of the different ministries to a more or less differentiated system of traditional apprenticeship training. It is also characterized by a great complexity and heterogeneity, which is closely linked to the general education of vocational education and training in Egypt. Traditionally, vocational education and training is more likely to be the pool for the losers of the Egyptian education system, a second or third chance education. There is a tremendous difference in income earning in positions based of academic and non-academic education. But due to the high level of unemployment of academic graduates in Egypt (ETF, 2017), we can find graduates from the different training activities earning much more money than academic graduates but as a mayor constraint of the education system in Egypt the academic graduation is seen as a prerequisite for family formation and will increase the possibilities on the marriage market significantly (see Al Amry, 2008). And with an academic graduation you can reduce your obligatory military service from 36 months to 12 months.

Strict approval rules at different levels of the educational stream limit the further educational path for the Egyptian youth through rigid grading. In this respect, the general education stream enjoys the highest social standing with its end in the university graduation - precisely because it promises exclusively access to the

highest income strata and a secure life perspective even if the reality of most academic graduates is far away from that promises.

At the end of the 8th grade, about half of the pupils leave school and then work in the informal economy. Two-thirds of all pupils who follow the school path visit the technical secondary schools. The rest follows the stream of general secondary schools until its end at the university (see GTZ, 1995; DIFID-WB Collaboration, 2005).
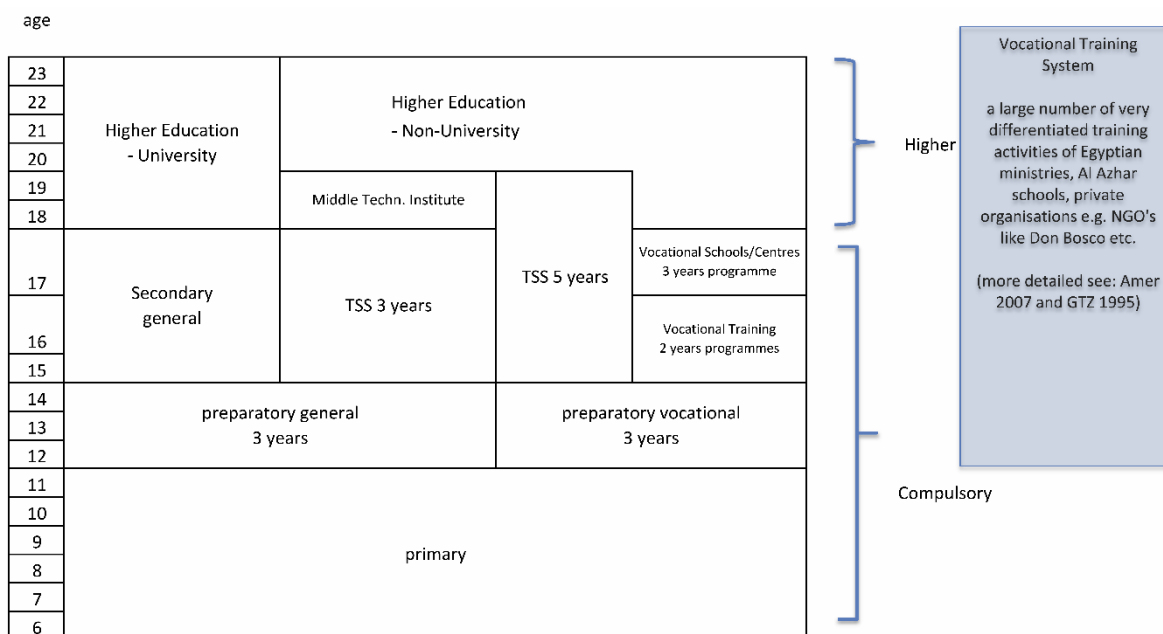


**Figure 1: Education System of Egypt, Source: (Wolf & Sobhi, 2016, p. 17)**

Each year around seven hundred thousand workers are entering the Egyptian labor market, which can only absorb two hundred thousand workers. Young people and young adults of both sexes between fifteen and twenty-four years are, according to the official figures of the UN statistics office, a quarter without work. The low paid work or the casual work of the young coolies are thus not even recorded in the official statistics. In particular, the graduates of the technical secondary schools are, according to various estimations, 70% without employment (see Antoninis, 2003). A part then changes to the traditional (informal) sector after three or five years of vocational schooling in order to make a "traditional" apprenticeship. Paradoxically, there is also a shortage of qualified workers for industry, as graduates of formal school-based vocational training have hardly any operational qualifications and are not recruited (see Wally, 2012). As we could observe the recruitment in the construction industry follows very traditional rules and regulations and not based on any formal certificates (see (Wolf, 2015, p. 145)

Synoptically to speak about the Egyptian Vocational education and training system we can identify three pillars: (1) the dominant area of public vocational education, determined by technical and vocational secondary schools under the supervision of the Egyptian Ministry of Education, (2) the field of training measures - under the aegis of different ministries - or non-formal under religious or secular responsibility (NGOs) and (3) the area of traditional apprenticeship training in the informal economy (see BARABASCH & WOLF, 2010; SCHNEIDER, 2004; GILL & HEYNEMAN, 2000).

Under a perspective of governance and management of vocational education and training in Egypt, there is a lack of coordination between the different actors of the trainings, no coherent job profiles and occupational standards exist and an absence of a qualification framework and recognized certification systems have one to state. In addition, the absence of qualified formal training institutions combined with a lack of qualified teachers impair the performance of the Egyptian vocational education and training system (see Álvarez-Galván & OECD, 2015; Amer, 2007; Antoninis 2003).

The Mubarak Kohl Initiative - MKI (1994-2007) was an attempt by the Federal Republic of Germany to make a large contribution to the solution of the problems outlined here. The stated goal was to develop a dual system in analogy to industrial training in Germany with a close interlinking of company training and school learning with the corresponding organizational structures. At the outset, it was intended that the entire Egyptian vocational education and training system should be transformed into a dual system from individual pilot measures (see Heitmann, 1994; Schneider, 2004; Schippers, 2009). This has not been achieved. Even after the transfer of the structures to the responsibility of the Egyptian government in 2007, a corresponding global change in Egyptian vocational training remained. Although the number of regional organizational units for the Dual System (RUDS) has risen slightly in the country, the number of annual graduates of the Egyptian Dual System has increased to 27,000 in 2014 under the auspices of the Egyptian government, of which more than 75% are employed after completion (see Adams, 2010). In 2017 the number of trainees in the Egyptian continued activities of MKI-DS increase to 35,000.

## 3.2  Problems of vocational training and the labor market in Egypt

According to the observations and conversations on the ground there is little to be expected of a widespread, fundamental change in the Egyptian public vocational training or a paradigm shift in occupation relevant training or in-company qualification, which would be covered by industrialists. Meanwhile some larger Egyptian companies are discussing a reorientation of intra-company workforce qualification, especially in the context of expansion plans or product modernization strategies. However, the provision of skilled labor is predominantly delegated to the state, only very few systematic, business-based training with wider recognized labor certificates for the workers is realized (see Hassanein, 2014). In conversation the management often expresses the fear that the investment in training to benefit their new cohorts of qualified laborer would be lost through poaching the laborers and free riding of the competitor. Also, the workers would ask for better payment after successful certification.

In this context, another area of problems is being set up in the area of personnel management and professional recruitment: At present, workers are available at a comparable (low) qualification level in large quantities and are interchangeable. This leads to a competitive situation of the labor force and a self-reinforcing wage dumping. This in turn leads to a fundamental problem of the Egyptian economy, which is largely based on a low-wage sector and the generation of profit margins at a low level of investment, mainly in small and micro enterprises in the informal sector (see Angel-Urdinola & Semlali, 2010; Zelloth & ETF, 2014; Amin, 2014). This virtually excludes access to production, operation and even the development of higher-quality and more modern technologies.

Under these conditions the introduction of sustainable, environmental friendly and future-oriented products and production in the manufacturing sector still appears far away. Egypt seems to remain a low cost producer with bad quality products. Positive changes seem a distant prospect. In the last years under the economic crisis of Egypt induced from the political constraints and conflicts the middle class suffers under the situation. Combined with the demographic challenge of the massive rejuvenation of Egyptian society with both the scarcity of decent work and the lack of future prospect by sufficient education, Egypt seems only an import based goods market for the luxury segment, an expansion of quality goods market lacks of purchasing power.

However, as in the economy, there are mental barriers to the transformation of the labour market in the corporate structures: It is often observed or reported that modern formal regulations and structures play only a subordinate role except in the encounter with the state bureaucracy. According to the observations, this also applies to vocational training in Egypt. There is a mixture of traditional regulatory patterns and modern procedures, which are subject to the rules of rational Western bureaucracies.

In essence, the in-company qualification is based on traditional vocational training. It aims at the training of appropriate behaviours and rules and roles of work, less on professional qualification. This qualification is often carried out by workers who are socially respected in the structure of the workforce or by supervisors or supervisors.

Egypt is based on an old, complex, traditionally shaped society (see Semsek & Stauth, 1987; Didero, 2012). In this, the creation and maintenance of supposedly individually beneficial or socially expected social relationships and networks, as well as the active proof of loyalty towards society's more important ones, are essential for the recognition and social positioning of one's own person and on the other. It builds the traditional basis for social advancement through relationships, but also for emotional dependencies. For instance this tradition, with its principle of emotion-based negotiation of one's own role, competes with the rational and modern design of vocational education and training as a formally defined and codified qualification requirement manifested in training plans or arranged curricula - without any negotiating margin of any kind.

The statement by a head of education in the Egyptian Dual Education System of a modern enterprise illustrates this: "If a young man (in the Egyptian dual system) does not feel comfortable on a machine, I take him away and put him at another workplace where he can learn better, he's supposed to become a good worker. What he cannot learn from this engine, he will learn in a different way ". (From the transcript of the translated group discussion with personnel responsible, 5.3.2015, Cairo).

As so far the short description of the Egyptian vocational training, its basic conditions and problem situations. But now we want to move from the present of Egyptian VET to the history of the German dual training scheme to better understand the conditions of its development, to sharpen our understanding of the origin of the today's institutions and to facilitate by going back to the origin the transfer of experiences and concepts to other countries and its different social environments.

## 4    History of the early phase of vocational training in Germany

W.-D. GREINERT proposes in his history of vocational training in Germany, a three-tiered diachronic approach (see Greinert, 2015). He divided the beginnings into a proto-phase, which took its starting point around the 1870er years, with historical models far into the middle age. It is followed by a phase of the consolidation of the Dual System of Vocational Training, which is the specific German model of the reproduction of the industrial labour force[10]. This period stretches from the early 1920s to the early 1970s, and with all the difficulty of fix such a caesura, he put it to the end of the reform era of the 1960s and 1970s of the Federal Republic and to the end of classical modernism in the industrialized countries. The current, third phase will be tried by GREINERT with the catchphrases of the epoch-change and the modernity crisis; the institutional order of the qualification for work and employment in Germany is characterized by a heterogenisation of the vocational education and training, accompanied by the erosion of the requisites of its existence.

### 4.1   The proto-phase of vocational training in Germany

What was the development of the labor market in Germany in the middle of the nineteenth century, and why did it develop further into the specifically German model of industrial apprenticeship training?

Germany was a latecomer to industrialization, a latecomer who, on the other hand, succeeded in the short period of not more than one generation to catch up, partly to overthrow the great industrialized countries of England and France in important parameters of industrialization and industrial output at the end with the attainment the competing western imperialist nations.

The development of vocational training in Germany is closely linked to the industrialization process. RADKAU (2008) speaks of a formative phase of this process. On the basis of the proto-industrialization (see Pfeisinger, 2006, 21ff.), particularly on the basis of the leading sectors in mining or textile production, this took on an intensified pace, starting with the 1870s an unimagined acceleration. The railways, mechanical engineering, electrical engineering and the chemical industry (ibid., P. 128) now came into the process as additional industrial sectors, iron and steel production must also be mentioned.

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[10] In the concepts of international comparative education we named it "qualification for work and employment" (German Erwerbsqualifizierung). Berufsbildung is the specific German social regulation of it.

The labor force in the new forms of production recruited, of course, on the basis of the existing labor resources, which can be presupposed as generally known, from the guild organized crafts (Zabeck, 2009).

Although the assumption was often made that the modernization of industrial production did not require any or only very little qualified workforce, because it replaces the manual dexterity that still distinguished the manufactory (Smith, 1776, 10ff) by the machinery and technology characterized by technically processed, small-scale work steps coupled to the machine (Rinneberg, 1985, 23ff.).

The assumption for the industrial production means that these small scale work steps are devoid of any human qualification and dexterity, but similar open to technical rationalization and technological efficiency. This results in a real subjection of human labor to capital as well as under modern machinery (see Marx, 1962, 441ff.). But, on closer inspection, this general mechanism of industrial production is more complex than expected in reality, with unexpected effects on the qualification requirements of factory work.

While at the beginning of the industrialization process there was a close link between qualified work and human workability in Germany (see Ditt, 1979, p. 244), a devaluation process of qualified work capacity can be stated in the phase of accelerated dynamics of industrialization. It is astonishing that this process of the further depreciation of human work capacity has not continued, but that a reorganization of qualified human work capacity has to be established in Germany (see Conze & Engelhardt, 1979; Radkau, 2008; Greinert, 2015).

It should be noted that the findings differ in detail, the more precisely the regions (e.g. Baden: Hasfeld, 1996; Württemberg: Oheimb-Loup, 1994), or the economic sectors (e.g. Rinneberg, 1985) or the gender (see especially Hausen, 1978; Canning, 1992) were observed. This also applies to the finding that there was generally a differentiation and, at the same time, a polarization of the qualification requirements in the developing modern industrial enterprise (see Kern & Schumann, 1984; Rupieper, 1986).

## 4.2   International comparative perspective - development paths in the USA and Germany

The development of an independent industrial German qualification form is surprising, since no such development took place in other industrialized countries, especially not in the USA, and also in late-industrialized Japan, no industry-specific training structure emerged as it happened in Germany.

An explanation which is intended to approximate these manifest differences in the organization of the social reproduction of the qualified work capacity could be inspired by two things: on the one hand, an understanding that goes back to K. (Polanyi, 1978)), that everything that "we call »economy«[development, and thus also indirectly qualification for work and employment, additional remark StW.], is always the result of the interaction between state action, the respective familiar institutions and considerations of individual entrepreneurs."[11] (Biernacki, 2000, p. 111) and on the other hand, an inspiration coming from an  international comparative view, which makes it clearer which interaction of the mechanisms of action caused the formation of specific orders of the qualification for work and employment (see Thelen, 2004).

Thus the comparison shows two very different results in the development of specific solutions for the skill problem in industrial production between the USA and Germany, despite very similar problem situations (see, in particular, Hansen, 1997).

Thus, the US companies tended to cope with the existing demand for professional qualifications for their industrial production through minimization strategies. This meant that the companies developed production and developed production technologies that reduced the demand for skilled labor. Here, the keywords are F.W. Taylor and the Scientific Management. This approach was supported by the seemingly unrestricted sales market, the almost inexhaustible natural resources of the North American continent, which favored such a concept of uniform mass production. The institutional orders of the labor force support this solution by the

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[11] The German original text: „ (…) was wir »Wirtschaft« nennen, stets das Ergebnis des Zusammenspiels von staatlichem Handeln, den jeweiligen familiären Institutionen und Erwägungen individueller Unternehmer ist."

absence of urban crafts traditions - "(...) important to American training outcomes as the absence of an urban crafts tradition, organized by guilds" (ibid., p. 213).

The massive immigration to the US was an essential moment, and prevented a stable manifestation of socialization in work with its expression of specific work related behaviors e.g. the European tradition of moral economy of the labor force (Thompson, 1971; Griessinger, 1981) through various barriers. The development of training traditions was also made more difficult, since they are linked to common social and cultural ties (see Hansen, 1997, p. 214). Thus for the qualification issues only the recourse to the possible efficiency of the qualification development for the industrial process, resulting from informal learning in the process of work, which was structured according to "the pattern of the interactive stratification of experience" (Harney, 1990, p. 102)[12] and simply the technological solution of machinery use and work organization.

The US-American approaches are in contrast to those who finally used German industrial companies. The German companies were able to make use of an existing qualification concept, namely, the craft apprenticeship (Hansen, 1997, 212ff.). In spite of various attempts, especially in the industrial sector of the basic material production, such as chemistry, iron and steel, as well as mining, until the end of the 19th century to recapture only of semi-skilled training processes and to accelerate the dequalification of labor activity (Rinneberg, 1985), these concepts could not be achieved. The existing training concept of crafts have been transformed, modified and adapted to the needs of the industry (see Harney, 1990; Greinert, 2015).

The reasons for this were: The sales markets in Germany were considerably smaller, the production was geared to a differentiated and local demand. In addition, the companies, especially those in the lead industries of mechanical engineering and the electrical industry, were much more reliant on qualified and skilled labour (Facharbeit) than their US counterparts, who had the abovementioned strong strategies of replacing qualified labor. The German companies had to respond more strongly to customer requirements, the average company size was considerably lower. The industrialization efforts for instance in the south-west of Germany, but also to some extent in the Prussian north of the industrializations zones were heavily influenced by the small trades, traditional crafts and the so called industry landscape (Gewerbelandschaft), more than by the newly establish heavy industry areas in remote locations with sufficient supply of primary goods such as wood, hard coal or iron ore which recruited mostly unskilled workers.

In particular, the mechanical engineering companies were made up of small-scale enterprises, which were handcrafted, but were then transformed into large-scale enterprises through internal growth (see Hansen, 1997, p. 234; Rupieper, 1986; Ditt, 1979; Kocka, 1969). In the phase of high industrialization and rapid growth, they recruited mainly unskilled workers, the necessary skilled workers were hired from the crafts. These skilled craftsmen, according to the statements of many engineering companies from the time, were, however, only limited able to cope with modern production in mechanical engineering with standardized replacement parts and serial production. The efforts, similar to those in the USA, to solve the qualification problem through technology and production organization, have also been very well tried (see Rinneberg, 1985; Homburg, 1978; Radkau, 2008; Homburg, 2010), but for the above reasons of other conditions and on other occasions - which made other solutions possible - were not implemented in the broad range.

"The »German production regimes«, as it is still a tradition today, emerged in the late 19th century, based on an experienced skilled workforce, diversified quality production, forms of internal co-determination, regional »economic clusters« - cooperation of autonomous companies to avoid high transaction costs, and cartel agreements that allowed longer-term planning" (Radkau, 2008, p. 18).[13]

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[12] The German original text: „(…) dem Muster der interaktiven Erfahrungsaufschichtung"

[13] The German original: „Das »deutsche Produktionsregime«, so wie es als Tradition heute noch wirksam ist, bildete sich im späten 19.Jahrhundert heraus, beruhend auf einem erfahrenen Facharbeiterstamm, diversifizierter Qualitätsproduktion, Formen innerbetrieblicher Mitbestimmung, regionalen »Clustern« – Kooperation autonomer Unternehmen unter Vermeidung hoher Transaktionskosten – und Kartellabsprachen, die eine längerfristige Planung ermöglichten."

## 4.3   The development of German vocational training under the perspective of historical institutionalism

In contrast to functional attitude to the transformation of institutions of the qualification for work and employment, the approach of historical institutionalism does not assume that the form of today's regulations can make relevant statements about the motivation of their formation and their change over time, but only the historical perspective is permissible. This perspective assumes that the actors, processes and the historically existing institutions are to be analyzed from their own situation, arranged in history, and not from the perspective of a retroactive legitimacy due to their contemporary functionality.

Thus, the historical view shows that the contemporary German characteristics of self-management and co-determination of the social partners, with moderate supervision of the state in the development phase of German vocational training didn't exist. Nor was there any clear interest on the part of the industry in today's specific vocational training, nor any observable positive articulation of the social democrat or the trade unions connected with it (see Thelen, 2003, 7f.). The origin and change of these characteristics of the qualification for work and employment depend on various factors, as the historical institutionalism shows us.

(1) By "favoring obstacles"[14] (Streeck, 2004, cited in Busemeyer & Trampusch, 2011, p. 425) the process is directed to a certain direction. These include the influence of trade unions, the activities of business associations, the existence of chambers of industry and crafts etc.

For a new formulation of existing forms of qualifications for work and employment, critical transposal points, so-called critical junctures (for the concept, see Capoccia & Kelemen, 2007) are a prerequisite. Only if the existing regulations no longer work satisfactorily because, e.g. in the German industrialization process, the legal foundations of the craft apprenticeship changed drastically, by the introduction of freedom of trade and the long time stable qualification mechanism of the crafts wrecked. Thus the recruitment patterns for workers also modified, and then changes can be initiated (see Greinert, 2015; Hansen, 1997; Rinneberg, 1985)

(2) At the same time, however, there must also be appropriate groups of social actors with political and social power who can formulate this failure of the previous order and articulate their interests or that group could emerge out of the change process.

(3) In the process of change, feedback effects are applied to the further process cycle. These can arise from decisions already made, but they can also be fed from alleged traditions (see Hobsbawm & Ranger, 2003), as the narrative of the particular role and quality of medieval craftsmanship, which in the industrialization phase Germany formed such an "invented tradition". Or they arise from organizational constellations, as they evolved in the industry landscapes in southwest Germany.

Critical transposal points can be found with the introduction of the Craft Protection Act of 1897 by the German Reichstag, which was based on a backward-looking qualification model, which was preferred for political reasons to stabilize an economically and socially restored middle class (the process for the establishment of the Craft Protection Act at Greinert, 2015, 23ff., see also Meskill, 2013).

This massive appreciation of the craft in training and qualification questions had unexpected side effects and brought new, unexpected but additional actors into the arena. The establishment of a training system under the control of the craft industry has hindered trade unions from organizing their members along occupational activities, taking the opportunity to influence the training process and control the labor market (see Thelen, 2003). In England, trade unions have taken this path of controlling the training and labor market. They have developed a closed-shop policy (see Finegold & Soskice, 1988, also Deißinger, 1994) and, unlike Germany, blocked the way to an industry-wide mass qualification for the working class (for a deeper inside to the role of unions and qualification politics see, Wolf, 2017).

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14 German original: „begünstigende Hemmnisse", it means in a dialcetical sense opportunities to develop by societal constraints and restrictions

With this German side-effect, induced the growing interest of the social-democratic trade unions in the period after the Craft Protection Act. The unions perceived with increasing interest the progressive growth of training and qualification activities in industry and mining industry. Many of the members of the German unions came from former craft trades or skilled industrial workers with a biographical openness to training, education and upbringing activities (see Schönhoven, 1979; Engelhardt, 1979; Dittrich, 1980).

A certain climax in this mechanism of inclusion of unexpected social actors can be seen when the Stinnes-Legien-Agreement of 1918 constituted the German trade union movement and the industry associations a joint cooperation agreement of co-determination, which also influenced the industrial vocational training through the industrial work councils which have since then a greater influence of the in-company training activities.

An additional feedback effect can be observed if one considers the specific characteristics of the industry-specific vocational training. With the Craft Protection Act, industry was forced to put its training activities under the supervision of the crafts. This led to a similar structure to the "traditional" apprenticeship of craftsmanship, which, however, reformulated and systematized according to their own industrial requirements. From the late 1930s onwards, the apprenticeship in the industry became also a formal equal status to the craftsmanship's one, but nevertheless the industry developed its own modes of qualification, the skilled industrial labor training (Facharbeiterausbildung) and the training of skilled workers (see Greinert, 2015, 53ff.).

Other unexpected social actors we can find being involved in the development of German vocational training. The engineers, who are progressively establishing themselves as professional groups within the growing industrialization, especially those of the mechanical and the electrical engineering, must be highlighted.

"(...) At the end of the 19th century, the masters had a »supreme position« in many machine factories. The fall of the master system was the declared goal of scientific engineers around the turn of the [19th zo the 20th, note StW.] century."[15] (Radkau, 2008, p. 204).

The rationalization efforts, the introduction of the Taylor system of rational management in German production plants, had always the goal to increase the importance of the engineers in production issues against the masters. The industrial vocational training offered itself, as it were, as a field of action in the delimitation of the "Handwerkerschlendrian" (W. v. Siemens, cited in Hanf, 1987, p. 158)[16]. A vocational training, which followed rational aspects and was subject to a technical logic and efficiency, offered the approach to a solution for the machine industry, which sought for concepts to close the qualification gap. The role models, which were taken into account, already existed in the workshops of the railway industry. There, since the 1850s, the most recent international training procedures such as the course method (Lehrgangsmethode) and its own structure and regulations e.g. syllabus and medias were developed (see Ploghaus, 2003).

At the same time, the industrial companies realized that the brachial enforcement of the Taylors system in Germany produced considerable resistance within the company (Machtan, 1981; Homburg, 1978). But they did not see a solution in a strong technological way of closing the qualification gap as for US-American production model, which is detailed described in the study of HANSEN (1997) due to the already above mentioned structural reasons. Nonetheless, they proved models of dequalification for factory work. As RINNEBERG (1985) showed, this process led rather to a disruption of industrial training conditions at the end of the 19th century.

It is also interesting that formal vocational qualifications were also introduced in the mining and iron and metallurgical industry at the end of the 19th century. In the years before, in the high industrialization phase, this industrial sector was satisfied with the overwhelming recruitment of unskilled labor. This was also due to their special situation, as they were established in regions with little infrastructure, because of the sufficient supply of the necessary raw materials. They could not make use of existing industry landscape or skilled workers from the crafts (see Hansen, 1997), but rather had to use a segmental qualification concept, a concept which focused on the individual company recruitment strategy. The Rhenish heavy industry, however, developed beyond the

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[15] The German original: „(…) [N]och Ende des 19.Jahrhunderts besaßen die Meister in vielen Maschinenfabriken eine »überragende Stellung«. Der Sturz des Meisterssystems war um die Jahrhundertwende das erklärte Ziel der wissenschaftlichen Ingenieure."

[16] Meant is the behaviour of jog trot of the master craftsmen, also declared pejoratively by W. v. Siemens as artisan craft working style

individual company approach, an independent collective concept of vocational qualification (see Harney & Tenorth, 1986; Tenfelde, 1979). Nevertheless, the concepts of the mechanical and electrical industry differed considerably, which looked at "vocational training as an integral part of the scientific management" (Greinert, 2015, p. 57) and introduced rationality and objectification into the training.

The concept of the heavy industry followed much more an ideologically driven concept of vocational qualification and led the struggle for the "soul of our worker" (quoted in Kipp, 2008, p. 23). Through ideological influence of the workers the class antagonisms should be defused, in a "work community" the loyalty of the industrial workforce against the company should be secured and the socialist efforts of the labour force be suppressed (see Kift, 2012; Seubert, 1993; Kipp & Manz, 1985).

Both groups of actors in German industry founded intermediary organizations for their collective interests, such as the metal and electrical industry in 1908, the German committee for technical schooling (Deutscher Ausschuß für das Technische Schulwesen - DATSCH) and the heavy industry in 1925, the German Institute for Technical Work Training (Deutsche Institut für technische Arbeitsschulung - DINTA). Both were in sharp competition with each other. In the historical retrospect, it can nevertheless be stated that the activities for the rationalization of vocational training by the DATSCH were more successful (see Herkner, 2013). Their rationality efforts, characterized by the training workshop, and company owned training school (Werkberufschule), which merged later on mostly in the public vocational school except for those of Siemens. The methodical systematization by means of teaching and standardized courses and professional systematic formulations of standards by occupational standard, training plans and examination requirements (Greinert, 2015, p. 57) outlasted and still characterize the German Dual vocational education and training. They also succeeded in establishing a successful social integration model for industrial workers through training beyond of ideological influences and soul catching of the workers. The DINTA course for the training of metal workers with the programmatic name "iron educates" from the 1930s, on the other hand, remains now only anecdotal.

Finally, there is one last additional actor in the development of vocational training. It was the state administrations. They were also in the feedback processes and interactions with existing regulations, mode of orders and traditions and were not free and independent in their decisions. Thus in the South West German countries there was a craft promotion policy, which was strongly influenced by the existing small-scale regional institutional orders structured as industry landscapes (see Radkau, 2008, a clearly illustrative, socio-cultural and cultural view illustrating these change mechanisms in a case study see in Maurer, 2013). In Prussia, on the other hand, business promotion was quite different in the region, but it was always linked to the development of educational institutions (see Niehues, 1994; Meyser, 1994). The structure of today's dual system is not conceivable without the involvement of state administrations and political decision-makers, but historical institutionalism also shows that the state as a main actor did not act in isolation, but was involved in a framework of favoring obstacles, social actors' constellations, and feedback effects.

## 5    Conclusion - Egyptian Presence in the Mirror of German History

Even if we move on a narrow ground with our present conclusion, we dare to combine both perspectives. The view on Egyptian vocational training and its practice, as far as we could gain insights into by investigations and observations on the ground, especially in cooperation with a large Egyptian construction company (Wolf, 2013; Wolf & Meyser, 2014) and additional with intense field studies, is linked with the historical development of the German vocational education and training system deployed here.

In Egypt there is a strong form of traditional vocational training, the overwhelming majority of construction workers are recruited from traditional forms of work. They can often carry out their occupational activities through traditional apprenticeship training or have learned to work on-the-job in informal arrangements of a social interaction process (see Frost, 2008; Assaad, 1993). These traditional forms of work are closely linked to the cultural convictions of the working population, which stem from old, not yet capitalistically modernized societies (see Didero, 2012; Al Amry, 2008; Chalcraft, 2006; Bourdieu, 2000; Posusney, 1993; Semsek, 1986). At the same time, however, there is a comparatively modern state, whose administration is trying to enforce state

rights and social extension. This administration adequately satisfies formally the demands of rational state-building, even if it is frequently used for other purposes, for example, to ensure the material supply of persons who are in clientele relations with an influential state politician.

The formal vocational education and training system can positioned to the ideal type of a school-based vocational education and training system based on rational bureaucracy, similar to the concept in France as mentioned at the beginning. In essence, it conforms to internationally accepted concepts at the formal level, but is not successful with respect to the delivery of usable qualifications for the labor market, as already mentioned in section 2 (see supplementary Aref, 2012). For this reason too, there is a highly complex collection of very different activities in initial and continuing vocational education and training (see above) in Egypt. A combination of tradition with modernity, as we can tale about German vocational education and training, could also be a sensible approach in Egypt to take advantage of the country's opportunities. Many efforts to this end are certainly necessary to find good solutions including more research in education and social sciences to better understand the relation between modernity and tradition in the Egyptian context. A promising idea would certainly be the formal recognition of informal and non-formal learning outcomes in order to open up further vocational and / or professional careers through vocational training include the academic track.

Similar to the development phase of the German vocational training system, Egypt can show large and powerful companies. This is where the two largest construction companies in Africa are based, the largest being a state-owned construction company, the other a private construction company. On the other hand, the majority of informally organized economic sectors can be found, so that a dualistic economic order can be assumed. This is also a similarity to the development phase of German vocational training (see Lutz, 1984). The construction companies, as well as the other modern industrial enterprises as far as they can be estimated, have a great demand for modern qualification concepts and training activities, but the workforce is recruited from a traditionally organized training system, with insufficient qualifications for modern companies, similar to the referred situation in historic German industry.

The company side repeatedly criticizes, during discussions or expert conversation the fact that the workforce does not meet their requirements. At the same time, however, this requirement is delegated to the public administration and the state, which is asked to provide the required qualifications of the workforce. Own stronger training activities on the corporate side, according to our observation, are very few. The qualification on the construction sites is based on a training-on-the-job, with low investment on the part of the entrepreneurs in the personnel resources of their workforce. If more activities are carried out, this is done according to the segmental concept outlined above. On the other hand, the focus is on the engineers, hardly on the workforce. An idea that the establishment of intermediary organizations could lead to collective qualification concepts does not yet exist, if we follow the conversations and interviews. A decisive moment in the successful development of a powerful Egyptian vocational training will be the commitment of strong Egyptian companies whether they are willing to invest more in the qualification of their workforce. They can develop this either as segmental single solutions, or, from a German perspective, better than collective solutions with qualification concepts for whole sectors, similar to the German solutions at the end of the 19th to the first half of the 20th century. The development of cooperative vocational training models, similar to the German Dual System, presupposes corporate associations, i.e. collective approaches to solutions, as individual companies are slightly taken the second place to the state education administration.

Under a perspective of historical institutionalism we could address a favouring obstacle to the fact of the huge fallacy of public provision of workforce qualification to the needs and requirements of private business since long time. Additional the strong limitation of the private business success through the internal rules and structures of the military government and the military-industrial complex of the Egyptian economy could also see as such a favouring obstacle because the path to cheap labour production and low quality is occupied by the military economy. The resort for the private business could be the quality production and service with motivated, loyal and high skilled employees.

Under the social actors perspective of the historical institutionalism we can state that in Egyptian companies, as far as observable, a comparatively conflict-rich interaction relationship can be found between the university

trained engineers and the workers coming from practice ground. This applies in particular to the relationship with the foremen and supervisors, which have in Egyptian companies a similar position as the master craftsmen in the historic German industry. In Germany, this tense relationship was also mitigated by the introduction of rationalization-led modern industrial training as mentioned above. Whether this could similarly occur in Egypt by the joint responsibility of foremen and engineers for a modern company based training must also be left open here, but it will depend on the social processes of modernization of Egyptian business.

In the historical phase in Germany, other unexpected players came onto the field, in particular the trade unions are prominently highlighted above. In Egypt, the new free trade unions - labor union, which have overcome the limitation of professional trade unions - trade union, have played an important role in social disputes and on the political upheaval of 2011 against the Mubarak government (see Abdalla, 2012). Their future importance in the development of vocational education and training in Egypt cannot be overlooked because of the absence of related studies and insufficient knowledge of these trade unions, but what we know from the historical process of shaping a mode of qualification for work and employment is the important role of collective social actors of the economy. Unions are one type, business association are one other, informal institutions as we could observe them in the construction industry a third. And we should not forget families and other social associations in the development of modes of qualification for work and employment. But for a more precise assessment of their possible role in the organization of vocational training in Egypt, it requires specific studies and investigations. Nonetheless, the historical experience in Germany shows that the workforce played an important role in the implementation and development of modern German vocational training. Successful and high-quality vocational training must be socially acknowledged, that is, to offer people a perspective on a better life, only then the people of a society will accept the offers of vocational training and develop it through their own commitment.

If, under the perspective of feedback effects and critical transposal points, the establishment of a new Ministry of TVET in March 2015 marks a critical turning point is not to be overlooked at the moment. But the new government turns back in September 2015 the newly established ministry to a deputy ministry under the umbrella of the big Egyptian ministry of education, now with the annex of training – MoET. That changes express at least a higher importance of the vocational and technical education in the politics of the country. The openness of the deputy ministry and the efforts he has done during the last years could produce some unexpected feedback processes especially towards the involvement of the private business in the provision of initial and continuing VET provision. It could adjoin to the remarkable higher activities in training provision of private businesses in the formal part of public training provision too and not solely in the company based informal or non-formal training provision.

Although Egypt is in a difficult domestic and foreign politic situation, we are confident that the progress of the development of vocational training in Egypt will continue. The commitment and development in vocational education and training is a central challenge for the Egyptian economy and society. We are convinced that the way of looking at the history of German vocational training in Egypt can be fruitfully discussed here and hopefully will produce smart inspirations in connection with in-depth related studies.

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Session 2.3
**Curricular Design**

# Crossing Boundaries to enhance Sustainability in Construction

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**Abstract:** Sustainability as an attentive attitude towards human and ecological resources is a challenging issue for training. In this article, we describe a sustainability training for teachers and trainers in construction and reflect how research contributed to the development of this training.

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## 1    Introduction: The challenge of sustainable (vocational) education

Sustainability as an attentive attitude towards human and ecological resources is an important topic in the political, economic and educational discussion (Ruth et al. 2015). However, consequent sustainable behaviour is rare. In vocational education and training, for example, many teachers and trainers are not sure how they can integrate sustainability into their class or apprenticeship training. In some cases, they find it very important as an issue, but they only give attention to it during special project days instead of integrating it into every day's teaching and learning. In the following article, we report about a sustainability training for teachers and trainers and reflect why it may help them to stronger include sustainability into their professional occupation.

## 2    Theoretical background

Our presentation is part of two projects on innovation in further vocational education:
- in the DiEDa project (2015-2018), funded by the German Ministry of Research and Education (BMBF), we elaborate how self-organized learning (with or without digital media) is realized in adult vocational education and we try to understand trainers' and learners' attitudes towards it (more information: http://www.lernen-neu-denken.de/);
- in the nabus project (2015-2018), funded by the German Ministry of Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and the ESF, we develop a training on

sustainability education for teachers and trainers in building occupations (https://weiterbildung.nznb.de/).

The two projects complement each other: while DiEDa has a more general view on further education, nabus is one concrete example for such a training. In DiEDa, we have re-read some great theories about (vocational) education and derived from this lecture and reflection relevant characteristic for the nabus training. Some central ideas are:

- Wolfgang Klafki's (1958) point that education needs to encompass key problems of a society like peace, inequity, environment protection. Talking about sustainable construction means more than talking about a technological question (do we build with X or with X?), it is connected to relevant developments, especially climate change;
- Paulo Freire's (2001) idea of adults' autonomy and epistemological curiosity as basic motors of learning meets well with Lave and Wenger's (1991) observation that vocational learning is often embedded in a community of practice. Learning of adults is often social learning and a training on sustainability can claim to bring people together, to rise questions and to changes perspectives.

This theoretical background was important to avoid a typical problem of sustainability concepts: Quite often, sustainability is reduced to technological aspects (new low energy cars/ heating installations/…). The problem of such an approach is that it leads to rebound-effects: the energy saving technology is used in a way that offsets energy saving effects (Paech 2012, Sorrell & Dimitropoulos 2008). Instead of seeing sustainability only as a characteristic of objects, it is necessary to adapt it as an attitude that influences every day's decisions. The next chapter outlines how a training which aims at supporting this approach to sustainability looks like.

## 3  The sustainability training

The training takes place in the North German Centre for Sustainable Construction (NZNB) in Verden, Germany. Its core idea is to show the state of the art of ecological construction and to help teachers and trainers to explain sustainable building to apprentices. The learning venue encompasses not only classrooms, but also a huge exhibition on ecological building and a workshop building for practical experiences. The trainings for teachers and trainers take 2-6 days and they have different scopes like building practice or building physics.  The groups consist of not more than 12 persons and the trainers are experts in the field of economical construction. A researcher accompanies the trainings as an observer with the task to document discussions and to collect ideas for the training's further development.

The trainers and teachers who participate in the training are encouraged to cross boundaries in different aspects. Already at the beginning of the training, the trainer emphasizes the meaning of networking and exchange between the participants. The participants come from different trades and institutions and they get the opportunity to introduce their work, scopes of interest and experiences with ecological construction. They exchange ideas not only at the level of building processes (how do you make this? why?), but learn also that there are other teachers and trainers who take the issue sustainability seriously. This is important because many of the course participants regard themselves as the only person in their institution who reflects about sustainability. For their teaching and training practice, they learn from each other e.g. how ecological materials can be integrated into the regular curriculum and collect ideas for new projects with the apprentices. The participants report that they highly appreciate the opportunity to meet people from different work contexts and in many cases they stay in touch after the training.  This staying in touch between the participants means that the boundaries of the training were crossed: learning is not reduced to the training but transferred into their work context. In addition, the NZNB trainers offer to support the teachers and trainers who make learning units for apprentices and are willing to answer questions via mail or phone.

Training on ecological construction (building with straw, clay, wood) needs to explain why this kind of building is better than the actual mainstream practice. This can be done by pointing to ecological balance sheets and political demands, with wagging fingers and moral sermons. In our training, we chose other paths. Firstly,

the teachers and trainers can see, touch and work with a multitude of ecological building materials. They reflect its practical use and gain deeper understanding of building physics. This approach - sensual and empirical on the one side, with the focus on theoretical background on the other, is important to deepen the understanding for building processes and for opening the view on possibilities. Based on this, instead of sticking to single work processes, materials and tools, the teachers and trainers can more fundamentally reflect on alternatives at the building site.

As a result of this training, many participants understood sustainability as a fundamental attitude that is not only relevant as educational subject, but also as a part of every day's life and school organization (e.g. in regards to waste separation and recycling). The traditional separation of vocational, general and political adult education was transcended in this training by a wide definition of sustainability, the support of hands-on reflection and space for exchange between adult experts.

## 4    Reflection

In this chapter we reflect what research can contribute to the development of a training.

Firstly, a research literature review was important to clearly define the basic idea of the training (sustainability as attitude and not only a characteristic of materials or processes, focus on networking between the participants, the idea to rise epistemological curiosity, acceptance to cross the boundaries of the training time).

Secondly, research can help to reflect what was important for the success of this training. From our perspective, maybe the most important insight was that it is not self-evident to act sustainably – be it at work or in private. The training supported the understanding of sustainability as an attitude. Meaningful learning took place because sustainability as an important socio-technological challenge of our society was not merely discussed abstractly but with the focus on sustainable construction. We observed that trust and the willingness to reflect sustainability arose because real experts for construction could show that sustainability is possible and in many cases a better solution from the point of view of building physics. For the discussion about trainers as learning facilitators, this aspect is important because it shows the relevance of expert knowledge. It was also important for the teachers and trainers to see that sustainable construction is happening and that there are many other persons interested in it, too. This personal credibility counts more for them than any pretty example from the internet or TV.

A third role of research in curriculum design is documentation. We crossed the boundaries between research and curriculum development, and we hope that this article will help to shape the practice.

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# Vocational training: theories and models of comprehension in occupational environments

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**Abstract:** Vocational training in occupational environment should develop through the inclusion of professionals in the designing of training courses. Professions are composed by four dimensions: personality, know-how, communication and professional identity, as described by Corrado Ziglio (Ziglio, 2015) in his book "Theory of Professionalism". Although educational sciences formulated theories and conducted several researches, there is still the necessity to reflect to take a step forward. Being the working environment just one of the systems lived by the person, it is necessary to consider the professional as a complex and multilevel being. The holistic vision of professional follows the school of thought that considers professional problems deriving from multilevel. Thinking about holistic approaches to training can be a road to reconsider these professional areas. In this paper, I would like to present a multi-systemic view, where the interactions between person-context and context-time will be analyzed by using educational theories for training purposes.

**Keywords:** ecological approach, vocational training, holistic development, professional empowerment, systemic model

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## 1  Introduction

When reflecting on the complexity of working environments and the influences of external contexts, it is possible to realize that professionals can deteriorate in different ways. Burnout is just the best-known example but depressive states and stressful conditions are problems that must be considered.

During several researches conducted with ethnographical approach in prison environment, it emerged the urgency of facing the problems with a different point of view. A bottom-up training allows professionals to stay updated about new institutional perspectives. An in-depth knowledge of the history and culture of the specific social group is needed, so that researchers can hypothesize future perspectives in professional environment. Real knowledge of scientific world is hidden inside the profession, or rather in its history and inside professionals. We are systems that are observing other systems and, for this reason, the reflection on theories and models is fundamental for the comprehension of those dynamics. For this reason, I started to apply the theory of professionalism, formulated by Corrado Ziglio (Ziglio, 2004), to evaluate the impact on professionals (Clerici, 2015)[17]. From these data, it emerged the necessity to increase the effectiveness through an in-depth ethnographical (Spradley, 1979; Spradley and McCurdy, 1988) case study. Starting form this perspective, during my Ph.D. experience I tried to create a vocational training course based both on the professionals´ point of view and Ziglio´s model. The aim of vocational training is transforming professionals into persons performing a profession. Starting from an ecological approach (Bateson, 1972) that consider the individual at the core of

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[17] Results of the research can be found in the last chapter of the book.

the environment, the research goal was creating tools that professionals could use in their working environment and empowering four dimensions: know-how, process of communication, awareness of their professional role and how much the character traits influence their job[18]. These four dimensions correspond to paths to travel with professionals, paying close attention that they could also represent the main ways for professional degeneration.

## 2 Starting from a systemic view

When you want to investigate any professional context, the first methodological question you should ask yourself regards what type of educational needs has that environment.

Research in education is oriented toward a specific request or need that is raised by the professionals or the institution. It is important to consider that present problems are the consequences of the evolution of a context. So, these issues can be considered as seeds that, once planted in the ground, could germinate because of internal and external variables and they could lead to occupational stress. To understand this variability each professional context should be considered as an ecological niche, continuously influenced by the external environment.

Thanks to Bronfenbrenner´s studies (Bronfenbrenner, 2005) and intuitions, it was possible to re-think all the influences that peoples are exposed to in a systemic way[19]. The focus of this approach refers to: life space, which is the psychological environment as perceived by the person; all processes occurring within the physical and social world that do not directly affect the life space of the individual at that time; and, finally, a border area where certain parts of physical and social world interact with life space at a given time.

In my essay, I would consider each professional as a micro system that interacts with other microsystems (colleagues) in a wider system that includes them (mesosystem). Microsystems are also influenced by other systems that do not directly interact with them but that are able to indirectly condition them (local policy, families of the staff, external administrative offices and so on). The system of other systems is called exosystem. Finally, the greater level is defined macrosystem, which includes, in a broad sense, the cultural context, the society and the legal system.

Repercussions that each system has on microsystem are extremely important because individuals are open systems, so they are exposed to continuous environmental exchanges.

## 3 Re-thinking holistic approach

Each professional is effectively an open system. As previously said, to accomplish a vocational training that is close to professionals, it fundamental to start from their experiences. Facing the four dimensions means also providing preventative tools. This model starts form the systemic influences on working environment (von Foerster, 1984; Krieg, 2005; Lutterer, 2005; Maturana, 2005). Like other living organisms, space is considered vulnerable to toxic substances (in this reflection, environment is composed by the relationships among professionals). Toxic substances, that are pathological relationships, activates the first wake-up call, therefore professional diseases should be considered as the result of the intoxication of pathological relationships. The second systemic level to prevent is the defense mechanism that contrasts resilience (Southwick and Charney, 2012). It could happen that professionals try to escape from a complicated situation, trying to avoid or passively delegating problems, instead of coping with them. These two levels are part of a macrolevel that could be defined as degenerative process of professionalism, which should be considered very dangerous because, from a systemic point of view (Von Bertalanffy, 1968) it could also influence extraprofessional environment. For this

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[18] These four dimensions are described in the Theory of professionalism by Corrado Ziglio.

[19] Bronfenbrenner´s ecological view imagines the space as divided in four levels: microsystem, mesosystem, exosystem and macrosystem (Bronfenbrenner, 1979).

reason, it is essential to strengthen the four dimensions of professionalism. With this ecological approach, it is possible to develop the awareness of the professional role, to increase the communicative proficiency and the individual stability based on a definite professional role and the awareness of the shades of the personality. This knowledge will allow to face a better professional life (Affleck and Tennen, 1996).

## 4    Conclusions

Theories on education and vocational training are various and sometimes they remain in books but they are not experienced with people. The attempt of this paper is to expose a holistic point of view to restart from the experience and to show new perspectives both in research and education. The ability of professionals to act and face cognitive problems will not only be the result of their ability to cumulatively learn programs of intervention but also it will be connected to their aptitude to elaborate strategies of action by using tools offered by the environment (Rogoff, Baker-Sennett, Lacasa and Goldsmith, 1995).

When systemic theories are applied to ecological approaches, vocational training can be designed for facing the workplace challenges and empowering professionals. Despite being case studies, data can be useful for future researches or trainings with the same or other professional categories.

In brief, if vocational training is constructed on multilevel, it will show the following characteristics: it is an active process and should be considered as conscious and responsible, because the observer is aware of the process behind the building of meanings, so he can respect their nature; it is based on experience because the observer constantly assimilate new experiences with the previous ones;  it is a cooperative process because during *co-construction* the observer approaches each actor of the observed group with a *scaffolding* function; it is an intentional process because the observer is involved in the group but he maintains a well-known, declared and shared goal; the process is characterized by conversation because the dialogical dimension between the observer and the parts of the system has to be predominant; the process is contextualized because, being a specific environment, in a determined time and space with a particular professional group, the meaningfulness that arise from the co-construction should be considered different compared with the world outside; finally, reflectiveness is the last characteristic because the observer will understand the meaning of the group only by creating a space where this dimension is located in the middle (Jonassen, 1991; Jonassen and Henning, 1996; Jonassen, 1996; Jonassen, Peck and Wilson, 1998).

With his last contribution, Bronfenbrenner consigned the keys to face people's development to researchers. This knowledge is fundamental for dealing with every social environment without getting lost or forgetting that each professional is primarily a person carrying out a job.

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# Individualized professionalism as a happy medium between manpower entrepreneurship and standardized occupationalism in the reflexive modern world

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**Abstract:** German vocational schools have the mandate to enable learners to cope with the complex and dynamic conditions of the world of work by actively shaping their career as well as their working, private and social environment. This paper puts the question if German vocational schools fulfil this mandate from the learner's point of view by using the example of four vocational schools in Hamburg. They implemented a new curriculum for the retail sector based on learning fields and the concept of individualized professionalism in order to foster the development of an individual vocational identity that enables learners to meet the challenges of the modern world of work. However, empirical case studies carried out by the author provide evidence that learners' individual needs and concerns still do not come up in learning processes at micro level. Desiderata concerning vocational identity work in VET are revealed.

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## 1    Introduction

Employees nowadays face a complex and dynamic world of work (Beck, 1992). VET therefore not only aims to enable students to accomplish occupational tasks. German vocational schools also have the mandate to enable learners to cope with these specific conditions by actively shaping their career and their professional, private and social environment (Conference of Secretaries of Education, Kultusministerkonferenz KMK, 2011). In employment systems based on occupations like in Germany the proceeding individualization of job profiles puts the question if standardized occupations are still helpful to meet the demands of rapid change (Baethge and Baethge-Kinski, 1998; Voss, 2007; Unger, 2007). On the other hand, the German VET system is highly appreciated for its capacity to meet high quality requirements of the employment system. This paper suggests *individualized professionalism* (Bories, 2013; Thole, 2015) as a concept that can help to overcome this dilemma by developing an individualized high-quality occupationalism, which ensures work-life-balance in the reflexive modern world.

However, this approach requires learning settings which enable learners to construct a vocational identity as a reflexive project (Giddens 1991) and guideline for daily identity balance (Krappmann, 1969). In this respect, it requires learner-centered VET which enables learners to find learning objectives to enlarge their freedom of action (Holzberg, 1995; Faulstich and Ludwig, 2004; Giddens, 1986). In the past, German VET curricula were mainly based on relevant scientific knowledge. Then KMK introduced the *learning field concept* to combine functional, personal and scientific aspects in VET and promote connectivity between workplace and school (*bwp@t Berufs- und Wirtschaftspädagogik - online,* no. 4+20, 2003, 2011). Because of this, four commercial

schools in Hamburg set up a new curriculum for the retail sector with the scientific support of Prof. Dr. Tade Tramm and cooperators (Tramm et al., 2009; Tramm and Naeve-Stoss, 2016). *This paper puts the question if - by implementing the learning field concept - the mentioned schools have managed to fulfil the above mandate* <u>*from the learner's point of view*</u>.

For this purpose, the concept of individualized professionalism based on vocational identity work is explained. Then the preconditions of the German VET system and the concept of the new curriculum are presented. Finally, the main findings of fourteen empirical case studies carried out by the author will be discussed.

## 2    Individualized professionalism as reflexive vocational identity project

Individualized professionalism is a career strategy that aims to maintain and enlarge job satisfaction and the individual freedom of action by means of an individualized high quality job profile. It assumes that the complexity in the world of labor and growing competition in globalized markets increases employers' needs for specialized job profiles. While the "Arbeitskraftunternehmer = manpower entrepreneur" (Voss and Pongratz, 1998) develops and markets his manpower depending on changing demands of the labour market and doesn't differ from his competitors, the starting point of individualized professionalism are the individual talents, desires and aims of the respective learners. The concept aims for win-win-relationships with future employers who have a specific interest in the job profile of the person. As manpower entrepreneurs face fierce competition in the job market, their action will be regulated by self-interest restricted by institutions on a day-to-day basis (institutional business ethic by Homann/Lütge 2004). By contrast, individualized professionalism requires mutual respect, responsibility, sustainability and consent (as stated by the integrative economic ethic by Ulrich 2008). Thus, this concept also allows for a reflexive pedagogy including the ideas of inclusion, democracy and participation at a social, public and global level (Tafner, 2013; Thole, 2016). Consequently, the concept is apt to fulfil the educational mandate as stated by the KMK (2011).

Vocational identity work is a prerequisite for individualized professionalism. On the one hand, learners need a reflexive project for their future in order to identify meaningful goals for their professional development (Giddens, 1991; Mollenhauer, 2016). For this purpose, they have to reflect their autobiography and project it into the future. They need knowledge about their strengths and desires and have to relate them to the conditions in the job market in order to find niches where their profile is appreciated. Then, they have to identify reasonable action to get through to their vision.

On the other hand, they need the aptitude to balance their personal point of view with that of their counterparts. In most cases, the standpoint of customers, colleagues and supervisors will not exactly accord with the personal goals. Therefore, learners have to handle their set of roles in a way that allows them to remain authentic and get the counterparts' acceptance. Krappmann (1969) states that this requires a set of social competencies such as self-presentation, tolerance of ambiguity, role taking (=empathy) and role distance.

## 3    Preconditions of the German VET System with regard to individualized professionalism

With the introduction of the learning field concept, processes at the workplace have become the starting point of curriculum construction. The overall aim of VET is *vocational action competence*. This term encompasses also private and social situations and states that the learners should act in a responsible way showing solidarity.

Vocational schools have the task to model complex learning settings that take into account all practical, personal and scientific aspects of the respective processes. Though, there are concerns that VET based on work processes mainly aims to develop functional competencies while personal implications such as career planning and coping with conflicts may be neglected (Berben, 2008 p.124; Huisinga and Buchmann 2006).

On the other hand, the German dual VET system offers some beneficial structural and process-related features with regard to vocational identity. Bronfenbrenner (1979) states that compatibility and communication between areas of life as well as frequent role changes are beneficial for personal development. These

prerequisites are assured by the existence of two independent learning centres *school* and *workplace.* Their activities are coordinated by institutionalized cooperation. Frequent changes between both learning centres give apprentices the opportunity to implicate their job experience in a larger economic and social context. The concept of *occupation* provides a social identity by giving the feeling of belonging to a special professional guild. However, the standardized concept does not take into account the differences between individual workplaces and is too sluggish to adapt to changing requirements (Baethge and Baethge-Kinsky 1998). It may hereby absolve learners from their responsibility to shape their career (Thole 2015).

On the whole, indispensable skills for vocational identity work such as the ability to handle conflict, ambiguity tolerance, moral judgment, reflexivity and creativity (Giddens 1991; Krappmann 1969; Veith 2010) are also component of vocational action competence, but they require special consideration in the curriculum.

## 4    Curriculum concept for identity-based VET for commercial occupations

Table 1 shows, how this has been implemented by the above-mentioned vocational schools.

Table 1: Learning field-Competence-Matrix of Hamburg retail curriculum

| | Occupationalism | | | | Communication + cooperation | Learning techniques | Systemic knowledge | Functional knowledge |
|---|---|---|---|---|---|---|---|---|
| | Vocational identity and role | Career development | Business ethics | Health prevention | | | | |
| Learning field 1 | | | | | | | | |
| Learning field 2: Customer-orientated sales conversation | concept of selling | career paths based on selling | dealing with conflicts | coping with stress | ambiguity - tolerance self presentation empathy role distance | | | |
| Learning field 3 | | | | | | | | |
| …. | | | | | | | | |
| Learning field 14 | | | | | | | | |

Complex vocational competence is modeled by the following competence dimensions:

- functional knowledge derived from business administration and economics
- general learning and working techniques
- systemic knowledge
- social competencies for communication and cooperation
- subjective meaning of the occupation (Beruflichkeit = Occupationalism).

The core idea is to develop the required competencies in a spiral curriculum accross the learning fields. The concept is illustrated with the example of learning field 2 which is called "Customer-orientated sales conversation" (KMK 2004).

Selling as the core competence of retailers and shop assistants is highly relevant for the formation of vocational identity. The KMK outlines of the learning field state that apprentices need social competencies, product and commercial knowledge to balance customers' and employer's interests. These aspects are covered by the first four competence dimensions. The school-specific curriculum added subjective implications which are comprised in four sub-dimensions of the competence dimension *Occupationalism*, e.g.

- the person's way of selling should be authentic and in line with the seller's personal values *(vocational identity and role;)*
- the acquired competencies play a major role in the person's job profile *(career development);*
- the ethical point of view of the seller will influence his moral judgment of conflicts *(business ethics;)*
- the seller has to cope with stress in order to meet selling objectives and customer demands *(health prevention).*

By doing this, the competence dimension *Occupationalism* is meant to assign subjective meanings to the objective topics of the other competence dimensions which at large form the vocational identity.

## 5 Empirical case studies show need for expansive learning

The author carried out fourteen longitudinal case studies in order to find out, if the curriculum meets individual needs. For this purpose, apprentices where asked about their biography, occupational goals and experienced conflicts. In addition, they were asked if learning settings were helpful to deal with individual concerns. The different parts of the interviews were analyzed with different methods (Schütze,1983; Nohl, 2006; Tiefel, 2005; Daudert, 2001) and triangulated (Flick 2009) using the concept of developmental tasks (Havighurst 1974).

First of all, the case studies confirmed findings by Kutscha/Besener/Debie (2009) leading to four developmental tasks which apprentices have to solve for a successful school-to-work-transition:

- *Identification*: most learners have to identify with retail as a second or third choice for lack of proposals in aspired occupations
- *Shaping*: learners have to balance private life with unalluring working hours
- *Competence*: learners are expected to show competence like experienced staff
- *Appreciation*: learners have to obtain appreciation by customers and supervisors

Apart from these overall difficulties the individual needs are very specific as the following examples show:

- *Ciara* feels alienated. On the one hand, she is very empathetic and gets positive feedback by customers, on the other hand she doesn't feel like a sociable person. She is unable to answer questions concerning her own person. She suffers, but does not know how to get on with the situation. Obviously there is a *conflict between role and her (unknown) identity*.

- *Ahmet* trains as a salesperson at a filling station. He has to do a lot of tidying and has only little contact with customers. He is aware, that he needs more demanding tasks for his qualification, but he does not dare to address his supervisor as he is still in trial period. This risks to compromise his *career development*.

- *Alina* appreciates the structured course of apprenticeship at her company. She had interrupted her studies in order to avoid unstructured constraints and becoming a freelancer. Alina has found a temporary save haven, but she hasn't taken the opportunity to learn how to cope with stress *(health prevention)*.

The interviews show that these individual challenges do not come up at school. By contrast, learners are informed about career paths in retail, but they do not learn, how to cope with the fact, that they feel unhappy in their business. They learn about apprentices' rights according to labour law, but they do not learn how to argue

with a supervisor in order to achieve their aims. They get positive feedback if they meet the exam requirements,
but they are not taught how to tap their full potential.

## 6    Conclusion

The results indicate that curriculum construction alone is not sufficient to foster the development of individual
vocational identitiy at micro level. The findings put the question, why identity-related aspects are still not dealt
with at school. Maybe teachers are afraid of conflicts with employers, maybe they just do not know how to
account for them. Research should ascertain the causes in order to adjust meaningful measures to address the
gap between pretense and reality of the KMK mandate.

At this point, comparisons with other VET systems can be helpful. How can trainees be backed to develop their
reflexive vocational project? Which learning arrangements have furnished proof to promote the required social
skills for identity balance? How do other VET systems deal with the dialectic of desirable individualization and
inevitable standardization? How can teachers be introduced to identity-based education concepts?

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# New teaching and learning methods in further VET for general foremen in the German construction sector

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**Abstract:** This article looks at a reform in teaching and learning methods of further training for general foremen in the German construction sector. The intention of this reform is to relate the contents of further VET courses closer to work process knowledge by restructuring learning contents according to complex learning tasks and use digital media before, during, and after the course. Knowledge gained from training courses shall lead to better problem solving and project coordination for foremen seen as middle managers on building site.

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## 1    Introduction

In 2012, in Germany the examination of further vocational training leading to different grades of general foreman in construction was re-designed. Examining knowledge relating to the process of building and construction is a cornerstone of this reform. Examination is carried out via a project and situational tasks in closer relation to the foremen's work experiences at the building site (Niethammer et al., 2013; Meyser 2013).

The rationale behind these reforms is to foster the acquisition of relevant work process knowledge (Boreham and Fischer, 2009) in the three realms of construction: *building technique, building process, and building personnel*. The knowledge acquired in the preparatory courses leading to those examinations shall be stronger related to concrete problems from the world of work. The idea of problem solving in the different building trades on underground and above ground level (e.g. such as brick layers, concrete builders, carpenters, pipers etc.) is now accentuated and explicit. The actual way of carrying out the courses leading to foreman grades (*foreman, specialized supervisor, general site supervisor*) at various VET providers, though, is dominated by different external lecturers providing specific technical or organisational or human resource development knowledge within their respective fields of specialisation.

This structure is in some tension to the targeted results of the reform because it complicates integrative approaches e.g. to combine work of different trades in an interactive and effective way to avoid damages, double work and quality constraints. Additionally, we witness a considerable restructuration of the whole sector in terms of new technology rapidly acquiring a prominent place in planning as well as the actual building measures. This is demonstrated above all by the recent developments in construction machinery technology (e.g. via sensors on drilling) as well as by the variety and quality of new construction materials as well as in digital technologies itself such as Building Information modelling, BIM. They demand higher standards of personnel qualification, advance planning, machine control and safety (Deitmer and Heinemann, 2015).

Against this background, an ongoing project sponsored by the German ministry of research and education within the current programme of launching digital media in vocational training is currently carried out that tries to restructure the teaching and learning forms of this kind of further VET by using digital media (http://www.digiprob.de)*.*

One cornerstone is to structure the knowledge imparted by the lecturers around complex work tasks that are taken from the foremen's occupational reality (see e.g. Rauner and Bremer, 2004). Digital tools are used to help the lecturers and course participants to reorganise the learning approaches and materials according to these complex tasks undertaken within the trade (Deitmer and Heinemann, 2015).

## 2    Role of foremen and further education structures

### 2.1    Strategic importance of the general foreman

The foremen are playing a key role in the German industry and craft trade. They coordinate and manage building processes around different occupations. Normally they start their vocational training with a three-year apprenticeship in one of the occupations. In the building industry and craft trade there are at least 20 such occupations - brick layers, pipers, carpenters etc.

After some years of work experience they can acquire higher further training certificates as steps in a vocational occupation career. They may decide to continue their vocational career by stepping up the level of qualifications and to receive the abovementioned foreman grades.

To pass exams, they take preparatory courses which are offered by training centres run by building associations or chambers, such as the Bau-ABC in North Germany (http://www.bau-abc-rostrup.de). The courses roughly comprise three learning areas: (1) construction technique, (2) construction operation, and (3) coordination and management of personnel including apprentices on three different levels.

### 2.2  Current challenges on lecturing activities

Most of the lecturers are external, often qualified as civil engineers, architects, technicians, and only sometimes themselves are foremen. They are paid at an hourly basis according to their teaching subject which is specified in a teaching contract by the training centre.

Because of time constraints and the fact that lecturing is a part time job, there is little communication and/or exchange between the lecturers. Rather separated of each other they are following their smaller or bigger technical subject, like e.g. processing, reckoning, bill of quantities, material order, logistics, team building, and project management. This results in a rather technical and frontal teaching orientation towards the content of their own field of expertise. Taking the perspective of the work process is not often seen. More complex and boundary crossing learning and work tasks or work projects, which are in many cases the working reality of a foreman do not often take place.

Such projects should cross the boundaries of the occupational profiles. Covering a whole building complex as for example the erection of a large motorway service complex covers under earth, and upper earth building artefacts such as streets, pavements, park environment, several multi storey buildings.

For a development towards work process practice in professional training within such Foreman Courses the training centre and the professional lecturers need targeted support to develop a new curriculum which comes closer to the recent examination system, which was described above. First, the implementation of more complex and overarching projects that cover a full building site is needed, second process of collaboration of most of the lecturers is needed and third the establishment of a virtual and digital learning infrastructure is needed that covers not only the presence in the class room but also fosters learning outside the classroom: in preparation for the course, at the building site where all these VET students work.

Sophisticated digital media has to be designed and implemented as students/participants of the courses as well as the lecturers carry through this training processes in a fragmented environment. This means that they are doing the course on a part time base which allows for factual course presence in the training body only in a small time frame. This means depending on the three different grades of foremen (Vorarbeiter, Werkpolier, Industriemeister/Geprüfter Polier) courses ranging from three to four weeks up to 7 weeks being the uppermost time available in the Industrial Training Centre.

## 2.3 Framework condition of a new examination system

The current examination system was modernized by involvement of Building industry associations and unions around 2012 (German Building Industry, ZDB: General Assembly of the German building trades; Industrial Union Building, Agro and Environment.) The current system is much more action and work process oriented. The main difference is that in the first and second level (Vorarbeiter and Werkpolier) of the examination the lecturers are directly involved and taking responsibility by also developing the examination tasks. For the foreman on the highest level (Industriemeister/geprüfter Polier), examination is held at the local chambers of industry and craft trade. The examination is covering three elements and a practical project covering the planning, building and reflection of an industrial building and construction activity, questions on the project and work process tasks to be answered.

## 3 Developing a more action-oriented course system

Under these circumstances, the introduction of more action-oriented elements is quite challenging. We took the path to integrate the content of various course phases taught by different lecturers into complex work tasks. These work tasks (e.g. the construction of a motorway service area) then are brought down into sub-tasks that still have to be complex enough to integrate the three areas of the courses (construction technique, construction operation and staff management). This way, the contents are directly related to the world of work the participants already are integrated into. The purposes of restructuring the courses this way are: first, to move the contents more into real-world settings, thus enabling participants to better reflect on their own work experience. This, second, is helping the participants not to feel themselves in the role of pupils. Third, it encourages collaboration between lecturers that up to now did not know what happened in those parts of the courses they are not involved in, giving the whole course system more coherence. This change in teaching and learning organisation and methods is underpinned by the use of digital media.

## 4 Fostering vocational learning by digital media

If one takes the approach to organise vocational learning in further education courses around complex work tasks, digital media gets a specific role. We do not try to replace course-based learning by e-learning or blended learning. Instead, we try to use digital media in order to foster these learning processes. This may happen before, during, and after the courses, and can be related to single lecturers, lecturers' interaction, single participants, participants' interaction and interaction between lecturers and participants (see table 1).

**Tab. 1: Matrix for using software with specific groups at specific times during the further education courses. LE: lecturer, PA: participant; EB: examination board; HWK crafts chamber**

|  | LE/LE | LE | PA /PA | PA | LE/PA |
|---|---|---|---|---|---|
| **I. Before the course: counselling and preparation** | Mutual coordination of course contents. Collective development of complex learning tasks. Exchanging teaching and learning methods. | Media training. Revising learning contents. Developing learning and teaching methods. | Learning to know each other and refreshing old contacts. | Media training. General introduction and guidance through the course. Refreshing knowledge (esp. maths). | Preliminary information. |
| **II. During the course: Enrichment and exchange** | Exchange on: Themes and contents. Problems at the course. | Course evaluation (mid-term) and adjustment if necessary. | Exercises. Exchange on comprehension. Course evaluation. | Repeating Amending Broadening materials and learning situations. | Introduction of tools. Enquiries. Exercises. |
| **III. Project work/ exam preparation** |  |  | Exchange. Background information. | Finding theme. Collection/ organisation of project material (company, theme, methods). Follow-up activities. | Guidance and counselling by HWK education provider. EB advice. Guidelines with examples. |
| **IV. After the course** | Moderation and support of thematic networks of lecturers and former participants. Foremen tool for practice (construction process - timeline, stacks, tool for different information and communication, theme-specific apps) | | | | |

It is important that everyone involved has a clear picture on when and for what purposes digital media plays a role here. In general, one may order the content of vocational learning processes into three areas: knowledge guiding action, knowledge explaining action and knowledge reflecting action (knowing that, knowing how and knowing why; Hacker 1992, p. 94). The first group, rule-guided knowledge, may be the easiest to foster by digital media. For occupational factual knowledge like knowing the regulation on slope and calculating it, one may use web contents as well as digital contents in form of quizzes, puzzles, and so on. Knowing how is more related to the work process. Here, the main point is to relate an isolated task to the work process as a whole - something especially important for foremen who have to organise the construction work on a daily basis. The third area deals with those question that are posed by special cases that cannot be solved by the routine application of knowledge. For the latter two areas, we do not deal with factual knowledge but can enrich problem-based learning by digital materials.

In terms of soft- and hardware architecture, as well as organisational learning for the further education provider as a whole, these changes mean quite a challenge. There is an existing database comprising the participants' data. This has to be enlarged by a moodle to organise the courses. For our project, we developed a third platform mainly for the lecturers to enable them to collectively work and exchange on the complex work tasks. A fourth element is the 'learning tool box', developed in another project. This tool aims at the learners, enabling them to access and exchange the digital material enriching the courses.

## 5    Introducing change into vocational learning processes by digital media

All in all, successfully introducing digital media into occupational learning processes requires much more than just the introduction of digital tools. As these processes go way beyond the acquisition of factual knowledge, it is impossible to just replace them by forms of e-learning. Using them to enrich vocational learning depends on learning being organised around complex, real-world work tasks. This, then, poses challenges not only on course level but on the education provider as a whole. The whole process of how courses are carried out with what content and what interrelation has to change. So, the seemingly easy quest to introduce digital media into further vocational education ends up at being one of organisational development, trying to engage participants, lecturers, and the organisation providing the training as a whole.

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Session 3.1

**Permeability – recognition of competencies**

# Transitions from VET to University. Institutional challenges and changes from a neo-institutional perspective

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**Abstract:** In Germany the request for Lifelong Learning and the reality of demographic change motivate a debate about the promotion of transitions from VET (vocational education and training) to tertiary education, two educational pathways which until now are institutionally separated. Based on a neo-institutional perspective, this paper presents an analysis of reports on the development of initial teaching at university. I assess, if universities address the issue of building bridges and enhance transitions and promoted related reforms.

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## 1    Introduction

Vocational education and training (VET) and tertiary education appear as two strictly separated fields of the education system. Both prepare younger generations for the labour market, but are embedded in specific cultures of learning with distinguishable methods and goals. Regarding Germany, Baethge (2006) speaks of an educational schism between the two fields: On the one hand there is higher general education (at universities) which aims at imparting students with a comprehensive education enabling them to achieve a high level of autonomy and the capability of self-regulation. Here knowledge is based on scientific research and learning processes are detached from practical experience. On the other hand, we can see VET (Vocational Education and Training) as a form of learning which aims to teach the competencies necessary to work in a specific field of practise. In German dual VET the learning processes are strongly embedded in work processes, which are themselves embedded in a corporatist structure and culture (regulation by boards, chambers of commerce ect.) (Baethge 2006, p.16). As a result, each institution stands for a very specific pathway from school to labour market. Unsurprisingly, transitions from VET and work to University are rare in Germany (Ulbricht 2012, p.40) as the majority of participants of VET do not hold the Abitur (German certificate for tertiary education, equivalent of A-Levels in Britain).

In the last ten years, governmental reforms aimed to increase transitions from work and VET to university. These reforms are based on the ambition to enhance social mobility as well as the concept of lifelong learning suggesting that, in order to remain employable, people should increase their competencies for their whole life-span. Since 2009 governmental regulations allow persons who have successfully concluded additional VET programmes (called Meis-terkurse, Verwaltungs- und Wirtschaftsakademien etc.) after their initial vocational training to enter tertiary education. In the German states of Hesse and Rheinland-Pfalz, new regulations only

demand a successfully passed initial vocational training course as necessary to enter universities (Ulbricht 2012, p.40).

During the last decades, Germany has witnessed a growing demand for higher skills coming from the labour market. In parallel, the number of young people going to university has in-creased and the rhetoric of lifelong learning, emphasising the individual effort to develop relevant skills, has changed our expectations on educational and professional biographies. These developments have led to political concepts and efforts to strengthen vocational education and training by promoting higher forms of VET. The idea is that a new, higher VET should provide career-pathways leading to higher positions in companies and granting the access to University.

The so-called *Wissenschaftsrat* is an influential body of representatives of Universities with a consultant role toward the government. It advises federal and regional ministries of education on the structural development of tertiary education. In this paper, I assess current reports of the Wissenschaftsrat in order to understand how universities react to the governmental re-forms, aiming to facilitate transitions from VET and work life into tertiary education. Are universities willing to open up to a new, more heterogeneous student body and if so, what are (possible) consequences for teaching? Is there an effect on how initial courses should be organised?

## 2    Neo-institutionalism as a theoretical framework

The theoretical frame of my analysis is neo-institutionalism (Myer and Rowan 2009). This theoretic approach refers to organisations as social structures which are embedded into a specific societal environment. This environment is in so far institutionalised, as it influences organisations by values, laws and other formal structures (Koch and Schemmann 2009, p.8). The approach presupposes, that the development of institutions is driven by their seeking to legitimate themselves as drivers of change within their social environment (Schmidt 2015, p.36). In order to appear rational, organisations have to refer to values and normative beliefs of the social field they are embedded in. By doing so, they gain legitimacy which is crucial for the survival of the organisation. The theory presupposes that organisations, which do not gain legitimacy, are perceived as superfluous or dysfunctional (Koch and Schemann 2009, p.8).

On the other hand, organisations are shaped by procedures and practices, which are crucial for the realisation of their specific goals and follow their own internal rationality. Problems occur, when gaining legitimacy towards societal institutions gets in conflict with well-established and functional internal procedures and practises of an organisation. Political and societal demands might get in conflict with efficiency (Myer and Rowan 2009, p.29). If an innovation promoted by educational policy appears to be dysfunctional to the members of an organisation, they can develop a behaviour of following the innovation only on a rhetorical level. They might merely appear to innovate, while the core procedures remain unchanged (Schmidt 2015, p.36).

In our specific case universities might perceive the necessity to open up towards a more heterogeneous student body as more and more young people with VET aim to go to university and governmental reforms aim to foster transitions from work to university.

Out of these assumptions, I draw three conclusion concerning the development of universities and of initial courses in particular:

- Universities have to address the institutional demands for enhancing transmissions between higher VET and University studies.
- Universities should adapt their inner organisation of teaching to address growing heterogeneity in order to gain legitimacy.
- Or universities might on the one hand try to address the demands of enhancing transitions from VET and work, while one the other hand leaving their inner organisation of teaching as it is to remain functional.

## 3    Method

In order to assess, how universities react to the institutional demands, I analyse four reports of the Wissenschaftsrat. The reports formulate assumptions on how universities should develop in the nearer future and are interesting in the given context, because they, to a certain degree represent the position of governing bodies of universities.

My analysis follows the approach a qualitative content analysis of Mayring (2000), which is based on

a)    A contextual classification of the analysed text

b)    An interpretation on the basis of theoretically and deductively defined categories

c)    A reproducible process


*Concerning a)*

The analysed reports

- Empfehlungen zur Gestaltung des Verhältnisses von beruflicher und akademischer Bildung (Recommendations concerning the relation between vocational and tertiary education)
- Empfehlungen zum Verhältnis von Hochschulbildung und Arbeitsmarkt (Recom-mendations concerning the relation between vocational education and the labour market)
- Empfehlungen zur Reform des Hochschhulzugangs (Recommendations for the reform of university admission) and
- Strategiepapier für die Hochschullehre (strategic paper for university teaching)

are science-based recommendations, which address policy-makers, universities and the interested scientific community. The goal of the recommendations is to stimulate a debate about the development of teaching at Universities and to make scientifically founded suggestions on how to adapt teaching at University to new challenges. The lengths of the reports varies between 168 and 37 pages.

*Concerning b)*

From a neo-institutionalist point of view, universities somehow have to address the institutional request to open up to transitions from higher VET and work to University. As a consequence, they could profoundly reorganise the studies in the first year in order to cope with a greater heterogeneity concerning central competences related to higher studies. On the other hand, universities might address the institutional request but at the same time maintain the organisation of studies they have, because they have proven to be effective in the past.

In analysing the reports therefor, I screened for the following categories:

- Positive review of the necessity to open up to transitions from VET and work
- Recommendations on how other agents and institutions in the educational system might foster transitions from VET and work into university
- Recommendations on how to significantly reorganise teaching at University
- Recommendations on how University could adapt to increased transitions from VET and work without or just superficially reorganising teaching at University

My aim was to understand, whether recommendations of the Wissenschaftsrat address the topic of transitions. If it did, I wanted to understand if a structural reorganisation of teaching is proposed or if Universities were meant to just adapt superficially without really changing the routine of teaching.

*Concerning c*

I developed the categories out of my theoretical assumptions and tested them in a first reading of the reports. In a second reading, I marked all passages in the text with references to the respective categories and based my interpretation on the frequency of certain passages and the underlying content.

## 4    Results

The analysed reports address and highlight transitions from VET or/and work life into university as something positive and eligible. Interestingly, the majority of recommendations on how universities should deal with a greater heterogeneity of students or how to develop teaching at university in order to cope with changing conditions, do not promote a profound change of teaching, but focus on additional learning opportunities and career guidance, such as mentoring programs and preparatory courses (Wissenschaftsrat 2014: p.87; Wissenschaftsrat 2017, p.21) or formal procedures like the recognition of competencies acquired in work life as part of the course achievement at university (Wissenschaftrat 2014; p.10).

The Wissenschaftsrat also discusses changes in other institutions such as career counselling secondary schools in order to promote better transitions into University. It emphasises early information and counselling about career options in VET and University as essential for the individual educational success and highlights the importance of other institutions such as secondary schools.

Nevertheless, the reports also propose some reforms of university teaching in order to open up to students from VET or coming from work life. In particular, the proposal to transform the first year at University into a "phase of orientation", in which counselling, mentoring and strongly structured curricula can be seen as suggesting a profound change in the structures of German university studies. Overall, the representatives of universities organised in the Wisseschaftsrat express a positive validation of the political program to enhance transitions from VET into university but predominantly suggest an adaption to this program, which does not affect the core structure of teaching at university.

## 5    Conclusions

From the neo-institutional perspective, this emphasis on counselling and additional learning opportunities could be seen as an attempt to gain legitimacy by backing the aim to foster transitions into university while minimizing structural changes in university teaching. However, the proposals of the Wissenschaftsrat are not mandatory.

Hanft analysed the outcome of one governmental funding program that addressed heterogeneity. These projects are based on additional Governmental funding and are a reaction to a growing heterogeneity of students (Qualitätspakt Lehre, Qualitätsoffensive Lehrerbildung). The projects address a growing heterogeneity of students concerning important competencies required for academic studies, which can be seen as a result of the political goals discussed above. The results of her analysis suggests, that universities address heterogeneity with measures, which have been known since the eighties and nineties such as mentoring programs and additional preparation courses. Especially additional e-learning-based learning occasions are implemented by universities to address the heterogeneity of their students (Hanft 2015, p.23). Hanft concludes, that such projects do not aim to reorganize the organisation of learning at the beginning of university studies. Very few programs do meet the goal of profound organisational reactions to growing heterogeneity (Hanft 2015: 23).

Reform programs concerning the development of higher VET in order to facilitate the transition from work into university did not even arrive at the level of successfully concluded projects. There are instead different concepts of varying range which address the governmental goals of facilitating transitions with different intensity. A study by Dobischat, Walter, Münk, Wahle, Elm, Schäfer, El Baghdadi and myself discussed the feasibility and practical requirements of enhancing transitions from work to university via higher VET (Dobischat et. al. 2016). Our results showed that higher VET is closely linked to occupational career paths, often within a company or a specific profession. Therefore, companies use higher VET as a tool to train a specific workforce for specific

demands. So even if higher VET legally establishes a pathway to university, companies are not interested in qualifying people who after-wards might leave their work for university courses (Dobischat et. al. 2016, p.62).

In conclusion we can state that universities and VET do to a certain degree address the issue of building bridges and enhance transitions. Nevertheless, the avoidance of deeper structural reforms might indicate that the *educational schism* between work related learning and training and higher education will remain. The idea of enhancing transition from VET to university has led to an expansion of access to higher education but so far has failed to generate new didactical approaches to enabling subjects to cross the gap.

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# New perspectives on VPL – visibility, impact and the role of institutions

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**Abstract:** Being a priority of EU educational policies, the validation and recognition of prior non-formal and informal learning (VPL) has been supported and advanced considerably during the past two decades. The paper compares VPL approaches and practice in Denmark, Germany and Poland, placing the focus on the role of institutions and VPL practitioners in the validation process. It is argued that while policy frameworks and validation methods have been created in many European countries, individual needs and the impact VPL has on individuals' labour market opportunities and educational pathways are often not considered when developing and implementing VPL approaches. Coordinating VPL initiatives at the national level, having an adequate institutional infrastructure in place and supporting validation by well-prepared guidance staff still present major challenges across Europe.

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## 1    Introduction

The validation and recognition of prior non-formal and informal learning (VPL) is a priority of EU educational policies and central to lifelong learning. The aim is to strengthen the flexibility of learning pathways to increase labour market inclusion and mobility across Europe. One key objective is to enhance employability, labour market opportunities and educational perspectives for disadvantaged individuals such as the low skilled, unemployed, migrant workers and individuals with restricted labour market and learning opportunities. The approach furthermore emphasises the centrality of the individual, placing, in principle at least, the individual and individual needs, interests and benefits at the centre of validation (Cedefop, 2015).

In the past two decades, numerous VPL initiatives at the national and European level have been supported and implemented and have led to significant advancement of VPL, particularly in terms of creating policy frameworks for VPL and piloting validation methods and procedures. Still, VPL in Europe presents a fragmented picture. To move from fragmentation to stronger coherence, common European principles for VPL have thus been formulated. This also includes the European Councils' recommendation of 20 December 2012 that specifies guidelines for incorporating validation of non-formal and informal learning into the European Qualifications Framework (EQF). At the national level, this requires all member states to present validation approaches and have methods in place that are integrated in their respective National Qualification Frameworks (NQF) by 2018.

For realising the multiple VPL procedures, institutions that support, facilitate and implement validation and provide guidance to individuals play a significant and crucial role. In fact, we argue that the provision of adequate information and guidance are central for the success of the validation process. Based on a recently started ERASMUS+ project, this paper compares VPL approaches and practice in Denmark, Germany and Poland. The particular focus thereby is placed on if and how VPL initiatives support individuals' labour market inclusion, employability and further learning pathways. The first part sketches the national approaches to VPL in the three countries against European guidelines for VPL. The second part shifts the focus to the role of institutions in the validation process, reverting to examples from Denmark to illustrate when and how institutions and institutional support structures may come into play in the validation process.

## 2 VPL in Comparative Perspective

### 2.1 Denmark

In Denmark, validation of non-formal and informal learning has been on the policy agenda for about 20 years. Based on common principles, a legal framework for validation of prior learning in the adult education and training sector has been in place since 2007, regulating the validation of prior learning by law[20]. Thereby, the implementation of the legislation is decentralised in Denmark.

According to Danish law, the assessment of the validation application must be conducted by the educational institution that offers the corresponding study programmes. Other bodies can be in charge of providing information and guidance in a broader perspective, in particular, during the preparation phase of the assessment process. This 'pre-phase' involves providing information and supporting identification and documentation. 'Other bodies' include, among others, trade unions, employers' associations, job-centres, unemployment insurance funds, civic education institutions, study committees, 'eVejledning' (online guidance service) and third sector institutions.

VPL in Denmark has the aim to (i) enable access to formal education; (ii) tailor a study programme or award credits for certain classes up to Masters level; or (iii) award a 'Competence certificate' if the participant meets the requirements of part of an educational programme. Denmark has a comprehensive NQF covering all types and levels of qualifications that can be awarded by public authorities. This eight level framework was adopted in 2009 and referenced to the EQF in 2011. Most of the qualifications in the Danish NQF can also be acquired on the basis of validation. Furthermore, the process of VPL in Denmark explicitly includes the four phases of VPL: identification, documentation, assessment and certification (Aagaard, 2014).

### 2.2 Germany

In Germany, VPL is increasingly receiving attention in educational research and practice, not least as a response to the developments of educational policies at the European level. However, the German validation landscape remains sketchy and patchwork, particularly as compared to the situation in other European countries. Hence, VPL in Germany presents a picture of rather uncoordinated regulations, programmes, processes and projects headed by different authorities and with varying outreach. Common guidelines or a

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[20] https://www.retsinformation.dk/Forms/r0710.aspx?id=25349

common strategy to establish flexible and transparent validation processes do not exist (Seidel, 2011). Among other reasons, this is due to the highly regulated education system that focuses on formal qualifications and the close linkage between school-based and work-based learning in the framework of the formalised and nationally regulated dual system of vocational education and training (Greinert, 2007).[21] While informal and practice-based learning at the workplace is considered important, it is not taken into account in the context of validation, mainly because it takes place outside of the formal system. Linkage between validation and the German Qualification Framework (DQR), which was adopted in May 2013, is loose. However, the focus on competence of the eight-level DQR matrix could potentially be used for the classification of professional and personal competences acquired in all educational sectors and contexts and facilitate the integration of VPL. Below, we outline three validation approaches that are legally framed.

First, the recognition of prior learning to obtain permission for taking an external examination that forms part of the formal education system: For vocational training, this procedure was established in the 1960s to give people not formally trained under the dual apprenticeship programme the chance to acquire a formal vocational qualification. According to the national vocational qualification law (§45 (2) BBiG) and regulations set up by the chamber of crafts (§37 (2) HwO), people are allowed to apply for taking the final examination without having attended the respective vocational training programme ('Externenprüfung') if they comply with certain requirements, including the proof of relevant work experience covering 1.5 times the duration of the regular training programme. Alternatively, it is possible to proof that relevant competences have been acquired in other ways.

Second, the recognition of prior learning to obtain access to different learning pathways: Different procedures and pilot projects (e. g. ANKOM[22]) were developed to recognise prior learning for getting access to or moving between different learning pathways. The aim is to avoid repetition, shorten educational pathways and increase permeability, also between vocational tracks and higher education. The various approaches, which exclusively include access to higher education without holding a University entry qualification, are largely decentralised to the university level.

Third, the recognition of equivalence of prior learning to national education standards and certificates: The Vocational Qualifications Assessment Law (BQFG, also called "Recognition Law") was introduced in April 2012. It guarantees individuals the right to get foreign qualifications recognised by a competent authority within three months as being equal to a respective national qualification. Although the law focuses on assessing and comparing formal qualifications, informally acquired competences and relevant work experience can be considered when formal certificates are missing or incomplete (see BQFG § 3 section 1). The recognition process is, in the first place, based on assessing relevant documents such as training certificates, certificates of capability and proofs of domain-specific work experience (see § 3 BQFG section 1). Complementary, competence assessment is also possible based on practical tests, work proofs and interviews. When significant skill gaps impede full recognition, a partial recognition can be awarded that can be supplemented, for example, by further training (Böse et al., 2014).

While VPL in Germany is being promoted and, in principle at least, facilitated by the DQR through the learning outcomes approach, a legislative framework for VPL does not exist and validation procedures have thus far mainly been piloted on a project basis. The outcomes (e. g. of the APEL-procedure) (Merrill and Hill, 2003), however, could be used for formally establishing validation processes.

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[21] The dual system is characterised by the combination of subject-based and general education in vocational schools and company-based training. Depending on their vocational specialisation, apprentices spend about 15% of their training in vocational schools and the remaining time in the company, which also holds employment contracts with the apprentices.

[22] http://ankom.his.de/

## 2.3 Poland

VPL in Poland has been known for a long time, in particular in the context of vocational qualifications and crafts. For these domains, VPL was legally regulated in 1989. With the resolutions of the European Commission (2004; 2009), validation became a key element in the development of the Polish Qualification Framework, seeking to foster the transparency of qualifications and labour market flexibility (European Commission, 2016). While VPL has been introduced more systematically since 2010, the true change in the system was done in 2012 by introducing the possibility of passing an extramural vocational examination[23].

Overall, several legislative changes gradually lead to the restructuring of the system of which the majority took place between 2012 and 2017 (Duda, 2016). The legislative Acts include procedures for quality assurance, allocating responsibilities of institutions and defining requirements for validation processes. The aim is to build a consistent system of VPL with coherent and nationally defined procedures that recognise the competences individuals have acquired in different learning settings and through different ways of learning. The approach seeks to recognise these forms as equivalent to formal education. However, verifying learning outcomes outside of the formal education system requires careful examination and systematisation. For this purpose, Poland has established two key pillars: the Polish Qualification Framework and the Integrated Qualification System (IQS). The Act on IQS, which came into force on 15 January 2016[24], thereby combined separate, already existing regulations on VPL into one system and introduced key elements for assuring quality. While initially the IQS mainly covered full and partial qualifications from formal education, other qualifications are now gradually being included based on requests from associations of entrepreneurs and the industry sectors. Despite all these efforts, validation practice in Poland is only at the very initial stage.

State-regulated VPL includes (i) the vocational extramural examinations conducted by Regional Examination Commissions (OKE); (ii) Chambers of Crafts examinations; and (iii) special professional qualifications (e.g. in the field of civil engineering). The methods used for validation are theoretical and practical examinations. In addition, some pilot initiatives introduce validation that places the individual and learning outcomes in the centre of attention. These competence-based approaches require a shared understanding of validation, relevant information, staff to be appropriately trained and a system of providing guidance. Furthermore, it is necessary to ensure the cooperation between many partners and actors (including employers) and secure apt validation conditions by institutions. One such pilot was carried out in 2014-2015 in Małopolska by the Regional Labour Office Kraków in cooperation with other actors, covering 33 participants from five different vocational domains. The validation methods included interviewing, portfolio, evidence analysis, self-assessment, knowledge test, practical test, on-site observation and simulation (work samples). A main outcome was that the preparation of validation in line with the quality assurance principles was a great challenge for the actors and institutions involved. In particular, validation processes require staff training and competence standards for validation practitioners (e. g. the assessor) and a guidebook on process implementation.

## 3   The Role of Institutions – Examples from Denmark[25]

### 3.1   Kira

*Legal Background:* Kira can have her competences validated to start an education. She can apply for an individual competence assessment of adult vocational training and can have her skills assessed according to specific educational regulations. Depending on the assessment, she will be entitled to an adult vocational training competences certificate and/or an education certificate as well as an individual training plan.

*Process:* Kira seeks advice at the job centre where she outlines her ambitions for her education during an advice session. She also speaks to an advisor from the unemployment office (labour union) to find out what kind of education she wants and what her rights are. She then seeks advice at an adult vocational training centre

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[23] Dziennik Ustaw Journal of Laws 2012 item 188
[24] Dziennik Ustaw Official Journal of Laws of 2016 item 64
[25] The examples are taken from Aagaard (2015).

(AMU), talking to a consultant. Here, she is informed about her options and is offered to take a specific course to clarify her current situation. This course helps her to identify her prior learning from any kind of education, work and leisure activities. In addition, she uses her competence folder ("Min kompetence mappe" www.minkompetencemappe.dk) and CV that she previously created at the job centre. With these tools, she has her professional, social and personal competences outlined. Kira is offered a personalised job and education plan via an adult vocational training module with the objective of clarifying her educational ambitions. Finally, another interview is carried out to identify which subjects need to be assessed. This individual competence assessment is followed-up by a teacher from the relevant subjects. Several materials and methods are used in this assessment: Kira does a test where she has to answer a series of questions and also complete a practical test for assessing her practical skills. The consultant then goes over the results with Kira. He tells her that she can obtain a competence certificate for three subjects and also provides her with a training plan.

*Financing:* For Kira, the individual competence assessment in adult vocational training is free, because she has been unemployed for four months. Accordingly, she has the right to six weeks education of her choice.

*Support:* Kira can find information about an individual competence assessment in several places, for example the job centre or a centre for adult education and continuing training (VEU-centre). Additionally, several educational institutions have set up open advice sessions in cooperation with local job centres. Furthermore, the unemployment office will be able to guide her through the process.

## 3.2 Bastian

*Legal Background:* Bastian has several options for having his prior learning recognised to complete his education. He can apply for an adult basic education (GVU), which is a vocational education for adults over 25 years of age. Alternatively, he can apply to study a post-secondary adult education programme ("academy education") or a diploma programme in IT. Through an assessment, he can obtain the formal validation of his prior learning according to educational regulations. There are three options available: an admissions certificate, a competence certificate and a programme certificate (see Aagaard, 2015, p. 26 for details). Bastian chooses an adult basic education (GVU).

*Process:* Bastian is interested in how he can develop a competence in a short period of time. He requests an individual competence assessment so that the competences he disposes of are acknowledged, but also to find out how he can become more skilled. Bastian turns up at a technical college, along with five other people, for the individual competence assessment. They are all being assessed for the IT-Supporter Education. After a short introduction, the participants are asked to complete a self-assessment of their prior learning within the professional field. It is completed electronically and takes a couple of hours. For every question there are two possible answers: yes or no. The questions are grouped according to educational goals. Then, the electronic programme generates an answer profile indicating the educational goals Bastian thinks he is qualified for. This profile provides the basis for the subsequent interview. The subject teacher asks Bastian how the self-assessment went and whether he can recognise himself in the person profiled in the test and if it fits with his experiences and knowledge gained from former work and courses. The interview impacts on Bastian's self-image as it turns out that he underestimated his actual skills. To find out more about his skills profile, Bastian is then given a practical assignment of building an IT-system for a workplace. It is a workshop setting where the five participants can talk to each other and help each other. The subject teacher passes by periodically to observe, assess the performance and ask questions concerning Bastian's methods. This is also provoking a process of actualisation of Bastian's implicit knowledge. Each day, the participants reflect on their experiences from the previous day and their plan for the next day. In this way, they map out their own prior learning. For Bastian, the outcome of the final assessment is much better than his initial self-assessment. On the last day, Bastian finishes his case assignment and has a final interview, reflecting upon the practical tasks and his initial self-assessment. In the end, Bastian can have a number of skills validated. The rest is incorporated into a training plan agreed between the student counsellor and course secretary. Overall, the individual competence assessment lasted one week.

*Financing:* For an adult basic education no fees are charged. Different rules apply for completing a GVU depending, for example, on the lengths of unemployment and the insurance status. While studying, Bastian is entitled to an adult education and continuing training allowance equivalent to 80% of the unemployment benefit.

*Support:* Bastian can find information about individual competence assessment at centres for adult education and continuing training, the institution of education he is interested in or the local job centre, among others.

## 4    Conclusions

The European guidelines refer to VPL in terms of "making visible the diverse and rich learning of individuals" which "frequently takes place outside formal education and training […] and is frequently overlooked and ignored" (Cedefop 2015, p. 14). Accordingly, validation is defined as a process with multiple possible outcomes that should increase the visibility and value of learning taking place outside the classroom. For the validation process, the guidelines define four phases: identification, documentation, assessment and certification. The possibilities for validation have to be clarified and the approaches should meet the individual's demand (Cedefop 2015, p. 15). In practice, validation is implemented within the education and training sector but also by other stakeholders and labour market actors.

It has been shown that various actors, who typically operate at an institutional level, are responsible for the implementation and effectiveness of validation processes. The key players include teachers, trainers, counsellors, assessors, coaches and other practitioners. Most of them are affiliated to or work for public and private institutions as well as third sector agencies and other intermediaries, which are assuming a very important role not least because they are creating the effective linkage between the systemic, institutional and individual level. The fairly complex interaction between the macro (policy), meso (institutions) and micro (individual) level requires capacity building and having well trained and informed practitioners in place, who can guide individuals through the process. While policy frameworks and validation methods have been created in many European countries, coherent approaches, an adequate institutional infrastructure and well-prepared guidance staff are still a big challenge.

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# Legal Regulation of the advertising of vocational education services – the role of truth and recognition of advertising criteria

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**Abstract**: nowadays advertising is the most important phenomena in the modern market economy. It can be the impetus of competition, the vehicle for communication and the result of a fundamental right of people – the freedom of expression. Also, it is the powerful force in shaping consumers' preferences. Today advertising became the communication, which has the main goal – to persuade consumers about products, services and brands. Sometimes we use this type of communication in such way that person to whom the information is intended can hardly distinguish whether it is objective information or advertising. Ability to choose properly information is very important in the selection process of further education. The purpose of this article is to investigate the legal relations between consumers (learners) and educational service provides, who uses the advertising as a tool to affect consumers' desire to choose proposed vocational education or further training service.

**Keywords:** vocational education services, advertising law, misleading advertising, comparative advertising, unfair commercial practice or business-to-consumer commercial practices.

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## INTRODUCTION

Nowadays advertising is the most important phenomena in the modern market economy. Advertising is the essential force in capitalistic market, which is the impetus of competition, the vehicle for communication and the result of a fundamental right of people – the freedom of expression. Also, it is the powerful force in shaping consumers' preferences. Dahlen and Rosengren (2016) define advertising as brand-initiated communication intent on impacting people. Today advertising is "communications that have the goal of persuading consumers

about products, services, and brands"(Gita Venkataramani Johar, 2016). Sometimes we use this type of communication in such way that person to whom the information is intended can hardly distinguish whether it is objective information or advertising. Ability to choose properly information is very important in the selection process of further education.

*The aim of this research is* to investigate whether in the legal regulations the truth and recognition of advertising criteria are applicable to consumer's assumed need to have such kind of vocational education service which is promoted by advertising. We hope that this information will be useful not only like the theoretical material about advertising law, but also will be useful for the practitioners who create advertising of vocational education services and for the VET providers and learners as well. Practitioners will be able to use it like a manual how to inform properly the consumers about their vocational training service without violating their rights and legitimate interest. Learners and users of VET services can use it like a manual to find out what is forbidden in advertising law and to know when they can to appeal for their violated rights and legitimate interest.

*The main goal of this research* is to identify whether in the legal regulations the truth and recognition of advertising criteria are applicable to consumer's assumed need to choose proposed vocational education or further training service which was formed in the influence of advertising?

*Research questions of this study are*:
1.      to identify the legal definition of advertising in Lithuania and European Union legislations;
2.      to define the truth and recognition of advertising criterions and to evaluate whether these criterions are applicable to the consumer's assumed need to choose vocational education or further training service which was formed in the influence of advertising.

*The methods applied* for this research were the scientific literature and legal document content analysis and the interpretation methods of law - linguistic, comparative, systematic and logical.

*The hypothesis* was set that for the consumer's assumed need to choose proposed vocational education or further training service which was formed in the influence of advertising have to be applicable the truth and recognition of advertising criteria.

## LEGAL DEFINITION OF ADVERTISING

The main documents, which regulate advertising in the European Union, are Directive 2006/114/EC concerning misleading and comparative advertising and Directive 2005/29/EC on Unfair Commercial Practices.

The legal definition of advertising is "the making of a representation in any form in connection with a trade, business, craft or profession *in order to promote* the supply of goods or services, including immovable property, rights and obligations" (Directive 2006/114/EC, art. 2 a). It is very important to remember that advertising is one of the information forms, but not all information is considered to be advertising. Advertising is a specific type of information, which has an essential feature - the desire to influence the consumers' to buy proposed product or service (Constitutional Court of the Republic of Lithuania, No 3/02-7/02-29/03, 2004). Advertising law arose from the Freedom of Expression[26] (information), which is a fundamental right of humans, but according case law sometimes for the seller is more important to convince the consumer to choose a product or service, rather than to inform him about the product or service. Adviser and consumer have different interest in advertising activity. Adviser has the right to disseminate information, which is subjective information in its nature, on the other side there is consumer and his right to get objective information.  This situation, where are two different interest, can easily ends with the violation of consumer's right to get objective information about product or services.

In Directive 2005/29/EC on Unfair Commercial Practices was set a new legal definition - business-to-consumer commercial practices'[27], which means "any act, omission, course of conduct or representation, *commercial communication including advertising and marketing*, by a trader, *directly connected with the*

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[26] This right shall include freedom to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers. (European Convention on Human Rights, art. 10).
[27] Also referred to as commercial practices.

*promotion*, sale or supply of a product to consumers" (art. 2 d). A commercial practice will be considered to be unfair if it is contrary to the requirements of professional diligence and it *materially distorts or is likely to materially distort the economic behaviour with regard to the product of the average consumer* (group of consumers) whom it reaches or to whom it is addressed. Unfair commercial practices towards consumers are prohibited.

According legal regulations we can define that advertising is one of the form of information, which has essential feature – the purpose to do influence on consumer behavior regard to the product or services.

## THE TRUTH AND RECOGNITION OF ADVERTISING CRITERIONS

In business relations, consumers and competitor enterprises expect companies to use truthful marketing communication and to act with professional diligence, but in reality it can be different. The freedom of expression includes the freedom of advertising, but these freedoms are not absolute. They can be limited if they violate another fundamental right of human. There are three different approaches to advertising: advertising is a source of information and knowledge, a direct work that requires a good knowledge of psychology and communication and an undesirable phenomenon that causes only negative emotions (Jakubauskas, 2003). Last two approaches have negative attitude towards advertising, because mostly consumers don't believe in advertising, because they understand that adviser use various methods of psychological impact and sometimes these methods ignore the ethical or legal norms.

To investigate the legal relation between consumers (learners) and educational service provides, who uses the advertising as a tool to affect consumers' desire to choose proposed vocational education or further training service we have chosen Lithuania as case study object.

In Lithuania for freedom of advertising are set some restrictions: do not misinform and intentionally mislead consumers with advertising (Constitutional Court of the Republic of Lithuania, No. 15/2, 2005) and for information, including advertisements, is applicable the truth requirement (Constitutional Court of the Republic of Lithuania, No. 6/96-10/96, 1997). When judging whether or not advertising is misleading we have to use three criterions: *accuracy, comprehensiveness and presentation criteria* (Law on Advertising No. 64-1937, 2000). Firstly, claims presented in advertising are considered false, if the provider of advertising cannot substantiate accuracy of the assertion during the time of use. Secondly, the information supplied in the advertising is incomplete, if a certain part has been omitted the supplying whereof is, taking into account other information presented in this advertising, certainly needed in order to avoid misleading of the consumers of advertising. Thirdly, manner or form of supplying advertising is such that the consumer of advertising may perceive an understandable inaccurate (misleading) advertising claim. The use of misleading advertising is prohibited in Lithuania. Comparative advertising is also banned if it is misleading (do not correspond to the criterions) or the comparison has been done not objectively. Also, *misleading commercial practice* (misleading actions or misleading omission) and *aggressive commercial practice* (harassment, coercion or under influence) are prohibited in Lithuania.

Another important criteria set in legal regulation on advertising is recognition of advertising criteria. Nowadays „advertising is <...> evolving to the point where it becomes unrecognizable"(Russell N. Laczniak, 2016) and „legal endorsement and testimonial advertising regarding products or services is a channel that increases positive information sources to consumers, and is beneficial to improving enterprises' profits and turnover" (Liou, Hwa Meei, 2016), but sometimes it hard to discern whether it is the opinion of someone or well-hidden advertising. Advertising must be clearly identifiable according to its form of presentation. Hidden advertising is prohibited in Lithuania, as well as in the European Union. Hidden advertising violates consumer's right to get objective information, because he or she is not informed properly about is it advertising or objective information about product or services. Today life is so quickly changing, the technology and advertising forms are rapidly evolves, which creates new problem in legal regulations of advertising. For example, forums, social media, blogs on the internet – how to identify if the comments or article about product or services are consumer's opinion or well-hidden advertising? Consequently, the truth requirement and recognition of advertising criterions are provided for the content, form and commercial practice of advertising activity.

## CONCLUSION

The legal requirements are set to help to protect consumer's need. The freedom of advertising can be limited if they violate another human right or constitutional value. We have legal regulation where is stated that the advertising must be recognizable and truthful. This means that it has to correspond to the truth requirement - objective truth, which have to be checked under some criteria, standards or tests. The commercial practice must be done in good faith without materially distort the economic behavior of consumers with using a commercial practice to appreciably impair the consumer's ability to make an informed decision, thereby causing the consumer to take a transactional decision that he would not have taken otherwise.

Therefore the answer to the question whether the truth and recognition of advertising criteria are applicable to consumer's assumed need to choose vocational education or further training service which was formed in the influence of advertising is very complex. Yes, the legal requirements are set to help to protect consumer's need. The law has regulated advertising, has set requirements to protect average consumer from incorrect advertising and unfair commercial practice, *but* whether the practitioners will use it in honest way without misleading and without incorrect comparative advertising or without unfair commercial practice, it depends from themselves, from their ethical and social responsible business standards.

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Session 3.2
**Transfer**

# An action research approach to studying apprenticeship in Spain

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**Abstract:** This paper, explores the outcomes of a short action research project, undertaken in Valencia Spain in 2016, into the introduction of the new apprenticeship qualification, FP Dual. The hypothesis underpinning the work was that the development of apprenticeship programmes in Spain needs to build on existing cultural and organisational norms and requires an in-depth understanding of critical factors in the perception of apprenticeship by different actors. The research was undertaken through a series of over 30 in depth interviews with different actors. The paper explains the background and methodology, before outlining the major issues that emerged from the research. The conclusion suggests the need to address cultural and educational issues that the introduction of a Dual System system raises, including the relations between companies and education institutions, the prestige of vocational qualifications, the training of teachers and trainers and issues of pedagogy and curriculum.

**Keywords:** Action research, Semi structured interview, Apprenticeship, Policy, Spain

## 1 Introduction

The Spanish economy is still struggling from the impact of the 'crisis', with persistently high levels of youth unemployment and low skills levels. Unemployment is especially high for those leaving school early with no qualifications and for recent graduates (Esenciales Fundación BBVA, 2016).

A series of reports have suggested that moving beyond the school based, initial vocational training system to adopt a dual system based, apprenticeship model offers benefits to the economy, to companies and to individuals (Wolter and Mühlemann, 2015).

However, other research points to the difficulties in transferring models developed in one culture – such as the German Dual apprenticeship system – to other cultures such as Spain (Pilz, 2016). These include the weakness of trade unions at a company level, educational polarisation between vocational and higher education, resistance at company level, resistance by families and young people, variation in co-ordination between actors from region to region, complex interactions between national and regional levels, the

government, social partners and employment organisations and, of course, the ongoing economic crisis (Cedefop, (2015).

The Spanish government has established an experimental apprenticeship framework, FP Dual, with pilots running in parallel to existing VET schemes (Refer Net Spain, 2014). The implementation of the programmes varies greatly in different Autonomous Communities, based on different cultures, different economies and different organisational and governance forms.

Clara Bassols and Guillem Salvans (2016) say that the Spanish FP Dual system is underdeveloped and needs to be refined and improved to ensure that it is genuinely capable of providing young people with the necessary professional skills and thus employability. Comparing developments in Spain with the German Dual apprenticeship training system, they say that while the two Dual VET systems will never be the same, comparison with Germany reveals that the Spanish system lacks some of the defining strengths of the German system. That the Spanish Dual VET system is so new is viewed as "an opportunity to make changes before it becomes too entrenched."

Our hypothesis is that the development of apprenticeship programmes in Spain needs to build on existing cultural and organisational norms. This requires an in-depth understanding of critical factors in the perception of apprenticeship by different actors and how these affect the development and implementation of apprenticeship programmes.

The 'Understanding cultural barriers and opportunities for developing new apprenticeship programmes' project, sponsored by INEP, has undertaken a four-month research study based in Valencia, to explore the cultural and organisational norms and the barriers and opportunities these afford to introducing apprenticeship. In this paper, we explain the methodology behind the research and the main findings.

## 2    Research Methodology

A key aim for the project was understanding the introduction of an education innovation - apprenticeship - within a local setting and with a wide range of different actors.

The project adopted an action research approach. Our aim was to develop an understanding of the underlying causes of issues relating to the introduction of educational practice in order, in the longer term, to arrive at consensus by different social partners on how practice can be improved. Our focus has been on qualitative research with different actors who may have an important voice in this area, the organisation of apprenticeship, the role of different organisations and the cultural factors affecting the provision and reform of vocational education and training in the Valencia Community and in Spain.

Elden (1983) has introduced the notion of 'local theory'. To understand the challenges of each specific workplace, he said, as well as how to attack them, there is a need to understand this specific workplace. In a similar way, we would suggest the need to understand the specific ideas and activities and 'theories' of different actors involved at a local level in apprenticeship. Here theory might be understood as the specific pedagogic and learning approach of apprenticeship in bringing together vocational training within schools with alternance periods spent within companies. One objective for our research was how such theory is linked to practice in introducing and supporting such programmes.

In the first stage of the project, we identified the major actors involved in the development and introduction of the apprenticeship programmes in Valencia. These included:

a)   Vocational Training Schools (directors, teachers, tutors)
b)   Policy Makers (regional government and political parties and organisations)
c)   Students and trainees
d)   Parents and carers
e)   Companies especially Small and Medium Enterprises.

The project adopted the idea of purposive sampling for selecting respondents for interviews (Patton, 1990). Interviews were conducted face-to-face using semi structured questionnaires. Overall, thirty interviews were conducted, recorded and transcribed.

## 3 Findings

In line with our approach to the project, we present here detailed findings from te different actors involved in developing apprenticeship at a local city level.

### 3.1 The role of companies in the FP Dual

Given the central nature of companies to the FP Dual system, it is not surprising that the relationship between companies and vocational schools, as well as the local administration was a major issue raised by all the different social partners. Although most company representatives interviewed were positive about the FP Dual and vocational schools welcomed the partnership with companies, it is proving time consuming to develop a culture and processes to support a dual system and the number of apprenticeship programmes and the number enrolled in Valencia remains limited. There are particular difficulties involving SMEs, who are reluctant to contribute to the cost of apprenticeship and lack skilled trainers.

### 3.2 The role of the school centres

Despite the support of some large and important companies, the adoption of FP Dual is being driven by the School Centres. In such a situation, it is possible that the large integrated centres are in a better position to lead such development, although this is not to downplay the contribution and effort of the smaller centres. School leadership is a critical factor, as is the commitment and contribution of teachers in the vocational schools. Directors and teachers receive no remuneration to working with companies to develop new programmes

### 3.3 Administration and Contracts

The bureaucracy associated with the establishment of new apprenticeship programmes, both for the schools and for the companies, is troubling.

Some Autonomous Communities have legislation on contracts and remuneration for apprentices with differing rulings. In Valencia, it depends on the individual programmes negotiated between the company and the vocational schools. Quite obviously, this is problematic in that some apprentices are being paid for their work at the company while others are not. Furthermore, some apprentices, who are not receiving remuneration from the company, may be incurring some considerable expenses for travel.

### 3.4 Curriculum Design

At present, the FP Dual programmes last two years in contrast to the normal three-year length of apprenticeships in the German Dual system. There is concern that a some subjects, the curriculum is too heavy for such a time and there is a need for rebalancing drawn between what is learnt through the school and through in-company training.

### 3.5 Sector organisations

One key factor in implementing the FP Dual, is the strength and support of sector organisations which varies between different sectors. The initial programmes are being implemented where there is good communication and support between sectors, vocational schools and industries.

### 3.6 Flexibility and collaboration

The flexibility for the Autonomous Communities to implement apprenticeship schemes allows programmes to be adapted and planned according to the needs of local economies and societies. This may be a problem in terms of transferability of different courses and in transparency of what apprenticeship programmes stand for. There is an important balance to be achieved between the design of programmes to cater for the needs of individual companies and more standardised curricula which meet the needs of students in their education.

### 3.7 Careers guidance and the role of parents

There is only limited public awareness of the FP Dual and the aims and the organisation of apprenticeship. This issue is particularly salient given the high prestige placed on academic courses in Spain and particularly university programmes within the wider Spanish society. The weakness of education and guidance networks and services within Valencia is a major issue if young people, and especially higher achieving young people are

to be recruited on FP Dual programmes and if companies and SMEs are to understand the value of apprenticeship.

### 3.8   Initial training and Professional development

There is a lack of a dedicated and well organised and resourced programme of professional development for vocational teachers and for trainers in companies, which is seen as a pre-condition for the future success of apprenticeship in Valencia. Initial training for vocational school teachers is overly focused on the subject with too little attention to pedagogic approaches to teaching and learning.

### 3.9   Sharing resources and good practices

The vocational schools appear to have well developed unofficial networks. But more formal networks are needed which could generalise discourses over strategies and approaches to apprenticeship and provide a forum for knowledge development and exchange.

There is a general concern that vocational education lack prestige, but more importantly the vocational centres often lack sufficient resources to not only maintain present programmes but to develop apprenticeship. This is linked to their understanding of the need for recognised quality in teaching and learning if apprenticeship is to succeed. Many teachers said they lack resources and there is poor access to technology.

### 3.10 International collaboration

European projects and programmes, including the development of new curricula and qualifications, new pedagogic approaches, the use of new technologies and the exchange of students and teachers are extremely valuable for vocational schools to develop and exchange knowledge and experience about apprenticeship.

### 3.11 Regional and city wide collaboration

Vocational schools appear to be approaching companies individually. There could be gains through developing more formal and extended networks between schools and companies, either on a regional or a sector basis. To an extent this role is being undertaken at a national basis by the Alliance for Apprenticeship. The establishment of the Alliance at the level of the Autonomous Communities could be an important step in promoting the FP Dual.

### 3.12 FP Dual and the local economy

Many of those interviewed saw apprenticeship as a way of proving the skills which the local economy would need in the future, particularly in view of the potential flexibility in designing new programmes together with employers. However, they also recognised the challenges in developing such a responsive system.

### 3.13 Evaluation

The new apprenticeship programmes are experimental, and many of the issues arising are not unique to Spain. Indeed, many of these issues have been raised in research into the long established German Dual System. However, the lack of qualitative evaluation of the FP Dual programmes, especially scientifically undertaken and published case studies, is a barrier to understanding what is working, what is not and how to improve the quality of the programmes.

## 4   Conclusion

The findings from this research are focused on the context of educational change and introducing apprenticeship in one community, Valencia in Spain. This raises the question of how generalizable they are to other regions and other countries. We would suggest the findings show the limitation in attempting to transfer models of vocational education and training from one country to another. Inevitably, FP Dual reflects the governmental, cultural, pedagogic and curricula history and practices of Valencia, as well as the particular context of the ongoing economic crisis. That does not mean that developing an apprenticeship system in Valencia is either undesirable or impossible. But it does mean going beyond lauding the strengths of dual system approaches to education and training and whilst recognising that a Dual system in Spain will always be different to Germany, addressing some of the cultural and educational issues that such a system raises. These include the relations between companies and education institutions, the prestige of vocational qualifications, the training of teachers

and trainers and issues of pedagogy and curriculum. Announcing a new systemic innovation alone is not enough: unless these key issues can be addressed apprenticeship will not succeed in Valencia or in Spain.

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# German dual Vocational Education and Training: distinctive elements about its implementation in Peruvian Servicio Nacional de Adiestramiento en Trabajo Industrial (SENATI)

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**Abstract:** SENATI (Servicio Nacional de Adiestramiento en Trabajo Industrial) is a Peruvian institution of Vocational Education and Training (VET) that introduced the dual VET model in 1984, with the advice of the German development cooperation. Under the concept of "educational transfer" it is analyzed the process of implementation of German dual VET elements in SENATI in relation to its input and output. In the "input" the need for the Peruvian industry to have skilled workers was the main reason for the dual model implementation. SENATI's "processes" of vocational training are differentiated from the German model by the active presence of entrepreneurs in management, support and operational processes. Finally in the "output" the conclusion after a comparative analysis of SENATI and German models is that the SENATI model is a "hybrid", because it has elements of the German dual model that have been adapted but also has innovative elements.

**Bibliographical notes:**

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## Introduction

German dual Vocational Education and Training (VET) has drawn increasing attention of other countries in recent years. But in case of Peru, German dual VET was transferred to SENATI (Servicio Nacional de Adiestramiento en Trabajo Industrial) from 1975 until 2005 through German development cooperation. Actually SENATI is the biggest private VET institution in Peru with following figures in 2016 (83 educational centers nationwide; 70 occupations; 9,805 training companies; at least 9,805 in-company trainers; 3,704 VET teachers; 14,301 graduates; and 87,045 trainees enrolled in the first, second and third year). The results have been satisfactory to the extent that 91 % of the graduates get a job in the first year after completing their dual training (SENATI, 2017).

In Latin America, in the second half of the twentieth century, countries decided to begin an industrialization process through import substitution. The transition from an economy based on natural resources to an industrial economy demanded skilled workers. For this reason, several vocational training institutions were created (De Moura Castro 1997). SENATI, established by initiative of National Society of Industries (SNI) - a private business association - in 1961, is the proof of the self-interest of a group of Peruvian industrial companies in having local skilled workers (SENATI, 2011; Wallenborn, 2001; International Labor Organization, 1997).

The companies of the SNI - with more than 20 employees - decided to pay a monthly economic contribution (0.75% of the total remuneration paid by companies to their workers) to support the institution (today the contribution of the companies only represents 24% of the total income of SENATI, because it has developed training activities, consulting and advice to the industry that allow it to generate additional income) (SENATI,

2017). The contributing companies are entitled, free of charge, to train a certain number of future operative workers.

Although the transfer of the dual VET model began in 1975,German development co-operation began to support SENATI in 1969 through the former organizations German Technical Cooperation (GTZ), the German Foundation for International Development (DSE) and the Center for Migration and Development (CIM) with machinery and teaching materials, the sending of German specialists for the training of trainers of instructors to Peru and the training of instructors in Germany in technical topics and modern methods of teaching (SENATI, 2011). According to Stockmann (1998) GTZ and the DSE worked with the Ministry of Education during the 1960ies, but it did not work. For this reason, they began to work directly with VET institutions such as SENATI in Peru in the 1970s; later in the 1980ies they began to introduce the dual model into these institutions. The reason GTZ and DSE cooperated with SENATI is because this private institution does not have profit purposes, and the profits they earn should be reinvested in vocational training programs.

## Dual VET model of SENATI

In the 1970ies, the school-based training of pupils in SENATI was not enough, because the demand of the industry for skilled workers with practical experience grew, so SENATI took the decision in 1975 to prepare the implementation of dual VET, using the German experience as a reference (SENATI, 2016).

SENATI decided to start dual VET model from 1975 with advice from the GTZ. The first experimental project of dual VET was carried out in 1979 (40 trainees, six occupations, seven companies) (SENATI, 2016).

It took nine years since the decision to start the dual VET model, since in 1984 SENATI formally decided to implement it in some technical occupations, continuing with the support of GTZ. With the experience generated since 1979 with the pilot project.

From 1984, SENATI decides to gradually implement for the first time dual VET model in Peru, for which GTZ sends consultants in this topic with experience of implementation in other countries to SENATI. SENATI made some changes to the German dual VET model to adapt it to the economic, technological, social and cultural reality of Peru (ILO/Cinterfor, 2015).

Although since 1984 SENATI has been offering dual training and a school-based training mode in parallel, it was not until 1994 that SENATI decided to implement the dual VET model in all its occupations, with the advantage that its framework curricula were already aligned with the logic of the dual VET model and focused on the tasks of the jobs (ILO/Cinterfor, 2015). From 1999 didactical modernization of SENATI takes place on three levels with advice from the GTZ: organizational development, personnel development and a new curriculum (Lindemann, 2002).

Subsequently SENATI updated its regulations on its dual VET model in 2011, which has allowed the definitive insertion of the dual VET model in all occupations (70) offered in 2017.

## Conceptual framework

According to Perry and Tor (2008) the transfer of elements of the German dual VET model can be defined as "educational transfer" which includes the movement of ideas, structures and practices from one place to another, from one country to another, or locally (region, city or college) within a country.

Gonon (2014) stated that it is certainly possible to transfer "elements" of a model that may be characterized as "dual", without a wholesale transfer of the entire German dual system (which would require a complete systemic adjustment in the recipient country). In this sense, he argues "there is no country where such a model has successfully and lastingly been implemented on a large scale and as a main system".

Euler (2013) considers that a whole system transfer is ambitious and problematic; it is better to focus on specific elements that are exportable, moreover: "importing countries make decisions based on their needs, choosing the features that are likely to offer benefits and tailoring them to existing structures and cultural circumstances." (Euler 2013, p. 66). According with Gonon (2014) an example of the introduction of a dual VET model in a new context is the SENATI project in Peru, but there has been insufficient scientific analysis of the success of implementation of Dual Systems in developing countries (Edelmann, 2003).

## Objetive

This paper seeks to analyze the process of transferring elements from the German dual VET model to the dual VET model of SENATI, in relation to its reasons (input), processes and relating results (output), according to Gessler (2016). It will be researched what the common aspects and differences of dual German VET model with the dual VET model of SENATI are.

## Methodology

We will use a historical approach, document analysis method with only one unit of analysis (SENATI), in the field "Initial Vocational Education and Training" with the focus "VET".

The answer to the inquiry questions will be based on an extended review and analysis of literature referring to SENATI, and by analyzing formal documentation from SENATI.

## Results

### Input

The implementation of dual VET model of SENATI has following distinctive elements:

(1) Great support by about 400 entrepreneurs of the National Society of Industries in the processes of management of the dual VET model of SENATI (SENATI, 2017).

(2) Availability of companies to train trainees in their facilities. - The number of training companies increased from six in 1979 to 9,805 in 2016 (SENATI, 2017).

(3) Private, instead of governmental financing of the operation of the dual VET model of SENATI. - Most trainees pay teaching fees to SENATI except for those trainees who are sponsored by a training company, without receiving any payment from the training company.

(4) Follow-up of trainees in the companies. - The SENATI instructors visit at least once a month to in-company trainers in order to evaluate together the progress of the trainees.

(5) Decentralization of dual VET model of SENATI, having gone from three training centers in 1969 to 83 training centers nationwide in 2017 (ILO/Cinterfor, 2015; SENATI, 2017).

Process: How did SENATI build the structures of its dual model?

From 1984 SENATI promoted the conceptual and operational implementation of the Dual VET model, through the generation of normative documents, the training of technical teaching staff and the adequacy of the organizational structures that allow proper functioning (SENATI, 2016).

SENATI (2005, 2012) has nine professional training processes, where entrepreneurs actively participate, among the most important are the identification of needs, the development of occupational profile elaboration, and the identification of profile of skills, curriculum design and development.

### Output:

How can the result of the educational transfer of elements of the German dual model to the dual model of SENATI be interpreted? As imitation, adaptation or innovation?

By comparing the five German VET features with the dual VET of SENATI, we find common aspects and differences.

(1) Cooperation of government, business community and social partners

SENATI has legal, academic and administrative autonomy before the Peruvian government.

SENATI does not cooperate with the government and social partners; unlike in Germany where the dual VET model is a result of cooperation of government, business sector and trade unions.

(2) Learning within the work process

The similarities between both models are:

- · Training mostly takes place in companies participating in the dual VET model.
- · Companies participating in the dual VET model sign a contract with trainees
- · Trainees follow specific learning plans according to the curriculum
- · Trainees visit supra-business centers in the German case and seminars of practical complementation given by SENATI in Peru, in case they do not receive training in some subjects in the training companies.
- · The differences are:
- · Trainees apply to SENATI for the first and second semesters, then they seek a training company (from third to sixth semester); in Germany trainees have to apply for a training company, before they can attend to a vocational school.
- · Companies willing to train trainees must comply with SENATI requirements, while in Germany companies must register in the Chamber of Commerce and Industry who authorize and supervise them.

(3) Acceptance of national standards

The differences between the two models are:

- · In Peru SENATI sets the standards of professional training, develops content, curricula and teaching materials for technical occupations with the active participation of entrepreneurs. In the case of Germany, the Federal Institute of Vocational Education and Training (BIBB) gives the directives of dual VET; but the German states, the business sector and the trade unions participate in the decisions (Van Breugel 2014).
- · The trainees receive a title of completion of dual vocational training by the SENATI, recognized by the Republic of Peru, while the German trainees receive a title given by the Chambers of Industry and Commerce.

(4) Qualified VET staff

The differences between the two models are:

- · SENATI trainers are university professionals without pedagogical experience, so SENATI assumes their pedagogical training; while in Germany the trainers of vocational schools need a university study.
- · In-company trainers are trained in the dual VET model and elements of pedagogy by SENATI. On the contrary, in Germany, in-company trainers need a certificate of aptitude as a trainer, which is administered by the Chambers of Industry and Commerce after an obligatory 120-hour-training program.

(5) Institutionalized research and advice

SENATI hires external market research and receives international advice from experts. In Germany, institutionalized research is carried out by two state institutions: the Federal Institute for Vocational Education and Training (BIBB) and the Institute for Employment Research (IAB).

## Conclusions

It is concluded that the growth of the dual VET model of SENATI is directly linked to the growth of the industry, which needs qualified technicians to support it. The government is not present, so that the operation of the dual VET model of SENATI has been possible only because of the participation of entrepreneurs in the institutional

and academic management of SENATI, who also offer training places for trainees. This is shown by the increase of training companies that went from six in 1979 to 9,805 in 2016, and of trainees who went from 40 in 1979 to 87,045 in 2016.

SENATI's dual learning "processes" have been established based on distinctive elements of their dual VET model. These processes have as initial reference the needs of the Peruvian industry, and as a final reference the follow-up to the graduates. It can be concluded that the dual learning model of SENATI is a "hybrid", has elements of the German dual model that have been adapted, but also has innovative elements, in contrast to Euler (2013). Since 2005 SENATI has started a development of its own model.

One of the topics that could be researched in depth is the introduction of virtual or semi-virtual training courses for in-company trainers (at least 9,805), since the trainers lack knowledge of pedagogy, distributed in all regions of Peru where SENATI has presence; other target groups for virtual courses are 3704 VET teachers and 87,045 trainees.

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# A Case Study about the Innovative Approaches of a German Transplant in China: Make up for Deficiencies in the Prevailing VET System

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**Abstract:** This study draws attention to how German transplants in China respond to localized shortages of skilled workers in a conurbation of German manufacturing enterprises near Shanghai, China. Deficiencies in the vocational education and training (VET) system and poaching of skilled workers by other enterprises are the two major challenges in the local labour market of this area. The focus of this study is to examine the innovative coping strategies of different types of enterprises that are applied in order to achieve these challenges. Methodologically, the study design is based on case study research conducted by elements of on-site expert interviews, documentary analysis and inspection of the shop-floors. Cultural historical activity theory by Engeström is used to analyse the innovative appraoches detected in the research field. The findings of this study show a range of innovative approaches within German enterprises. Depending on the needs and types of enterprises, we find linkages between the companies internal and the local external labour market as well as engagements with local institutions and forms of cooperations to meet their marketoriented requirements.

**Keywords:** China; Vocational Education and Training; VET; German Transplants; Skill Shortages

## A Case Study about the Innovative Approaches of a German Transplant in China: Make up for Deficiencies in the Prevailing VET System

### 1 Problem Statement

Over the past decades China has developed impressively in political, social and economic levels. From an economic point of view, due to lower labour costs that provided important local advantages in the mid 1990s, a large number of foreign invested companies moved their production plants to China. As a result, China gained the status as "elongated workbench" (Schwägermann, 2016, p. 166) and has become one of the leading destinations for foreign direct investment at the same time (The World Bank, 2016).

Today, Germany is one of the ten major investors and about 5.200 German companies are currently situated in China. But the situation has changed and lower labour costs are no longer one of the key advantages for foreign invested companies to produce in China. Instead, those companies operating in China have a high demand to achieve local adaption and innovation for their products to affect conditions of competition (German Chamber of Commerce, 2015). As a result, as evident in the case of the mechanical engineering sector, a growing number of German companies are pursuing in the field of research and development.

This development is accompanied by an increasing demand for better-skilled workers who can take part in different stages of production processes and that are able to bring forward the improvement of product quality and productivity (Zhao, 2013; Deitmer et al., 2013; Gessler, 2017). But in this respect, Chinas development from a social point of view is hindering.

The situation on the labour market is difficult and a lack of workers in terms of both qualitative and quantitative is prevalent today (Li & Sheldon, 2014; van der Burgt et al., 2014; Pilz & Li, 2014; Zhao, 2013).

The definition of the term *shortages of skilled workers* are inclined towards Green, Machin and Wilkinson (1998) who view shortages as reflecting employers' difficulties in securing sufficient workers with appropriate skills. These shortages can either go along with employers having difficulties to fill job vacancies or with skill gaps within an employer's existing workforce. Li and Sheldon (2010) extend employee poaching by other employers as third consequence resulting from shortages of skilled workers.

The quantitative lack is reflected by low numbers of graduates from vocational schools which is in turn deeply anchored in the Chinese culture (Zhao, 2013). Especially amongst parents, the academic track is dominating the upper educational system and great efforts are undertaken to intend academic careers for the parents mostly one child, leading to a low number of graduates from vocational schools (Barabasch, Huang, & Lawson, 2009).

The gap of skilled workers in quality however can be attributed to an imbalance of practical and theoretical training that is relevant both in vocational schools and academic tracks (Pilz & Li, 2014). Education in China clearly focuses on full-time schooling but work-related skills and knowledge are neglected tremendously (Deitmer et al., 2013). As consequence, this is manifested in a disconnection between the design of vocational school and academic track courses and practical employment needs (Pilz & Li, 2014). This results in a mismatch between the employees skills-levels and expectations by the companies.

Zhao (2013) notes that in order to approach this problem, there is a substantial need for cooperations between Chinese companies and vocational schools and colleges in order to promote and standardise laws, regulations and operation mechanisms.

Also from the governmental side, efforts are made to strenghten the vocational track which has been falling behind in the past (Deitmer et al., 2013). Laws and regulations given by government are however missing and the responsibility for vocational education is vague. Some Chinese companies even see the responsibility for vocational education and training (VET) not by them but by the government alone and are thus interested neither in the involvement of VET nor in cooperations with vocational institutions (Zhao, 2013).

It is precisely this field of unresolved tension in which German transplant companies[28] are operating. On the one hand there is a high demand for skilled workers in order to fulfil high product standards and to pursue research and development, but at the same time the labour market does not supply these workforce, neither in quality nor in quantity. It therefore requires a number of strategies and measures for firm-based qualification.

"Workforce Skill Formation and Innovation at the Shop-floor Level in China", financed from central funds by the University of Bremen, is a three-year explorative project, whose object is to investigate the strategy and practice of skill formation in German firms at the shop-floor level in the international context of firms operating in the region of Shanghai, China (Gessler & Freund, 2015). This project builds the framework to investigate the central research question:

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[28] *Transplant companies* are companies that have set up facilites abroad. In this case, the target country is China.

*How do German firms with production site in China foster and assure the necessary skills level of their Chinese employees for production and innovation when a vocational education system according to the German model does not exist?*

## 2    Theoretical Approach

Activity Theory research aims to analyse different types of activities as well as the learning and developing process of acting subjects who shape an activity by their actions (Geithner, 2012). One of the models that were developed in order to make an activity conceptually tangible is the model of *cultural historical activity theory on expansive learning* by Yrjö Engeström (1987).

This theory builds the basic theory for a concept that has become an explicit part of Engeström's activity theory, the concept of *boundary object* (Akkermann & Bakker, 2011). This concept is constituted by *boundary* and *object* whereas boundaries can be seen as socio-cultural differences leading to discontinuity in action or interaction, prevalent however is a common purpose that is relevant for one another in a particular way (ebd.).

Boundaries between groups are formed by common objects through flexibility and shared structure and serve as stuff of action (Star, 2010). Objects are those objects that:

> "both inhabit several intersecting worlds and satisfy the informational requirements of each of them. . . . [They are] both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual site use." (Star & Griesemeier 1999, p. 393)
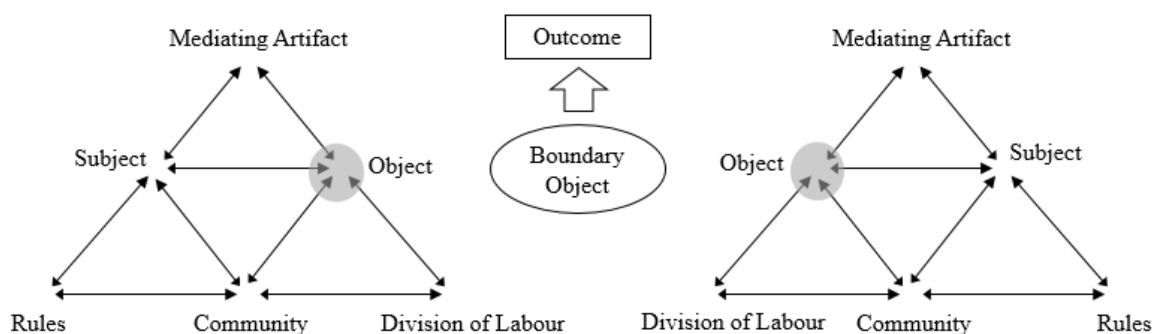


Figure 1: Boundary object as connection of two activity systems. Based on Engeström, 1987, p. 78.

For this research paper, the concept of boundary object as extension of the cultural historical activity theory of expansive learning by Engeström (1987) is suggested as theoretical framework. Engeströms approach seems to be suitable as it considers the two-way relationship of working and learning as well as the connection of individual and collective development, whereas the concept of boundary object indicates how artifacts can fulfil a specific function in bridging intersecting practices.

## 3    Methodology

This exploratory research was conducted by *grounded theory* methodology which is a "qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon" (Strauss & Corbin, 1990, p. 24). This approach is well suited to investigate the above mentioned research question as it fulfils the requirement of a methodological approach that mitigates the uncertainties associated with international comparison studies. Considering the fact that the case study is undertaken in a new area of knowledge where outcomes are difficult to predict, this approach offers the opportunity to construct a new theory through the analysis of data which were empirically gained. Furthermore it differs from traditional

models of research, in which an existing theoretical framework is used to examine whether or not the collected data does or does not apply to the phenomenon of the study.

Data collection was conducted between 2014 and 2016 in the autonomous city Suzhou, Jiangsu Province, in which in total around 17.000 foreign enterprises are to be found (BMBF, 2013). Within Suzhou we focused on two economically advanced areas with a local labour market perspective and a high concentration of German transplant companies.

The first research site is Suzhou Industrial Park (SIP) in which 5.000 foreign enterprises are located (BMBF, 2013). 25 per cent of these foreign enterprises have their headquarters in Europe and around 200 enterprises are German. A sector analysis that we conducted in 2014 shows that around 25 per cent of all German enterprises in SIP are assigned to the sector manufacture of machinery and equipment which makes up the largest proportion of all sectors and represent the focus of interest for our empirical approach. The second research site within Suzhou is Taicang German Industrial Park in which 1200 foreign transplant companies are to be found, around 220 of them are German owned. As well as in SIP we focused our data collection in Taicang on German transplant companies with sector in manufacture of machinery and equipment.

All German companies within this sector were contacted via e-mail. Those companies that expressed their willingness to be available for an interview by answering our e-mail were selected for the purpose of investigation.

Data were collected in four different German transplant companies situated in SIP as well as in four with production site in Taicang through expert interviews with CEOs and human resources and/or training managers. In these eight companies, in total 13 interviews with different expert persons were conducted. On average the interviews lasted around two hours. To achieve comparability, the interviews were conducted semi-structured and were recorded and transcribed for evaluation purposes.

The data analysis procedure followed the grounded theory approach formulated by Strauss and Corbin (1996). In contrast to the classical grounded theory approach, originated by Glaser (1965) this advanced developed approach by Strauss and Corbin (1990) allows theoretical sensibility by analysing categories, codes and coding in a way of abductive reasoning. These different steps are repeated until it becomes possible to describe and explain the phenomenom that is to be researched. In this context, the attention is directed to the theory's suitablity as frame for the data collected. The positive outcome of this fluent exchange between theory and data is a reconceptualization, based on a crative leap.

## 4    Findings

First empirical findings allow to give answers to the following questions:

What do we learn about cooperations between German transplant companies and vocational schools built-up to solve the problem of skill shortages?

What kind of linkages are prevalent between the companies internal and the local external labour market to meet the companies' marketoriented requirements?

## 5    Discussion

From this study we learn that when companies operate in international context, both home and host country effects influence the companies' human resources strategies and practices. China is not even geographically diverse, populous as target for foreign companies and a country that boasts ancient local traditions but at the same time it has uneven levels of recent capitalist development and is experiencing decentralization of governance. Therefore human resources management strategies need to take account of local labour market effects of very different local political, cultural and institutional patterns. The findings of the in-depth case studies of German transplant companies in China show that cooperations are not only essential to develop and implement solutions to foster and train highly skilled shop-floor workers, but that cooperations are also necessary to assure those employees for a company. Hence, this study contributes to a deeper understanding of local labour market effects influencing the human resources strategies and behaviour of German transplant

companies operating in China. Exactly in this context there is both the need and the possibility for implementation of innovative strategies.

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Session 4.1

**Innovation projects and the role of research**

# Innovation projects and programmes in VET

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**Abstract:** Projects have become spearheads for professional innovation and organisational change processes in vocational education and training (VET) and organisations from related welfare sectors.

The paper addresses typical characteristics and conditions for these projects in and with VET, and the paradigms influencing them. A case study was conducted to reflect on mechanisms in application procedures, as these are the initial phase of funded public projects. The case study sought to identify bias, and treated the translation of strategies and decision making in this context.

All in all, the paper argues for a more balanced and transparent interaction between project owner and sponsor. While project management in general is in transition, new professional authentic methods also need to be invented for projects in and with VET, without copying out-dated approaches from business.

**Keywords:** Innovation project, project and programme management, ecosystem, project sponsor, project owner, translation of strategies, institution-crossing and border-crossing project management

## 1    The need for a more transparent and professional approach

In Denmark and in Europe, projects and programmes have become spearheads for innovation in vocational education and training (VET). Even more, VET interacts with partnering organisations and stakeholders in vivid *ecosystems*.

The significance of these projects is growing in a time where development of VET accelerates in a globalising and digitalising world. Dep. head J. Santos, European Commission (2017) emphasises a European initiative: "Over the past 30 years, what started as a student mobility program, has grown into something bigger that has directly enriched the lives of more than 9 million people […]. Widely recognised as the most successful EU programme, Erasmus+ is […] a turning point!"

Indeed, projects influence more and more local, national and international development in and with VET. But there is also a demand for these projects to perform better (Lamscheck-Nielsen, 2011). They are designed and conducted in widely heterogeneous manners, depending on local traditions and culture, organisational maturity and competencies of institutions, trades and key persons. Questions of power and political processes also play a role in organisational interfaces, and the complexity in border-crossing projects is even greater.

Intrinsic research on the nature of these projects in and with VET has been undertaken, neither in a Danish nor in an international context, aside from related research in public healthcare such as on Swedish policy-implementing projects (Jensen, 2012). Meanwhile, new turning points seem to appear, as powerful private funds increasingly affect the scene.

The present paper focusses on aspects of projects in the sectors for youth education and counselling, social work and employment. The paper is motivated by the ambition for a more transparent and professional approach to these innovation projects - for the benefit of their target groups: students, (young) people with special needs, VET professionals and their organisations.

## 1.1  Terms in the context of this paper

I*nnovation projects*: extraordinary development activities, conducted in the welfare sectors to improve daily operations and/or promote change processes, with a sustainable continuation of the results after project end.

*Welfare sector:* professional public sector in a welfare state as a society, where the state offers the citizens a high degree of financial and social security. Here focussed on the sectors of youth education and counselling, social affairs and employment.

Both terms are explained further in this paper.

## 2    Research question

A broad research question - to be answered in a wider study - refers to innovation projects and programmes in VET and the related professional fields, across institutional and national boundaries:

"Why is it so difficult to make these projects succeed? How to design an adaptive didactic framework for improving project and programme management in VET with its institutions and in the relation to involved institutions and stakeholders?"

Two more narrow aspects are treated here:

a)   "What are the typical characteristics and conditions for projects in and with VET? Which paradigms influence this?"
b)   "How does sponsoring take place, and under which rationales?"

The paper focusses on p*roject management* and mostly from the perspective of *project owners*. Programme and portfolio management, as well as the perspectives of sponsors and project managers are treated in further research.

## 3    Methods

To address the question (a) of characteristics of projects in and with VET, a desk top study was undertaken, including reports and literature about project management and welfare sectors.

The question of sponsoring (b) was treated in a case study on the named welfare sectors (Yin, 2014). The case relates to a cross-sectorial programme with proposals to 4 private and 2 public funds. The study included applications, web-profiles, meeting minutes, mail dialogues and interviews (Kvale, 2004) with the public programme owner.

## 4    Theories

The professional fields for projects in and with VET were made explicit and graphically visualised[29], as to James Moore´s view of "business and its ecosystem" (1997). Dilemmas for projects in this ecosystem were referred to a national and international discourse on project management that is in a paradigm shift (Svejvig, 2013).

Mechanisms when *translating strategies* (Madsen, 2013) exposed aspects of the interaction between project sponsor and project owner. The "6S model" (Khallash, 2016) helped to consider *bias and heuristics* beneath related decision-making processes.

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[29] Website UU DANMARK http://uudanmark.dk/in-english

# 5    Characteristics of projects in and with VET

## 5.1  A cross-institutional sector as an ecosystem

Innovation projects in and with VET take place in a complex field, involving vocational colleges, training companies, local social authorities, employment centres and youth counselling centres. Locally other stakeholders, such as associations, also participate.

James Moore´s term *ecosystem* (1997) fits this vivid system. Locally, its balance depends on structural conditions, cultures and power of stakeholders. Nationally, the balance is influenced by negotiations between political decision makers and governmental decisions such as national strategies and allocations to welfare sectors.

Moore outlined, that "over time, they [the stakeholders, ed.] co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of *ecosystem leader* is valued by the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles." Also in and with VET, the *ecosystem leader roles* vary, but strategic courses towards shared visions have become important.

The stakeholders form partnerships for developing in these *communities-of-practice* (leaned against Wenger, 1998). In some *Danish ecosystems[30]*, cross-institutional processes have become formalised to allocate resources, authorities and initiatives. Yet this approach is fully matured and not systematically merged with project management.

In this field, UU DANMARK, the Association for the Danish Youth Counselling Centres, has initiated a national programme proposal to improve the processes for young people with special needs, during their transitions from elementary school towards the completion of a (vocational) youth education.

## 5.2  Paradigms for project management in VET

In the business sectors a broad insight is arising that project management is moving from a "technocratic rational perspective" and a controlling paradigm towards an adaptive approach, "accepting uncertainty and change" (Svejvig, 2013), with a "broad and holistic" view on reality (Nielsen et alt., 2016).

Simultaneously, public sponsors are trying to professionalise project management. However, their methods are strikingly similar to the out-dated technocratic paradigm from the business sector[31].

This paper is limited to addressing the application process as the initial phase of a funded public project. Fundraising has become a vital activity for many institutions in and with VET, to handle advanced application requirements and opaque intentions behind calls for proposals.

The public programme owner of the case spent ~32 work days on 6 sponsors over a period of one year, including extensive mails, documentation, personal dialogues and complex applications. The involved 25 organisations contributed with ~25 days. This illustrates how application procedures have become costly bottle necks for many non-insiders, and small institutions with limited resources may give up beforehand.

Paradoxically, sophisticated applications themselves neither guarantee quality, success nor reasonable cost-benefit of a project. Nevertheless, the role of the application as a stage gate obviously has not been reconsidered in favour of other less rigid methods. Thus, new *authentic frameworks* for professional project and programme management in and with VET are needed.

# 6    Sponsoring and the role of the sponsor

Financing of projects is crucial in welfare sectors with tight budgets and diminished public funding. Social affairs and employment provisions have become a downgraded part of the welfare state. New voices present the "wealth state" (Rasmussen ed., 2016) or "work fare system", also concluded for other countries (Samaluk,

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[30] Example: Aarhus Kommune, with Youth counselling center (UU) as *ecosystem leader*, supporting young exposed people on their way to and through a vocational education.

[31] Such as rigid application forms and "forandringsteori" ("change theory"), experienced as very limited sense-making by project owners (interview, case)

2013). The *Nordic model*[32] is transforming to fit a "competition state" (Illeris, 2014). Education, generally seen as the basis for wealth and welfare, must perform evidence-based[33] and with cost-benefit models[34]. Public Danish funding of VET projects has decreased considerably since the 90s[35].

In this fairway, private funds play a growing role. Public project owners respond by upgrading with courses in project management and fundraising, mostly based on classic technocratic rationales and following the logic of industrial funds. Public sponsors invent similar methods, in their urge to professionalise project management.

## 6.1 Funding in the welfare sector

Commercially rooted funds[36] have become subtle but extremely strong players in the welfare sectors. The big enterprises behind the funds increasingly influence the professional development in sectors, where projects kick start innovation. The cumulative sum of private funds for the welfare sectors is gigantic in the Danish context[37]. Transparency is lacking regarding the funds´ influence and decision processes, far from the public eye.

To get closer to how funds affect and direct public projects, the case study looked at *strategy* as one of the *6S* aspects of decision making (Khallash, 2016). The *6S model* questions the rational approach as the only and right one. Methods for the *6S*, "strategy, structure, steps, systems, skills and style", were transferred to decision making for a project. Critical criteria for "bias and heuristics"[38] were chosen.

Thus, the 6 funds´ different attitudes to the welfare system, when calling for projects, were analysed. Some funds want explicitly to challenge the existing system, some want actively to support it. Others want to promote it and some mainly want to analyse it.

Fig.1 reflects the case´s 6 funds, positioned and commented by the programme owner: "I must understand the funds´ attitudes towards the system to be able to direct our proposal towards them, when translating our project for them."
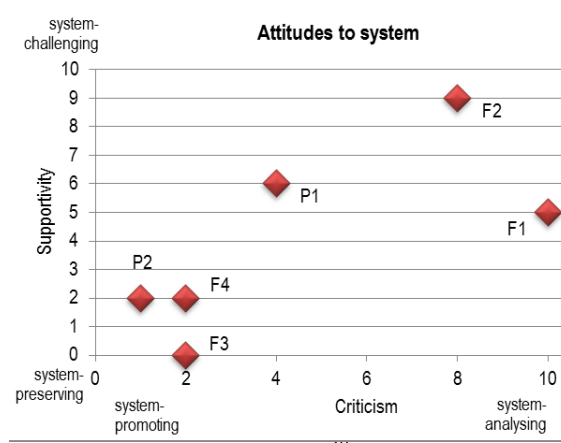


*Fig. 1 (2017), own illustration*

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[32] Practise in the Scandinavian countries. Combining extensive rights and flexibility for employers with a strong welfare system as a security for employees ("flexicurity"). The trades´ stakeholder organisations negotiate and regulate the conditions in labour market agreements.

[33] Explicit new principle for innovation projects, funded by the Danish Ministry of Education

[34] Danish method for the calculation of social interventions to be launched ultimo 2017 by KORA, The Danish Institute for Local and Regional Government Research

[35] Interview with former director of Ministry of Education, R. Østerlund, in Lamscheck-Nielsen (2011)

[36] Examples: Mærsk, Velux, Egmont, Rockwool, Nordea. List, published by Municipality of Copenhagen (4th June 2017) http://www.kk.dk/artikel/private-puljer-og-fonde

[37] The private 10 richest Danish funds have a fortune of 360 billion DKK (Ekstrabladet, 6th May 2017).

[38] Bias, understood as action-directed anticipations, follow different types of heuristics, understood as personal estimations according to personal experiences (Khallash, 2016, pp. 43-45)

## 6.2 Translations between project owner and sponsor

In cross-institutional projects in the welfare sectors, sponsor and project owner typically belong to different organisations. Both have their own strategies and dependencies.

Fig. 2 illustrates the interdependency of strategies and goals that should be translated and aligned in a project.

Madsen (2013) points at 4 perspectives for translation of strategies: Linguistic, cultural, functional and ideological. All perspectives influence application and assessment, taking place with unbalanced power relations.

Project owner and sponsor may easily communicate at cross-purposes with unaligned



National public strategy for welfare
sector / sectors

Sponsor strategy

Application form I Assessment
procedure

Joint business case & project plan,
applied with by project owner

Varying local goals
in the consortium of welfare institutions

*Fig. 2, Lamscheck-Nielsen (2017)*

mutual expectations. The programme owner from the case asks rhetorically: "Does it fall exclusively upon the project owner to translate the project´s core idea to the sponsor´s strategy? Or is the sponsor co-responsible? If the sponsor refuses or fails, the translation may become an unsurmountable obstacle for a proposal."

Underlying assumptions can determine failure or success of a proposal. Formal templates and assessment procedures cannot eliminate these anticipations, even when they suggest objectivity and control.

Emails and meeting minutes from the case show that sponsors´ clerks are not necessarily project experts, especially not for these types of projects. Even if they are, they can lack capability to perceive complicated profession-specific information. Thus, sponsors´ understanding of proposals is not ensured. A Dutch thesis (Berg, 2010) on IT projects in the public sector allots "personal attributes" to the sponsor among those also knowing the sponsorship role.

A recent paper from the private sector (Frederiksen et alt., 2016) emphasises the personal interaction between project manager and owner, with "trustful dialogue" mentioned as an indicator. However, intrinsic methods to ensure a "virtuous balance between trust and control" are still not available (ibid). Some Danish funds and some national agencies for EU projects offer personal dialogue to project owners. This seems to qualify the proposals and to strengthen cooperation (case).

## 7 Perspectives

Project management in general is in transition. New professional *authentic* methods also need to be invented for projects in and with VET, without copying out-dated approaches from business.

Reflection is needed, and the courage to challenge private and public sponsors with a wider view on projects and proposals, presented with a self-confident and visionary attitude from project owner. They should communicate their ethics and expertise profoundly, insisting on a nuanced image of their professional field and project, well aware that an opportunistic approach may pay off better.

The sponsor perspective has yet to be analysed, as sponsors also cope with various cross-pressures. If the financially strong foundations do not own up to their increasing power, responsibilities and methods, the welfare sectors will, over time, adapt to the funds´ strategies. This development needs to be discussed.
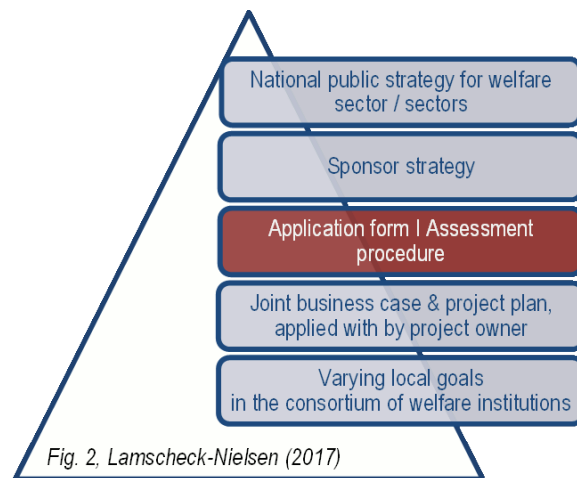
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# 'Begleitforschung' as contributor to digitisation in vocational education and training (VET) for construction sector – Linking 'work process knowledge' to 'Industry 4.0'

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**Abstract:** This paper examines the contribution of the accompanying research team (*Begleitforschung*) to the EU-funded Learning Layers project (2012-2016) and to its Construction pilot (in North Germany). The paper gives insights into process dynamics in the Construction pilot: co-design with several iterations, supporting field studies and workshops, training schemes and piloting with the digital tools (in the context of apprentice training). In this context the paper informs of the role of accompanying research team and of the importance of its conceptual work with the theme 'work process knowledge' In addition to this, the paper reviews the actuality of the legacy of the EU-funded Work Process Knowledge network vis-à-vis current innovation research. In this context the paper explores newer contributions by social researchers to the themes 'digitisation' and 'Industry 4.0' as innovation agendas.

**Keywords:** Accompanying research, Learning Layers project, Construction pilot, digitisation, co-design, workplace learning,

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## 1 Introduction

This paper re-examines the experiences and achievements of the EU-funded research & development project Learning Layers (2012-2016). The project had the task to promote the use of digital media, web tools and mobile technologies as support for learning in the context of work. The project focused on two pilot sectors (in different regions) - healthcare sector (West England) and construction sector (North Germany). A major part of the work in the construction pilot was carried out with the application partner organisation Bau-ABC Rostrup (later on referred to as Bau-ABC). Bau-ABC is an intermediate training centre within the dual system of vocational education and training (VET). It supports construction companies in organising work process-oriented training for apprentices of construction industries and trades.

Institut Technik & Bildung (ITB) was involved as the coordinator of the construction pilot activities in North Germany with responsibilities on project documentation, practical support and *accompanying research (Begleitforschung).* This paper focuses on the role of accompanying research in a complex innovation project that deals with introduction of digital media to construction sector – with the purpose to support (informal) learning in the context of work. From this perspective the paper examines the following questions:

- In what ways has the project concept (of Learning Layers) and the working context (of the Construction pilot) provided a basis for accompanying research to support a process of digital change that seeks to enhance learning in the context of work?
- In what ways has the process dynamic in the Construction pilot – with different iterations and project activities – enabled the accompanying research to contribute to the change process and to document it?

- In what ways has the conceptual work – in particular with the theme 'work process knowledge' been influential in the Construction pilot?
- In what ways can the conceptual approach of the accompanying research contribute to the sustainability and transferability of the achievements of Construction pilot? How can such claims be argued in the light of the current studies on 'Industry 4.0'?

## 2    Insights into the Learning Layers project as a 'new generation' RTD project

At an earlier stage of European funding for projects on technology-enhanced learning the main thrust was on promoting e-learning technologies and on projects that sought to promote the take-up of platforms and services. In many projects around the year 2000 the underlying assumption was that e-learning (as such) would open completely new learning opportunities and career models in working life. A particular concern was, how to get SMEs interested in using such platforms. However, a major Europe-wide project "ICT and SMEs" found out that the SMEs were not interested in platforms or packages that were marketed under the label of 'e-learning' (see Attwell 2007).

At a later phase major European projects were funded to support organisational knowledge processes with web tools and specific software solutions (such as the EU-funded Mature project). Here the main interest was to analyse knowledge-intensive work processes and the respective practices of 'knowledge workers'. (see Barnes et al., 2009).

The experiences with prior project generations were reflected in the funding priorities for next project generation and in the project design of the Learning Layers project. The European Commission was looking for RTD projects that promote use of mobile technologies and web resources to support *informal* learning in the context of work and organisations.  In particular the priorities put an emphasis on such occupational sectors that had made little use of mobile technologies and web resources.

## 3    The role of accompanying research in the Construction pilot

In general, the process dynamic of the Construction pilot can be characterised as participative R&D dialogue in which the application partners and research partners were finding ways to bring digital media and web tools into practice. The technical partners joined in into the process once the guiding design idea had been specified and process took course to tool development for workplace learning in construction sector.

Without going deeper into details it is appropriate give a nutshell description on the key activities of accompanying research team at different phases[39] of the Construction pilot:

- *In the initial phase* the accompanying research team carried out interviews with Bau-ABC trainers and apprentices as well as with representatives of construction companies. These provided insights into possible points of intervention. In the Helsinki Design Conference (Year 1) a preliminary design idea was agreed for pilot activities with Bau-ABC. It envisaged the digitisation of the training materials and reporting processes of the apprentice training of Bau-ABC. The point of reference was the "White Folder" of Bau-ABC - the collection of introduction sheets, worksheets and reporting sheets that were to be managed by the apprentices themselves.
- *In an interim phase* the initial design idea was revised and the co-design process took course from comprehensive digitisation of training materials (and processes) to shaping of a digital toolset "the Learning Toolbox" to provide access to web resources and web-based communication. This gave the co-design process a new perspective -the customisation of the Learning Toolbox to support working and learning processes of different construction trades. During this period two training schemes were organised to promote the multimedia competences of Bau-ABC trainers (the early Multimedia training for voluntary participants and the "Theme Room training" for the whole training staff of Bau-ABC). (See on the work of accompanying research in the co-design process Kämäräinen et al. 2017a and on the work in the training schemes Kämäräinen et al. 2017b.)

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[39] Descriptive articles on the development of the project have been edited as the "Learning Toolbox (LTB) Chronicle, Vol. 1.-3", see http://learning-layers.eu/construction

- *In the final phase* the accompanying research team supported the technical partners in introducing the Learning Toolbox into the apprentice training projects of Bau-ABC. In addition, accompanying researchers supported the evaluation studies carried out by another research partner of the Learning Layers consortium. (See on the use cases and scenarios within apprentice training Kämäräinen et al. 2017c *and* in the context of construction site management Kämäräinen et al. 2017d.)

ITB had had prior experience in accompanying research (*Begleitforschung*) in the context of pilot projects (*Modellversuche*) in the German dual system of VET. In such pilot projects the use of an independent scientific accompaniment (*Wissenschaftliche Begleitung*) was a precondition for investing public funding for innovation projects in private companies (see Benteler et al. 1995). At the level of more comprehensive innovation programmes ITB had coordinated accompanying research in the regional programme for Work and Technology 1990-1995 (*Landesprogramm Arbeit und Technik*, see Deitmer 2004) and the federal programme for New Learning Concepts in the Dual System of VET 1996-2003 (*Neue Lernkonzepte in der dualen Berufsausbilfdung*, see Deitmer et al., 2004).

As a contrast to the predecessor activities, the innovation process in the Learning Layers project (and in particular in the Construction pilot) was far more open. It was difficult to anticipate the implications of the introduction of digital media and web tools on apprentice training, construction trades and on the organisation of work. A further challenge for making explicit the research partners' conceptual contributions to the project was provided by the reviewers, when they recommended the consortium to organise a "Theory Camp" during the Year 2. In this context the ITB-team prepared contributions on the themes 'Work Process Knowledge' and 'Action-Oriented Learning'[40].

## 4    The legacy of the Work Process Knowledge network vis-à-vis current innovations in working life

Here it is worthwhile to consider the actuality of the Work Process Knowledge (WPK) network at its active period and the relevance of the legacy for the current innovation agendas. Also, with the help of the historical perspective it is possible to understand, why the network lost its common ground shortly afterwards, whilst its legacy is gaining new actuality in the present debates.

- The active period of the WPK network coincided with a gradual transition between different innovation programmes. The case studies and the empirical approaches reflect the discovery of learning potentials of skilled workers, teams and different parts of organisations (See Boreham, Fischer & Samurçay 2002).
- The key concept 'work process knowledge' referred to collective, boundary-crossing and cross-organisational knowledge processes and patterns of collaboration that emerged in work processes. They were not directly derived from technical and/or organisational innovation concepts or management strategies. Yet, they could be supported with participative learning in vocational education or staff training (see Fischer & Boreham 2004).
- The findings were brought together and interpreted in a period that favoured basic research on innovations in working life. However, in particular at the European level, the funding of such research shifted very soon to applied research that aimed at more focused support for organisational learning – with developmental measures and research instruments.

Currently, much of the discussion on the theme 'Industry 4.0' has been based on scenarios, pamphlets, expertise studies for policy documents and drafts for innovation programmes. The main reason is that much of this discussion is highly future-oriented – debates on the prospects and possible consequences of new technologies that are to be implemented in practice. Therefore, as many authors complain, it has been difficult to find widely agreed concepts and common grounds for shaping research approaches. For this context it is worthwhile to use the book edited by Hirsch-Kreinsen, Ittermann and Niehaus (2015) as a key reference. Given

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[40] Working documents on these themes are available at a ResearchGate project space, see
https://www.researchgate.net/project/Learning-Layers-Theory-Camp-2014-and-follow-up

the early stage of the debate the authors tried to provide an overview of the research on future-oriented technologies from the perspective of social sciences.

Here it is not possible to go into deeper discussions on the theme 'Industry 4.0' and its implications for the follow-up of the Construction pilot of the Learning Layers project. Yet, it is appropriate to make some interim remarks:

- The introductory contribution of Hirsch-Kreinsen (2015) with the themes 'digitisation' and 'Industry 4.0' has clear similarities with the ones presenting the Work Process Knowledge network. In both cases social scientists have started a process to promote collective knowledge development on technical and organisational innovations in working life.  In both cases the researchers have been looking at socio-technical systems, social organisation of innovation, different prospects for social shaping of work *and* at the social consequences for the workers.
- In this context the contribution of Stich, Gudergan and Senderek (2015) takes a decisive step further from basic research to research-based design of learning arrangements and support systems. Their article is a comprehensive analysis of the challenges and requirements for such an effort. Based on the analyses they outline the framework of the ELIAS project to shape production and work systems (with supporting learning aids) in which the enhancement of learning and co-participation is the key criteria for all design work.
- The article of Ahrens and Gessler (2017) draws attention to such work processes that are less supportive for learning and competence development. Yet, the enterprises need to find ways to ensure workers' participation and appropriate measures during occasional disorders. In such contexts it is necessary to develop learning opportunities that are detached from the ordinary work situations.

## 5    Conclusions and discussion

This paper has had the task to explore the mediating roles of accompanying research (*Begleitforschung*) in the Construction pilot of the Learning Layers project. Within the project work the mediating role was mainly needed to bridge the gaps between

- the users' (potential and un-reflected) needs for digital support in their work,
- the technical partners (potential) solutions that came gradually into picture and
- the zones of uncertainty concerning context-adaptability of the tools and of ensuring the user-competences to utilise the tools.

From the conceptual point of view the accompanying research could to some extent rely on the legacy of the earlier Work Process Knowledge network. The network had brought together studies on earlier cases of technical and organisational innovations with focus on the participative contribution of workers. In this context the network drew attention to the collective, boundary-crossing and context-sensitive knowledge processes brought by workers' participation. This legacy has served as inspiration for the field studies, co-design process, shaping of the Learning Toolbox and for the user-driven piloting with the tools.

However, in the current situation it is worthwhile to consider, what is the relative value of the results of the Construction pilot and the leading ideas. From this perspective the joint knowledge development of social researchers on 'Industry 4.0' is an important point of reference. Some of the approaches discussed by them set learning to the centre of designing work and production systems.

In the light of the above the achievements of the Construction pilot – with the shaping and introduction of the Learning Toolbox and via organising the supporting training schemes – can be seen as steps forward in promoting digitisation in the construction sector. Yet, these achievements can at best be seen as elements that contribute to more holistic solutions at the level of shaping work and production systems. This has become apparent in the follow-up activities of the Construction pilot. As regards the construction sector, the systemic approach cannot rely that entirely on digitisation as the framework of the ELIAS project could suggest (see Stich, Gudergan and Senderek 2015). Neither can it focus entirely on simulating or visualising work processes for learning purposes (outside actual work situations) as the case of Ahrens and Gessler (2015) could suggest. Here it is necessary to work with the systemic approach to get a holistic understanding of the work and

production system and yet, to understand the possibilities (or hindrances) for workers' participation with their context-sensitive work process knowledge.

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Session 4.2
**Industry 4.0**

# Industry 4.0. – what's behind the mask? A case study on Additive Manufacturing (AM)

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**Abstract:** In the recent years Industry 4.0 became one of the most popular buzzwords when talking about future skill needs in industry; the amount of publications on expectations and predictions of impacts on labour markets and skills increases from day to day. But, although many of these publications are not stingy with dramatic words like "revolutionary" or "disruptive", most of them share a lack of empirical evidence and/or do not differentiate; neither between dimensions of Industry 4.0 nor industrial sectors. To decrease this lack of evidence, we focus in our paper on the sector of machine tool industry and the dimension of additive manufacturing (AM). Based on rather traditional methods in vocational education research (workshops, questionnaires, and work-process analyses) some challenges both for skilled workers and Vocational Education and Training were identified – but we found no serious evidence for radical measures, neither for hectic re-organisations of existing IVET (Initial Vocational Education and Training) profiles nor for the creation of new ones.

**Keywords:** Industry 4.0; additive manufacturing; machine tool industry; e-learning; skills gap; traditional methods in vocational education research

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## 1 Background

In the last years the amount of publications and declarations of employer's organisations and other lobbyists referring to "Industry 4.0", "smart factories", "work 4.0", or even "Vocational Education and Training (VET) 4.0" increased rapidly. But most of them are on a superficial level; predicting "disruptive technologies" (Mc Kinsey 2013) or "much higher requirements for complexity, abstraction and problem-solving" (Kagermann et al., 2013, p.57) – plausible, but not very meaningful. And, even worse, such predictions are often driven rather by lobbyism

than by evidence, an example was pointed out by Pfeiffer (2015, p.13), who mirrored studies that foresee huge positive or negative effects on labour markets – depending on the author's viewpoints. In the same publication (ibid p. 26) she worked out four dimensions of industry 4. 0:

1. social media@production, e.g. shift doodle;
2. data@production, e.g. internet of things;
3. next generation production, e.g. additive manufacturing;
4. automation@body and mind, e.g. wearables.

She summarises that "[…] we hardly know anything about the empirical connections between work and technicization. And we know still less about the variety of manufacturing work that exists today" (ibid p.10).

## 2    Field and Approach

Taking her summary for serious the authors, together with a European consortium, decided to focus on one sector only, the "European machine tool industry"; and also on only one of the dimensions of Industry 4.0. At the beginning of the project it wasn't agreed on what dimension, but during the first field phase (cp. chapter 3.1) it turned out that we proceeded within the dimension of Industry 4.0 "next generation production", focussing on "additive manufacturing (AM)" – to throw a glance behind the mask. Together with our project partners (details can be found at [www.metalsalliance.eu](www.metalsalliance.eu)) coming from four European countries (Spain, Italy, Germany, and Belgium) and representing sector organisations, VET-schools, public bodies, and VET-research centres we agreed on the following iterative approach: The overall aim, or aspired product, is an e-learning tutorial for the technology chosen, offering comprehensive insights into AM for skilled workers and advanced apprentices (cp. chapter 5, outlook). The mentioned iterative approach is referring to three stages, the "skills panorama" (cp 3.1), the "skills gap (sector)" (cp. 3.2), and the "skills gap (technology)" (cp. 3.3).

## 3    Methods and Findings

Our project, running from 11.2015 till 11.2018, focuses on three main research activities, as sketched above:

### 3.1  Expert Workers Workshops (EWW); Skills panorama:

The underlying objective is to describe occupational profiles (skills panorama) by relying on characteristic professional tasks, so-called "spheres of activity". The blueprint aims to outline what professional tasks are deemed to be relevant in a vocation or sector. Main advantages of this approach are:

- Expert workers are due to their long-standing, relevant and directly work experience better equipped than external observers (incl. managers) in describing comprehensively their tasks and the spheres of activity of their vocation resp. sector.
- Vocations resp. sectoral skills can be well described by vocational education researchers by looking at the different professional tasks sketched by the expert-workers; composing them from a bottom-up perspective.

Tab. 1: "Expert Workers Workshops cycle"

| Step | Main aim |
|---|---|
| 1 | Participants outline own professional career history. |
| 2 | Participants identify challenging, yet skill-enhancing tasks. |
| 3 | In small (3-5) groups participants compile lists with spheres of activity within the specific sector resp. vocation concerned. |
| 4 | In plenum participants discuss lists compiled. Similar tasks are merged and streamlined to obtain one final list. |
| 5 | In plenum participants discuss and comment final lists of core professional tasks from previous workshops (WS) with other participants from same vocation resp. sector. |

The completion of this five-step process sketched in Tab. 1: "Expert Workers Workshops cycle"" led to the emergence of an occupational profile in machine tool industry, featuring 14 "spheres of activity", describing holistic work-processes in the sector:

1. Conventional removing production
2. CNC- removing production (metal)
3. CNC- non-removing production
4. CNC- removing production (synthetics)
5. Adapted production
6. Programming
7. Welding
8. Arranging
9. Maintenance
10. Quality assurance
11. Mounting
12. Marketing (e.g. exhibitions)
13. Production planning
14. Additive Manufacturing

(for methodological details: see f. e. Reinhold, M.; Howe, F. (2009), the detailed descriptions of the 14 spheres of activity on projects' homepage: http://www.metalsalliance.eu/wp-content/uploads/2017/05/Deliverable-D.2.2_EU-machine-tool-industry-skills-panorama.pdf).

## 3.2  Expected skills gap (sector):

Vocational resp. sectoral spheres of activity describe the concrete skilled work in terms of holistic work-contexts, characteristic orders, typical workflow, and competence profile being typical for the vocation resp. the sector and including complete work-actions. The Participants of EWW are experienced skilled workers; consequently, the foci are the *actual requirements* as well as developments in the past, based on the experiences from VET and former work-stations of the participating expert-workers. Prediction of future developments in a sector by expert–workers is often rather unsystematic. At this point stage two started: A compiled list with possible trends in machine tool sector has been checked by approx. 50 managers from machine tool sector in Germany (DE), Italy (IT), and Spain (ES) with respect to future technological developments. Findings provide a snapshot of the survey results on the most relevant industrial technologies in the machine tool industry between 2016 and 2025. Most relevant developments within the next ten years from manager's perspective are:

1. High efficiency, zero defects and high precision production
2. Flexible, intelligent and connected machinery/equipment, components and tooling
3. Equipment and processes monitoring, and its implementation in the production processes
4. Big data
5. Customization of products and processes

A comprehensive table on job forecasts, activities and skills constructed by partners around the different aspects of emerging technologies in the sector can be consulted on projects' homepage (http://www.metalsalliance.eu/wp-content/uploads/2017/05/Deliverable-D.2.2_EU-machine-tool-industry-skills-panorama.pdf).

## 3.3  Skills gap (technology):

Further on, we focused on one of the 14 spheres, "additive manufacturing" and figured out the skills that are needed to work in this innovative area and that are not covered by curricula of "industrial mechanics" (in DE) and comparable vocations in the other countries yet. Here main methods used were interviews and "learning station analysis" (LSA, see f. e. Saniter et al. 2016), focussing on methods, tools, surrounding, etc. at workplaces, were additive manufacturing is already performed. A glimpse of our findings:

Tab. 2: Chosen findings from interviews

| 1 Segment | 2 Jobs forecast<br><br>*(Competence Units)* | 3 Activities<br><br>*(Professional achievements)* | 4 Performance Criteria | |
|---|---|---|---|---|
| | | | **Knowledge** | **Skills** |
| **Design, planning** | Design parts manufactured by Additive Manufacturing (AM) | Identify requests and functionalities of the part to be designed, analyzing the characteristics and use that you will give it. (understanding clients' needs) | Knowledge on AM materials & processes | Choosing the AM materials and processes, depending on the features and functionalities of the part to be designed |

Although these analyses are not finished yet, many more first findings, focussing on skills, can be consulted on the project's homepage (http://www.metalsalliance.eu/wp-content/uploads/2017/05/Deliverable-D.2.2_EU-machine-tool-industry-skills-panorama.pdf).

## 4    Conclusions

We described the broad scope of existing competencies of skilled workers in machine tool sector and the expectations on future developments of skilled work in machine tool sector by approx. 20 skilled workers from 10 companies and approx. 50 managers from the sector. Expectations by both groups pointed into the same direction (digitalisation, robotics, internet of things, cp. chapter 3.2) but with a broad variety. We don't have enough evidence for reliable conclusions for all dimensions of Industry 4.0 – but one of our findings regarding all 14 spheres of activity was very promising, the self-confidence shown by skilled workers; paraphrased: "Yes, there will be some extensive developments in "our" vocation and the constituting spheres of activity – but we will manage them".

For the sphere of activity "Additive Manufacturing", which was analysed more detailed, at first glance three differences to conventional production processes are obvious:

- Additive instead of removing processes
- New construction options
- Powder or coil instead of solid raw materials.

But from a work-process oriented perspective, similarities are predominant; main phases are, as on removing machines:

- Planning,
- Designing,
- Equipping,
- Processing,

- Post-processing.

Self confidence, as sketched above for all 14 spheres of activity, was also shown by the (few) expert-workers, who work already on AM; paraphrased: "Yes, I had to face new IT-programmes and work-process steps – but this was also the case when I worked on a 5-axis removing machine for the first time." The most sceptical aspect was raised by a member of a workers council; again paraphrased: "Once equipped, our AM-machines cannot be corrected during processing – so our management tries to increase work density by increasing the amount of machines that a skilled worker has to equip, supervise, and post-process simultaneously."

To summarise our findings regarding AM: There is indeed the need of (minor) adaption and further development of existing VET-profiles (e. g. due to other materials and new work steps), but up to now we see no empirical evidence for scenarios like a specialisation "additive manufacturer" (VDI 2015) or even a new VET-profile.

## 5    Outlook

Based on findings and conclusions sketched above we will develop in the next year a row of learning units for skilled workers resp. advanced apprentices that support or prepare acquiring skills needed in additive manufacturing workplaces. They will focus on topics, not covered by existing curricula yet – and will follow the didactical approach of work-process orientation. Units will be both physically and virtual available – in four languages, offering same content for learners coming from different educational backgrounds.

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# Competence-based VET curriculum reforms in Lithuania: implications for the readiness of VET to the requirements of the 4th industrial revolution

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**Abstract**: Advent and development of the 4th industrial revolution creates multiple challenges and requirements for the processes of the vocational education and training starting from the curriculum design and ending with the assessment of competencies and learning outcomes. This article outlines and explains these challenges and requirements and explores, to what extent the current competence-based reforms of the initial VET in Lithuania help the providers and stakeholders of VET to meet them.

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## 1 Introduction

Competence-based vocational education and training (VET) curriculum reform is one of the dominant developments of VET in many European countries, including Lithuania (Tūtlys, Spöttl, 2016; Tūtlys, Aarna, 2017; Tūtlys, Kaminskienė, Winterton, 2016). These reforms are expected to enable the VET system to respond to dynamicaly changing needs and requirements of the world of work, including the technological developments entitled as the 4th industrial revolution. Advent of the 4th industrial revolution is expected to bring changes to the structure and contents of occupations and work processes, as well as to change the structures and processes of the labour market through loss of simple and routine jobs emerged in the period of the 1st and 2nd

industrialisation with the increasing rate of substitution of human work with machines and erosion of the intermediary occupations and jobs, that used to ensure and maintain communication between the creative – decision making occupational positions and executors (Spöttl et al, 2016; Deloitte, 2015). These changes will have important implications both to the skills needs (contents of competence and VET curricula), as well as to the requirements for the acquisition, development and applying of skills in managing employability and career (structure of competence and VET curricula and curriculum design process).

The goal of this paper is to discuss to what extent and how the current methodological approaches of competence-based VET reform in Lithuania, as well as their established institutional arrangements facilitate the preparation of VET providers to meet the above-indicated challenges of the 4th industrial revolution.

## 2    Implications of the 4th industrial revolution for the occupations, qualifications and VET provision

The literature discerns a wide range of implications of the advent of the 4th idustrial revolution related to the changes of labour market and qualifications. There is expected development of the polarization of the demand of qualifications due to erosion of middle level vocational qualifications caused by digitalisation and automation of work processes (Kreinsen,  Ittermann, 2017*;* Lee, Pfeiffer, 2017; Spöttl, 2016). Another possible trend of development is hybridisation of high-skilled qualifications and VET curricula on the basis of interdisciplinary know-how and transversal competencies (Spöttl, 2016; Die berufsbildende Schule, 2016). It is expected that the structure and contents of demanded qualifications will be subjected to significant change, thus making a part of qualifications provided by the initial VET providers partially or event totally irrelevant to the labour market needs. For example, the experience of traditional work processes becomes irrelevant (related to execution and controlling of technical tasks) and the know-how on handling and control of automatised complex work processes becomes important.

Existing initial VET systems and models have different predispositions related to the preparedness of the VET provision for the challenges of the 4th industrial revolution. In this regard some authors claim, that the dual vocational education systems are better prepared for the advent of the 4th industrial revolution due to capability of these systems to provide and develop full professional capacity in a broad range of activities creating a good basis for sufficient flexibility in technological and career-related developments (Hartmann, Apt et al, 2017).  In this way, training enterprises have the opportunity to provide, in addition to the minimum requirements of the training regulation, additional training or even additional qualifications in order to meet operational or current qualification requirements in the training of skilled specialists. Besides, advent of the 4th industrial revolution requires higher flexibility and individualisation of the VET provision, what can lead to development of the different additional qualifications and modules, as well as to the increasing digitalisation of the vocational learning and training (Hartmann, Apt et al, 2017).

Research study on the implications of the 4th industrial revolution for the initial and continuing vocational training in Bavaria (Spöttl et al, 2016) suggests 4 scenarios of the implications of the Industrie 4.0 for the provision of the vocational education and training.

The 1st scenario claims, that development of the Industry 4.0 does not cause significant changes in the provision of the VET at least in the short period of time. This scenario supports development of broad basic qualifications with a separation of mechanical, electronic and IT-based tasks. The disadvantage of this scenario is that there is a risk that the current design of the occupations and their profiles in general does not meet the dynamic that takes place real due to the implementation of industry 4.0. This means that it is not feasible to signal that vocational training responds to the developments of industry 4.0, even if these developments only lead to small-scale changes in companies.

The 2nd scenario claims, that the structure of the VET provision will remain unchanged, but the contents (curricula) will have to be adjusted to the requirements posed by the Industry 4.0, such as stronger process orientation, skills in handling of networked equipment, ICT skills and stronger attention to skills for handling cybernetic-physical-systems (CPS). From the first step of a change to the completion of modified occupational profiles or standards there could pass a very long period of time filled with an intensive negotiating process between the social partners in order to agree on the appropriate focus of a career.

The 3rd scenario expects combination of existing occupations and qualifications. For example, mechatronics can become rather wide occupation strongly related to other occupations, what requires to shift the curriculum design and provision of VET to the work process-based approach. The similar trends can be expected in the occupations of the ICT sector, which will become wider and incorporate different aspects of the production technology. This scenario expects integration of occupations and qualifications with the reduction of their number. It will lead to the development of extensive and complex occupational profiles and qualifications, which will present the challenge in organisation of the initial and continuing VET, especially in the small and medium enterprises. It can also lead to the overestimating of the training and reducing possibilities to provide in-depth training for development of particular competencies and skills.

The 4th scenario foresees development of the separate highly specialised qualifications oriented to the requirements and needs of the Industry 4.0 and caused by the need of systemic understanding of the complex intersections and constellations of the different production processes. This scenario implies a very important role for the initial VET and higher education in the supply of these qualifications and presumes reduced possibilities to provide such qualifications in the continuing VET.

Analysing the implications of the 4th industrial revolution to the processes of the vocational education and training there can be outlined different implications to the curriculum design, organisation of the training process, didactics of training and competence assessment.

In the field of **VET curriculum design** there is expected increasing integration of the different work processes resulting into development of complex and wide competences integrating advanced technological know-how, practical skills and attitudes. The 4th industrial revolution will also enhance increase of the focus of VET curricula and modules to the technological work processes (Spöttl, 2016; Die berufsbildende Schule, 2016), as well as increase of the inter-disciplinarity and universality (in terms of application in the different work processes) of knowledge and cognitive competences in the VET curricula. The curriculum design processes will have to become more flexible in order to follow dynamically changing skills requirements of work processes. The competencies and their development will be more oriented to the process requirements in order to facilitate process approach in understanding and executing of work objectives. It is also expected increasing of attention to the development of attitudes of responsibility and sensitiveness to the environmental and social issues of technological development and innovations, as well as to the development of competencies needed for interactive cooperation, knowledge sharing and social solidarity.

What regards the possible changes in the **organisation of training process**, the 4th industrial revolution is expected to foster the organisation of practical training in the networked systems of production and service provision by enabling cooperation between the learners and networked machines (Spöttl, 2016; Kreinsen, Ittermann, 2017). The training will be organised by in the complex work and technological processes by applying real and /or simulated technological environments. There will increase the importance and weight of setting-up and maintaining of the learning networks by involving students, teachers, and trainers, as well as engineers and technicians from enterprises. Such learning and training will require provision of guidance and counseling to students on how to organise their learning and work processes by using virtual environments.

In the field of the **VET didactics** the advent of the 4th industrial revolution is expected to expand the application of the work process and problem-based learning methods in the context of operating cyber-physical systems (Spöttl, 2016; Lee, Pfeiffer, 2017, Röben, 2017). There will be promoted and supported independent learning and competence development approaches based on the holistic analysis of the technological and work processes, as well as the team learning approaches and methods by involving trainees, experts, knowledge and information systems (Spöttl, 2016).

In the field of the **formative competence assessment** the advent of the 4th industrial revolution will foster revision and development of the new assessment criteria for the emerging technological and organisational competences, as well as will facilitate application of the new interactive assessment methods adapted for new co-organisation of assessment of competencies in the virtual space by using cybernetic instruments and measures (Spöttl, 2016).

Besides to the implications for the initial VET, the development of the 4th Industrial Revolution is expected to push the development of the continuing vocational training and significantly increase the trend towards spread and development of the learning organisations (Schwab, 2016).

Looking to the potential responses of the initial VET systems to the requirements of the 4th industrial revolution, the current literature focuses on several dimensions of this response.

*Dimension of education and training time*

Here there are raised the questions on the optimal time and duration of training in adjusting to the increasing requirements of the different academic knowledge, in-depth work process know-how and key skills from the one side, and to the reduction of traditional skills, as well as dynamically changing competence needs from the other side. Here there can be noticed the worries about the increasing threat of over-qualification from the traditional robust and long-term initial VET training courses based on the provision of outdated technological know-how for machine operation (Kreinsen, Ittermann, 2017). As an alternative to such VET provision there are suggested modular and more work-based VET curricula focused on the competences that are needed for planning, monitoring and maintenance of digitally networked production systems. However, there is also another opinion, that flexibilisation, shortening and fragmentation of the initial VET curricula, despite of the orientation to the quick and complex changes of competence needs and following of the trends of uberisation of services and digital taylorism, significantly reduces the chances of trainees to be employable in the digitalized sectors of economy, because it is going against the long-term skills needs of industry (Spöttl, 2016). Opponents of this trend suggest the methodological and didactical strengthening of the long-term training by foussing on the requirements of the changing work processes and especially to the changing needs of academic knowledge.

*Dimension of education and training place and context*

Complexity and variety of the technological and organizational changes of the 4th industrial revolution significantly narrow the possibilities to acquire the relevant skills and competencies outside of the real work processes, event in the learning environments with the simulated work processes (Spöttl, 2016). The learners along the training process will have to deal with the greater data transparency, increased complexity and more decision-making responsibility.  The vocational learning and competence development will have to take place in such complex environments, as intersections between cyberspace and the physical world, what will require abilities to mediate these interfaces in the learning and work situations (Spöttl, 2016; Lee, Pfeiffer, 2017). The learners and employees will have to be ready to navigate in the field of production and it' virtual technological planning. Ability of the initial VET systems to keep pace with the changing demands of industrial work becomes of crucial importance. This ability significantly depends on the existing institutional-structural prerequisites, such as flexibility and adaptability of the national system of qualifications, extent and level of standardization of the VET curricula, quality of the institutional arrangements of social dialogue and involvement of social partners in the VET processes, etc. It reinforces the requirement to ensure the maximal integration of vocational learning and training in the context of the real work processes, what creates important advantages in this field for the dual apprenticeship approach (Lee, Pfeiffer, 2017, Röben, 2017).

*Dimension of education and training field.*

Technological and organisational development of the 4th Industrial revolution leads to the greater and deeper integration of the professional fields and development of the hybrid work processes and profiles that require different complex combinations of interdisciplinary knowledge and multi-professional skills. Reaction to this trend in the field of VET evoke significant enrichment of the traditional VET curricula with the knowledge and skills from the different other fields and even academic disciplines that can be treated as academisation of the initial VET curricula. Academisation of the VET curricula often goes together with development of higher vocational studies and increasing of the weight of academic interdisciplinary knowledge in the vocational competence (Spöttl, 2016; Lee, Pfeiffer, 2017, Röben, 2017). One of the key problems in this regard is the increasing risk of superficial acquisition of different knowledge and skills from the different fields. Another problem is more practical and concerns the capacities of the initial VET providers and teachers to satisfy the increasing demand of academic knowledge and to provide this knowledge contextualised in the concrete requirements of work and technological processes. It requires to revise the competence requirements of the VET teachers and trainers from the one side, as well as to increase the involvement of higher education institutions in the provision of the initial VET from the other side. This situation also enhances the provision of the different hybrid training and qualifications, as well as provision of competences and qualifications referenced to the intermediary level between the initial VET and higher education – for example, qualifications referenced to the EQF level 5.

## 3    The traces of the 4th industrial revolution in Lithuania and the preparedness of the VET provision to face the challenges of the advent of the 4th industrial revolution

Looking to the Lithuanian enterprises that already have made some steps towards the Industry 4.0 like digitalization, automatisation or robotisation of production processes, there can be noticed, that these are mainly small and medium enterprises working in the engineering industry sector. Many such enterprises started from the digitalisation of their production processes and now are revising their business models accordingly.

There can also be noticed some strategic activities of the social partners in the field of preparation for the 4th industrial revolution. In 2016 the chambers of industry, commerce and crafts from the Lithuania and Germany together with other organisations of employers established working group for the strategic actions in the field of development of structures of the Industry 4.0 in Lithuania. This group will cooperate closely with the experts from Germany in  helping the Lithuanian innovative enterprises to become important production partners from Germany in developing the Internet of Things. The main favourable preconditions for such cooperation are availability of high skilled specialists, high level of ICT competences in the country, fastly developing start-ups and one of the highest speed of Internet in the world. This group is going to develop the strategy of digitalization of industry and to implement common pilot projects with the partners from Germany.

How do the current provision of the initial VET in Lithuania and the current reforms in this field facilitate the meeting of the above outlined challenges and requirements of the Industry 4.0 for the processes of VET? Here there can be discussed several important measures and instruments:

Implementation of the work process-based sectoral occupational standards and national modular VET curricula.

Establishment of the sectoral practical training centres equipped with the forefront technologies and equipment.

In the period of 2010-2015 the Centre for Development of Qualifications and Vocational Education and Training implemented the ESF funded project "Development of qualifications and creation of the modular VET system" with the goal to develop the national system of qualifications by designing and implementation of sector-based occupational standards and the corresponding national modular VET curricula. By 2016 there were prepared the first drafts of occupational standards of the 10 sectors of economy. In parallel to the design of occupational standards there were also developed and piloted the first samples of the national modular VET curricula. The methodology of design of occupational standards was based on the combination of competence and work-process analysis approaches. One of the key advantages of this approach is that it permits to identify and to cover all qualifications that are required for the execution of work processes in the sector of economy, as well as to map the links and interrelationships between the qualifications inside the sector and between the sectors. The first draft of the occupational standard of the engineering industry includes qualifications and competencies in the fields of ICT, robotics and other strategic fields for development of the Industry 4.0. However, these qualifications are concentrated mainly in the highest levels of the Lithuanian Qualifications Framework (LTQF). For example, the occupational standard of the engineering industry sector includes qualifications of production and technology engineer (LTQF/ EQF levels 6, 7 and 8) and engineer of mechatronics and robotics (LTQF/EQF levels 6 and 7). What regards the qualifications that are provided in the initial VET, the requirements of the 4th industrial revolution are reflected in a very few qualifications, such as operator of the CNC machines and mechatronic (both qualifications are referenced to the LTQF/EQF level 4).

Work-process orientation in the curriculum design will enable provision of holistic technological competences and understanding of the technological processes of production that are necessary for development of Industry 4.0. The main purpose of the foreseen modularisation of VET curricula is to increase the flexibility of curricula in order to enhance their adaptability to the changing needs of economy and to standardise the contents of curricula to enhance the training quality and recognition of learning outcomes when moving from one institution to another. Looking into the structure and contents of the first developed modular curricula and modules there can be noticed, that the competencies required by the advent of the 4th industrial revolution are quite scarce and the modules providing these competencies usually do not belong the the core part of curriculum, but make separate specialisations. For example, the modular VET curriculum of mechatronic of  automation systems contains two modules of specialisation - „Management of technological processes" and „Management of Automatised Production Systems" with competencies required by the forth industrial revolution.

In the period of 2012-2015 there were established 42 sectoral practical training centres in the 33 initial VET institutions by equipping them with the latest technologies and equipment typical for the different sectors of economy. The main scope of these sectoral practical training centres is to help to provide and develop technological competence for the initial VET students, higher education students, VET teachers and trainers, employees and unemployed.  These centres can become effective platforms for the common initiatives and projects of business and VET providers in the training of specialists for Industry 4.0. One of the key requirements for enabling an effective usage of these centres in the preparation for the 4th industrial revolution is availability of the high skilled trainers and accumulation of the methodical and didactical expertise in the organisation and execution of practical training on the basis of the real technological work processes.

The main shortages of the current VET system in relation to the perspective of the Industry 4.0 concern the lack of the new technological and didactic competences of the VET teachers and trainers as well as the insufficient cooperation and partnership between the initial VET providers and enterprises in the different processes of the VET provision.

## 4 Conclusion

The Fourth industrial revolution creates complex challenges and requirements for the development of the initial VET provision. It requires to implement important, systemic and sometimes rather radical changes in the curriculum design, organization and provision of training and competence assessment. Work process orientation and flexibility in the initial VET curriculum design, as well as organization of learning and training in the complex work and technological processes by applying real and /or simulated technological environments contain multiple methodological and organizational contradictions and require significant investments of the human and financial capital. It will predefine a highly incremental character of related initial VET reforms and changes.

Current reforms of the initial VET and qualifications in Lithuania, especially the implementation of the competence-based occupational standards and the modular VET curricula, as well as implementation of the sectoral practical training centres create favorable methodological and institutional preconditions for the effective response of the VET to the requirements of the 4th industrial revolution.

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Session 4.3

# Learning process in school and workplace

# Learning in Variable Clusters – An Approach for Empirically Based Arrangements of Learning Groups

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**Abstract:** The discussion of inclusion and heterogeneity in educational science and practice is a challenge, also in didactical perspective. With the approach of "Learning in Variable Clusters" we like to plead for an adequate student-oriented variability in the social forms in classes on the one hand and for an (empirically) based formation of learning groups on the other hand. Both is essential to increase the didactical matching of learners' preconditions and (vocational) educational Teaching-Learning-Settings. Therefore, the focus of this paper is the discussion of didactically relevant attributes of learners and their (statistical) processing for their subsequent use for variable clustering methods. This approach is best understood as a heuristic for contemplation and therefore an aid in planning and decision-making for teachers. But a non-reflective use of technology and, thereby, the educational incapacitation of teachers is not our intention.

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## 1    The Problem of didactical matching as part of student-oriented didactics

In the perspective of student-oriented didactics (see Götzl & Jahn, 2017), the question of didactical matching between the student on the one side and the specific didactical intervention on the other side should be focus

of professional reflexions. There are many facets of this question, from the role of learners` individual preconditions to the problem of transfer, resp. the addressing of emancipated handling of future life situations. This paper discusses a specific facet of didactical matching in (vocational) educational Teaching-Learning-Settings (TLS) and presents an approach to improve the matching between TLS and the related learning tasks on the one hand and the learners` preconditions for learning on the other hand. This problem is far from being trivial, rather it has a recourse to the professional-theoretical paradox of reconcilement of homogenous standards of curricula on the one hand and individual preconditions for learning on the other hand (see Helsper, 1996; Trautmann & Wischer, 2008). Under the conditions of German public schools, a continuous individualization of education is currently impossible. Therefore, a grouping of learners within the classes, based on specified attributes, is a solution approach which is also considered by curricular materials (e.g. in form of curricular standards on cooperative teaching frameworks).

The circumstance that learners are not a homogenous group and that didactic action should not be oriented on the average pupil is discussed since the 19th century (see Budde, 2017, p. 15). In vocational education, the inherent problem of didactical matching is discussed among other things in context of heterogeneity and, dependent on that, (mostly implicit) approaches of inclusion. Considering this, the question of the attributes characterising heterogeneity arises. In context of school education these attributes are mostly operationalised by performance indicators, disregarding other dimensions like attitudes, values, interests etc. This involves the danger of a halo effect, if the performance indicators outshine these attributes and a differentiated evaluation of the learners is thereby hampered (see Dubs 2009, p. 453).

To handle diversity in school classes and to improve didactical matching, there are two options. First, teachers may adapt standardized didactical settings (for example from school books) and the appendant learning objectives for the learners (learning setting → learning group). Second, teachers may modify the structure of a class, to improve the matching of homogenous learning groups on standardized sets of learning tasks (learning group → learning setting). This distinction of options is analytical, making recourse to the question, whether TLS should be adapted to learning groups or vice versa. Both options are practicable as individual or cooperative TLS (see Euler & Hahn, 2007, p. 428; Trautmann & Wischer, 2008, p. 161; Dubs, 2009, pp. 195-210; Helmke, 2012, pp. 263-271). Thereby, it is important to not dogmatically advocate a departure from traditional teacher-centred teaching, but to demand adequate variability. Results of research in teaching and instruction verify better outcomes on learning performance for differentiated, open teaching (e.g. ability to cooperate, social adaption etc.), but contrary, traditional TLS show better outcomes for subject-specific learning (see for example Giaconia & Hegdes, 1982).

## 2    Arrangement of Learning Groups as Part of Differentiating Didactical Settings

A review of standard literature on didactics (e.g. Euler & Hahn, 2007, pp. 350 ff.; Riedl, 2011, p. 200; Meyer 2011, pp. 258 ff.; Paradies & Linser 2013) reveals, that the primary advice for teachers to handle heterogeneous learning groups is to use differentiating learning tasks (learning setting → learning group) regarding objectives and problems, content, methods and especially social forms as well as media. Likewise, the class should be modified, differentiating or individualizing its structure. The modus operandi of the grouping, especially the definition of relevant attributes, is, however, only discussed vaguely and contradictory so far. Different formation methods are described without explicitly referring to the matching problem and without giving recommendations for action. Usually, three methods are distinguished (see Cartwright & Zander, 1968, p. 54; Miehe & Miehe 2005, pp. 114 ff.):

- free formation or learner-driven constituting: learners gather themselves by own planning and intention (for example friendship or interests),
- spontaneous formation or constituting by happenstance: learners are grouped situationally, without intention,
- disposed formation or teacher-driven formation: teacher disposes the groups and the group members.

Most of the literature discusses the possibility of teacher-driven formation and the use of different criteria for this. This is done with a focus on performance indicators and a comparison of the advantages and disadvantages of homogeneous and heterogeneous groups. Additionally, interests and sympathy between the

group members are mentioned. In contrast, the relevance of objectives and learning tasks is hardly discussed (see e.g. Miehe & Miehe 2005, p. 115).

A qualitative pre-study on teachers, examining methods of group building in the (vocational) educational practice, led to several implications on the necessary subjective theories. These theories have been shown to be (a) intra-subjective complex and inter-subjective very different, (b) constituted using all three formation methods and that their use is based on the implicit consideration of different underlying conditions and (c) that in case of the use of teacher-driven formation, there is a vague and one-sided orientation on performance and social structures. In general, the formation of groups and formation methods seem to be not as relevant for educational practice as expected, which may be caused by uncertainties or resistance to the grouping by the students.

In the perspective of a student-oriented didactical approach, this situation seems dissatisfying. Teachers should consider individual preconditions systematically and differentiated, at least these which are relevant for a specific TLS. These preconditions are distinguishable in performance, attitude and context factors. Therefore, the group building should not be based exclusively and one-dimensionally on experience, observation, evaluation or subjective theories of the teachers. It should be based on systematically collected and, as objectively as possible, processed information. By using these diagnostics, processes of grouping may be synchronized with the requirements of the objective-/situation-/content-complex (see Götzl & Jahn, 2017) and may be, thereby, didactically and professionally legitimized. In an extreme case, the results may suggest an individualized approach or no grouping at all, regarding the characteristics relevant to the TLS, provided that this corresponds with the requirements of the teaching objectives and learning tasks. Likewise, the teachers have also the possibility to further specify the specific learning tasks and adapt them to the grouped learners.

To collect the necessary diagnostic data, classic performance tests, adaptive competency tests, questionnaires on social background, self-reports and analyses of documents (e.g. student record files) are useful among other possibilities. Furthermore, performance data which is collected during the lessons can be used, as well as information on interests and previous experience which is systematically gathered. The thereby collected student-specific data may be processed using cluster analysis, analysis of variance or network analysis or other methods. For example, cluster analysis is a method to expose structures of similarity in datasets and deduce clusters of relatively similar objects. In this context, the term of 'Learning Cluster' is used in the following discussion for groups of learners constituted by using statistical methods and it is understood as segmentation of a school class by multiple quantifiable attributes.

## 3    Learning in Variable Clusters

So, teachers may constitute, test and modify homogenous or heterogeneous learning clusters, also considering reflexive-experience-based qualitative assessments, which remain essential for pedagogical and didactical decision making. These clusters may be regrouped by the teachers based on data about the social networks in the school class, for example collected with sociographic methods or network analysis, to constitute learning and working groups, to develop sets of learning tasks together with other teachers or learners or to individualize the learning process. Sets of learning tasks or the learning tasks themselves are, in addition to elaborated processes of grouping, the core part of differentiated teaching and learning environments, which should be the area of mediation between standardized competency goals, resp. educational standards, and the individual preconditions and learning interests. The variable and mutually reconciled (re)construction of learning settings and learning clusters is therefore the focus of professional didactic considerations and leads to the term "Learning in Variable Clusters".

Also, in the perspective of empirical research in teaching and instruction it seems preferable to vary between different options of clusters, especially between homogenous and heterogeneous solutions (see e.g. Dubs 2009, p. 199; Euler & Hahn, 2007, pp. 446 ff.; Meyer 2011, pp. 258 ff.), because not all learners benefit equally from performance-homogenous groups (see Kulik & Kulik, 1992; Lou et al., 1996). It is thus possible to avoid a determination of high- and low-performance students in constant groups and the associated negative effects on self-efficacy and self-concept.

In addition, the development of the learner must be considered from a process perspective, which requires continuous updating and, if necessary, repeated data collection. But in this claim, however, the diagnostic

competencies and time resources of the teachers on the one hand and the pedagogical-ethical appropriateness for the learners (continuous observation, privacy) on the other hand must be reflected (see Trautmann & Wischer, 2011, p. 119). In this respect, the further grouping procedures (by happenstance or the learner) remain relevant in certain situations to achieve specific didactic goals, for example in the phase of learners and teachers getting acquainted with a new class.

Such a didactically reflected and, where appropriate, computer-based approach to the multicriteria grouping of learners approximates the solution of the problem of didactical matching. It becomes a professional decision-making aid for the individual teacher, whose decision is not based on coincidence or irrational arbitrariness, but based on case- and situation-specific reflections on the requirements of the teaching-learning-setting and the preconditions of the students.

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# The Formativity of Work-Based Learning

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**Abstract:** The Paper reports some results from an empirical survey developed during my Doctoral research activity, which is mainly focused on educational processes of Work-based learning, one of the fundamental pillars of European Strategies which is directly linked to the VET mission.

The main VET objective consists of helping learners to improve their knowledge, skills and competences, as these are essential in the working life (European Commission, 2013).

This contribution also provides the "theoretical postulates "of my PhD research thesis, and it sets up the basis for some reflection on the "formativity principle".

The working hyphotesis is funded on the translation of the formativity concept - the "cornerstone of research" - into a taxonomy, in order to build some quality indicators of the educational processes for people involved in work-based learning paths**.**

**Keywords:** Empirical research- Case Studies -Community of practice – Capabilities - Situated Learning - Work-Based Learning.

## 1    Introduction

In recent decades, many countries in Europe, including Italy, focused on the setup of national apprenticeship systems inspired to the German dual system. In the framework of the Italian public debate on young people's work, apprenticeship and school-work alternation have been promoted as privileged channels for young people's entry into the labor market. As a result, these have been addressed as tools that might potentially solve, or somehow contribute, to the critical problems of youth unemployment and inactivity, since they are expected to increase the educational performance, in such a way to reduce the gap between labor and skills demand and supply systems.

The growing awareness that work-based learning can foster a gradual transition from training to work has reinvigorated the interest in apprenticeships and stimulated European countries to implement a reform of Vocational Education and Training (VET) programs in order to strengthen the link between training institutions and enterprises. Therefore, programs featuring a strong WBL component may be considered good methods for preparing young people to address specific professional activities, promoting altogether their transition to the job environment (Wallenborn, 2011).

In the literature, Work-Based Learning (WBL) is frequently described as "the set of training practices that differ from those based on classroom formation". WBL includes all learning that occurs in a real work environment,

through participation in work activities, irrespective of whether the learners are young, students, unemployed or not, and whether they are financially supported or not.

The quality of WBL is central to improve the quality of Vocational Education and Training.

The WBL innovations and good practices developed over the last few years also represent a significant forward step in the VET practice. Work Based Learning also enhances the benefits of alternation between classroom learning and enterprise learning, and therefore builds a link between formal, informal and non-formal learning, correlated to the instances that are particularly emphasized by the European Union.

## 2    Theoretical Background

My PhD project aims to identify the training variables that characterize work-based learning processes from a pedagogical perspective.

In details, the pedagogical and didactic constructs (such as learning-by-doing, situated learning, community-of-practice, Capability Approach) have been referred to as models, since they are relevant to the development of learning processes through a qualitative research approach.

The research also aims to explore other key issues such as the training role of tutorship, the educational relationship between tutor and apprentice and the "training" capacity of the enterprise to involving the apprentice as member of a community of practice in which he can settle and be identified by giving shape and meaning to his actions, in a reflexive view of a "working learner."

## 3    Methodology

The pedagogical device "taxonomy of quality indicators" related to the study of work-based learning processes derives from the aim of transferring the principle of formativity into a schematic way in order to settle a "road map" within the practice communities of trainers, training process experts in the field of work-based learning processes.

This empirical survey refers to some good practices related to apprenticeships and to the job training periods and integration in school based programmes involving Italian companies.

In details, the case study presented in this paper focuses on a technical institute in northern Italy, in the province of Mantova.

Participants:

-    Students have been selected for the present research, aged 18/19, from two different formation paths, i.e. the graphical and geotechnical didactic pathways, as well as school tutors and teachers.

The tools adopted for the empirical research basically consists of focus groups and self-assessment questionnaires, which have been built on the basis of the pedagogical reference research tool: the Taxonomy of quality indicators related to educational processes in work-based learning pathways.

## 4    Expected results

The expected main outcome of the project consists of providing a modelling hypothesis for educational processes in work-based learning.

In details, the expected results include:

-    How to perform quality assurance in work-based learning pathways:
-    The research areas of the project basically concern the study of the conditions that guarantee the quality of Work Based Learning. These conditions can be structured in terms of indicators and might turn into methodological ideas for trainers and teachers involved in the development of innovation processes both in schools and in companies.
-    How to validate the Taxonomy through focus groups with an interdisciplinary group of experts.

The taxonomy of quality indexes might be a helpful tool for tutors' training and for process monitoring; the development of this taxonomy can occur simultaneously with the review of the case studies.

## Conclusions

The idea behind my researches arises from the awareness that the training experiences of high school students involved in work-based learning pathways, such as apprenticeship and language school alternation, should be observed and analysed not only under the perspective of their employability. In particular the characteristics of the activated cognitive processes should be accounted for, as well as the relevance of changes in the relationship to knowledge, and the participation in the process of building meaning in job practice. Essentially, the study aims at understanding the relationships between the effects of work experience on the training plan and the cognitive structures of the subjects.

From here the reflection on the central theme of the Thesis arises. According to Umberto Margiotta, "Formative" is not limited to structured learning situations, but it includes everything that makes meaningful value-creating actions.  The matter consists of allowing the subjects to face the complexity of reality and the dynamism of change through management tools that respect the self-significance within the environmental plurality and the communities to which they belong or interact with (Margiotta 2015).

Under such perspective, learning is, therefore, regarded as a "membership", an "experience", an "action" and as an evolutionary process into a formative view of the learner. Actually, learning and training represent the key to a person's growth strategy, able of ensuring not only employability but also overall human development (Alessandrini, 2016).

The research questions in this explorative study are:

What effective learning process can be activated in work –based learning pathways, especially in apprenticeships? What are the most effective training methodologies and teaching techniques for work based learning?

Therefore my research focuses on key issue: How work-based learning pathway can be formative and generative for personal development of learner in his transition from school to work, not only in order to become a "good worker", but also a "good citizen"?

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# New competency requirements in the course of the automation and new ways of work-based learning: Micro-learning and Serious Games

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**Abstract:** The contribution focusses the central question of learning and competence in the context of digitalisation. The discourse Work 4.0 is primarily a discourse on technical potentialities. How work-processes will change structurally, is still an open empirical question. Promises and threats are currently shaping the debate. The paper describes two approaches of competence development – Serious Games and Micro-Learning – in organisations with different degrees of digitalization.

## 1    Introduction

Since the competence-oriented turnaround in the 1990s, questions of learning-oriented work organization have not lost their relevance until today. On the contrary, in the course of advancing digitization and process-orientation, questions of the linking of work and learning are becoming more urgent. The demand for a learning-promoting work organization addresses equally the interests of the employees as well as company interests. Employees are concerned with maintaining their employability, while companies improve their performance and competitiveness. The paper is based on two empirical researches concerning competence development in organisations. The projects consider the notion of workprocess oriented competences as a basic factor. It is based on the assumption that a reflected coping with work processes due to the commitment of the individual in his or her work situation initializes the development of work process oriented competencies. This conception of competency includes experience-based know-how on the one hand. On the other hand, it is evident that the necessary skilled-analytical abilities in the sense of "knowing how and why something works" are objects of this expertise.

Firstly, the contribution discusses the question how game-based surroundings are able to promote workplace learning. Serious Games are not a new idea. Military officers as well as aeronautical research have been using war games or dangerous situations in order to train strategic skills for a long time. Meanwhile, the technological development permits the development of game-oriented applications with high quality and low costs. Secondly, the contribution discusses the opportunities and risks of workplace learning in fully automated working surroundings. How is the work and the existing knowledge organized within the company to cope with increasing complexities and uncertainties? Digital game-based technologies and microlearning are initiating the field to redefine what is meant by learning and instruction in the twenty-first century.

## 2    Innovative forms of competence development: Microlearning and Serious Games

Two key elements are guiding the following underlying competence understanding. First, the turn to an action-oriented concept of competence: The main difference to the qualification concept is that skills are "dispositions self-organised action" (Erpenbeck & von Rosenstiel, 2003). Competences become visible in concrete action while qualifications make existing knowledge skills visible as certified results. Qualifications manifest themselves as "knowledge and skill positions" in education certificates, while competencies as "self-organisation dispositions" are only accessible at the action level. Thereby, the concept of competence is emphasised as the level of action. Second, in a professional context, an understanding of vocational skills has been enforced as a unit of professional, social and human skills. Though, methods skills, learning skills and communicative competence are understood as integral parts of this triad. This action-oriented concept of competence goes back to the work of Henry Roth (1971), who identified the concept of competence and made the connection between psychology and pedagogy. In his pedagogical anthropology, Roth linked the educational goal of maturity with skills development. Thereafter, maturity was understood as a competence in a triple sense: self-competence, physical and social (cf. Roth 1971, 180). For Roth, there is a mature, self-reliant act, first of a kind and expertise (intellectual maturity); secondly, a social insight and social skills (social responsibility); and, thirdly, the value of judgment and I-competence (self-determination and moral responsibility) (Roth 1971, 180). The triad of self, physical and social skills Roth brought into play is, with slight changes, fundamental to the competence debate in vocational education and training today. Competences become visible in concrete action while qualifications make existing knowledge skills visible as certified results. Qualifications manifest themselves as "knowledge and skill positions" in education certificates, while competencies as "self-organisation dispositions" are only accessible at the action level. Thereby, the concept of competence is emphasised as the level of action.

Micro-learning and Serious Games

Two research projects focussed on the possibilities to foster work based competency development[41]. Shaping the didactical concept for serious games there can be figured out three different approaches: First the approach of immediate transfers of knowledge that is gained directly throughout the game. In this case, the knowledge is mainly representing declarative knowledge. Usually, this kind of knowledge is exemplified by simulations. Simulations – models realistic as much as possible – aims to learning processes that enable the learners to use the new knowledge in real (work) situations, too. The discussion about "didactics" (cf. Kerres et al 2009, 1) moves in the background for the benefit of a very detailed and realistic simulation. Besides that, there are varying opinions whether and how far simulations can be seen as a game at all. Critical views are objecting to that point and are referring to the requirements of simulating reality. Primarily a simulation does not contain playful elements but represent training and instruction measures. On the contrary, there are opinions that are conceding with playful elements by using a simulator. E.g., launching or landing a plane via a simulator can be a very playful experience in particular for ambitious players.

The second approach emphasises the immersive experience in digital worlds. The development of role-plays or fantasy worlds (e.g. as an adventure or in a dangerous setting) stays in the front. Opposite to simulations, in this case the strangeness is part of the concept. It is criticised by this kind of playful learning that a transfer is nearly impossible. Supporters of this approach are referring to the procedural knowledge, e.g. by handling the complexity of these game-worlds, to the needed readiness, the decision-making under time pressure as well as coordinative activities with teammates. Every mentioned element is clearly needed besides the gaming worlds. Finally yet importantly, the third approach represents a special didactic challenge insofar that learning tasks have to be prepared in a playful way. This approach has been conductive for the development of learning assignments for skilled workers in the harbour. An essential challenge lies within the match between the game design and the workplace environment. However, it has to be regarded that the developed and medium-difficult

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[41] The Federal Ministry of Education and Research fund both joint research project in the program "Vocational Competency Management and Demographic Change" (www.arkoh.de; www.brofessio.de). The project designs followed qualitative research methods, in particular workplace observations, semi-structured interviews and workshops with the skilled workers and technicians.

gameplay-situations can be handled. Recent studies show the challenging and entertaining experience of medium-difficult tasks. Thus, they have an increasing impact towards the motivation .In order to create a balance between enjoyments and learning the development of the ArKoH-game followed further criteria: aesthetic appealing illustrations, adequate relationship between challenge and reward, varied tasks, variable opportunities of interaction as well as comprehensible context information and narration to the game (cf. Breuer 2010, 28). At the beginning of the game, there is a short self-estimation concerning one´s competency level. Depending to the competency level – from beginner towards expert – and depending to the current learning module – there are specific tasks and questions that have to be solved by the player. The level of difficulty is varied e.g. by the number of possible answers for multiple choices questions or by a time limit within the task. Thereby, and by the challenging character via the quiz-duel or the high score-ranking, the playful atmosphere of learning is fostered.

Another approach for work based learning relates to micro-learning. A generally valid definition of micro-learning does not exist. On a general level, micro-learning includes learning with micro content, thus with small learning units. A prerequisite for micro-learning is the availability of mobile devices, particularly in the operational context. They enable the provision and use of dynamic and interactive learning environments at any time. In addition, multimedial content (eg graphics, audio and video) can be integrated. Using the method of micro-learning (Lorenz, 2010), (1) small thematic and media-based learning units are created which can be integrated into existing work processes, (2) the learning units require a minimum of infrastructure and organizational support and (3) refer to the core-competency "manufacturing plant comprehension". The work and learning project "manufacturing plant understanding" aims at an understanding of networked and automated processes as a basis for problem solving. In the face of high automation, it is by no means clear whether the error is in mechanics, electronics or in control software, in camera technology, in laser technology or in robotics, or even in all areas. The competence here is, for example, to interpret, prioritize and initiate the appropriate visual signals from the machine controller, such as digital fault displays or process visualization displays. The learning units are created in close consultation with the specialists. In this context, primacy is the reference to the production plant. Since automation processes are very fast or not visible to the human eye, the learning units are processed by means of video. Two aspects speak for the use of videos. In view of the visual appeal of most digital media, communication is now increasingly visual or audio-visual. Texts are no longer the primary medium for knowledge transfer. In addition to the pictorial conveyance of knowledge, secondly, the learning potentials of videos, especially in difficult to access work processes, should be emphasized.

## 3    Conclusion

The studies show the ambivalence of automation: On the one side, especially experience-based knowledge is hardly to develop in highly automated surroundings, on the other side new competences are required facing the increasing complexity and decentralization of work-processes. Micro-learning and Serious Games are innovative forms of competence development because they are first of all low-threshold. Through the integration of playful elements into learning, it is also possible to reach those persons who so far have only a low motivation for further education. Furthermore, micro-learning is a format that enables work-integrated learning.

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Session 5.1

**Integration of Youth**

# The educational role of *jobcoach* and *lifecoach* in Work Integration Companies

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**Abstract:** In this proposal we present the initial results of our most recent research ("Educational, accompanying, qualification and personal developmental processes in Work Integration Companies: innovating social inclusion through employment"), conducted in Work Integration Enterprises. As part of the social economy, these enterprises are aimed to the promotion of work training of people at risk of labour and social exclusion by focusing not only on professional and personal skills, but also on a better understanding of the world of work. In this research, we have conducted workplace observation and interviews in order to identify different practices of teaching as well as learning trajectories of the workers. The results obtained show the tensions that the workers find in their performance of the pedagogical relationship that sustains the training at the companies, which is mostly based on informal learning and tacit knowledge.

**Keywords:** Longitudinal study, Workplace observations, Work Integration Companies, Vocational Education and Training, Workplace learning, Learning trajectories.

## 1 Work Integration Social Enterprises as learning contexts

Work Integration Social Enterprises (WISEs hereafter) are companies that combine business activities with processes of training and social integration with the aim of promoting labour and social inclusion of people in a situation of exclusion. These companies are gaining institutional recognition across different European countries, like Belgium, Italy, France or Spain. Part of the social economy, they hold central in their mission the promotion of learning in different employment and life domains, with a particular emphasis upon personal and

social development, and they do so being small enterprises (Ashton et al., 2008; CEDEFOP, 2015). This is achieved through support provided by processes of job- and lifecoaching and by promoting not only the learning of vocational skills, but also a better understanding of the demands and conditions of the world of work. They attempt to foster employability (Froehich et al., 2014)

Work integration companies hire workers that develop three different roles: on one side, integration workers, who are undergoing processes of integration, re-entering an ordinary life in society after having suffered exclusionary processes from which they are pretty recovered. On the other side, jobcoaches and lifecoaches, who are in charge of training and supporting the former ones.

The core pedagogic device designed by WISEs is based on personalized itineraries, agreed with employees under integration contracts according to criteria established by Employment and Social Services. These itineraries are key elements to decide on progression and renewal of contracts, while they also indicate the accompanying and training measures needed in order to achieve successful transition into the ordinary labour market (AERESS and FAEDEI, 2014). Every itinerary comprises three areas of intervention with different weight according to the needs of the worker under integration processes: occupational, social and personal; and all three of them are developed around working processes in the WISE.

## 2    The approach of the research: learning trajectories

In our current research (Educational, accompanying, qualification and personal developmental processes in Work Integration Companies: innovating social inclusion through employment, EDU2013-45919-R), we have approached several WISEs in different occupational domains and regions in Spain in order to comprehend and describe the pedagogical practices and relations within those companies, the extent to which they are embedded in the organization of the company and the production processes, and the impact they have upon the learning of their employees. We have done so through and adaptation of Michael Eraut's model of learning trajectories, which is particularly useful to grasp the acquisition of knowledge across the lifespan (Marhuenda, 2017) and that has proved to be useful for this context (Marhuenda and Bonavía, 2011).

So far we have conducted the following visits a total of 12 companies in seven regions, using on-site observation and interviews to the different workers. We have reached 45 integration workers and 24 job and lifecoaches, in the occupational areas of recycling (7 companies), catering (2 companies), personal care (1 company) and industrial laundry (1 company). In the last three occupational areas there exist vocational qualifications to which the companies sometimes refer to in their training support in order to help their workers achieve a professional qualification.

## 3    Trainers and their practices in WISEs: main findings

Our results, even if preliminary as there is on-going field research, show the difficulties and contradictions that job- and lifecoaches face in their pedagogical and labour practices. These become evident in how these different roles are performed by one or two people, and whether they are officially those responsible for such roles, as AERESS and FAEDEI (2014) recommend, or not. In this regard, the main duty of the lifecoach role would be to support the itinerary (through interviews, assessment of employability, design and periodical review of the itinerary); while the jobcoach should focus upon occupational training and development, with technical competencies at the core of their work (Quintao, 2016). Both roles are relevant in the selection and welcome period of the integration worker and their responsibility varies along the different stages of the itinerary.

Our findings, nevertheless, indicate that roles are often blurred: workers in charge share functions and the personal and social competences are very often related to the occupational context in which integration workers find themselves, in such a way that even if lifecoaches are formally responsible for the accompanying processes, it is often the case that jobcoaches take the lead because of their proximity to workers and their daily support of workers.

We have identified different models to address the pedagogical relations that we explain below. As a common characteristic shared by several companies, it is significant to highlight how the pedagogical practices are very often shaped as informal learning and tacit knowledge (Eraut, 2000; Eraut and Hirsh, 2007). This leads

us to two relevant ideas for understanding the functioning of the company:

- First, that the development of the specific work assignments (task performance, production of goods and services) stays in the first place of the pedagogical and labour relationship that takes place in the WISEs.

- Second, that the teaching and learning process may not be as planned and explicit as one would expect for a pedagogical and labour relationship that can last for up to three years. Yet, we have been able to identify progress in most integration workers, which is the result of the pedagogical action of job and lifecoaches.

## 3.1  Lifecoaching: the accompanying work

Regarding the lifecoaches, we have identified three main models in the development of their role. We have organised these three models considering their "presence" in the pedagogical and labour relationship that takes place in the companies. It is worth highlighting that lifecoaches are supposed to be responsible for the personal and social development of the insertion workers with the design, monitoring and support of the itinerary as the central issue of their task. Despite this assignment, we have identified as a general trend that lifecoaches usually have many other duties within the companies and their promoters (training plans, plans for employment search and search for funding among others) that impede them to have a contact with integration workers as often as should be desirable.

In a more specific way, we have differentiated four ways of practicing lifecoaching, according to their acknowledgment as relevant others by integration workers:

- *Hardly present lifecoach* (2 recycling, 1 catering, 1 personal care), leading to the lack of knowledge and/or consciousness of integration workers of their itinerary and even the role of the lifecoach.
- *Lifecoach with participation in several companies* of the institution, or with too many responsibilities in them, therefore able to carry momentary interventions and relations with integration workers (1 catering, 1 recycling).
- *Lifecoach responsible for managing training and relations*, knowing the progress of each integration worker and taking on responsibilities related to production processes (3 recycling, laundry).
- *Lifecoach responsible for managing the itinerary*, focusing upon the personal and social relations, with hardly any intervention upon work processes but in close cooperation with jobcoaches (2 recycling).

## 3.2  Jobcoaching: the production work

The continuous and close relationship jobcoaches have to the integration workers entitles them to play a central role in the integration process. In this regard, most of them extend their role as workers of the company and as a reference in the labour and professional realm to the personal sphere; something particularly reflected in the resulting role models.

In most of the companies observed, jobcoaches have a main and central role in the integration process as a whole (professional and personal spheres). This is especially significant in two of the companies, a recycling company and the laundry, where the same person has the role of job- and lifecoach and where job performance and production processes are the axis of the whole itinerary without any doubt.

In other companies, although there are different persons in charge of jobcoach and lifecoach roles, we have observed –and confirmed through the interviews– that jobcoaches extend they role to the personal sphere. By so doing, they build a strong relationship with the integration workers; at the same time they are "exceeding" the "official" role they have been assigned. This is the case in one of the catering companies, as well as in three of the recycling ones. However, this does not happen without contradictions, among which certain rejection of the lifecoach worker that may be perceived in some cases.

In the remaining companies, the situation is quite different: jobcoach is absent or has a really small presence in the daily work of the integration worker. This is the case in two of the recycling companies, in the

personal care as well as in the other catering. However, two possible interpretations of this may apply, and we are still trying to find out: either this is a failure in the pedagogic process, or it is something intended in order to equip the integration worker with greater autonomy and hence facilitating its development.

### 3.3   Dimensions with an impact upon differential practice among WISEs

We have identified the following dimensions as relevant in order to conduct further analysis:

- *Size* of the company itself and of the institution behind it, as well as of the working teams with different workloads for job and lifecoaches.
- *Occupational sector and features of the working processes* where working in teams, customer service, routine or innovative tasks are developed.
- *Context* of the company: the fact that it is rural or urban influences the networks established by the companies, their institutions as well as the integration workers themselves, from customers to providers and even competitors.
- *Selection processes* conducted to hire the integration workers, whether experience or training closely related to the occupational field is required to work.
- *Types of integration workers* and the needs and development areas they have to work on: middle age women with children have different expectations than older men and/or young migrants, and therefore the itineraries they agree are shaped very differently and also entail different time-scope.

## 4   Difficulties and contradictions in the pedagogic practices in WISEs

In the context of WISEs in Spain, where a common framework for pedagogic practice was agreed in 2014 (AERESS and FAEDEI, 2014), we have identified different ways of accomplishing their integration aims that vary according to the issues mentioned in the previous section. In all of the companies analysed we can speak about relative success in the fostering of employability, even when the difference between job- and lifecoaching is rather blurred, against what we might expect.

Most of the accompanying work is centred on the work processes, which concedes a major relevance to those in charge of jobcoaching, and which also brings major importance to daily educational practice and assessment rather than to long-term planning and decisions. The arrangement of work processes around sufficient productivity allows room for different ways to allocate specific educational practice or learning processes that surround working practice.

All of the previous happen, however, with tensions between the persons in charge of each process, with major recognition for jobcoaching as for lifecoaching, even if social and personal dimensions are those more stressed also by jobcoaches.

Informal learning happens in WISEs while intentional educational practices are blurred and any tool approaching curricular devices, like itineraries, may play a less relevant role than expected (Huyse et al., 2012). However, it is clear that joabcoaching may produce successful itineraries, and no jobcoach would be able to develop his/her work without the support of lifecoaches. *Bildung* is a core element of WISEs, while accreditation of learning is more often neglected than we might expect.

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# Teachers' Attitude towards Inclusion in Vocational Education

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**Abstract:** This paper presents a study regarding the attitude towards inclusion of teachers in vocational education. Attitude is a core component in the professional competence necessary to successfully implement inclusion. A survey was conducted measuring the attitude and relevant attitude-influencing variables, such as self-efficacy, of 62 teachers in two german federal states. The survey was used to validate a scale for measuring teachers' attitude in vocational schools via factor analysis as well as to analyze said attitude via multiple regression analysis.

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# 1 Introduction

Attitude is defined as one of three core competences of teachers necessary in inclusive settings, with the other competencies being knowledge and skills (Melzer, Hillenbrand, Sprenger & Hennemann, 2015, 61). The model of professional competence expands this by the two dimensions motivational orientation and self-regulatory skills (Baumert & Kunter, 2006, 482). Furthermore, a teacher's attitude predicts the quality of tuition (Helmke, 2012, 176) and alters the students' attitude towards inclusion as well (de Boer, Timmermann, Pijl & Minnaert, 2011, 586). Inclusion itself is mandatory in German schools since the ratification of the UN Convention on the Rights of Persons with Disabilities (CRPD) and realized by communal teaching of pupils with and without disabilities (Paragraph 8b). Research on teachers' attitude towards inclusion is focused on the sector of general education (Bylinski, 2016, 1). Hence, this study aims to provide insight into teachers' attitude towards inclusion in vocational education. More specific, the study strives to achieve the following objectives: 1. Testing and validation of a questionnaire to measure attitude towards inclusion in vocational schools. 2. Description of the attitude towards inclusion at vocational schools. 3. Analyzing the relationship between attitude towards inclusion and relevant covariates, like professional experience and attendance to inclusion-related training courses. 4. Derivation of implications regarding the implementation of inclusion in vocational schools.

**Table 1: Sample**

|  | All (n=62) | NRW* (n=34) | SA** (n=28) |
|---|---|---|---|
| Age (Years) | 46.18 (9.28) | 48.03 (9.3) | 43.93 (8.9) |
| Professional experience (Years) | 15.89 (9.83) | 17.87 (9.66) | 13.44 (9.68) |
| Gender (Female) | 62.90 % | 55.58 % | 71.43 % |
| Pedagogical qualification | 90.32 % | 91.18 % | 89.29 % |
| Conceptual awareness of inclusion | 96.77 % | 97.06 % | 96.43 % |
| Experience in mixed classes | 51.61 % | 32.35 % | 75.00 % |
| Years in mixed classes | 4.71 (7.40) | 1.59 (5.22) | 9.76 (7.71) |
| Experience with PwD (none/workwise/ private/both) | 27.42% /11.29% /29.03% /32.26% | 35.29% /2.94% /38.24% /23.53% | 17.86% /21.43% /17.86% /42.86% |
| Attendance of inclusion-related trainings | 22.58 % | 8.82 % | 39.29 % |

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The study is conducted in a sample of N = 62 teachers at vocational schools in two federal states. Table 1 presents the sample including demographic and inclusion-related variables.

## 2    Methodology

**Table 2: Scales**

| Scale | Items | Mean (SD) | Exemplary Item |
|---|---|---|---|
| Professional Support* | 6 | 2.77(0.92) | Students with special needs eventually receive better support in inclusive classes. |
| Personal Willingness* | 5 | 3.12(1.07) | I can imagine myself teaching in an inclusive setting in the upcoming term. |
| Social Inclusion* | 4 | 4.09(0.8) | Students with special needs would feel excluded in mixed classes. |
| EFI-L* | 15 | 3.24(0.74) | |
| Self-Efficacy** | 10 | 3.0 (0.35) | I think myself capable of getting students interested in new projects. |

*1="fully disagree" – 6="fully agree" **1="don't agree" – 4= "agree completely"

The questionnaire contains the EFI-L (Einstellungsfragebogen zu Inklusion für Lehrkräfte – Attitude questionnaire for Teachers regarding Inclusion) scale (Seifried, 2015) for measuring attitude towards inclusion, case studies to access differences in attitude based on severity of different students' special needs as well as several covariates, including two scales measuring social desirability in response behaviour (Winkler, Kroh, Spiess, 2006) and self-efficacy (Schwarzer & Schmitz, 1999) and several items to cover demographic and inclusion-related characteristics. The scale measuring social desirability was disregarded due to not meeting the validation criteria. The composition of the attitude construct is not yet determined, differing in the number of dimensions used and their relationship. The dimensions include behaviour, affect and cognition. The questionnaire aims to cover all three possible dimensions, with cognition and behaviour being accounted for within the factors of the EFI-L scale and affect measured separately via open response questions. Cognition is measured within the factors professional support (esteemed quality of teaching) and social inclusion (esteemed inclusion of pupils with disabilities in mixed classes), behaviour within personal willingness (will of teachers to implement inclusive education). The EFI-L scale is validated by exploratory and confirmatory factor analysis. The validation confirmed the three-dimensional structure and rates the total variance explained at 64%. On the item and factor level, the confirmatory factor analysis provided satisfying results for the three factors professional support ($\alpha_{Cronbach}$ = 0.85; construct reliability = 0.98; average variance explained = 0.91), personal willingness ($\alpha$ = 0.84; CR = 0.98; AVE = 0.9) and social inclusion ($\alpha$ = 0.75; CR = 0.95; AVE = 0.84). Global criteria could not be met, which is likely due to small sample size. Table 2 presents the results obtained by the two scales and the three factors in particular. With the median at 3.5, the scale values produce a negative average. The scales are complemented by open-response questions and case studies. The case studies are analyzed using a repeated-measures MANOVA, and the relationship between covariates and scale factors is explored using robust linear multiple regression. The quote of missing values to data points amounts to 3.6 %. With the sample being rather small and thus requiring to prevent observation dropout due to spread missing values, Markov-Chain-Monte-Carlo imputation was used to include all observations in the analysis.

# 3   Results

**Table 3: Regression Analysis**

| Variable | Professional Support | Personal Willingness | Social Inclusion |
|---|---|---|---|
| Age | 0.05* | 0.02 | 0.01 |
| Gender | -0.04 | -0.12 | 0.34 |
| Pedagogical qualification | 0.26 | 0.55 | -0.01 |
| Federal state | 0.11 | 0.24 | -0.04 |
| Professional experience | -0.03 | 0.00 | -0.01 |
| Experience in mixed classes | 0.36 | 0.24 | 0.2 |
| Conceptual awareness of inclusion | -1.73*** | -1.01 | -0.61** |
| Attendance of inclusion-related trainings | -0.07 | 0.57* | -0.29 |
| Experience regarding Disabilities | 0.19** | 0.28** | -0.11 |
| Self-efficacy | 1.04** | 1.09** | 1.15** |
| Constant term | -1.34 | -1.78 | 0.73 |
| Max VIF | 3.35 | | |
| Adj. R² | 0.31 | 0.37 | 0.14 |
| F-Statistic | 22.22*** | 5.71*** | 1.96* |

***p < .001 **p < .005 *p < .01

Regression analysis is utilized separately on each of EFI-Ls three factors, as table 3 demonstrates. The two cognitive factors, the teacher's assessment of professional support received by students with special needs and social inclusion, produce an adj. R² of 0.31 and 0.14, respectively. The behavioural factor, personal willingness, produce an adj. R² of 0.37. Demographic variables like age or gender seem to be mostly irrelevant, with only age having a small positive impact ($\beta$ = 0.03; p<.01) on one of EFI-Ls cognitive attitude components, professional support. Personal attributes relating to inclusion display several significant relationships: Experience with disabled students showed a positive significant relation towards professional support ($\beta$ = 0.19; p<.005) and personal willingness ($\beta$ = 0.28; p<.005). Inclusion-specific training showed a positive impact on personal willingness ($\beta$ = 0.57; p<.01) as well. The teachers were asked to provide their understanding of inclusion via short open text response. The responses were rated in ordinal categories (3 raters; $\alpha_{Krippendorff}$ = 0.7) and indicate a positive relationship between attitude towards inclusion and a broader understanding of inclusion (e. g. perceiving inclusion as societal goal opposed to a pure structural change in school systems), with significant relationships towards professional support ($\beta$ = 0.49; p<.005) and personal willingness ($\beta$ = 0.36; p<.01). Self-efficacy had a positive significant effect on all three factors (professional support ($\beta$ = 1.04; p<.005), personal willingness ($\beta$ = 1.09; p<.005) and social inclusion ($\beta$ = 1.15; p<.005)). Vocational teachers differ uniquely from regular teachers in covering different types of school, ranging from vocational special school to vocational high school. Existing school types were introduced as dummy variables to the study's regression model and results indicate a significant negative relationship in some school types providing lower degrees and a significant positive relationship ($\beta$ = 0.66; p<.01) for teachers working in vocational high school. Results of the repeated-measures MANOVA employed to analyze the case studies indicate a significant difference (F = 11.95; Prob > F = 0.000) between attitude towards different severity of students' special needs, with positive attitude decreasing in more severe cases. Additional insight is provided by categorizing the open responses covering the affect dimension of attitude, asking teachers about their inclusion-related concerns and demands. Concerns primarily include fear of being overburdened by the demands of teaching in inclusive settings. This fear is also expressed in the demands which focus on more/better inclusion-related training and an improved resource situation.

## 4    Discussion

Classification of the results is only indirectly possible, with comparable studies being either performed in different cultures (Ahmmed et al. 2012) or the public school sector (Seifried 2015). The findings of Ahmmed and Seifried regarding demographic variables could however be reproduced, with age having only a small influence concerning professional support and gender, professional experience and pedagogical qualification having no significant effect. In the present study, due to the small sample size type of school and federal state correlate, limiting the possibility to show the influence of inclusion being differently implemented in the several federal states. Opposite to that, variables directly relating to inclusion showed several significant effects. Experience regarding disabled persons proofed to have a significant positive effect, thus demonstrating a relationship originating in Allport's (1954) contact hypothesis: The more contact teachers had with special needs, the more positive their attitude towards disabled persons was in general. Seifried (2015) provided comparable results. Likewise, attendance of inclusion-related trainings showed to have significant influence on the teacher's personal willingness. This could be explained by trainings increasing the teacher's preparedness and therefore reducing perceived overstress and reinforcing self-efficacy. Self-efficacy in particular again provided a significant positive influence on all three factors, similar to Seifried (2015), where a positive relationship between inclusion-specific trainings and self-efficacy was shown as well. The conceptual awareness of inclusion also provided a significant positive relationship towards attitude, whereby the attitude became more positive in correspondence with the perceived dimension of inclusion: If inclusion is only perceived as an additional burden due to structural changes (e. g. a teacher gets two additional disabled students, possibly even without further support), the attitude is worse to if inclusion was perceived as a process improving society. The findings of the case studies introduce the severity of students' special needs as an additional variable influencing attitude. More severe special needs result in less willingness to teach in inclusive settings, indicating a lack of adequate support (e. g. additional caretakers or supporting technologies like text recognition software). Teachers could also view special needs students as unable to keep the content level of their peers. The investigation of the affect component supports the assumptions made above. Teachers expect personal overstress as a consequence of the current implementation of inclusion and, associated therewith, demand additional resources and training. Within the present sample, the majority of teachers (69.4%) displayed a negative attitude towards inclusion, implying those demands are not being fulfilled. A possible reason lies in the contradiction between the high requirements of inclusive education and the federal states trying to implement inclusion on a cost-neutral basis (Domisch & Klein 2012, 162).

The studies' results allow to identify multiple implications regarding research and practice, mainly concerning teacher training, training courses and structural challenges. The study displays the importance of inclusion-specific training courses, which besides its direct positive impact also increases the crucial self-efficacy. Concerning the training's design, it should aim to establish inclusion as a societal goal. Besides being in line with CRPD paragraph 8, teachers seem more motivated if they perceive their work as contextually located within societal values, opposite to perceiving inclusion as simply the additional burden of having to teach disabled students. A focus on how to deal with more severe special needs seems to be advisable as well. This is however restricted, as training courses allow to convey knowledge about how to handle severe special needs more appropriate, but additional personal is still needed to guarantee equivalent teaching for all students. Since experience with disabled persons proves to positively contribute to attitude, appropriate opportunities should be provided during the course of study. The insignificance of pedagogical qualification towards the attitude contrary to the significance of experience suggests that current teacher training lacks inclusion-related elements. Aforementioned opportunities also allow to improve self-efficacy, which is a fundamental requirement to successfully deal with the demands of inclusive teaching (Schwarzer & Jerusalem 2002, 36). Structural improvements also seem necessary, since teachers exhibit a fear of being overburdened and not receiving the resources needed in inclusive settings along with opposite relationships to attitude depending on their type of school. Since this study indicates a restrictive relationship between the core competencies needed in inclusive education (UNESCO 2003, 22), future studies should aim to collect data describing attitude in conjunction with data describing knowledge and skills and explore said relationships. The framework of relevant competencies could furthermore be expanded by self-regulation and motivational orientation to represent the teacher-side

implementation of inclusion within the model of professional competence (Baumert & Kunter, 2006, 482). An investigation of the existing resource situations and their consequences could also prove useful, since they restrict positive attitude as well.

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# 'The lamentation about the bad school leaver' in Germany and England: An analysis of the current and historical discourse among main players involved in VET

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**Abstract:** Many countries register high rates of youth unemployment even though employers report difficulties in filling vacancies which could be taken by school leavers. One reason for this problem, which is stated regularly in Germany and England, is that young people lack so-called work readiness to enter the workplace. This long-standing complaint is used by different interest groups such as employer associations and governments, but denied by other groups such as trade unions. This paper considers how the conceptualisation of work readiness has been and continues to be framed according to the socio-economic context within the two countries. It draws on a discourse analysis of statements by different key actors involved in VET. The paper argues that the concept of work readiness continues to be used in a similar way in both countries, even though their VET systems are very different.

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## 1    Introduction

Many countries register high rates of youth unemployment even though employers report difficulties in filling vacancies and training places which could be taken by school leavers. One reason for this problem, which is stated regularly in Germany and England, is that young people lack so-called work-readiness (for the German context "Ausbildungsreife") to enter the workplace as employees and/or as apprentices. In both countries no formal entry requirements exist to enter the workplace as apprentice[42] or employee. Employers decide whom they employ as apprentice on the basis of their specific human resource development strategies (Ryan & Unwin 2001; Frommberger 2010). They expect candidates to possess certain employability skills or work-readiness attitude as their characteristics (e.g. basic knowledge, work habits, personal, social skills). Therefore school-leavers need to possess these characteristics when they enter in the apprenticeship program or the workplace (Hillage & Pollard 1998; Bundesagentur für Arbeit 2009; Miller et al. 2013).

On the one side, employer associations argue that the lack of work-readiness is the "no. 1 training obstacle" (for example DIHK 2014; Newton et al. 2005). On the other side, actors such as trade unions point that bringing the argument of lack of work-readiness and youth unemployment rates together are obsolete one

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[42] Apprenticeship or dual apprenticeship is a specific system of vocational education and training that combines systematically the advantages of training in a company and education in a vocational school (Fürstenau et. al 2014)

(Riemer 2012; Jahn und Brünner 2012). They argue that employer associations use lack of work-readiness as an argument to avoid political measures, such as a training levy, in times of high youth unemployment.

This contradiction raises the question, if the lamentation about the bad school leaver might be used as an argument by different interest groups (for example employer associations) in certain socio-economic situations to exert influence on the political agenda for their benefit (see for example Riemer 2012; Jahn und Brünner 2012; Eberhard 2006; Newton et al. 2005).

This paper presents the theoretical foundation and preliminary findings of an ongoing research project.

## 2    Research Design

The ongoing research therefore considers how the conceptualization of work readiness has been and continues to be framed according to the socio-economic context and how it is used in the education-policy driven discourse in both countries. England and Germany are chosen to study comparatively, because they have fundamentally different systems of vocational education and training and their labor markets too vary (Busemeyer und Trampusch 2012). This study therefore follows the most-different-systems design (Przeworski & Teune 1970). If the concept of work readiness continues to be used in a similar way in both countries - even though their VET systems are completely different – the research result could be a reflection of global trend irrespective of following different VET systems.

The main questions for this research are therefore formulated as follows:

1.  In which socio-economic situation do key players lament about bad school leavers?
2.  If the key actors use this argument, in which way do they use it?
3.  Does the discourse of England and Germany show similarities with regard to research questions 1) and 2)?

The paper draws on a discourse analysis of historical (from 1970th onwards) and current yearly statements as well as country specific position papers of key actors involved in VET. The analysis of the documents was complemented with qualitative interviews with experts from different institutions. The discourse analysis builds on the discourse theory of Foucault which is further differentiated by Keller (2005). Keller focuses in his "sociology of knowledge" on the reconstruction of processes of social construction, objectivation, communication and legitimation of structures of meaning by institutions, organizations or collective actors and their effects for the society (Keller 2005).

Central elements of the analytical framework are context (esp. historical, institutional and situational context), interpretative scheme (esp. the underlying understanding of "work-readiness"), phenomenal structure (esp. proposed causes, responsibility and solutions), and narrative structure (Keller 2005).

## 3    Theoretical framework

Lack of work readiness is a problem for school-to-work transition. Regarding this, Anderson (1981) identifies in a meta-study on school-to-work transition mainly four reasons for difficulty in school-work-transition among young people (Anderson 1981, 49 ff.; see for similar findings Schlemmer 2008):

1.  Education/Pedagogy: preparing students for the work roles by their schools to enter into labor market
2.  Psychology: career choices and its influence in successful transition
3.  Social: correlation between social/family background, educational achievements and type of work a person choose
4.  Economic/Labor market: availability of employment/ work vacancies and training places

The concept of work readiness tackles primarily the first perspective (education/pedagogy), because it describes the characteristics school leavers need to possess when they enter the work place or an

apprenticeship programm after secondary school. Anyway, to draw a broad picture about the discourse the other perspectives should not be neglected.

In order to answer the research questions, it is furthermore central to define WHO is involved in the discourse (central actors), WHEN or in which situations the discourse is expected (the socio-economic and political situations) and HOW the different actors are expected to argue (interpretative and argumentative patterns).

WHO: The key actors are defined for each country to take country specific elements into consideration in the research. The focus is on the (interest-driven) political discourse therefore central actors are located at the macro level, such as lobby organizations (e.g. employer associations or trade unions) and political actors (e.g. ministries and political parties).

WHEN: Policy cycle is a model which helps to identify possible points for lobbyist to influence the political agenda (Kingdon 2011; Knodt und Quittkat 2005). Problem recognition and agenda setting are the two first phases of the policy cycle to identify possible points. The problem has to be recognized and perceived as a relevant issue before set in the political agenda by the government. Sometimes lobby groups try to avoid a problem to be set in the political agenda (e.g. training levy). Therefore, lobby groups try (or try to avoid) their topics to be set in the political agenda by "helping" the government to recognize the problem using certain argumentative patterns (Riemer 2012; Kingdon 2011; Young et al. 2010).

HOW: The analysis of the interpretative scheme and phenomenal structure was based on the attribution theory, which explains the perception of own and third party behavior with special regard to the sense of responsibility (in terms of feeling responsible to take action) (Heider 1958). It is expected that each lobby group argues in a way that leads the responsibility for reasons as well as for taking action to other parties, leaving themselves without any responsibility.

Taking the attribution theory into consideration we now argue that the different actors identify different reasons (education/pedagogy, psychology, social and economic/labor market). Whereas employer associations mainly argue that students are poorly prepared by their schools, trade unions identify the reason in labor market and or social issues.

## 4    Preliminary Findings

Preliminary findings presented in this paper include the analysis of documents related to Germany and the results of interviews with the experts in England.

However, these early findings show that the lamentation about bad school leavers is an old and recurrent argument in Germany especially used by the employer associations. But, the research evidence shows that even though the lamentation can be recognized as perennial issue from 1970 onwards, the intensity of the arguments is increasing over period. Global trends such as higher requirements in the labor market and the tendency to pursue higher education (instead of vocational education) strengthened the discourse. Beside these, trends at critical junctures, such as PISA-shock for the German case, spurred up the argument.

However, the analysis of the interpretative scheme and phenomenal structure clearly showed that the different actors argued in different ways. Whereas, most of the time employer associations view that it is school's responsibility to enhance the work readiness of the school leavers, on the contrary, trade unions regard a lack of training or working places and the resulting tougher recruiting processes and rising standards set by employers (see for empirical evidence of this phenomenon Modestino et al. 2016) as the source of the problem. The government changed its argumentative pattern over time, recognizing the problem of "lacking work readiness of young school-leaver", and the increasingly poor preparation by schools respectively.

Beside the different interpretative schemes and phenomenal structures used by each key actors, evidence also shows that, depending on the availability of training in work places, the key actors argue in different patterns using different reasons to explain problems with the school-to-work transition. For example in times, when less training places are available than the number of applicants, employer associations argue that schools prepare

the students poorly, taking the poor preparation as a reason for not being able to employ more school leavers. On the contrary, in times when less applicants are available than training places, they argue, that they will exploit the full capability of the school leavers and even weaker students may get chance to get recruited.

Furthermore a first comparison of the two countries shows that similarities between the argumentative patterns exist so far, even though more data needs to be analyzed to for further comparative conclusions.

## 5    Conclusion

The preliminary findings of this study show similarities of the interpretative schemes and phenomenal structures between Germany and England, even though both countries are different in the design of their vocational education and training as well as labor market-system. This phenomenon leads to the first assumption of this study: the discourse about work-readiness seems to be a global trend independent of the specific country.

The research findings further show that different actors use different reasons to explain difficulties in the school-to-work transition. Lack of work readiness, as one reason, is mainly used by employer associations and less by trade unions. It is also evident that the argumentation patterns change, depending on the socio-economic and education political situation.

Further research findings would be drawn after the completion of the analysis of data.

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# The model of knowledge in the career choice process: Empirical research on the importance of self-efficacy and outcome expectations on career choice activities and knowledge about the occupation favored by young adults before the school-to-work transition

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**Abstract:** Making a successful school-to-work transition seems to require extensive knowledge about the favored occupation, thus increasing the probability of a perfectly fitting career choice. Which factors are connected to that knowledge and how can young adults acquire it? The social cognitive career theory by Lent, Brown and Hackett (1994, 2002) argues that self-efficacy and outcome expectations influence behavior in the career choice process. A theoretical model has been designed in Germany describing knowledge about the favored occupation as a result of enhanced efficacy beliefs and intense career choice activities. The empirical verification has been performed via path analysis on a longitudinal section dataset using three measurements of 697 young adults in secondary school. In addition to the successful adaptation of the model, direct effects of self-efficacy on career choice activities and on knowledge as well as direct effects of exploration on knowledge can be found. These findings confirm the important role of self-efficacy by explaining the activities: Young adults are more active in the career choice process when they feel confident in their abilities. Pedagogical interventions could use these results as a starting point. After determination of strengths and self-efficacy, young adults can then be encouraged and supported individually. Therefore, this study's target audiences are academics as well as parents, teachers, and career counselors accompanying the career choice process of young adults.

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## 1    Introduction

Choosing an occupation appears to be a challenge for young adults. For a successful school-to-work transition, extensive knowledge about the favored occupation seems to be necessary, thus increasing the probability of a perfectly fitting career choice and to minimizing the risk of a dropping out during educational training. Such relations to the successes in the educational training and the vocational satisfaction were found by Seifert, Bergmann and Eder (1987). These results and the special meaning of knowledge about the favored occupation play an important role in the theoretical expectations and presuppositions surrounding career choice. The newly designed model of knowledge in the career choice process describes knowledge about the favored occupation as a result of enhanced efficacy beliefs and intense career choice activities.

## 2    Theoretical Background

The construction of the model of knowledge in the career choice process is based on the theoretical expectations and models of the social cognitive career theory (SCCT) by Lent, Brown and Hackett (1994, 2002) and is therefore designed as a path model. The social cognitive career theory by Lent et al. (1994, 2002) argues that self-efficacy and outcome expectations influence the behavior during the career choice process. These three authors designed different models to explain the development of the interests, the career-related choice behavior, the performance and the work satisfaction.

Bandura (1997) describes self-efficacy as the attitude of a person to direct his/her focus consistently and successfully on an activity. Self-efficacy has an effect on motivation as well as on effort and the perseverance required in problem solving. In the models of the social cognitive career theory, self-efficacy is therefore a central variable. Self-efficacy, as the subjective estimation of one's abilities, determines the degree of the readiness and activity of a person to deal with individual and social mediated challenges or tasks. However, outcome expectations include the expectation of the consequences of the personal behavior.

## 3    Model development, procedure and methods

Based on these previous models of the SCCT and as an extension, a new theoretical model has been designed for the first time. This new model describes the acquisition of knowledge about the favored occupation as a result of enhanced efficacy beliefs and intense career choice activities. Information readiness as a motivational requirement, together with exploration as an activity to explore the self and the environment, are important conditions for an individually successful school-to-work transition. Information readiness and exploration together are the two career choice activities in the model. Altogether the model of knowledge in the career choice process includes newly invented relations, in particular because the variables have been changed compared to the older SCCT models.

In the SCCT, interests and goals are seen as the requirement to achieve both performance and satisfaction. The variables "interests and goals" were varied to explain knowledge and the development of knowledge directly involved in the career choice process. Information readiness and exploration are seen as appropriate ways to show the readiness for an active confrontation with the career choice and also include further development of interests and goals. In this way, knowledge about the favored occupation is the result of increased beliefs in their personal abilities and the result of intensive career choice activities.
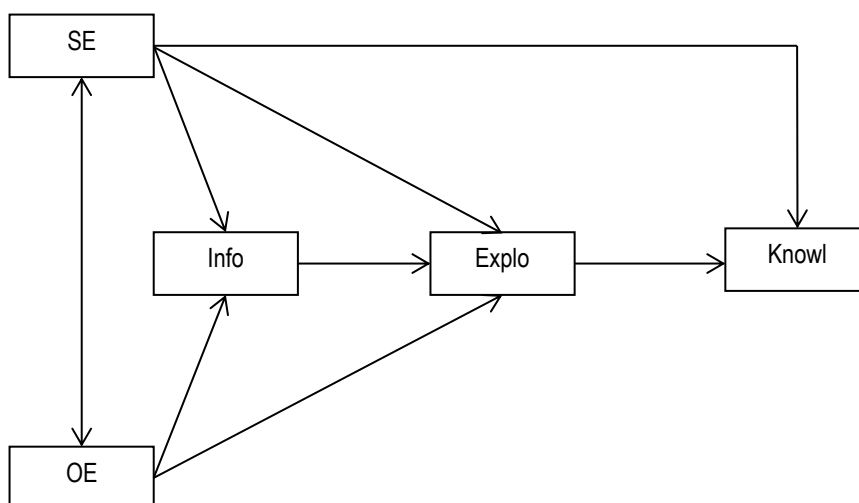
**Figure 1: The model of knowledge in the career choice process (cross-section)**

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation

The empirical verification of the shown model in Figure 1 is performed via path analysis on one cross-section and one longitudinal section dataset using three measurements (with 6 months difference between each measurement) on 697 young adults in secondary school in grades 7 to 10.

The scales used are part of a concept to measure the career choice competence (in German: *Berufswahlkompetenz*) by Ratschinski (2008, 2012). The scales used in the study are as follows:

- Self-efficacy, a 12-item scale by Fouad, Smith & Enochs (1997)
- Outcome expectations scale with 5 items by Fouad et al. (1997)
- Information readiness, using a 5-item scale by Seifert & Stangl (1986)
- Exploration using a 6 item scale by Kracke (1997)
- Knowledge via a 9-item scale developed by Seifert & Eder (1985)

## 4　Results

**Table 1: Analyze of mean, standard deviation (SD) and estimate of the reliability (alpha) between the 3 measurements (MEAS)**

|  | MEAS 1 (n=697) | | | MEAS 2 (n=697) | | | MEAS 3 (n=697) | | |
|---|---|---|---|---|---|---|---|---|---|
|  | Mean | SD | Alpha | Mean | SD | alpha | Mean | SD | alpha |
| self-efficacy | 2.12 | 0.45 | .87 | 2.09 | 0.51 | .91 | 2.18 | 0.58 | .94 |
| outcome expectations | 2.10 | 0.51 | .77 | 2.08 | 0.57 | .84 | 2.11 | 0.62 | .86 |
| information readiness | 2.35 | 0.55 | .73 | 2.24 | 0.68 | .86 | 2.24 | 0.67 | .86 |
| exploration | 2.06 | 0.60 | .83 | 1.98 | 0.64 | .85 | 2.04 | 0.66 | .87 |
| knowledge | 1.68 | 0.69 | .92 | 1.82 | 0.68 | .93 | 2.01 | 0.68 | .95 |

Range of means: 0-3

All the reliabilities of the scales are above .7 and therefore useful for a longitudinal section. The analyze of the results first starts with the model test in the cross-section. Figure 2 shows the model fits the data well and all the assumed expectations were approved; especially the path from self-efficacy to knowledge demonstrates an important relation.
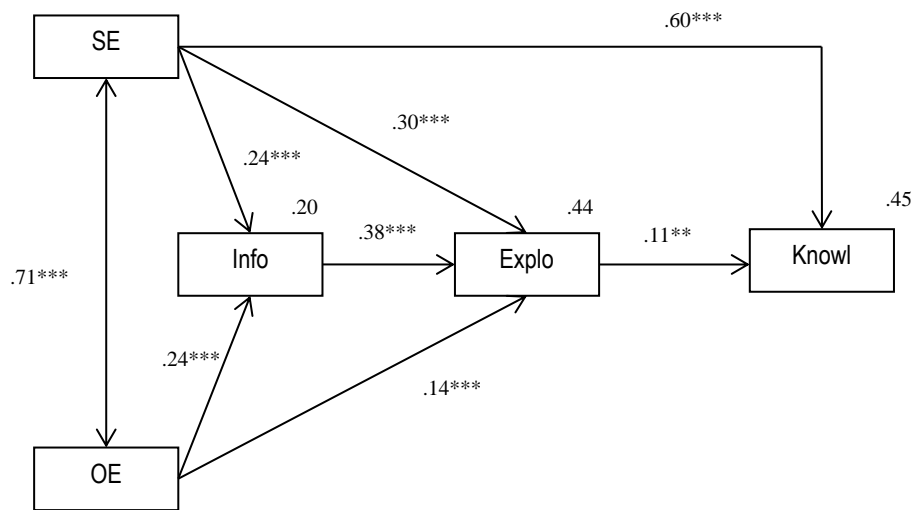
**Figure 2: Analyze of the model of knowledge in the career choice process (cross-section)**

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation
**p<.01, ***p<.001
$\chi^2$=1.77, df=2, p=.41, RMSEA=0.000, CFI=1.00

In the longitudinal section, not all assumed paths and relations can be approved, as Figure 3 reveals. In Table 2 are 22 significant paths presented. Tables 3 and 4 show the explained variance of the endogenous variables.
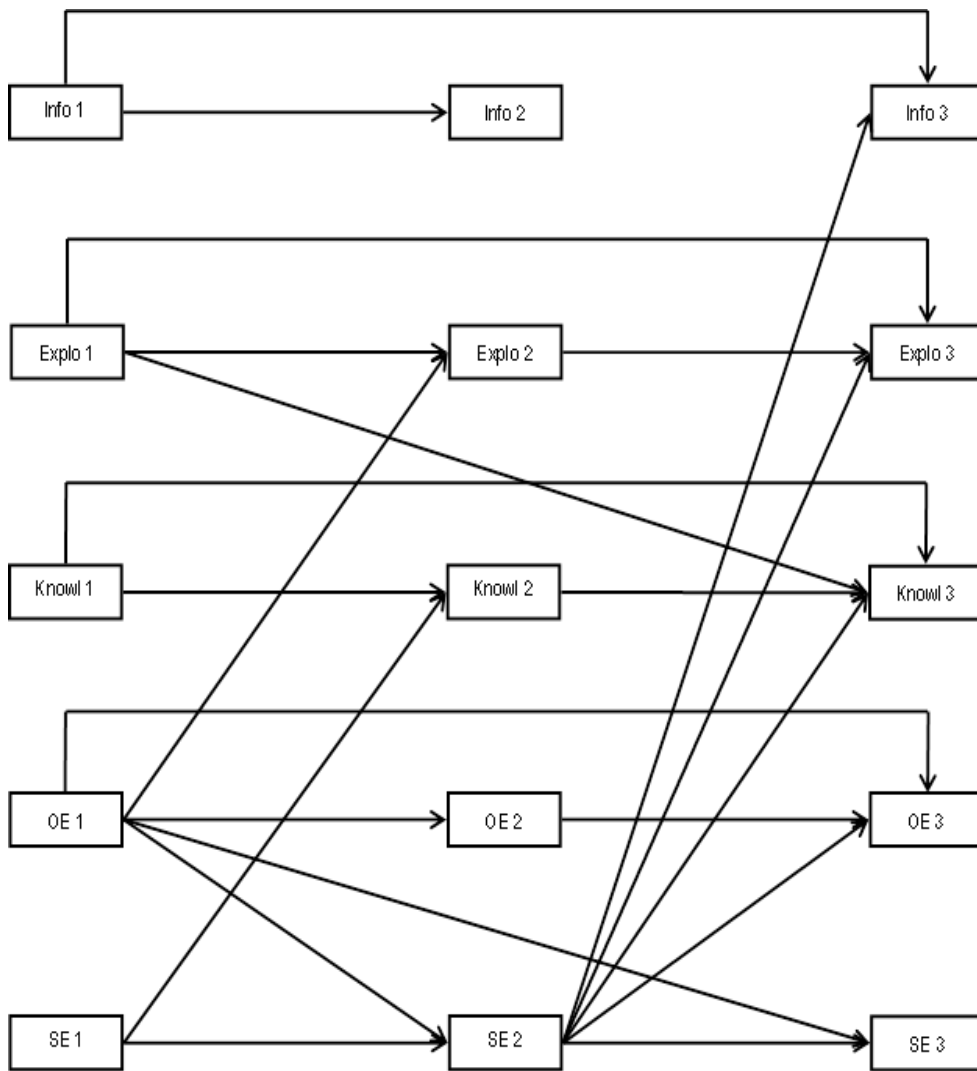
**Figure 3: Analyze of the model of knowledge in the career choice process (longitudinal section with three measurements)**

Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation, OE=outcome expectations, SE=self-efficacy
$\chi^2$=44.41, df=30, p=.04, RMSEA=0.026, CFI=1.00
All non-significant paths have been removed

**Table 2: The significant paths in the model**

| Paths | Stand. solution |
|---|---|
| Info 1 -> Info 2 | .18*** |
| Explo 1 -> Explo 2 | .16*** |
| Knowl 1 -> Knowl 2 | .28*** |
| OE 1 -> Explo 2 | .11* |
| OE 1 -> OE 2 | .25*** |
| OE 1 -> SE 2 | .09* |
| SE 1 -> Knowl 2 | .14*** |
| SE 1 -> SE 2 | .22*** |
| Info 1 -> Info 3 | .12*** |
| Explo 1 -> Explo 3 | .07* |
| Explo 1 -> Knowl 3 | .08* |
| Knowl 1 -> Knowl 3 | .17*** |
| OE 1 -> OE 3 | .13*** |
| OE 1 -> SE 3 | .08* |
| Explo 2 -> Explo 3 | .11** |
| Knowl 2 -> Knowl 3 | .18*** |
| OE 2 -> OE 3 | .09* |
| SE 2 -> Info 3 | .12** |
| SE 2 -> Explo 3 | .19*** |
| SE 2 -> Knowl 3 | .21*** |
| SE 2 -> OE 3 | .22*** |
| SE 2 -> SE 3 | .27*** |

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation
*$p<.05$, **$p<.01$, ***$p<.001$

**Table 3: explained variance in measurement 2**

| $r^2$ Info 2 | $r^2$ Explo 2 | $r^2$ Knowl 2 | $r^2$ OE 2 | $r^2$ SE 2 |
|---|---|---|---|---|
| .05 | .08 | .13 | .08 | .09 |

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation

**Table 4: explained variance in measurement 3**

| r² Info 3 | r² Explo 3 | r² Knowl 3 | r² OE 3 | r² SE 3 |
|-----------|------------|------------|---------|---------|
| .09       | .12        | .17        | .11     | .14     |

SE=self-efficacy, OE=outcome expectations, Info=information readiness, Explo=exploration, Knowl=knowledge about the favored occupation

In addition to the successful adaptation of the model, we found direct effects of self-efficacy on career choice activities and on knowledge after 6 months as well as a direct effect of exploration on knowledge after 12 months. The relation between self-efficacy and knowledge about the favored occupation were found twice, both after 6 months. The expected relation of information readiness to the exploration cannot be observed over time. Paths of outcome expectations to the career choice activities were also found just once, but the relation to self-efficacy could be confirmed in two paths. As a very important result it can be seen that the expected effects of self-efficacy on the career choice activities and on knowledge about the favored occupation were found from the second measurement time on,  and thus after the effect of outcome expectations to self-efficacy. Furthermore, the effects of self-efficacy on career choice activities and on knowledge are more important for estimating the variance of the variables in the third measurement than their autoregressive paths.

## 5    Conclusion

These findings confirm the important role of self-efficacy by explaining the activities: Young adults are more active in their career choice process when they feel confident about their abilities. In addition, the results of the longitudinal section model allow the interpretation that the expected direct effects of the self-efficacy on career choice activities and knowledge exist only after self-efficacy is somehow influenced by outcome expectations. Thus it is possible that the belief that an end result is attractive, increases the confidence in one's abilities. An adolescent has higher confidence in his or her abilities to solve exercises and challenges, when the desired result seems to be worthwhile. This then increases the activity in the career choice process and the knowledge about the favored occupation under consideration.

The relation between exploration (t1) and knowledge (t3) demonstrates: Exploration leads to knowledge after 12 months. Therefore, until accomplished exploration can increase knowledge significantly and until the reflection about collected vocational experiences is completed, requires a long period of time. This seems to require about 12 months; 6 months appear not to be long enough. Thus, young adults should given much more time to reflect. At the same time, parents and teachers should be more patient, as immediate changes or increases in knowledge by exploration cannot be expected.

Overall, self-efficacy has the most direct effects on the career choice activities and on knowledge in the longitudinal section model. Pedagogical interventions could use these results as a starting point. After determination of self-efficacy, young adults can then be encouraged and supported individually. In particular, the relation of self-efficacy to knowledge is strong and observed more often. This effect on knowledge is more important than the effect of the exploration to knowledge. Therefore, if teachers, parents or career counselors try to increase the knowledge (and the activities) to support young adults in the career choice process, they can use the sources of self-efficacy by Bandura (1997). The first source (past performance) is the most effective possibility to increase the self-efficacy. Young adults should gather their own experience and knowledge in different vocational and career decision tasks to get the experience of being successful using their own abilities. Furthermore, teachers and parents can show positive role models with similar, important characteristics (for example background, gender and age) to improve self-efficacy (second source of self-efficacy: vicarious experiences). The role model demonstrates another adolescent has been successful in this task before, like the career decision or the school-to-work transition. Furthermore, verbal persuasion (third source of self-efficacy) can help young adults and could be practiced by both teachers and parents. Moreover, for both aspects peers and peer education are useful. People in the same age (peers) can be better modeled and understood, their credibility is higher and they are more authentic in problem-solving.

This study has limitations: It should be noted that the assumed model has been tested with only one data selection with a group of secondary pupils from one region in Germany. Therefore the results are not universally applicable. The results and the path model should be verified using a second data set.

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Session 5.2
**Teacher Training**

# *Networked shaping* – a perspective for international vocational education and further education of vocational educators

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**Abstract:** The vocational education systems and the competence of educators are challenged globally by international competitiveness combined with shaping of work that is socially compatible. Many projects (see: http://eicker-bbw.de/index.php/abgeschlossen.html) in Germany, China and parts of Sub-Saharan Africa have proven that an international dialogue is helpful to develop the vocational education and the education and further education of the vocational staff. Useful developments can be initiated together and in a regionally appropriate manner. A networked shaping is demanded that supports cognitive processes and processes of change. The staff of any institution that deals with vocational education (universities, vocational schools, companies and other vocational educational settings, VET administration) can acquire competencies to participate in the shaping of VET systems, respectively in the field of shaping-/competence-oriented and networked teaching and learning. Thus, it can be expected that in future the employees are able to participate in the shaping of 'their' work processes - usefully and in a socially compatible manner. This article mainly deals with the further education of VET pedagogues[43]. The statements can be applied by analogy on their initial and further education too.

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[43] Educators who work in the initial, further and advanced vocational education in universities, colleges / vocational schools, companies and other vocational educational settings and in the VET administration.

*Focus*: teacher training, shaping competence development, network development for Vocational Education and Training

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Kai-A. Fiedler is President of BSK International where he oversees corporations and projects in China, Indonesia and India. He is in frequent and direct touch with Presidents of public Universities and public Universities of Applied Sciences, (incl. TU9-, UAS7-, 985- and 211-Member Universities). Kai-A. Fiedler gives lectures on different topics on higher education on a regular base, incl. topics about "Industry 4.0".

## Introduction

In February 2017, the German government passed a new strategy for internationalization. Programs in Sub-Saharan Africa will be supported as well as other initiatives (Afrikastrategie des BMBF 2014-2018, BMZ „Marshallplan für Afrika", Beschluss des Bundestages zur Kooperation mit Sub-Sahara Afrika from 26th January 2017).

This encourages to reconsider the situation of vocational education in Sub-Saharan Africa and supporting projects. The support was already given by the Rostock University in the field „Technical Vocational Education" and later on by the Siegen University, by the Chair of Technical Vocational Didactics. Initially, only for the Pedagogical University of Maputo in Mozambique and later on also for the University of the Witwatersrand in Johannesburg / South Africa and for the Jimma University in Ethiopia in the project *Further Education and Research Network for VET-Pedagogues*[44] *in Subsaharan Africa* (VET-Net)[45]. The project aimed to further educate the VET pedagogues in a network of these three African universities[46]. It was shown that the African partners (university teachers, who were new to the field of vocational education, and some VET pedagogues) were able to acquire competencies by establishing and running a mutual further education network (Universität Rostock, 2016). This has not been possible without the coordinated, diverse and long-term support by experienced VET experts in the long term. An internationally staffed VET network is demanded where the African colleagues can acquire real competencies to shape the further education network on their own.

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[44] Professional Pedagogues means teaching staff who teach at universities, colleges / vocational schools, companies and other vocational education and training institutions. The global term is Vocational Education and Training (VET). TVET means Technical Vocational Education and Training.

[45] The project was supported by the DAAD from 2012-2015. See: Universität Rostock, Arbeitsbereich Technische Bildung, 2016.

[46] Preceding projects of VET-Net were the DAAD projects LEKOM: Teaching and Development Expertise for TVET Teachers in Mozambique (2008-2010) and LEFOMO: Teacher Education and Training in Mozambique (2010-2012) on further education of technical teachers in Mozambique.

This is possible in an extended way in the continuation of the existing VET-Net. Here, it would be possible to firstly extend the network on already informally involved universities in Namibia and universities and VET colleges in China.

The African partners can profit from the experience of the Chinese colleagues. A few years ago, the latter had to face a similar situation like Africa today: The economic situation demanded a – networked – further development of VET, planned for the long term and especially it demanded the further education of VET pedagogues[47]. By now, this was implemented very successfully: Chinese universities and VET institutions today are largely able to shape the demanded work processes[48]. Not least because of the close contacts of the Siegen University to China, the opportunity arises to implement a further education network for VET pedagogues in Sub-Saharan Africa with long-term German and Chinese support.

## On the initial situation

The initiation of further education activities for VET pedagogues is the central and specific task in the planned network. Up to now, this was neglected in Sub-Saharan Africa (Lolwana, 2017, p.11 ff.). It would be a mistake to underrate this specific demand for development in the future (Oketch, 2017, p. 25 ff.).

The African universities have agreed to integrate the further education of the VET pedagogues in their universities to a large extent (Universität Rostock, 2016). But they themselves often need (subject-specific, didactic/methodical, vocational scientific) further education to act in a practical way and in a network. Therefore, a long-term and multi-phase development project is necessary. First cooperative shaping competence oriented networks[49] have evolved during development projects in Germany, China and Sub-Saharan Africa. Conditions of success, supportive[50] and obstructive features for the planned shaping competence oriented network were emphasised (Haseloff, 2017). Now, these experiences can help to create and use a Train the Trainer-System (Haseloff, 2017, p. 127).

## On the task

As a first step, the existing networks will be brought together[51]. Focus of the network activities will be the creation and implementation of a Train the Trainer further education system ("TtT-System"), which is highly flexible, accompanies work and learning processes, supports the acquisition of shaping competence and is oriented on further education capabilities and demands of the countries or regions (see Eicker 2017, p. 119-126, Haseloff 2017, p. 127-133). Step-by-step, competencies that are oriented on shaping and networking will be acquired and broadened during establishing and using the "TtT-System", firstly amongst university lecturers and possibly later on amongst pedagogues from other VET institutions. The further education network with the "TtT-System" will be leaded by a sustainable sponsorship. Those, who shape and use the further education network, will found a non-profit company (in German: gGmbH – Gemeinnützige Gesellschaft mit beschränkter Haftung) or any other corporate form.

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[47] Flexible work forces and those, who are competent in shaping, were demanded by the intensifying production for the Chinese market and by the planned production for the international market.

[48] Successful activities of the Beijing Academy of Educational Sciences can be named here.

[49] Especially in R&D projects, e.g.: MANO, EUROINNO, UNI-KOM.NET, LFC, LEKOM, LEFOMO, VET-Net – see http://eicker-bbw.de/index.php/abgeschlossen.html

[50] Particular good experiences could be made in the network HUS-ZGA (Handwerk-Universität-Schule – Zentrum für Gebäudeautomation gGmbH in Bremen). See HUS-ZGA gGmbH (1992, 1993).

[51] In particular in regions around Jimma / Ethiopia, Johannesburg / South Africa and Maputo (as well as Beira-Chimoio and Nampula) / Mozambique, which already work together with "their" universities.

## Approach to solve the task

The starting point here are shaping competence and networking – terms that constitute VET and the education and further education of pedagogues[52]. The importance of a shaping-/competence-oriented and networked further education strategy was declared, proved and demonstrated in first steps (Eicker and Haseloff, 2016).

## The "TtT-System"

The "TtT-System", which was developed in the VET-Net project, is the fundamental basis for the discussion about the planned further education network.



"TtT-System": Train the Trainers – Further education of vocational pedagogues in a „trial System" (universities in cooperation with companies and vocational colleges / schools)

Network:
University (leadership)
… work together to solve important work and learning tasks
Company
Vocational college / school
… development of shaping competence

Own source (after discussions in the project VET-Net
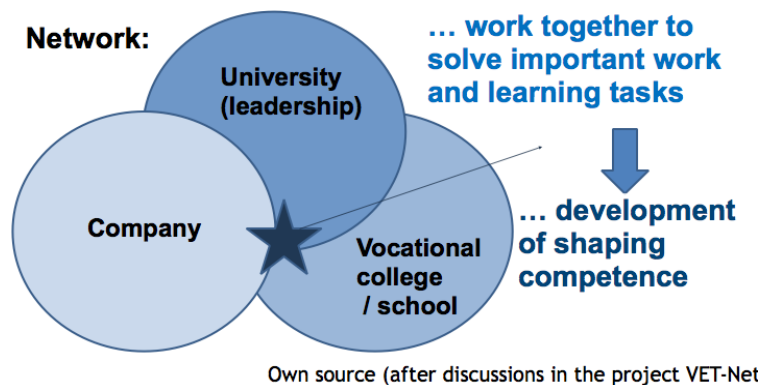
Abb. 1

The participants of the "TtT-System" carry out a suitable learning project according to their level and characteristics of competencies and according to their involvement in their work conditions. Their learning is accompanying work processes. Usually, the learning project will be leaded by university. It will be executed together – in a network – with the partners in colleges / VET-schools, companies and other VET surroundings.

The learners identify a (promising) working task, which is relevant in the work or learning environment. Then, the learners transfer it into a learning task. The learners acquire the aspired (higher) competence by solving the learning task together (in the process of complete action (see Hacker, 1998; Volpert, 2005). The teachers support the learning efforts and arrange suitable learning situations.

The learners can improve with each learning project (from the Bachelor to the Master and possibly to the PhD degree). There will be basic learning projects for participants with a very low level of competencies respectively with unilaterally developed competencies. The success of learning and therefore the admission to a higher learning project will be determined by a standing committee (the local "regional group"). The "regional group" is also responsible for the local organization of the "system".

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[52] Shaping is understood as specific, individual action within the scope of social activity respectively of work activity under social and operational conditions (see Eicker und Haseloff, 2016).

Own source (after discussions in the project VET-Net)
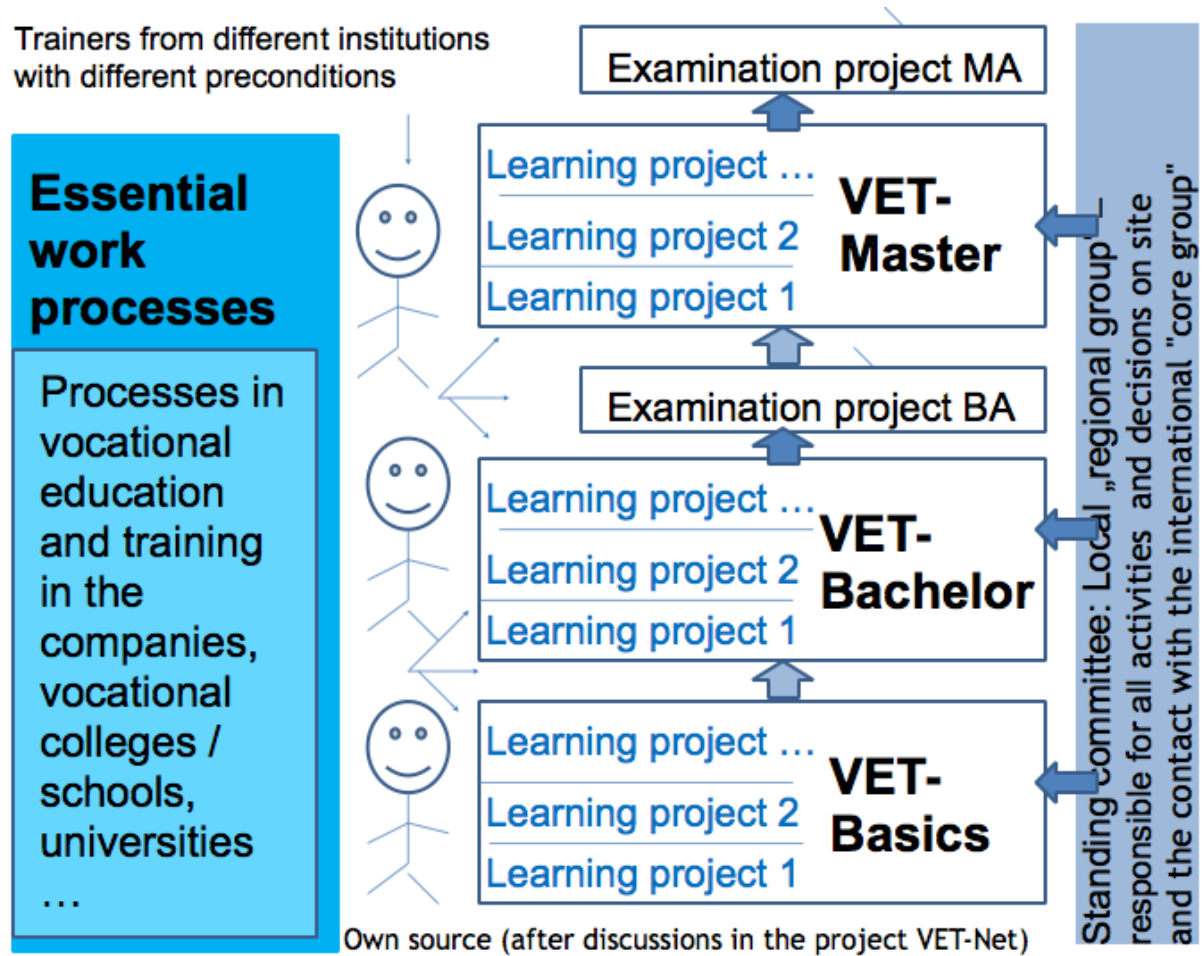
Abb.2

Advantages of the creation and usage of the "TtT-System":

1. The underdeveloped further education of VET pedagogues in the African partner countries is supported.
2. The further education system and the further education are shaping competence oriented and let the participants acquire shaping competence in using networks and considering alternatives (for the shaping of VET systems and for VET).
3. There is a – direct – orientation on work processes and on demanded teaching and learning.
4. The learners act on their own and actively with the help of the teachers.
5. The further education orients on the possibilities of the universities, colleges / VET schools, companies and other work and learning surroundings and on the individual demands of the learners.
6. The learners are able to further educate themselves during their whole work / professional life and can get their intended degrees.
7. The "system" offers systematic and holistic learning by integrating and offering consecutive and interdependent learning projects – which conform vocational scientific knowledge combined with single academic / subject-specific knowledge; where not only „theoretical" knowledge is taught but also "practical" skills.

8.  The focus of the learning projects are the learning tasks, which are solved by the learners more or less on their own with the help of the teacher. Therefore, the learners acquire competences to shape "their" work processes (which are useful in university / school / company).

9.  The "system" is open with regards to content – the learning projects are provisionally named, described and justified (Eicker, 2009b; Yi Li and Yi Yanming, 2016; Eicker and Haseloff, 2016) and are continually developed.

10.  The networked cooperation ensures an international standard.

11.  Regional (social and operational) demands will be met in the context of super-regional / international demands.

12.  The participants are themselves co-creators of "their" further education system.

## The meaning of networking

In the planned project, on the one hand, networked shaping means cooperation in the implementation and usage of the further education network and on the other hand, it means cooperation in the shaping of the learning projects. Here, each work or learning institution respectively their participants (university lecturers, college / VET school teachers and learners / trainees) bring in their specific competencies. This allows to accomplish far more than any institution or person could accomplish on its own. The existing potential for shaping is used (see Hartmann & Eicker 2003, Eicker 2009a). The cross-regional/-border cooperation allows to meet international standards (Eicker, 2009a, p. 114-134).

## The meaning of alternative shaping

On the one hand, alternatives are needed with regards to different possibilities of shaping and the need for networking (Eicker and Haseloff 2016, Haseloff 2017) and on the other hand with regards to the possibilities and reasonableness of the offered content / learning projects. The respective alternatives need to be argued, to be portrayed and to be discussed. Consequences need to be drawn from this. During the process of shaping, there are almost always several alternative ways to reach the aspired aim and along those ways other, more meaningful aims open up. This needs to be investigated in order to realize something meaningful.

## Autonomously-active shaping

Further consideration is needed on how the participants firstly establish and operate the aspired further education network together and autonomously-active and secondly, how they can learn autonomously-active shaping in the learning process (Eicker, Bohne and Haseloff, 2017; Eicker, 2009b, Yi Li and Yi Yanming, 2016, Eicker and Haseloff 2016). The – external – experts "only" initiate, give an impulse, help and arrange shaping and learning situations. According to the insight that only autonomous action can lead to real competence, the shapers and learners establish and operate the network and shape the learning projects in an autonomously-active way (Eicker, Bohne and Haseloff, 2017).

## Task-oriented shaping

The (alternative) shaping and learning tasks, which are posed to the learners while establishing and operating the further education network and which are posed to the learners in the learning projects are the pivotal points in all planned shaping and learning activities. Also, the ways to solve the task constitute from the statement of tasks. This concerns the content and any planning, decision, realization, controlling and evaluation of the solution process. Different from "traditional" shaping and learning processes, it is not about fixed or given aims and contents from the exterior (Haseloff, 2017). Instead, the learners orient on tasks which derive from their real living and work environment. As a basic principle, they make their own decisions on shaping and learning – with the help of the teacher (Eicker, Bohne and Haseloff, 2017).

## Orientation on a "model of shaping and reflection"

The "model of shaping and reflection" takes into account the whole path starting from working or teaching to shaping of the network respectively to learning with reference to working and teaching. Such a "model" with different characteristics was identified and proved during the last years. Work, working processes, teaching and teaching processes in work and teaching fields need to be considered and work and teaching tasks need to be identified. The work and teaching tasks need to be transferred into learning tasks. Shaping and learning fields need to be described, which explain how the shaping or learning task can be solved in a network and how the shapers or learners can arrange suitable shaping / learning situations (Hartmann, 2009, p. 64-79; 2017, p. 104-111; Eicker, 2007, p. 19-38; 2009b, p. 35-63; 2010, p. 668-670).

## A first plan on content-related organisation of the learning projects

The learning projects have the focus on vocational sciences with regards to insights of individual sciences, a focus on pedagogy, didactic and methodology is planned and subject-specific emphases from relevant vocational fields[53] have been made. It is planned to organize the learning projects in four levels (Basics, relevant for Bachelor, relevant for Master, relevant for PhD[54]). As a first step, relevant Basic-, Bachelor- and Master-learning projects have been identified, justified and partially proved (Eicker and Haseloff, 2016; Eicker and Haseloff, 2013; p. 31-32, Eicker and Haseloff, 2015; Eicker and Bohne, 2017).

## On sponsorship and finances

Firstly, the provider of the activities for establishing and using are the institutions, which already dealt with the relevant further education activities in China, Sub-Saharan Africa and Germany. They form an initiation and coordination circle, a "core group"[55]. It is their task to (further) establish and use the "regional networks" and to work towards cooperation within the "whole network". This includes an ongoing dialogue on the shaping of the network and the "TtT-System" with the shaping of the learning projects and the evaluation. Furthermore, it includes to attract further supportive (international) universities and other institutions. The supporters form a pool of experts, a "support-group"[56], who supports the work of the „core group". The "core group" works towards the founding of a sustainable sponsorship in a non-profit organization (see above) or any other meaningful sponsorship.

The operation of the "regional network" is coordinated locally by a "regional group", who is located in a university of that region. The "regional group" deals with: the integration of regional VET institutions, assessment and certification of competencies and admission to the regional learning project, recruitment of suitable teaching experts, and overall, they are responsible for the planning, execution and evaluation of the learning projects. Delegates from the "regional group" contribute to the "core group".

New media, e.g. a learning management system[57] is used to communicate between the work groups. Moreover once a year, a symposium will be held on the new expectations in VET and further education

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[53] Preceding projects have shown that subject-specific further education for the learners is necessary, but no "TtT-System" is needed for this. Therefore, original subject-specific further education programs (learning projects) were not considered here.

[54] PHD level is needed in African colleges / VET schools and universities. But it turned out that this is not a realistic near- or medium-term plan. Therefore, PHD level is not considered further here.

[55] We consider partners of the Universidade Pedagogica Maputo / Mozambique, the University of the Witwatersrand in Johannesburg / South Africa, the Jimma University / Ethiopia, the University of Siegen / Germany, the Beijing Academy of Educational Sciences / China, the Tianjin University / China, the Beijing Normal University / China and the bsk International in Xiamen / China.

[56] Universities that have long-dated – different – experiences in the establishing and operation of VET networks.

[57] In different VET networks, experiences were made with „work, communication and teaching / learning networks" (Eicker and Bohne, 2017).

The following can be used to fund the establishing and operation of the network: Fees for learning projects in the universities, colleges / VET schools, companies etc., fees for participants and if needed, national and international funding programs.

## Perspective

The proposed development project meets all criteria of the „7-Punkte-Maßnahmenpapier in Bildung und Forschung: Perspektiven schaffen für Afrika" of BMBF. Therefore, the chances are high to start the proposed development project and to (further) support the establishing and operation of the further education network (that can support the establishing and operation of the planned further education network for VET pedagogues in Sub-Saharan Africa, China, Germany and other countries see, http://eicker-bbw.de/index.php/ab-2010.html).

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# The need of developing a self-critical experimental attitude – intentions, concepts and consequences for vocational teacher education

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**Abstract:** The central aim of teacher education is to develop a profound scientific professionalism, which enables teachers to reflect upon their educational actions in a complex and non-standardized pedagogical environment. In this sense, study programs in teacher education for vocational schools should foster the development of both a self-critical experimental attitude and an inquiry-based disposition, as well as the willingness to engage in self-reflection. The development of such attitudes is enabled by the concepts of reflexive and research-based learning, which will be outlined in this paper.

## 1    Introduction

Teachers should be equipped with a profound scientific professionalism that enables them to cope with complex and non-standardized pedagogic-didactic situations, which require further interpretation in a professional manner (Fichten, 2010; Naeve-Stoß & Tramm, 2016). Such professional action is based on a competence that can be substantiated according to the three following dimensions:

1.  Knowledge and expertise: Teachers should have a differentiated and integrated knowledge and expertise on relevant pedagogic-didactic areas and condition fields.
2.  Attitudes and behavior: Teachers should have self-critical experimental attitudes as well as the willingness to engage in reflective practice.
3.  Ethos and identity: Professional teachers should have both a pedagogical ethos as well as a balanced identity.

With regard to these objectives it seems reasonable to foster not only scientific competencies and teaching methodologies during the study program. In fact, it is necessary to foster the development of self-critical experimental attitudes as well as the willingness to engage in reflective practice, as this enables teachers to advance their professional knowledge and expertise in their later professional life. In this context, linking personal experiences within the field of practice with the experiences of others, and especially, with results from scientific research, is of outstanding importance.

As a result, professional teachers at vocational schools face the challenge of critically and constantly reviewing their own actions and subjective convictions as well as the challenge to search for alternative (more rational) interpretations and courses of actions.

It can be assumed that such willingness and attitudes cannot be derived on a theoretical basis, which is taught within the frame of a seminar comprising two semester periods per week. Furthermore, the critical question of whether the modularized structure of study programs – and the resulting focus on institutionalized requirements and exams – contradicts the process of the development towards a reflective orientation has to be addressed (Naeve-Stoß, 2013).

Consequently, in order to foster both a critical reflective and an inquiry-based attitude the following issues have to be discussed from a curricular as well as from a didactic higher educational perspective:

- First, it has to be clarified how (self)-critical experimental and (self-)reflective attitudes develop in order to foster this development during the study program.
- Second, it has to be specified how the process of a reflective and inquiry based analysis can be reasonable sequenced during the study program with regard to future professional fields of activities. Therefore, the need for conceptualizing a logical sequence of modules spanning both bachelor's and master's programs arises. In this context, the specific contribution of each module with regard to the intended objective has to be determined and the role of indirect and direct practical relevance has to be clarified.
- *Third*, the objects of study in terms of the central theoretical and empirical approaches and concepts have to be stated for each module.
- *Fourth*, the educational conditions under which students are able to develop the desired attitudes – preferably without examination pressure – have to be explored.

In the following, the guiding principle for the central points of reference of teacher training will be introduced. Subsequently, two forms of learning for higher education, which seem to be suitable for fostering the development of (self)-critical and (self-)reflective attitudes during the study program, will be presented.

## 2    Guiding principle of reflexive learning

The core of teacher training is about linking three points of reference (Bayer et al., 1997; Weyland, 2010), as depicted in the figure below.
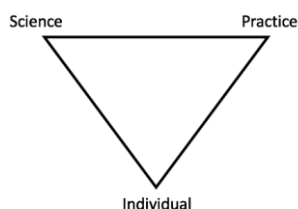


Figure 1: reference system for teacher education (Bayer et al., 1997)

The figure illustrates a reference system that serves for the determination of points of reference for the reflective learning- and development process of teacher trainees. It consists of the individual personality, the perspective of science, and the perspective of school practice. In the sense of this guiding principle, teaching offers that require students to critically reflect upon their subjective theories and experiences, have to be created (individual). The starting point for such reflective learning processes should be represented by problems, or, respectively, by innovation areas in (pedagogical) practice (Practice). Accordingly, the purpose is to provoke the subjective convictions of students by the confrontation with substantial pedagogical situations, to sensitize them for the related limitations, and to provide them with alternative theoretical access.

On this basis, students should be challenged to relate their own subjective theories to relevant scientific theories (Science) and to critically scrutinize, alter, extend, and revise their subjective theories, convictions, and value system.

From the perspective of higher education, it is therefore appropriate to incorporate direct and indirect practical examples within the frame of courses. This can be realized by both the concept of research-based learning as well as by concepts of reflexive learning. The special potentials of reflexive and research-based learning in the context of practical phases will be outlined in the following.

## 3    On the concept of research-based learning

Currently, considerable potential is attributed to the concept of research-based learning in German-speaking countries with regard to the development of (self-)critical experimental attitude (Weyland & Wittmann, 2016; Fichten, 2010; Huber, 2009). According to Fichten (2010), the great potential of this concept primarily lies in the fact that students with experiences in research-based learning apply a question-developing and critical-reflective attitude in their future professional life. In order to foster the development of such attitudes, Fichten (2010) advocates for the incorporation of research-based learning from the beginning of studies.

According to Huber (2009), research-based learning can be characterized by an autonomous working or the active participation and involvement of students in the key stages – reaching from research question and hypotheses development over research design and execution to validation and the presentation of results – of a larger research project, which aims to acquire knowledge that is useful and interesting to third parties.

In an ideal-typical manner the students develop and systematically examine research questions they are interested in according to scientific rules and procedures to acquire new insights. In this case, "new" means not formerly known by the participants (Fichten, 2010). In this context, various authors highlight the important role of the future professional practice for research-based learning, as it represents the starting point and the empirical field of research in which the research question is formulated and the data is gathered. Furthermore, and in terms of action research (Altrichter & Posch, 1998), ideas and recommendations for the further development of professional practice are derived (Fichten, 2010).

The central challenge within the study program for teacher training is to develop a reasonable sequence of research-based learning for embedding this concept in modularized study programs to support and supervise the development of students in this area across different study modules.

## 4    On the concept of reflexive learning

Practical phases offer the potential that students confront themselves with daily school practice in a reflective way (Naeve-Stoß & Tramm, 2016; Schön, 1983). This enables students both to discover their own and the attitudes of others as well as to critically reflect and to further develop their attitudes.

However, to allow for theory-driven reflections within the frame of school internships, specific impetuses are needed. On the one hand, this enables the demonstration of realm of experiences. On the other hand, it also reveals how and which experiences the students can and should gather during the internship.

Such reflections could be initiated by specific mandates for action and by observational tasks, which have been jointly developed during the process of preparation or during the internship within the scope of accompanying seminars.  In addition, different instruments can be used for documentation, reflection, and analysis of experiences, such as learning journals or portfolios (Riebenbauer & Naeve-Stoß, 2013).

However, to ensure the theory-driven reflection of experiences, a model that explicitly addresses the phase of incorporating theories and scientific models and concepts should be used. Following Korthagen (2002), such a model comprises the following phases:

1. *Pre-structuring*: In the context of preparation students get a mandate for action and an observational task that should be processed until the next meeting. The objective of this task is to gather specific experiences at school. An example is a school portrait or a portrait about a specific pupil.

2.  *Experience*: The students process the task at school. For example, they gather information about the pupil by observations or by talking to him/her and to colleagues. Within the scope of this task the students gain pre-structured experiences they would not have gained otherwise.
3.  *Structuring*: Within the scope of an accompanying seminar the students discuss their results and exchange their experiences made during the internship at school. This enables the structuring of the experience.
4.  *Focusing*: During the previous step, different ideal-typical aspects have been evolved, which can be deepened. This step focuses on a specific theme. For example, with regard to the portrait about a specific pupil, the focus is laid on the implicit personality theory.
5.  *Theory*: The fifth step comprises the integration of theoretical models and concepts and deals with the theory-driven evaluation of the focus that has been identified during the former step.

On the one hand, a particular challenge for the reflection of practical experiences is to respond to the individual development needs of students. On the other hand, relevant and meaningful theoretical points of reference must be used in order to create an additional benefit for students.

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# Vocational excellence in practices: a case narrative approach

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**Abstract:** The approach in this paper has been developed in order to document and develop the goods and virtues of various vocational practices from a practical knowledge perspective. The main concepts for this are Aristotle's phronesis or practical wisdom and MacIntyre's understanding of practices. Case narratives of unusual richness or success are at the core of the approach, each case representing an articulation of someone's practical knowledge. The conclusion is that biographical cases are uniquely positioned to surface knowledge of the various goods and virtues that can be developed and enacted in a particular practice. This, in turn, contributes to the insight with which we are able to design vocational education and training curricula and tasks as well as enriching the way in which we can imagine practically wise action in various vocational contexts.

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## 1    Introduction

In research on vocational education and training (VET) there has recently been a considerable discussion of vocational practice and practical wisdom from a more or less Aristotelian perspective (eg. Bondi et al. 2011; Green 2011; Kemmis & Smith 2008; Kinsella & Pitman 2012). Alasdair MacIntyre's (2011 [1981]) conceptualization of a practice figures prominently in this discussion but seldom as a matter for empirical investigation. His concept of a practice has thus remained largely philosophical, used to explain some theoretical aspects of vocational knowledge. As such, it has also been criticized for not actually contributing much to the discussion (Winch 2012). However, as both Hager & Halliday (2009) and Kemmis & Grootenboer (2008) state, the value of MacIntyre's concept, compared to other frequently used practice-conceptualizations such as Lave & Wenger's (1991) "communities of practice," is the explicitly normative characterization of practices that MacIntyre espouses. His normative account of practices fits well with an empirical interest in practical wisdom, where the knowledge of practitioners is articulated through case narratives. MacIntyre's practice-concept offers a potential for understanding these narratives also as expressions of excellence (the combination of virtue, moral and intellectual, with practical wisdom) in practices and the aim of this paper[58] is to explore some of the potentials with doing this.

Phronesis or practical wisdom is a concept that, in this context, goes back to Aristotle (2009). He identifies two different forms of practical knowledge, practical meaning that which relates to particular situational matters and that requires practice. One form is phronesis, which denotes the capacity to deliberate or imagine well about the right course of action to take in relation to a situation in order to promote human flourishing. The other

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[58] This paper is an abbreviated and revised version of a recent, more extensive, article: *What is excellence in practice?* (Tyson 2017).

is techne or craft-like knowledge, the skills and knowledge needed to achieve some instrumental purpose, be it architecture, cooking or surgery. A point of emphasis here is that craft-like knowledge can be profitably set down in handbooks and manuals whereas practical wisdom is a more explicitly narrative kind of knowledge, best formalized as cases (Shulman 2004). If excellence falls roughly in the domain of phronesis the corresponding concept in techne, in the context of this framework, would be expertise.

Vocational phronesis represents a perspective where it is recognized that significant parts of a person's practical wisdom are enacted and experienced in vocational contexts. Furthermore, it represents a view on vocational education and training that goes beyond it being focused solely on skill-training and technical know-how (ie. aspects of the craft-like, techne). Issues such as vocational ethics, communication, leadership and conflict resolution, are all matters that fall within the context of empirical inquiry into vocational phronesis. Compared to educational actions aiming at teaching skills and formulating principles of technical know-how, actions promoting phronesis are more difficult to systematically inquire into. They often occur in the moment and even more rare are those instances where they are characterized by unusual richness or success. Given these difficulties, the approach of using case narratives as a way of making this kind of knowledge publicly accessible has been the most direct. Such documentation is important to raise educational activity to a more reflective level and to move it beyond personal, local and tacit practices. In effect, to make it articulate and public.

The contribution that this brings to the general field of VET research is in opening up a potential for systematic empirical inquiry into vocational practices that have long remained largely tacit and local.

## 2    Conceptual framework

### 2.1  Practical knowledge and case narratives

The central objects of study are case narratives which are understood as an important source of knowledge about practices rich in phronesis, mainly because there are few other ways to surface such practices. An important aspect is that much practical knowledge is a knowledge of particulars or cases, what Schön (1987) calls a repertoire. Thus with regards to practical wisdom it is not that we lack texts where general, propositional, statements are made. It is that these are confused with practical knowledge of how to enact such general ideas in particular practice. This is where the narrative cases function as both a description of unusually successful such actions and as a contribution to the potential for other practitioners to be enriched through this in their own actions and reflections. For example, Rosenberg's (2003) non-violent communication method is usually presented in texts where the basic ideas are laid out together with a few illustrative examples. From this perspective it would instead be introduced through a bare skeleton of concepts together with a large volume of case narratives. These would present variations of how the concepts are enacted in practice when these actions are understood as especially excellent. One of the main points is that by articulating such excellence and by demonstrating that there are different ways of enacting the same idea in practice that are deemed unusually enriching it becomes possible to advance our capacity to imagine new ways of action.

### 2.2  Practices

MacIntyre characterizes practices as follows (2011, p. 218f.):

> By "a practice" I am going to mean any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended. Tic-tac-toe is not an example of a practice in this sense, nor is throwing a football with skill; but the game of football is, and so is chess. Bricklaying is not a practice; architecture is. Planting turnips is not a practice; farming

is. So are the enquiries of physics, chemistry and biology, and so is the work of the historian, and so are painting and music.

He goes on to discuss how a practice has goods internal to it, goods that constitute excellence in that practice and which are connected to the virtues possible to develop within it. Thus excellence in craft has internal or intrinsic virtues such as honesty in work, frugality in the sense of not wasting materials, and so on.[59] These goods are in contrast to those external to a practice, MacIntyre most often mentions money, fame and power, which have a tendency to corrupt it. But this is much less clear cut than it seems given that food is also an external good resulting from the practice of farming or fishing and hardly one that easily corrupts those practices (Hager 2011). MacIntyre's main example of the distinction between internal and external goods is from the practice of chess. He illustrates it with a discussion on what it means if one thinks one can initiate a child into chess as practice by rewarding it with candy every time the child engages in a chess-match. This confuses the internal goods of chess with an external good, a reward that, if it becomes habit corrupts the actual virtues attainable through skilled practice. This normative view of practice fits very well in the framework of phronesis which is squarely focused on intrinsic values relating to human flourishing.

## 3    Research design & Methodology

The research design is adapted largely from Flyvbjerg (2001, 2006) and his discussion of various forms of case study research from the perspective of phronetic social science where the aim of research is less about testable theory and more about increasing practical wisdom. Among the case study forms, he enumerates two that are of special importance here, what he calls extreme and paradigmatic cases. These correspond to the focus on unusually rich, successful and wise narratives that is at the center of the approach. The cases are extreme in that they represent unusually rich events in the lives of those telling their stories thereby corresponding to a focus on human flourishing. If they are paradigmatic, ie. unique in their capacity to bring insight, is something that is less straightforward but where an indication is the comparative fecundity of a case in enriching theorizing.

Methodologically the collection of cases can be done in several different ways. Through individual interviews, group interviews and auto/biographical writing, through course assignments or other means (Bron & West 2000; Roth 2005). Each has its own potentials and drawbacks. Mainly, the last one, working with auto/biographical writing, is effective given that there is no work with transcriptions but one loses the ongoing conversational reflection of interviews. Regardless of how the cases are documented two aspects remain important: 1. that the cases are about something unusually successful/enriching/excellent, etc. 2. that the case narrative is relatively detailed and action-oriented, ie. it describes what was done, how, with whom, etc. Judgments and generalizing statements are fine but need to be exemplified to become relevant.

The ensuing interpretation of the cases can have several different aims. One is to elicit patterns in them that can contribute new perspectives on curricula and tasks (eg. Tyson 2016a, b). Another is to use the cases for the purpose of conceptual development and differentiation (eg. Tyson 2017). A further one lies in collecting several cases about similar matters and publishing case-books for practitioners to use as basis for developing their practice. It remains to be explored to what degree larger numbers of cases can be analyzed in a more systematic fashion in order to allow for comparative work between, for example, different social, cultural and institutional contexts regarding a practice.

In the following I will present an example taken from one of Marshall Rosenberg's books on non-violent communication where he describes a case from his psychotherapeutic practice. It is a good example of both unusual excellence and (in part) sufficient detail and action orientation. It is also highlights that relevant cases

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[59] There is a critical philosophical discussion going on about MacIntyre's understanding of virtue and excellence (Cooke & Carr 2014). Suffice it to say that virtue here is understood as more than moral virtues but including these. MacIntyre's distinction between internal and external goods is also several degrees more complex than it may appear and remains to be worked out (cf. Hager 2011 for a more extended consideration).

can be found in all kinds of auto/biographical literature without therefore being contextualized as cases of vocational excellence in practice.

## 4    A case narrative example

This is a story from Rosenberg's work with non-violent communication that I view as a good example of vocational practical wisdom. I have inserted some comments throughout in order to clarify where the case narrative could use some further detail (Rosenberg 2003, p. 124ff.):

> During my practice as a psychotherapist, I was once contacted by the parents of a 20-year-old woman under psychiatric care who, for several months, had been undergoing medication, hospitalization, and shock treatments. She had become mute three months before her parents contacted me. When they brought her to my office, she had to be assisted because, left to herself, she didn't move.

> In my office, she crouched in her chair, shaking, her eyes on the floor. Trying to connect empathetically with the feelings and needs being expressed through her nonverbal message, I said, "I'm sensing that you are frightened and would like to be sure that it's safe to talk. Is that accurate?"

> She showed no reaction, so I expressed my own feeling by saying, "I'm very concerned about you, and I'd like you to tell me if there's something I could say or do to make you feel safer." Still no response. For the next forty minutes, I continued to either reflect her feelings and needs or express my own [in the best of worlds Rosenberg would include at least three-four examples of the variations of the sentences that he used]. There was no visible response, nor even the slightest recognition that I was trying to communicate with her. Finally I expressed that I was tired, and that I wanted her to return the following day.

> The next few days were like the first. I continued focusing my attention on her feelings and needs, sometimes verbally reflecting what I understood and sometimes doing so silently. From time to time I would express what was going on in myself [again a few examples would be great]. She sat shaking in her chair saying nothing.

> On the fourth day, when she still didn't respond, I reached over and held her hand. Not knowing whether my words were communicating my concern, I hoped the physical contact might do so more effectively. At first contact, her muscles tensed and she shrank further back into her chair. I was about to release her hand when I sensed a slight yielding, so I kept my hold; after a few moments I noticed a progressive relaxation on her part. I held her hand for several minutes while I talked to her as I had the first few days. Still she said nothing.

> When she arrived the next day, she appeared even more tense than before, but there was one difference: she extended a clenched fist toward me while turning her face away from me. I was at first confused by the gesture, but then sensed she had something in her hand she wanted me to have. Taking her fist in my hand, I pried open her fingers. In her palm was a crumpled note with the following message: "Please help me say what's inside."

> I was elated to receive this sign of her desire to communicate. After another hour of encouragement [again one would like to have some examples here of what Rosenberg said], she finally expressed a first sentence, slowly and fearfully. When I reflected back what I had heard her saying, she appeared relieved and then continued, slowly and fearfully, to talk.

Rosenberg finishes by quoting from a copy of a few diary-pages that she sent him a year later (I assume that he was given her permission to make them public) where she expresses her gratitude for his help in her becoming able to speak again and to experience "how wonderful it can be to share myself with other people." This is a comparatively grand narrative that contains many levels, the concrete one regarding what Rosenberg did at various stages and the more extensive that stretches over many days. It can seem easy to simply reduce the story to some principles for wise action: To try to express what one experiences in the other without value-judgments and such. To be able to describe what one feels and needs without demanding. And so on. But the strength in a narrative such as this is that it also demonstrates how these principles are lived and enacted in a particular situation within a particular practice. It is precisely the concrete situation and the actions described that turn the narrative into a source of knowledge as a story because it provides our practical imagination with something more than abstract principles, namely an example to reflect on and reinterpret. However, and this is the main argument of this paper, one single narrative can function well as an example but risks narrowing our imaginative scope by suggesting that there is one given way of acting with excellence. What is needed is rather

a collection of narratives about similar practice situations that can all be considered excellent while at the same time demonstrating a variation of actions.

## 5    Results and conclusions

This single narrative example cannot demonstrate the full scope of what can be articulated narratively regarding the goods and virtues of a practice. However it can at least give an indication of the more narrow issue how phronesis, the deliberation about how to act wisely in a situation, can be surfaced in a case. It should also clarify why the narrative form is needed and is not replaceable by general statements.

MacIntyre (2011) writes that a practice, if it is dynamic and initiates one into its virtues, is capable of contributing to the narrative unity of a person's life. So, in conclusion, what contributes to the narrative unity of the lives of participants in modern vocational practices?[60] What used to grow from the unreflected interactions of participants in vocational practices can, if the argument holds, become more of an articulate and reflective process through narrative documentation. This is important, not least since MacIntyre has received criticism for making his practices largely self-contained and opaque to outside judgment (Cooke & Carr 2014). Narrative articulations of the excellences involved in various practices open these to the understanding of those who may not be fully initiated into them but still wish to comprehend what practitioners struggle to achieve in their best moments.

Narrative cases focusing on vocational phronesis invite a systematic scholarly inquiry in order to achieve a more extensive description of particular vocational practices. Such inquiry could, perhaps, also contribute to raising the level of reflectiveness among those engaged in practice by increasing systematic awareness of what their colleagues are doing. As it stands, it seems excellences in vocational practices develop tacitly and therefore are difficult to both critique and defend against various corruptive influences from policy measures and external goods. In other words, systematically articulating and sharing narratives of vocational wisdom among participants in a practice is a way of opening these aspects to reflection and focused development.

In conclusion then, social science, especially biographical inquiry, has the potential to investigate what diverse practitioners are practicing with unusual excellence and to bring these inquiries together in order to make larger trends and developments public and open to reflection. Such studies could be a powerful contribution to the development of vocational education and practice in society.

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[60] MacIntyre's approach seems to be to flatly deny that some modern occupations such as management can be organized as practices thus suggesting that there can be no vocational goods or virtues to be had from them. I think this is an empirical, not a philosophical question.

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Session 5.3

**Work orientation in higher Education**

# The employability of Graduate students: How Critical Thinking is effectively taught in Master Courses

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**Abstract:** This paper, aims to study the extent to which critical thinking is taught effectively in MA and MSc courses and how graduate students are qualified in critical thinking skill at the University of Kurdistan. As a descriptive and correlational study, 339 graduate students were selected via stratified random sampling. In addition to the participants' demographic information, Ricketts' critical thinking questionnaire (Ricketts, 2003) was applied to collect the required date. The findings showed that the level of students' critical thinking is above the average. The findings further indicated that although the demographic variables had no significant correlations with the total score of the students' critical thinking, but the detailed results of three dimensions of critical thinking (creativity, maturity, and commitment) revealed significant relationships between the discipline and academic performance of students with the elements of creativity and maturity (perfection), hence, the independent variables can be used to predict aspects of creativity and maturity in students.

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# 1   Introduction

Education and training system plays a major role to increase graduates employability and prepare them for entering the world of work effectively. For this it is important that educational policy makers provide relevant educational mechanisms, processes, curriculum and more importantly teaching and learning practices to the changing needs of labour market and revise them continuously. One of the most important key qualifications is the ability of critical thinking which can lead to successful transition from higher education to workplace. Furthermore, the future labor in the jobs of modern global economic system are dependent on benefiting from the knowledge and skills necessary to adapt to the demands and skill requirements of the jobs. To achieve this purpose, educational institutions around the world are facing pressures and challenges in improving the quality of their education levels (Benjamin et al., 2013: 3). Indeed, effective participation of university education in society has never been as essential to this extent. At present, employers are searching for the graduates who are able to think critically and communicate effectively to meet the requirements of a modern knowledge-based economy. Consequently, the type and nature of the skills being taught at the universities are changing; hence, academic institutions are expected to reduce the emphasis on content knowledge and put more emphasis on critical thinking skills, analytical and quantitative reasoning, problem solving and written communication skills. This requires fundamental changes in teaching and learning processes, which are taken into account in educational reform movement in most countries and which is supported by taking advantage of new and versatile educational technologies. Although the scope of the reform has covered the primary, secondary, and public education in many communities, such reforms have been extended to higher education in a number of countries through understanding the need for reforms in the educational procedures. The success of educational reforms and provision of a context suitable for the graduates with necessary knowledge, attitude, and skills including boosting their ability of critical thinking requires the three following reforms, which are considered as the three characteristics of such a reform movement in education:

1.  Changing the format and method of a lengthy explanatory teaching to a learner-centered approach in which the active participation of learners in the class and the development of analytical writing skills will be emphasized.

2.  Changing the balance of curricula and textbooks by altering the current emphasis on the content into case studies and problem-based learning materials in which the learners are expected to use their knowledge at new situations.

3.  Modifying of assessment tools from multiple choice tests, which are often used to evaluate the content memorized by students, to open-call appraisal with different goals more appropriate to the educational reforms intended.

In the meantime, with regard to the role of higher education in promoting wisdom and sagacity skill, and providing the necessary platform to empower the graduates in applying the power of thought and reasoning to solve problems in the society, besides considering all forms of thinking, effort to critical thinking and its strengthening in academic education is of a very important position (Khodamoradi et al., 2011; Azizi, 2009). Undoubtedly, one of the goals of higher education in the present era is to educate graduates who have basic qualifications; the competencies and skills that provide the background for their effective presence in a knowledge-based economic system. Based on the results of field studies by researchers, critical thinking is one of the most important competencies (Hariri and Bagherinejad, 2011; Azizi and Lausanne, 2006; McIver quoted by Khosrow Jerdi and Jahromi, 2007). This is despite the fact that certain national bodies dealing with educational quality acknowledge the inability of educational system in the society in the development of critical thinking and have called for the inclusion of teaching critical thinking in curricula and education system as the fourth basic element (reading, writing, and counting). They have also proposed that the academic systems to oblige students take courses in these areas before graduation (Amin Khandaghi et al., 2011). Therefore, the ineffectiveness of students and graduates in critical thinking skill and to use it in their personal and social lives have created extensive concerns among higher education policy makers and other relevant people to the system. In this respect, according to the U.S Ministry of Education, for example, many different parts of the country, including the government and the industry, have expressed their deep concerns about the

methods and mechanisms of the higher education system in preparing the students to deal with the existing and emerging economic and professional challenges. Obviously, this is not a purely economic concern and the critics of capitalist system have criticized the performance of higher education system on helping citizens to develop critical thinking skills, which are highly necessary in the democratization and better preparation of young people to accept social roles in society (Krotiv and Hovinz, 2012; Kellner, 2004).

In economic terms, we are also witnessing the growing tendency of almost all nations to strengthen links between education systems and develop skills that are valuable for the labor market and help increase the chances of employment of graduates. It is clear that, with increased economic recession and the expanded unemployment rate in many countries, the education systems are expected to focus more on developing skills that increase efficiency and support sustainable growth in employment and income (Iaido and Walker, 2012, Azizi, 1991). Critical thinking can be noted among the skills necessary to facilitate the transition of graduates from the university to the labor market in such a way that employers also expect their human resources in a knowledge-based economy (Aziz, 2012; Vanganstin et al., 2010; Azizi, 2009, Azizi and Lasonen, 2006).

Varel and Profeto-McGrath (2007) have highlighted the need to strengthen students' critical thinking so that they are able to manage complex situations. Higher education is, therefore, expected to allow students to develop their critical thinking features and fields (Daly, 1998). Hence, professors and lecturers should be encouraged to evaluate the courses and teaching strategies in terms of whether or not critical thinking is considered in the curricula (Melbera & Jirot 2000; Profeto-McGrath 2007). However, recent studies in Western Europe and the USA show that levels of critical thinking skills were low among higher education students in those regions (Guest, 2000; Van Gelder, 2005). A similar situation was also reported in higher education system of Malaysia by Solomon et al. (2008). Thus, the emphasis on the subtle use of critical thinking and providing the context necessary to institutionalization of efforts to support and strengthen this important skill in the educational system, all indicate the value of critical thinking in the present circumstances. Accordingly and based on the importance of being aware of higher education system trends in terms of considering the growth and empowerment of students' critical thinking, the aim of this study was to examine the quality of critical thinking status among graduate students at the University of Kurdistan and to analyze the roles of demographic parameters in the students.

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## 2 Research Questions

i How qualified are graduate students in critical thinking skills and its sub-skills(CTS)?

ii To what extent the students' proficiency in critical thinking skills and its relevant sub-skills can be predicted through their demographic characteristics?

## 3    Method

Participants included 339 graduate students at the University of Kurdistan using stratified random sampling. In order to collect data the critical thinking questionnaire (Ricketts, 2003) was used. This questionnaire is a self-report tool that measures the tendency to critical thinking consisted of 33 items with three subscales including creativity, maturity (perfection) and commitment which can be answered based on a five-point scale (strongly disagree =1, disagree = 2, do not know = 3, agree = 4, and strongly agree = 5). In addition to descriptive statistics, one sample t-test and regression analysis were also used for analyzing data.

## 4    Findings

Here findings are presented based on the research questions.

**1.**    How qualified are graduate students in critical thinking skills (CTS) and its sub-skills?

Table 1: Results of one-sample t-test on the status of graduate students' critical thinking

|  |  | Mean | SD | Average Error | t | df | Sig. | Confidence interval | |
|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  | Standard |  |  |  | Down | UP |
|  | Critical Thinking | 117.43 | 11.54 | 0.6270 | 182.49 | 338 | 0.000 | 3.43 | 3.51 |
| **Sub-Skills** | Creativity | 43.10 | 5.15 | 0.2798 | 143.31 | 338 | 0.000 | 39.559 | 40.660 |
|  | Maturity | 26.01 | 4.47 | 0.2432 | 94.64 | 338 | 0.000 | 22.539 | 23.496 |
|  | Commitment | 48.30 | 6.03 | 0.3278 | 138.21 | 338 | 0.000 | 44.665 | 45.955 |

N=339

As shown in Table 1, inspection of the mean indicate that a mean score of 117 out of 165 for the students' critical thinking skills, which is evaluated above the average level.  The results of one sample t-test also reveal a significant difference in the proportion of graduate students' critical thinking skills as opposed to the expected value at a confidence level of 99% (p< 0.01). In other words, appraisal of the students showed an acceptable level of critical thinking assessment. These finding is also true for the critical thinking's sun-skills.

**2.**    To what extent the students' proficiency in critical thinking skills and its relevant sub-skills can be predicted through their demographic characteristics?

Table 2: Regression analysis of the relationship between demographic variables with critical thinking

| Predictor Variables | Criterion Variable | F | R' | $R^2$ | β | t | ρ |
|---|---|---|---|---|---|---|---|
| Gender | **Critical Thinking** | 0.450 | 0.037 | 0.002 | 0.037 | 0.671 | 0.503 |
| Age |  | 0.138 | 0.020 | 0.000 | -0.447 | -0.371 | 0.711 |
| Field of Study |  | 0.810 | 0.049 | 0.002 | -0.509 | -0.900 | 0.369 |
| Academic Performance |  | 0.015 | 0.007 | 0.003 | 0.055 | 0.123 | 0.902 |

As seen in Table 2, the statistic value for the relationship between demographic variables including gender, age, discipline, and academic performance  with critical thinking  is  not  significant (P = 0.000). In addition, the small amounts of $R^2$ show that in general, the critical thinking variable cannot be explained by the demographic variables to a considerable extent. The regression analysis concerning prediction of gender, age,

discipline, and academic performance of students in relation to critical thinking indicates that none of the independent variables were able to predict the dependent variable.

Table 3: Regression analysis of the relationship between demographic variables with the creativity

| Predictor Variables | Criterion Variable | F | R' | $R^2$ | β | t | ρ |
|---|---|---|---|---|---|---|---|
| Gender | | 0.143 | 0.021 | 0.000 | -0.204 | -0.379 | 0.705 |
| Age | | 0.003 | 0.003 | 0.000 | 0.032 | 0.058 | 0.953 |
| Field of Study | **Creativity** | 4.844 | 0.119 | 0.014 | -0.529 | 2.201 | 0.028 |
| Academic Performance | | 0.513 | 0.040 | 0.002 | 0.135 | 0.716 | 0.474 |

Table 4: Regression analysis for the relationship between demographic variables with maturity

| Predictor Variables | Criterion Variable | F | R' | $R^2$ | β | t | ρ |
|---|---|---|---|---|---|---|---|
| Gender | | 0.564 | 0.041 | 0.002 | -0.356 | -0.751 | 0.453 |
| Age | **Maturity** | 0.198 | 0.025 | 0.001 | -0.221 | -0.445 | 0.657 |
| Field of Study | **(Perfection)** | 3.551 | 0.102 | 0.010 | 0.412 | 1.884 | 0.050 |
| Academic Performance | | 3.611 | 0.104 | 0.011 | -0.326 | -1.900 | 0.049 |

Table 5: Regression analysis for the relationship between demographic variables with commitment

| Predictor Variables | Criterion Variable | F | R' | $R^2$ | β | t | ρ |
|---|---|---|---|---|---|---|---|
| Gender | | 0.007 | 0.005 | 0.000 | -0.053 | -0.083 | 0.934 |
| Age | | 0.649 | 0.044 | 0.002 | -0.521 | -0.806 | 0.421 |
| Field of Study | **Commitment** | 1.269 | 0.061 | 0.004 | -0.322 | -1.127 | 0.261 |
| Academic Performance | | 0.530 | 0.040 | 0.002 | 0.163 | 0.728 | 0.467 |

As seen in Table 2 to 5, the statistic value for the relationship between demographic variables including gender, age, discipline, and academic performance  with critical thinking  is  not  significant (P  =  0.000). In addition, the small amounts of $R^2$ show that in general, the critical thinking variable cannot be explained by the demographic variables to a considerable extent. The regression analysis concerning prediction of gender, age, discipline, and academic performance of students in relation to critical thinking indicates that none of the independent variables were able to predict the dependent variable.

## 5    Discussion and Conclusion

The results showed that in spite of expectations, levels of critical thinking skill among the graduate students from the University of Kurdistan have been estimated higher than average values. Therefore, with regard to the scientific status of Kurdistan University compared to other national universities and the scientific, research, and

training resources and facilities as well as the scientific level, ability, and professional capability of the students on arrival at the university, such estimates seem to be satisfactory. This is consistent with Vangnstein et al. (2010) but it is not in line with the results reported by Bakhtiar Nasrabadi and Nowroozi (2012), Javidi Kalateh Jafarabadi and Abduli (2010), Babamohamadi and Khalili (2005), Husseini and Bahrami (2002), Solomon et al. (2008), Van Gelder (2005), and Guest (2000).

However, although the demographic variables of students were not able to predict the total score of students' critical thinking, the creativity and maturity (perfection) can be predicted through their discipline and academic performance variables within the subscales of critical thinking. On the other hand, the age and gender variables of the students had not a determining role in this respect, which agrees with the study of Javidi Kalateh Jafarabadi and Abduli (2010). Although raising the scientific views on the necessity of teaching critical thinking dates back to the American educator John Dewey at the beginning of the twentieth century, new theories on this subject continued by the ideas of Logan and the USA Higher Education Commission in 1983. In this regard, critical examination of conditions and issues related to the American education were taken into account to study the role of critical thinking in the education of young people in that country, which explained considerable results from the outcomes of critical thinking for educational institutions (Borbach, quoted by Yoosephi and Gordanshekan, 2011). Based on the theories of American Philosophical Society, critical thinking is a targeted judgment that discusses interpretation, analysis, evaluation, understanding, and conceptual explanations with required reasons (Maggi, 2006). Accordingly, critical thinking accounts for a basic cognitive process augmenting the ability of students in problem-solving skills and decision-making at different social situations including political, ethical, scientific, and managerial ones. Thus, critical thinking is now considered to be one of the main outcomes of higher education with an important role in the growth of learners and will bring valuable cognitive, emotional, social, and academic consequences (Athari et al., 2011; Nasr Abadi and Nowroozi, 2004). According to Jones (1995), the university is considered as an opportunity in which the following are emphasized: growth of awareness (in terms of facts, laws, theories, and concepts), development of basic academic skills, raising intellectual skills, learning new thinking skills, learning how to learn, improving communication skills, learning how to apply what has been learned, development of attitudes necessary to effective thinking, and becoming a self-directed learner (Quoated by Mehrabi et al., 2011). Thence, a person in a rich training environment should freely and thoughtfully focus on exploration with no direction. One should also unify the taught materials and take steps towards excellence, a mission that is, unfortunately, not only often forgotten at training centers, but attempts are made in the opposite direction (Shabani and Mehrmohammadi, 2000). Thus, through the application of critical thinking, students learn the concepts more deeply and continuously, are able to clearly explain and apply what they have learned, create a logical connection between educational materials on various subjects, ask more and better questions, write better, go through a better learning way, make more links between what they have learned with daily life, and are altogether more raised learners who can be taught in an enhanced way (Mehrabi et al., 2011). This causes the students to effectively evaluate and organize through critical thinking the information they obtain by the study of books, internet, and the university about the prevailing theories, criteria or existing standards and methods used, and to realize their accuracy, value, and reliability using rational methods, thereby, they will seize the information (Javidi Kalateh Jafarabadi and Abduli, 2010).

According to Stip, critical thinking is also an important issue on accreditation of faculties and one of the criteria for accreditation of measuring the growth of students' critical thinking (Athari et al., 2011). In fact, preparation of students to be able to critically think is one of the many goals of higher education and academic institutions as well as an important qualitative and behavioral characteristic that employers expect from graduates. Thus, critical thinking skill is considered to be an important variable in the process of students' learning and teaching (Solomon et al., 2008). As a result, acquisition of skills in critical thinking among university students necessitates their ability in higher levels of thinking such as the ability to use critical evaluation, provision of evidence for their views, and discussion about the validity of data supplied to them by professors. Various researches indicate that the level of critical thinking is significantly and positively associated with academic achievement (Collins and Anvivogbozieh, 2000; Jenkins, 1998; Fasion et al., 1998). However, although critical thinking is often seen as a global goal of higher education, it is seldom mentioned as a consequence. So, as universities and higher education institutions are facing many challenges in meeting the expectations of society, there is an ever-

increasing necessity to train efficient, thoughtful, and creative graduates with the power of making good decisions based on national, regional, and international standards. For this purpose, it is suggested that higher education planners try to incorporate critical thinking into educational objectives, curriculum contents, and learning activities and that different learning opportunities are applied to develop and strengthen students' critical thinking (Emir, 2009).

Indeed, critical thinking makes the students not only have sufficient knowledge or information about their specialty but also make more accurate decisions on the society, policy, variable global issues, and daily ethical challenges in the complex world of today, and to provide and develop legitimate solutions to apply to them. In views of educational experts, due to the possibility of growing and strengthening critical thinking in all people, the educational system needs be provided with appropriate and effective mechanisms for optimal training. The most basic assumption for the believers of teaching critical thinking is that the learners can think better if training centers teach them how to learn it (Gargari et al., 2007). In fact, critical thinking skills in higher education the skills that are the results of critical thinking have been intended as transferable skills that can be transferred to students during university studies.

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# Care Work. Professionalization of Vocational Education and Vocational Teacher Training

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**Abstract:** A significant characteristic for the current economic, demographic and family-related change is the growing importance of person-related service occupations in the sectors medical and health care, social welfare, domestic work and nutrition.

On the one hand, the article outlines the current situation, which refers inevitably to problematic and historically grown semi-professional structures in the field of education and continuing training of personal service professions. Due to a current expansion of these professions which is expected to even increase in the future, however, a heightened reform pressure arises, which may be utilized for the professionalization of care work.
This discrepancy between a growing importance and an insufficient professionalization can also be found in teacher education and training for special subject areas of personal service occupations.
Thus, on the other hand the article finally describes the development prospects for the professionalization of care work, whereby administrative regulatory changes, training curricula and the structure and competency requirements addressing teacher training for social and healthcare professions will be dealt with.

**Keywords:** Hermeneutic study, Historical study, Case studies, Initial vocational education and training, Teacher training, Care work, Person-related service occupations, Professionalization

## Introduction

"When his wife had died Bach, the famous composer, was asked to organize the funeral. The poor man, however, was accustomed to his wife tending to domestic matters to such an extent that he, when an old servant approached him and asked him for money to buy black mourning ribbon, cried and said: "Ask my wife." (Zeit, 8.11.1996) This anecdote by the Poet Kleist about the composer Bach originates from the 18th century. In illustrating the domestic duties of Bach's wife, it outlines succinctly the term Care Work which is currently used referring to caring work within the framework of person-related service occupations in the sectors medical and health care, social welfare, domestic work and nutrition. However, Bach could not guess that one century later these competences acquired by every-day-work would be incorporated as a "secret resource" into the constitution of the so-called female professions within the process of professionalization.

At the end of the 19th century, in the context of the development of skilled labor, a vocational education system developed which was structured according to gender. This system provides for vocational education structures in person-related vocational training within the dual system. In comparison to the male-dominated, predominantly industrial-technical vocational training, person-related work involves lower social esteem and a

lack of regulatory standardization and professionalization. A historical burden can be seen in the constitution of these professional structures on the basis of a naturalistic construct of motherliness and, accordingly, the allocation of private and professional care work within the context of domestic, nursing and social work.  Until the present day, this construct has proved to be a stumbling block in the professionalization of care work on all levels of vocational and academic education. In view of this modernization backlog, currently political reforms and innovations in the research of educational training are emerging in the context of the expansion of the service economy. In the following, corner points of professional policy in vocational and academic education in care work will be presented.

# 1    Employment Growth and Training Requirements

Structural changes of the economic sectors and demographic change have led to a considerable expansion of the person-related service sector. Characteristics of person-related sectors are a high demand of skilled labor, increased qualification demands and changed job profiles in public and private employment sectors of nursing, health, household-related services, social work, education and child care. The most notable employment growth can be seen in the sectors health and social professions which include personal care (Bundesministerium für Bildung und Forschung 2016: 117 ff).

The training landscape is by no means prepared for the competence requirements related to the economic and social change. In addition to almost 327 dual apprenticeships structured according to the Vocational Education and Training Act (BBIG) and the Crafts Code (HWO), there are approximately 90 person-related professions located in the four vocational fields "Health and Body Care", „Nutrition and Home Economics", "Education and Social Services", "Health and Body Care" being the largest sector including 35 professions. Those vocational schools responsible for the majority of person-related training programs instructing on the basis of the Vocational Education and Training Act and the Crafts Code have experienced a continuous growth since the end of the 1990s (Friese 2010: 318 ff). Even if this tendency has been slightly reversing over the last years owing to the demographic development and the weakening pressure on the job market, there are pronounced differentiations according to professional sectors. In contrast to the decrease of training in the sector of home economics, the sectors health and medical care, as well as educational and social professions, show a considerable increase. An evident parallel to the employment structure can be seen in the gender ratio. While young women were represented at vocational schools and in the professional sector service occupations at approximately 70 %, young men were predominantly working in the sector "technical professions" at approximately 64% (Bundesministerium für Bildung und Forschung 2016: 33 ff).

This growth is related to a change in qualification requirements and competence profiles. On the one hand, new qualification and job profiles develop at various interfaces between person-related sectors, which emerge especially in the sector of mobile health and medical care and in the sector of outpatient nursing between the professional fields of home economics and health and nursing. On the other hand, there is an increase in demand for professionally qualified service and assistance staff in private households as well as in the public service segment. In this development, person-related service professions follow the general trend of the economy, which is characterized by labor shortage on the medium level of qualification, while the demand for staff without vocational training continues sinking. (Hausmann and Kleinert 2014: 7)

# 2    Regulatory Standardization and Control

What can be seen as serious obstacles to the professionalization of person-related service professions are the non-uniform standards for education and further education, the variety of training programs, the subdivision of qualification profiles, lack of distinction of professions regarding their employment profiles on a horizontal and vertical level as well as the regulatory heterogeneity of the training programs in person-related service professions within the vocational school system (Friese 2011: 3 ff). Problems like the use of identical names for different degrees, the missing classification of professions with regard to their employment profiles on a horizontal as well as vertical level, the heterogeneity of training regulations, professional titles and employment profiles, and non-uniform wage systems in person-related service professions prohibit systematical control and

curricular standardization. In the sector of nursing and health care professions, reforms are under way. The new Nursing Care Law of January 2016 joins and regulates vocational training in medical, geriatric and pediatric care on a national level.

Furthermore, the implementation of appropriate instruments on a regulatory and curricular basis for quality control, including differentiated working processes and occupations, customer demand, service and market orientation has to be guaranteed. Against the background of a growing demand and the development of new qualifications and professional profiles at interdisciplinary interfaces between person-related professions and the joints within the individual professions, new curricular concepts are necessary. These concepts are required to promote interdisciplinary competences on the one hand and describe specific qualifications with regard to the characteristics of the individual professions on the other hand.

This is supposed to allow for horizontal permeability between the professions and for vertical differentiation for professional specialization, further education and academization. From this perspective, keeping in mind the debate on European core professions and the connectivity of the German vocational principle, which has been followed since the middle of the 1990s, a curricular concurrence of basic and subsidiary competences and the structuring of "professional families" in common core skills and specialization opportunities can be effective in person-related segments also.

Another aspect which is important with regard to professional policies is the implementation of modularized structures enabling qualification and permeability on the individual levels of vocational training and, at the same time, standardization. Taking into consideration the labor market demand for skilled staff and the requirements of the transition system, instruments such as, for example, gradual approaches and qualification modules for training persons with lesser skills for the job market and to enable them to enter and return to formal vocational training and professional fields are necessary. For this, impulses can be gained from the German and European Qualifications Framework (DQR, EQR), which contains proposals for person-related training and further education in the sector of home economics, social and educational professions, and health and care professions.

## 3    Theoretical and curricular reforms for professionalization

One central problem in the German debate about professionalization consists of the blocking out of gender in structures within the professional and educational system and of the still valid construction of care work as non-paid family work or semi-professional employment. Since this gender bias has considerably contributed to the gender exclusive closure of access to certain competences and professions, terminological, conceptual, and curricular specifications in person-related service work have to be conducted and applied in order to achieve an extended profession concept. For this, precise job descriptions and qualification profiles in the individual vocational activity areas have to be compiled, combining feature and fact based attribution as well as interactionistic and structural-logical concepts.

From the perspective of professional theory, person-related service professions, in analogy to educational areas of activity, postulate a working alliance (Oevermann 1996: 70ff) of service providers and service users. The disruptive potential and paradoxes commonly found in professions in general (Schütze 1996: 183ff) appear in person-related service professions in a double way: On the one hand in the form of a highly ambivalent framework of love, care, and power (Brückner 2001: 119 ff), on the other hand in the form of a seriously charged relationship between the subjective needs of the users and the requirements of the economy and educational policy within the social and health system. Even if this conflict cannot be completely resolved, approaches in professional theory for the definition of professions, based on expertise and autonomy, may contribute to a decrease of the specific antinomies within the individual areas of activity. For this, professional standardizations of a "rationality of care" (Waerness 2000, 54ff) need to be developed, which provide for sufficient scope to design working situations and establish autonomous expert action.

Against this background, systematic and curricular redetermination of person-related care work has to be carried out in view of its specific location within the tension field of economic and social conditioning factors. In

order to achieve this, first, factors of value creation in paid and market-based employment in the systematic context of vocational education and job market need to be determined. Second, the procedural character of person-related work involving social, communicative and interactive skills has to be taken into account. Third, the terminology for professional skills has to be newly established in the complex framework of specialist skills, problem-solving competence, power of judgement, and critical reflection skills. In this process the component of market-based employment has to be combined with issues of ethical standards of the profession. Although this component is valid for any profession, it is genuinely linked to person-related care work.

With regard to care concepts formed during the 1990s and currently further developed (Moser and Pinhard 2010: 11ff), a dual aim can be pursued in person-related and care activities. On the one hand, caring activities need to be described with regard to the dimension of ethics and action theory; on the other hand, they must be conceptualized as professional activity. By way of such a view on care work, the conflict between care and marketing commonly noted in person-related professions can be lessened.

## 4    Care work in vocational teacher training: venues and competence requirements

Since the 1970 a debate about academization of person-related professional sectors has been going on. It has gained new impetus by the Bologna Process exerting pressure for professionalization and restructuring the academic landscape. Currently, in Germany, in addition to the approximately 45 academic venues for vocational teacher training in the sector industrial-technical and economic-administrative  professions, there are circa 14 venues and 22 offered courses for teacher training for person-related professions at universities; circa 12 of which are university venues in the sectors health, nursing and body care (Friese 2010: 313ff). Although the establishment of these institutions is currently helping to balance the modernization backlog, there is still considerable need for professionalization with regard to quantitative extension and quality development of degree courses in non-formal and formal education.

There is also need for further development concerning the nationwide uniformity of academic profiles, denominations, degrees, and uniform recognition procedures for credits. (Rauschenbach and Schilling 2013: 104 ff.). Moreover, a clear self-conception and a binding basis for the legitimacy of the individual training levels, forms of academic programs and their institutional anchoring is yet to be established. What is also still unclear within the activity areas of earlyeducation and care professions is the relation between vocational qualification obtained at vocational schools, universities of applied sciences and universities. A further problem that has to be approached is question of the location of teacher training at universities and universities of applied sciences and the design of further and advanced training, which has been failed to be regulated uniformly and which has been systematically left unexplained (Hülsken-Giesler 2013: 67). In view of the high demand of staff in person-related service professions on all qualification levels of vocational and academic education on the one hand and the decrease of training capacities for demographic reasons on the other hand, the parallel existence and cooperation of the individual vocational courses at vocational schools, universities of applied sciences and universities has high priority.

This perspective of partial academization of person-related training sectors may diminish the concern for loss of legitimacy on the part of universities of applied sciences which has been expressed in professional-level discourse. What is required is an efficient strategy of general professionalization by cooperation of the individual training venues (Cloos et al. 2013: 27ff.). The high training demand on a professional level simultaneously increases the necessity to expand person-related training programs within the academic vocational teacher training and their responsibility for quality and competence development of the pedagogical staff in vocational education.

In analogy to the changed complex requirements of competence in person-related and care professions requiring formal training, there is a demand of development regarding the establishment of didactic-curricular concepts for competence development of the didactic staff. Against the background of the necessity of high professional specialization and interdisciplinary competence at the interfaces of person-related disciplines, new profiles of academic programs (Schaeffer 2011: 30ff) can be developed. This process can be compared to curricular standardization in vocational education. While on the bachelor level generalistic curricula providing

primary qualifications can be developed, master programs or extra-occupational programs require disciplinary specialization for special activities within the prospective areas of employment. This strategy of simultaneous generalization and specialization allows for a better interrelationship of vocational and academic education and a horizontal and vertical permeability of study areas. Academization in person-related areas requires systematic and reflexive acquisition of knowledge within the framework of competence in the individual subjects, education theory, diagnosis, design of curricula, and methodology and didactics. For this, students need knowledge on social transformation processes as well as on the diversity of person-related professional fields, and on the socialization and living experience of very heterogeneous target groups of person-related professions. What is significant in person-related disciplines are methodological-didactic approaches for the design of a holistic support which includes biographically obtained experience and self-reflexive, moral, ethical, and communicative competences in professional activities.

An important part of this is the knowledge about the extremely ambivalent process of young people entering employment within the field of person-related professions. Students need to be enabled to diagnose, examine and pedagogically-didactically process their work experience which is characterized by "structures of uncertainty", of breaches of identity and risky biographical status passages typical in person-related and care professions.

In person-related academic education, the foundation of specific subject-related didactics and the supply of a wide range of methods are crucial (Ertl-Schmuck and Greb 2013: 424ff; Hülsken-Giesler 2013: 66ff, Weyland-Reiber 2013:18ff). What has to be focused on is the competence for transfer from theory to practice, which plays a special role in person-related teacher training because in this field it always has a two-fold relation: on the one hand to the professional experience already obtained and on the other hand to the prospective academically reflected practice of educational activity at school and in vocational training.

Another aspect that is indispensable in person-related subject didactics is the development of gender competence as a systematic reference point of professional activity. (Horstkemper 2010: 37ff; Friese 2012: 64f). Finally, competences of cooperation have to be anchored in the curriculum in order to advance the creation of networks in view of the professional associations and professional representation on a vocational and academic level, which has been neglected so far in the field of person-related professions. Moreover, the transformation of experience from person-related fields may serve as a stimulus for interdisciplinary networking of institutions and socialization agents ranging from kindergarten, school, education of young people, vocational training, and university to education of elderly people.

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# Academic continuing education encourages individual to face career development and changes - VET at its best?

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**Abstract:** Academic continuing education aims to equip people from different backgrounds with research-based knowledge, know-how and competences. This study is built on the survey conducted with the alumni (n=2865) of the Danube University Krems, the University for Continuing Education. Results indicate that younger (below 45) professionals with less formal qualification benefit more in terms of their career development. This type of education gives those with low level of education, or even without matura, but with necessary professional experience and competences a chance to guide their career development in line with their interest and boost their career.

**Keywords:** professional development, academic continuing education, survey, work-integrated learning, permeability, formal and non-formal qualification.

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## 1 Introduction

Academic continuing education aims to equip people with research-based knowledge, know-how and competences (European Qualifications Framework -EQF Level 7[61]) required for special occupations or more broadly for the labour market. Danube University Krems has several topics and study programmes that cover

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[61] These competences are "to manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams".

challenges of the today's society in line with the Horizon 2020 in a wide range of disciplines from medicine to law, to culture and social sciences with an aim to develop the competences from EQF at the level 7. The university implements a concept of permeability and validation of non-formal and informal qualifications for admittance within the EQF esp. Level 6 and 7. The course surveys about the correlation between "motivation" and "expectations" to the learning process (see Kil and Wagner, 2006) shows that the learners who decide to take part in "lifelong learning" (after a first professional education and practice) for their professional development at university level are the ones with the highest motivation. Organized university continuing education must be ready with didactic support and must assume responsibility for a successful and reflective approach which allows building up research literacy (see Pfeffer, 2014). Organized learning must be tailored to the expectations of the participants but not one-to-one. Moreover the university continuing education must take on the challenges "imposition" and "relief" found in the learning process and bring them in balance. In general, the Danube University Krems thus contributes to the permeability, and demonstrates an appreciation and allows the completion.

However the students of the university continuing education are not eligible for the regular master programmes. In the German debate about university education, they are still the so-called „non-traditional students" due to their different educational and professional backgrounds (Banscherus, Kamm, and Otto, 2016). This labelling leads to stereotyping concerning the competences of the university continuing education students. According to Dahm and Kerst (2016, p. 259), "non-traditional" students have the necessary competences and skills for studying, and to successfully cope with study requirements. However, a higher risk of dropouts can be observed especially in relation to regard to family burdens. Qualitative and quantitative results of the federal-state competition "Advancement through Education: Open Universities" (Kamm, Spexard, and Wolter, 2016; Otto and Kamm, 2016) provide a high motivation and good prerequisites for a study without an Abitur/Matura, but still there are some challenges in the study counselling and the personal relationship during the study. However, it is crucial to keep in mind that these students are highly experienced, talented and even gifted in different areas and ways.

A study conducted by the Institute for Educational Research (ibw) and the Austrian Institute for Vocational Education and Training (öibf) (Dornmayer, et al., 2017) well identifies the "non-traditional" students in Danube University and how they significantly differ from other universities in Austria. Some characteristics of the students can be listed as:

*Older age:* Average age for the students is around 40 and there is a strong mix of different age groups.

*Professional and managerial experience*: The majority of students at the Danube University Krems already have many years of professional experience at the time of registration. More than half of them also have experience in leadership. The overwhelming majority of students at the Danube University Krems, in contrast to the first-matriculated students at public universities and universities of applied sciences, are employed. The admission procedure requires a considerable amount of relevant professional experience (including further education / training). In particular, applicants with no previous academic degree must have a long-standing professional experience. Statistic indicate that more than one-third of students without academic degree have more than 20 years of employment and more than a fifth of all them, and about 16% of all students with academic degrees have more than ten years of leadership experience. In addition to extensive professional experience, around 15% of the students are self-employed. *Experience with further education*: The majority of the applicants have already completed other forms of training and further education in addition to their professional activities before applying to the Danube University Krems. Depending on formal initial training, this proportion varies between 37% (persons who have completed their formal initial training without interruption of professional practice with an academic degree).

*High representation of "First Academics"*: Since a large proportion of the students are "first academics", whose parents do not have a university degree, the Danube University Krems makes also an important contribution to the achievement of the objectives of the National Strategy on the Social Dimension in Higher Education and the Promotion of Cultural Change in favour of Social inclusion (system objective 8c of the Austrian Universities Development Plan).

Examples for the variation of the process for "gifted", highly motivated individuals and lower boundaries of qualification and employment biographies can be given with three programmes from Danube University Krems:

*Case 1: Sport and Event Management, MBA*

A highly talented hockey player went to USA at 15, he became a professional, and came back to Austria at the age of 40, and had no professional contract, but he developed a new professional profile with a business perspective.

*Case 2: Security and Safety Management, MSC*
After training as an electronics technician and many years of professional experience in the industry, he studied the safety of the people and property and operational procedures to perform as experienced manager including IT security and cyber-crime.

*Case 3: Clinical Research, MSC*

From the letter of intent of a candidate in nursing programme who is currently employed by a non-profit organization in the field of bone/implant research, "With this practical training I will be able to support the doctors and to guide, plan, implement and monitor empirical  studies. And possibly, I will be able to minimize the "trial errors", as they occur in the station every day, and through cost-benefit studies, we will be able to save some cash for healthcare."

As it is observed from these examples, Danube University Krems provides special opportunities for individuals who would like to further their education, or give a new direction to their career based on their needs, experiences and skills.

## 2    Method

This paper is based on the Alumni study of the Danube University Krems. The study has been conducted online annually since 2009. At the end of the year (December), all graduates of the previous year are invited to a 20-minute online survey. The survey is available both in English and in German. An exploratory data analysis was conducted to have a look at the basic characteristics of the participants (gender, age and education level) and their relation to students' perceptions about the contribution of their study in their career.

Our analysis includes 2865 alumni (from 2009-2014), which is the 21.8% of the all alumni. Sample characteristics show more or less a balanced sample in terms of gender (female: 43.6%, male: 56.4%). Average age of the sample is 42. Table 1 indicates the distribution of sample according to age categories.

**Table 1: Age groups**

| Age Category | f | % |
|---|---|---|
| Below 34 | 546 | 19,2 |
| 35-44 | 1088 | 38,2 |
| 45-54 | 1006 | 35,4 |
| Above 55 | 205 | 7,2 |
| Total | 2845 | 100,0 |
|  | 20 |  |
| Missing |  |  |

About 42% of our sample has no academic degree (total percentage of those who are without secondary final examination-Matura and those with Matura but no further academic degree). Table 2 shows the characteristics of the sample according to educational level at the time of the application.

**Table 2: Level of Education**

| Last level completed | f | % |
|---|---|---|
| Without secondary education final examination (Matura) | 329 | 11,5 |
| With Matura but no academic degree | 876 | 30,6 |
| Academic degree (BA or equivalent) | 1201 | 41,9 |
| Post graduate | 331 | 11,6 |
| Other | 128 | 4,5 |
| Total | 2865 | 100,0 |

Majority of the participants completed a Master programme (85%, see Table 3). This result is similar to general distribution of students according to programme levels.

**Table 3: Distribution of alumni according to study programme**

| Degrees | f | % |
|---|---|---|
| Master | 2431 | 84,9 |
| Academic expert | 298 | 10,4 |
| Certification Program | 136 | 4,7 |
| Total | 2865 | 100,0 |

As it can be seen from the sample characteristics, our sample also fits the student profile created by Dornmayer, et al., (2017) and described above.

## 3    Results

The results show that majority of the graduates of the Danube University Krems (73%) state that studies they completed contributed to their career development. However, there are differences among different groups of the graduates; according to degree programme, age, and educational level but not according to gender.

Younger professionals in our sample who are below 45 (p=.0004) (See Figure 1), and those who completed a master degree perceives higher level of contributions to their occupational status (p=.005) (similar with Buscha et al., 2009).

**Figure 1: Contribution to Career according to Age**
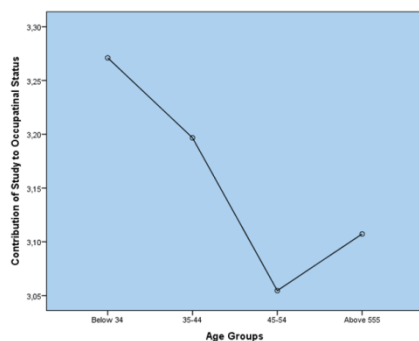


One of the most important findings is that study programmes in Danube University Krems contribute more to career development of professionals with lower level of formal qualification (who has no matura and no academic degree) compared to those with BA degrees (p=.001) (See Figure 2).

**Figure 2: Contribution to Career according to Education Level**



Our results are parallel to findings of Dornmayer, et al. (2017) which indicates that Danube University Krems has a special place within the traditional university education, as it provides an opportunity to all these "non-traditional students" who are older, more expe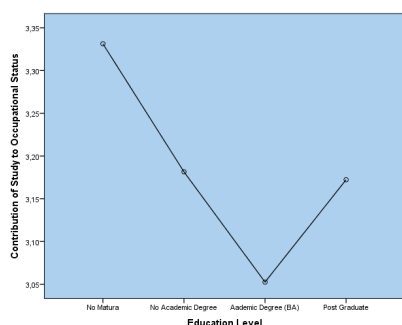rienced but with lower levels of formal education. Dornmayer, et al. (2017) indicated that the value of different types of continuing education is dependent on the level of formal education and the academic status of the participants at the moment of the application for a study programme. Persons who did not have an academic degree at the time of their application are more interested in the scientific / theoretical foundation of their competencies and in gaining an academic degree, while those who are with academic degrees are more likely to be able to increase their competencies in their own subject area and to acquire practical knowledge and experience, and to widen their horizon (Dornmayer, et al., 2017, p. 4).

Thus, it is important to note that academic continuing education benefits all groups of participants in different ways. In addition to a career boost especially for young professionals with lower levels of formal education, academic continuing education provides other contributions such as personal development, analytical skills and critical thinking. Academic continuing education provides free-choice, interest-based learning and commitment with career development projects which all are critical success factors. Thus, as a medium for VET, it is a very good alternative to traditional VET approaches, especially in connection to the EQF and validation and recognition of prior learnings.

Therefore, long-term academic continuing education, which is organized as part-time studies for professionals, is important for personal professional development as it can bring further positive effects. This

"educational effect", which is recorded after the academic continuing education, can create improved labour market chances in the region in which the graduates work and live as desired by the human capital theories (see van Winters, 2015). In times of rapid structural change, the blocking effects of the institutional issues can be minimized with special strategies such as part-time studies for professionals and blended learning applications (Wingens, Sackmann, and Grotheer, 2000).

Unfortunately, there exists very limited data on the completion of the studies and the life of the students after completing the studies. Moreover, we also know very less about the study skills of people without Abitur/Matura but with professional experience and education. This suggests that the academic form of professional "basic" continuing education should be looked at even more strongly in order to take into account, among other things, the large transformations in the work force/market not only reactively, but also proactively.

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Session 5.4

**Cooperation of learning venue**

# Working for VET – an occupational association's practices to maintain vocational education and training institutions in Switzerland

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**Abstract:** Vocational education and training (VET) in dual apprenticeship systems relies on institutional arrangements among a multitude of actors. Switzerland has one of the most encompassing VET systems and often serves as a best practice example for policy-makers interested in strengthening VET. However, recent economic developments, the expansion of higher education, and demographic change put VET systems under pressure. The maintenance of these systems depends on their capacity to adapt to change. Occupational associations are key actors involved in the maintenance of the Swiss VET system. As intermediaries between host companies and public authorities they play a crucial role in defining training content and promoting apprenticeships. The case study of the weavers' occupational association shows how small occupations handle these challenges and contribute to maintain an encompassing and diverse VET system in a changing socio-economic environment.

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## 1    Introduction

Vocational education and training (VET) in collectively governed, dual apprenticeship systems depends on the participation of host companies and on the educational opportunities and choices of individuals. The defining characteristics of such collective skill formation systems are that the state and companies are involved in the provision of VET and that training takes place at the workplace and in vocational schools (Busemeyer and Trampusch, 2012). Employer and labour associations have been identified as key stakeholders for the successful creation and development of these collective skill formation systems (Culpepper, 2003; Thelen, 2004). The involvement of peak-level employer and labour associations in national VET governance has been well documented (Wettstein and Gonon, 2009; Trampusch, 2010), but the practices of lower-level associations, which are in charge of the definition of training content for single occupations, have been mostly neglected in recent studies of VET governance. However, it is the everyday work of these associations, which is crucial to implement VET policies and to adapt VET to the current socio-political and economic environments.

Policy-makers stress the beneficial effects of VET for youth employment; however, the expansions of the service sector and of higher education as well as demographic change and economic developments currently put collective skill formation systems under pressure (Culpepper and Thelen, 2008). The Swiss VET system is

one of the most encompassing ones as it absorbs over 60 percent of school leavers. This contribution zooms in on the associations in charge of VET governance in Switzerland. It explores how these intermediaries address current challenges by adapting occupations to the economic environment and by making them attractive educational options for young people. Specifically, this contribution asks through which practices an occupational association contributed to maintain VET institutions after a recent policy reform and how the institutional setting, in turn, influenced the associational practices.

The selected association is responsible for the traditional handicraft occupation of artisanal weaving. It had to address the double challenge of being a small occupation with a limited number of apprentices and, therefore, limited financial resources as well as being situated in the declining traditional craft sector. However, through different associational practices it handled the challenge of implementing a recent VET reform: it mobilized support from public authorities, peak associations, technical experts, and its members. Additionally, it joined a network of similar small occupations, which contributed to increase its public visibility and to attract new potential apprentices.

## 2    Collective governance in dual vocational education and training systems

Collectively governed dual vocational education and training systems depend not only on the participation of companies, which offer training positions, but also on the educational opportunities and choices of individuals. Associations coordinating labour market actors, such as employer, labour, or occupational associations, play an important role in maintaining these systems. Two domains of associational practices are especially important: the cooperation with host companies and the occupational marketing among potential apprentices. First, generally speaking, the participation of host companies in VET is subject to cooperation dilemmas. Following Olson's collective action theory (1965), for each single firm, in the short-term, it would be more profitable to free-ride on the training contributions of others because the transferable skills provided by VET can be considered as a collective good (Johansen, 2002). Associations coordinating labour market actors are widely recognized as key for overcoming such cooperation dilemmas among companies (Culpepper, 2003; Hall and Soskice, 2001; Streeck and Schmitter, 1985). They act as intermediaries between member companies and public authorities. In exchange for their influence in policy-making, including the definition of training content, they are responsible for the implementation of VET policies among their members. To do so, they may promote information exchange among members (Culpepper, 2003); they can also create normative pressure, apply sanctions, or provide selective incentives (Schmitter and Streeck, 1999).

Second, in recent years, the number of school leavers has been decreasing and a general trend towards more academic education can be observed (for Switzerland s. BFS, 2016). Therefore, in some occupations, competition for the best applicants has replaced the lack of apprenticeship positions, which was one of the core problems of VET governance in the 1990s. Consequently, associations also engage in marketing activities to make their occupations more attractive for potential apprentices.

Against this backdrop, rather than seeing the institutional arrangement underlying the collective governance of VET as a self-reproducing equilibrium (e.g. in Hall and Soskice, 2001), I argue, in line with Lawrence and Suddaby (2006), that the active involvement of actors is necessary to maintain VET institutions. Such an active involvement has been termed "institutional work", which is defined as "the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions" (Lawrence and Suddaby, 2006, p. 215). The next two sections analyse how the Swiss VET system has been adapted at the national level and how these adaptations have been implemented through the institutional work of an occupational association.

### 2.1   The adaptation of the Swiss VET system and its consequences

Vocational education and training is situated in a dynamic socio-economic environment and has to be constantly adapted to changes. The legal framework of the Swiss VET system has been adapted to socio-economic developments through the 2004 reform. This reform has been described as self-preserving form of institutional change; it maintained the essential dimensions of a collective skill formation system namely the combination of

workplace and school-based learning and the high involvement of companies and their associations in training (Trampusch, 2010). In addition, the reform aimed at increasing the quality of VET by standardizing the process of defining training content (Berner, 2013): Defining training content was traditionally left at the discretion of occupational associations with the public authorities only approving them in the end. The new regulations foresee a closer involvement of the public authorities throughout the process. Especially the small occupational associations and small companies had difficulties to implement the new regulations because they dispose of very limited financial and human resources. However, these associations and companies are important contributors to the Swiss VET system. More than half of the apprentices are trained in host companies with less than 20 employees and more than two third in companies with less than 50 employees (Müller and Schweri, 2012, p. 39). To understand how the encompassing Swiss VET system can be maintained, it is therefore crucial to explore the institutional work of the small associations, which implemented the VET reform.

## 2.2  The artisanal weavers' VET reform process

This contribution is based on the case study of the artisanal weavers' occupational reform from 2004 to 2015. The weavers' association is an extreme case because it is one of the smallest occupations providing around ten apprenticeship positions per year. The analytical strategy was twofold: First, qualitative data from expert interviews (Bogner, Littig, and Menz, 2009; Helfferich, 2011) and organizational documents served to trace the implementation process of the 2004 reform (Langley, 1999). Second, a thematic content analysis (Kelle and Kluge, 1999) allowed identifying the types of institutional work through which associational representatives contributed to the maintenance of their occupation.

The case study showed that the reform threatened the existence of the occupation of artisanal weaving due to its high administrative requirements for the process for defining training content. This led the weavers' association to consider quitting the Swiss VET system. However, the costs for creating alternative types of training (further education) were higher than expected and the effect of such training on the weavers' labour market integration and wages was uncertain. Moreover, the weavers' association was able to show that a high percentage of VET diploma holders remained active in the occupational labour market, which justified the maintenance of VET. Last, in 2008, the public authorities made additional financial resources and organizational support available. This allowed the weavers' association to implement the reform.

In 2011, the process for defining training content was completed and the new occupational training regulations entered into force. To put them in practice, additional efforts by the association were necessary. In particular, the associational leaders used different practices to foster the companies' cooperation. Sanctioning measures to force companies to implement the reform, even though legally possible and theoretically relevant, were seen as mostly counter-productive as they might reduce the already low number of host companies. Rather than using such coercive measures, associational leaders actively promoted information exchange, deliberation, and consensus finding by providing associational forums (meetings, workshops, annual assemblies, etc.). These forums also served to mobilize voluntary support from member activists (VET diploma holders with various roles such as in-company VET trainers or part-time VET teachers). The activists' involvement was publicly recognized and rewarded with selective incentives such as free further training. The member activists were the central actors for the implementation of the reform because they served as channels to reach the host companies and to foster their compliance with new regulations.

Besides complying with administrative requirements and gaining the support from member activists and host companies, the weavers' association also engaged in the promotion of its occupation. Various stakeholders such as public authorities and the peak-level craft association supported the weavers' association by putting them in touch with other occupational associations. These stakeholders had realized that several small associations confronted similar problems and could learn from each other. The small associations then started to organize public events to promote their occupations together. This cooperation culminated in the joint participation at the public event 'SwissSkills' in 2014. This was a national competition among apprentices of all occupations and an important event for occupational marketing. The event and the related media campaign increased the public visibility of artisanal weaving and other small occupations. After the event, the weavers' association observed that more people were interested in their apprenticeship. This demand, in turn, is an

important argument for the weavers' association to continue its efforts for the maintenance of artisanal weaving as recognized VET occupation.

## 3 Conclusion

Through the detailed process analysis of the weavers' associational reform, the interplay between institutional setting and institutional work of the association could be disentangled. First, the institutional conditions of the Swiss VET system and labour market create incentives for occupational associations to offer VET rather than other forms of training: VET diploma are standardized and recognized on the labour market and public authorities support the associations. They provide funding and expert support for the standardized process of defining training content for a specific occupation. However, to gain this support the occupational associations need to be able to show the economic viability of their occupation, for example the successful labour market integration of VET diploma holders. Public authorities' support is important, but not sufficient to successfully implement VET because dual apprenticeship relies on the voluntary participation of host companies. In the case of small occupations, the most effective means to foster this cooperation seems to be the creation of forums for exchange among the associations' members. VET diploma holders with multiple functions, such as in-company trainers and VET school teachers, are key figures to make VET work in small occupations. The types of institutional work used by the weavers' association also have to be understood against the backdrop of a broader cultural environment with a generally high level of participation in voluntary associations. Last, it is important to note that occupational associations not only promote apprenticeship among companies but also among potential apprentices. Thus, they tend to both sides of the apprenticeship market, the supply and the demand. This type of activity seems to have gained importance in an educational environment in which VET competes with higher education for a decreasing number of school leavers. In conclusion, collective skill formation systems rely on the cooperation of a multitude of actors situated at different administrative levels. Besides regulative frameworks, a strong commitment to VET on the part of public authorities, companies, and associations as key intermediary actors is necessary for the continuous adaptation of these systems to the changing socio-economic environment.

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# Crossing boundaries between classroom and work learning processes through ICT: a systematic Review

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**Abstract:** Within VET, technologies are involved in the learning processes taking place in the classroom, in the laboratory and during traineeship. In the laboratory and during the traineeship, technologies are used in different ways: on one hand, they are (and they have always been) a regular part of the work activities, which are the subjects of learning; on the other hand, they "can serve many roles to support work-based learning" (Margaryan, 2008, p.17). Though, can the use of technologies enhance WBL activities while students sit in the classroom (off the job)? This review aims gathering information about the potential of ICT in crossing the boundaries of learning processes between classroom and work within initial vocational education contexts.

**Keywords:** Vocational education and Training, Systematic review, Work Based Learning, ICT, Apprenticeship

## 1    Introduction

Since the mass diffusion of Information and Communication Technology (ICT), both educational institutions and business enterprises have been implementing software and technological infrastructures in order to enhance learning experience as well as productivity. The initial Vocational Education and Training (VET) has been part of this process of changes with several pilot projects, such as iCnos (a project financed by the CNOS-FAP federation). This project aims to introduce ICTs as support for didactics and learning processes (Franchini, 2015). Within VET, technologies are involved in the learning processes taking place in the classroom, in the laboratory, and during traineeship. In the classroom technologies are mainly used to support learning activities like assignments, group works, assessments, etc. within general cultural subjects (González-Martínez et al., 2014; Pellerey, 2015). In the laboratory and during the traineeship, technologies are used in different ways: on one hand, they are (and they have always been) a regular part of the work activities, which are the subjects of learning; on the other hand, they "can serve many roles to support work-based learning" (Margaryan, 2008, p.17). A number of studies have shown that students use specific and different learning styles and learning activities in vocational schools and workplaces. Moreover, researchers also affirm that the students' learning processes need to be enhanced through adaptive and differentiated strategies (Schaap et al., 2012). All things considered, technologies risk to be confined to each respective framework (classroom, laboratory, workplace), leaving unexploited their potential as learning tools. ICTs could support WBL activities for better identifying relevant learning opportunities and for better structuring learning activities within the working context. This work represents the exploratory phase of a wider review on indicated themes.

## 2    Research Questions

This review aims to gather information about the potential of ICT in crossing the boundaries of learning processes between classroom and work within initial vocational education contexts. As a result, the main research question of this work is: could the use of technologies enhance WBL activities while students sit in the classroom (off the job)? If so, could WBL supported by technologies be useful for learning activities in general cultural subjects?

## 3    Methodology

In order to answer to the proposed questions, a systematic review has been conducted. Thus, the methodological guidelines suggested by Petticrew & Roberts (2006), for systematic literature reviews in social sciences were applied. The research was performed using the most significant databases for searching relevant papers regarding educational research: Scopus, ERIC, Web of Science, Emerald, Springer, Taylor & Francis Online, Oxford University Press. Given the rapid evolution of technological innovations, only publications after 2012 were considered. Three keywords, related to the aim of the study, have been used: "Work-based learning", "Information and Communication Technologies" and "Vocational Education". These keywords were then combined using Boolean AND. All founded publications (118) were imported in Mendeley to scan titles and abstracts using the following inclusion criteria: 1) the study was published in a peer-reviewed journal; 2) the study involves empirical research; 3) the study was conducted in the context of initial Vocational Education; 4) the study focuses on the use of WBL enhanced by technology. Moreover, relevant studies appeared among the referent bibliography of these results, were eventually included. At the end of the selection phase, only 6 of the 118 imported publications respected the selection criteria. After the selection phase, data extraction process was conducted to collect following information from each selected study: general information about the study (authors, research design, country, etc.), involved professional sectors, ICT features, related learning scenarios (characteristics of Initial VET and work fields), target competences of learning activities, learning activities descriptions, emerging pedagogical models, emerging advantages and/or risks, research issues, and challenges.

## 4    Results

The gathered data were analysed and synthesised in a matrix (see Tables 1 and 2).

**Table 1 – Overview of the selected studies (part 1)**

| Nr. | Authors and publication year | Professional sectors involved | Subjects involved in the study | Other info |
|---|---|---|---|---|
| 1 | Callan et al., 2015 | Bakery industry; building and construction; stonemasonry; and plumbing. | Teachers; program managers; directors; employers; apprentices. | AU AP QL |
| 2 | Mauroux, et al., 2014 | Bakery. | 16 apprentices. | FR AP MM |
| 3 | Boldrini and Cattaneo, 2014) | Office clerks. | 111 apprentices. | SW AP QT |
| 4 | Ortoleva and Bétrancourt, 2016 | Health and social care assistants. | 21 second-year apprentices. | SW AP QL |
| 5 | Gurtner, et al., 2011 | Car mechanics. | 19 apprentices. | SW AP QL |
| 6 | Cuendet, et al., 2015 | Train carpenter. | 40 second-year apprentices. | SW AP QT |
| Note The "Other info" column contains the following information: Country[a], Education Setting[b], Research Design[c] [a] Australia (AU), France (FR), Switzerland (SW) [b] apprenticeship (AP) [c] Qualitative Research design (QL), Quantitative Research design (QT), Mixed Methods (MM) | | | | |

**Table 2 – Overview of the selected studies (part 2)**

| Nr. | Related Instructional concepts | Technological tools enhanced | Emerging advantages | Problems detected |
|---|---|---|---|---|
| 1 | Recognition of Prior Learning; flexible learning. | E-learning (blended approach); e-portfolios. | Widen the access of apprenticeships greater flexibility; improvements in teacher-student communication and interpersonal relationships; higher levels of student satisfaction and cost savings for employers | Attitudes of many teachers to the use of new technologies in the classroom. |
| 2 | Reflection. | Mobile Learning Journal. | Useful for learning and sharing experience in vocational training; students' interest in the use of a smartphone in the workplace. | Requires strong guidance in the design of the learning journal as well as support and feedback from supervisors. |
| 3 | Scaffolding, Reflection. | Computer-based learning journal. | The tool used has a significant role in scaffolding (quantity of comments developed). | The tool used has no effects on the quality of comments developed. |
| 4 | Collaborative learning, peer-feedback. | Wikis. | Instructionally relevant collaborative writing activities have been detected. | |
| 5 | Self-regulated learning, | Mobile video recording. | Support the monitoring of student activities in the workplace. | |

| | collaborative learning. | | | |
|---|---|---|---|---|
| 6 | Collaborative learning, classroom orchestration. | Tangible user interfaces (TUI). | The activity proved usable and fostered connections to the workplace engagement. | Learning gain measured did not show any significant difference. |

Through results' triangulation it is possible to identify two main instructional concepts that have been implemented, with ICTs support, in different ways to connect classroom and workplace activities: reflection and collaborative learning. The first one "has been widely discussed in literature as an important approach for […] developing professional practices and, facilitating and structuring learning through experiences" (Looi and Wu 2015, p. 610); the second one, which had a strong diffusion thanks to the introduction of educational technologies, has been (and still is) the subject of a scientific debate over its features and possible ways of implementing it (Resta and Laferrière, 2015). The experiences reported in the selected studies could represent good examples transferable in similar contexts. In all analysed studies, the support of technology facilitated and enhanced the link between practical dimension and the theoretical one. Nevertheless, the choice of the pedagogical model, the instructional design, and the careful integration of ICT remain fundamental.

## 5    Conclusions

The results of this review could offer information to undertake further studies about the possibility of connecting different learning situations of initial VET through ICTs and then developing new work-based pedagogical models. The ICTs used in the analysed experiences seem to strengthen the connection between the different learning contexts. However, no work-based technological tools have been detected because all these tools have been thought out and created outside the working context. Therefore, it is possible to draw the following remarks: 1) the proposed topic seems to be an important but under-researched area; 2) the keywords used for the research should be expanded and integrated, also referring to what emerged from this exploratory study; 3) perhaps, the methodology (systematic review) and the inclusion criteria used for the review are too restrictive to identify a larger corpus of studies.

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# In-company learning outcomes in VET - design and practice

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**Abstract:** This paper outlines the need for quality improvement of learning outcomes connected to in-company training, as a formal part of the educational programmes in dual VET systems (vocational education and training). In-company learning outcomes have an unexploited potential as cross-institutional and cross-national links in VET.

The results from a Danish practice-based survey point at six operational recommendations as a guideline for designing and practising in-company learning outcomes. A Slovenian case study has taken these recommendations into account in identifying work fields and formulating in-company learning outcomes for the targeted purpose of a national template.

**Keywords:** Quality assurance of in-company training, learning outcomes, apprenticeship, interaction between VET college and training company, student mobility, student-centred learning, workplace learning, community action research, case study

## 1    Danish vocational education and training (VET)

Danish VET is a well-established dual system. After an introductory basic course at a VET college, in-company periods and school-based periods alternate in each of the ~105 educational programmes until the final trade test. Min. 2/3 of each programme is conducted in one or more companies and remunerated by the employers.

### 1.1  In-company learning outcomes: what and how

Learning outcomes (LOs) for in-company training are competencies that the students must achieve during their in-company periods, for which the training companies are responsible. The purpose of these LOs is to direct the training and to indicate whether and how the student on the whole develops the intended competencies.

The achievement of LOs is documented by the employers in *training declarations,* sent to the colleges after each company period. The LOs are assessed within *taxonomies.* Formally, training declarations are the only instruments that assure the employer´s feedback on the student´s learning results before the final trade test.

LOs are quality assurance of in-company training and support apprentices in their reflections on their own development towards their final educational goals. A consistent application of LOs can guarantee apprentices a fair treatment, independent of educational programme and geography.

## 2 Insufficient application of a valuable college-company link

### 2.1 In the Danish context

In Denmark, the need for higher transparency and quality assurance of in-company learning is growing, caused by increasing mobility in and between the Danish VET programmes, an increasing number of shorter-lasting training periods in varying companies and international mobility. The companies need clear standards.

In-company LOs are also keys for a close college-company link. The colleges need to know the students´ performance levels, to be able to plan the school-based periods optimally and assure that all students achieve their final competencies.

Over decades, the responsible Danish authorities - *the trade committees* (= social partners) - have invented different ways of formulating LOs and their taxonomies, according to the profession-specific autonomy principle. Thus, there is a great diversity between the Danish trades and between the educational programmes regarding the way that LOs are formulated and assessed. The applied *taxonomies* (= performance levels) vary widely between the educational programmes. Even within the same programme, there may be regional differences regarding to which degree and how LOs are in use.

### 2.2 In the European context

On the European level, LOs play an increasingly significant role, as outlined by Cedefop, 2017[62]: "The learning outcomes principle is - explicitly since 2004 - systematically promoted in the EU policy agenda for education, training and employment." "At national level, the learning outcomes approach … increasingly influences the definition and writing of qualifications and curricula as well as the orientation of assessment and teaching and training."

Nevertheless, many countries struggle with a consistent design and use of *in-company* LOs, hardly mentioned in Cedefop´s report (2016).  In a wider perspective, an inconsistent application of in-company LOs means unclear cross-national interaction, as to an efficient introduction of vocational mobility students and recognition of competencies from their workplace learning abroad.

## 3 Research question

In the framework of a major initiative on the promotion of workplace learning in Scandinavia (2013-2015) [63], the Danish project wanted to outline a model that could lead to a more consistent application of in-company LOs in Denmark and generate more homogeneity across the trades. For this final goal, the project partners had to identify:

"Which obstacles and prompting initiatives can be pointed at in Denmark, if the Danish trade committees want to improve the design of and daily practice with in-company learning outcomes on the system level?"

The findings were followed up on by the EU-project *See the goal* (2016-2018)[64], led by the Slovenian national institute CPI. The Danish, Portuguese, Finnish and Slovenian partners are promoting the further implementation of in-company LOs.

## 4 Method - theoretical framework and data collection method

The knowledge-producing method is related to community action research (Scharmer et al., 2006), undertaken in the organisational framework of the Nordic project. A practice-based survey with practitioners on several levels from three vocational programmes was the centre for findings and development in practice.

Recommendations from this study were taken into account in developing and practice-testing a concept for new national in-company LOs in Slovenia, as a part of *See the goal*.

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[62] Introduction to learning outcomes (May 2017) at http://www.cedefop.europa.eu/en/events-and-projects/projects/learning-outcomes
[63] Danish project ´Arbejdspladslæring´ in Nordic initiative  http://www.norden.org/da/tema/tidligere-temaer/tema-2015/haallbar-nordisk-vaelfaerd/uddannelse-og-arbejde-for-velfaerd/laering-paa-arbeidsplassen
[64] KA2 Erasmus, country partners Denmark, Slovenia, Finland and Portugal www.seethegoal-eu.si

## 4.1   A practice-based survey in Denmark

A total of 19 sources encompassed work documents and digital platforms from both legislation and practice, as well as reports from practice with LOs in three occupational fields: construction, electrician, social & health. International inspiration was added, as well as research-based literature, external presenters, study visits and presentations by practitioners. The sources were expanded en route, as needs for new knowledge arose. Thus, interim results led to further questions, which were addressed in the Nordic context of the project.

The data collection was processed into a work paper, updated throughout the entire process, depending on the findings of the discussions during eight *development seminars*. The participants here were about 25 decision makers and practitioners from the three professional fields.

The final findings were mirrored in the requirements from the Danish VET reform[65], ratified 2014, with quality improvement as its headline.

## 4.2   A case study: Border-crossing transfer and new practice

As Slovenia is implementing apprenticeship in VET, national in-company LOs must be developed to replace varying and arbitrary local versions. Slovenian curricula experts (CPI[66], 2016) used the Danish recommendations, principles from the Finnish *skills demonstrations* and other sources as critical criteria, when elaborating their templates and methods.

In the framework of *See the goal,* work situations for video-recording LOs were identified, and the design of in-company LOs undertaken. Trials were run and evaluated as a case study within the educational programmes of industrial mechatronics and toolmaker. The results (2017) will influence the upcoming nationwide trade-crossing model.

# 5      Theories

The results of the studies were promoted and analysed from principles for a student-centred approach to learning. To enlighten an engagement-promoting process across institutional borders, principles of change management and co-creation were applied.

## 5.1   Pedagogy and communication

The student-centred approach in education and pedagogy has become a megatrend. With major relevance for the assessment of LOs, the didactics for this purpose refer to principles for feed-forward and feed-back processes (Hattie, 2013).

Communication of LOs in the age of web 4.0 also means applying new media to pedagogical processes (Hachmann, Holmboe, 2015), with full focus on the added value for students´ learning (Commander et alt. 2012).

## 5.2   An involving process

Designing and implementing processes for LOs involve a wide range of - also opposing - stakeholders, across institutions and organisational layers. Once procedures and a balance are established, new initiatives always affect a sensitive *ecosystem* (Moore, 1996). Both the Danish practice-based study and the Slovenian case were undertaken with user-involving variations of change management (Jacobsen et alt., 2008) and co-creation (Lusch et alt., 2011) in mind.

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[65] Danish VET reform "Bedre og mere attraktive erhvervsuddannelser" (2014/2015) http://uvm.dk/-/media/filer/uvm/udd/erhverv/pdf14/feb/140224-endelig-aftaletekst-25-2-2014.pdf?la=da

[66] Institute of the Republic of Slovenia for Vocational Education and Training http://www.cpi.si/en/

# 6    Findings and new practice

Quality of Danish VET in general must be heightened, according to the Danish VET reform (2014). The findings of the practice-based study point out that the national authorities also must address the quality of the in-company training periods and the expedience of tools for a better link between the subsystems in VET.

This involves the decision makers for the occupational fields - the trade committees. The national VET advisory board with the national social partners and other crucial influencers (REU[67]) would have to initiate and create a framework for an approved and systematic application of in-company LOs.

## 6.1  Six operational recommendations in Denmark

Based on the findings of the survey, the Danish project members pointed at six recommendations (table 1) for the design and application of in-company LOs. Each of them and the proposals can be tracked to one of the 19 sources and conclusions from the survey.

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[67] ´Rådet for de grundlæggende erhvervsuddannelser´ http://uvm.dk/erhvervsuddannelser/ansvar-og-aktoerer/raad-og-udvalg/reu

*Table 1*

| Learning outcomes … | Proposals for operational implementation | | |
|---|---|---|---|
| 1) must be user-friendly for companies, students and colleges | LOs must be formulated in an operational and action-directing way, with short sentences and low literacy index. They must match the logic and language of the occupation and be usable as a dialogue tool between apprentice and trainer. LOs must support assessments for training declarations. Applicable both virtually and as analogue versions. | | |
| 2) must be formulated in a way that can support students´ learning in practice | The national competence term behind the learning goals must be clear for all involved stakeholders. Personal and social competences should be included in all educational programmes. To be formulated with "the student can…".  The taxonomy must promote the learning-supportive approach. But: The training company is first and foremost a workplace! | | |
| 3) must apply one universally valid taxonomy across educational programmes /occupations | Agreement on nationwide taxonomy among all trade committees, based on dialogue and consensus between the trade committees. Quality assurance of a common taxonomy should be undertaken. The taxonomy should mirror qualitatively the students´ progression of learning and support the students´ reflection on own learning. A quantification can be undertaken, if relevant. | | |
| 4) must refer to the definition of the Danish national Qualifications Framework NQF | *"Knowledge"* profession, society | *"Skills"* regarding the occupation, choosing tools, analysing problems, assessing quality | *"Competencies"* responsibility, cross-professionalism, active learning, planning |
| | With an outlined procedure for the elaboration of regulations and LOs, based on a joint understanding of the official Danish competence term[68]. | | |
| 5) must be operated via joint virtual platform for college, company, student | Preferably there should be a national platform, also as mobile version; with a user-friendly and user-tested interface for in-company training. The compatibility with other official data systems must be assured and safe. As a data hub, its ongoing improvement must be assured. To be considered: the interaction with the companies´ own data systems. | | |
| 6) must be quality-assured and have to be maintained | There must be regular updates of the professional content, with a procedure on necessary renewals (such as via local educational councils). To be undertaken with regard to the trades´ own regulations. As a responsibility of the trade committees, involving practitioners. | | |

In a Danish trade-crossing context, but also cross-nationally and internationally, these recommendations can be considered as a guideline, in a sense of "defining and applying learning outcomes in ways which avoid the reductionism attributed to behaviourism" (Cedefop, 2016).

## 6.2  Border-crossing transfer to new practice

A dialogue-based workshop in the Nordic context (Stockholm, Dec. 2015) indicated that the six recommendations were relevant for all Nordic countries, though with different emphases and different adaptations for each country. A transfer of the LO concept would depend on national conditions.

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[68] Competence model described within the frames of the Danish Qualifications Framework for Lifelong Learning: http://uvm.dk/Service/Publikationer/Publikationer/Uddannelse-og-undervisning-for-voksne/2010/kvalifikationsramme-stor?Mode=full

Inspired by the Danish and other experiences, the Slovenian team designed a systematic procedure (fig. 1), involving occupational experts from VET colleges, training companies and curricula experts from CPI. The process resulted in a trade-independent template for defining LOs, when filming them[69].
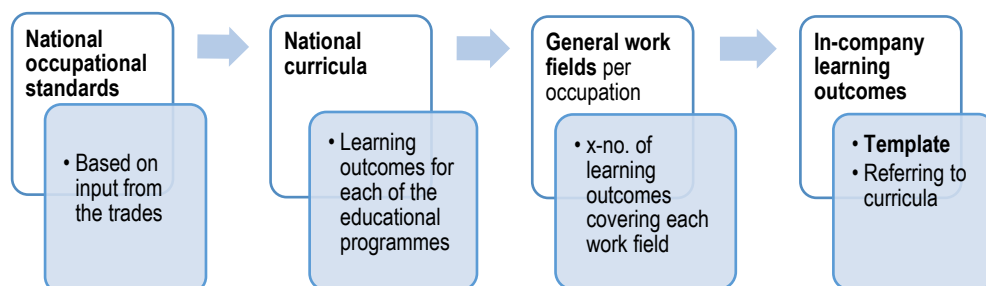
```
┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│ National        │ ──▶ │ National        │ ──▶ │ General work    │ ──▶ │ In-company      │
│ occupational    │     │ curricula       │     │ fields per      │     │ learning        │
│ standards       │     │                 │     │ occupation      │     │ outcomes        │
│                 │     │                 │     │                 │     │                 │
│  • Based on     │     │  • Learning     │     │  • x-no. of     │     │  • Template     │
│    input from   │     │    outcomes for │     │    learning     │     │  • Referring to │
│    the trades   │     │    each of the  │     │    outcomes     │     │    curricula    │
│                 │     │    educational  │     │    covering each│     │                 │
│                 │     │    programmes   │     │    work field   │     │                 │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
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*Fig. 1, Slovenia process*

## 6.2.1  Further perspectives for transfer

Slovenia´s template for describing in-company LOs (work paper, 2017[70]) may benefit other countries; also Denmark, where the need for an increasing transparency and quality assurance of in-company training is documented, and a change process has begun[71].

But increased formalisation can also have a negative impact. The typical Danish approach with a strong agility and pragmatism in standard development[72] (Lamscheck-Nielsen, 2016), has fostered valuable personal commitment, flexibility and authenticity, prospering in well-balanced *ecosystems* (Moore, 1996). Intervening these sensitive ecosystems with more rigid procedures, may harm the appreciable aspects. Innovation in Danish VET must always find acceptance from its crucial stakeholders and practitioners. New tools and methods must be proven by evidence in practice. As Cedefop points out: "Successful policies seem to follow incremental and gradual implementation of strategies" (2016).

## 6.2.2  Communication of in-company learning outcomes

The Danish principles also point at a clear communication of LOs. Filming LOs means a media-based *translation* (Obed Madsen, 2013) of formal standards. *See the goal* produces videos of LOs[73] according to cross-nationally identified quality criteria. The videos are conceptualised and will be test run in educational practice. The results will enrich the further improvement towards clearly communicated LOs as a link between subsystems in VET.

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[69] *See the goal* http://www.seethegoal-eu.si/2017/01/17/designing-learning-outcomes/
[70] ibid
[71] The Ministry of Education has introduced a quality assuring procedure with annual reviews of the guiding regulations (2010), and several trade committees work more systematically with LOs, such as within Construction and Social & Healthhelath.
[72] See the goal http://www.seethegoal-eu.si/2017/01/17/designing-learning-outcomes/
[73] Danish Videos, See the goal, http://www.seethegoal-eu.si/video/ (2017), English subtitles

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# The Current Status of Cooperation between Companies and Vocational Schools in the German Dual Apprenticeship System: The Perspective of the Companies

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**Abstract:** The principle of duality of the two learning locations – company and school – forms the birth of the term "Dual System" in 1960s. It is a system of simultaneous training in companies and vocational schools. Dual and the interaction of the learning locations characterize the original concept. Empirical studies in the past showed, that the interaction is week. It seems that the duality is more pronounced than the interaction. But, there are gaps in the data: The most recent differentiated survey of companies are from 2008. It is unclear how companies evaluate cooperation between learning locations today. The research question of the study is: How do experts for in-company training in companies (such as trainers, instructors, HRM) evaluate cooperation between the two learning locations, company and school, and what measures are considered important to intensify cooperation between the two learning locations? In the presentation actual data from an empirical survey in the city state Bremen are presented and discussed.

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## 1  Problem Statement

### 1.1  Dual System

The term "Dual System" was first used in 1964 in a report published by the German Committee on Education System. The term Dual System should emphasise that it is a "system of simultaneous training in companies and vocational schools" (German Committee on Education System, 1966, 418), whereby the success of the dual training system depends on whether the responsible bodies "interact" (ibid., 503). Dual and the interaction of the learning locations characterise the original concept.

The word "simultaneous" must not hide the fact that the company (then as it is today) is the dominant partner in the "system". This is expressed by the fact that

- the company (and not the vocational school) decides who receives a training place and training contract (followed by a place in the vocational school) and who does not,
- the apprentices spend 2/3 of their time in the company and only one third of their time in the vocational school[74],

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[74] The framework agreement of the Standing Conference of the Ministers of Education and Cultural Affairs [KMK Kultusministerkonferenz] states that *at least* 12 hours per week of vocational education in schools must be made (KMK, 2015). In

- the training is only deemed successful if the final examination organised by the chambers (who represent the companies and therefore the learning location company) has been passed.

The German Committee on Education System recommended already in 1964 a reform, which is formulated as the model for the future: "In dual training, the company and the vocational school have a joint responsibility. Their contribution is different, but it constitutes equal obligations and rights. In order to reinforce and make the common ground for responsibility visible, both partners organize a joint examination upon the conclusion of the vocational training at the end of the obligatory vocation schooling period and issue the final certificate together". (ibid., 493). And later: "In the Dual System, the vocational schools are equal partners of the companies. Both serve the same goal, albeit with different orders and under their own responsibility. "(ibid., 500). The key words of the description of the Dual System are: shared responsibility, balanced obligations and rights as well as equal partnership.

This concept of the 1960s is still used today to characterize the Dual System by means of the duality of the learning locations and/or the division of practice in companies and theory in schools (e.g. Ryan, 2011). This does not take into account that the training (1) often takes places at three or more locations of learning (e.g. inter-company training institutions, training in another company in the context of a training alliance or training network) and that (2) with the introduction of the didactic principle of "Learning Areas" in the vocational schools in 1996, the separation between theory and practice was abolished (Gessler, 2017). Today's concept of the term Dual System is more complex and, depending on the conceptualization, comprises five (BMBF, 2013) or six "core principles" (Dehnbostel, & Lindemann, 2016), six "criteria" (Gonon, 2014) or even eleven "essential elements" (Euler, 2013).

The term "locations of learning" or "learning venue" [Lernort], introduced 1974 by the German Education Council (GEC, 1997), was criticized even at an early stage, since the learning locations "company" and "school" consist of a number of different learning locations (company includes e.g. training workshops, workplaces and courses; school includes e.g. classrooms, workshops and virtual learning rooms). In this sense, the term "plural system" (Kutscha, 1999) is more appropriate, on the one hand; on the other hand this term applies already to every school. Schools offer a set of learning places, and many companies do as well. Another critic was that the term „location of teaching" or „teaching venues" would be more appropriate (Beck, 1984). Unattached from this critics, the term „location of learning" established itself.

The emphasis on the aspect "location of learning" also carries the risk that other dualities are hidden, such as e.g. the participation of the social partners (employers / employees), corporatist governance (federal government/social partners), federal constitution (federal government/governments of the states), cooperative financing (public/private), the teaching/learning arrangement (experience-based/systematic), the disadvantage in the transition into the system (transitional system/apprenticeship) and the disadvantage in the system (e.g. male professions/female professions). Taken together, these dualities form a further duality, namely between visible (e.g. financing) and rather hidden system characteristics (e.g. discrimination). The principle of duality of the two learning locations – company and school – forms nevertheless the birth and the core of the Dual System, despite the necessary complementary differentiation.

## 1.2 Empirical Studies

In 2017, the German Chamber of Commerce and Industry (GCCI) published results of an online survey involving 10,561 companies (GCCI, 2017). According to this study, 86% of the companies are satisfied or very satisfied with the work of the vocational schools. When questioned on potential for improvement, however, 63% would like more intensive communication between the school and the company. According to the study of the GCCI, it is apparent that "co-operation between learning locations of schools and companies can be intensified" (GCCI, 2017, 16). Cooperation is interpreted here as communication. How exactly the communication could be improved was not asked.

In 2015, the GCCI also surveyed 11,541 companies in an online survey to gather positive and critical aspects of satisfaction with the regional vocational school situation. In this survey, 38% of the companies indicated that

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the states however, this orientation value is implemented with predominat *exactly* 12 hours per week. The KMK is a voluntary coordinating body for the 16 state ministries without constitutional status (first congress in 1948)

there was a regular and trusting exchange of information between the vocational school and the company, and in turn 48% specified that cooperation was worthy of improvement. What kind of exchange is precisely meant remains unclear. It also remains unclear how exchange is to be improved. The cooperation between learning locations is dedicated to a specific item in this survey (in addition to the mentioned items). In this item, the question is asked whether the companies are satisfied with the vocational school situation in the region because "there are joint projects between the vocational school and the company (cooperation between learning locations)" (GCCI, 2015, 8). 5% of the companies surveyed chose this item as the reason for their satisfaction. In this survey, cooperation between learning locations is equated with joint projects.

The comparison of these two studies shows, on the one hand, that the concept of cooperation between learning locations [Lernortkooperation] is used differently (communication / joint projects). On the other hand, the two studies have similarities: 62% of the companies say that there is no regular and trustworthy exchange between the vocational school and the company (GCCI, 2015) and 63% would like a more intensive communication (GCCI, 2017).

The most recent study by the Federal Institute for Vocational Education and Training [Bundesinstitut für Berufsbildung (BIBB)] from the perspective of the company (N = 1.362) is based on a survey from 2008. On a scale of 1-6 (1 = not at all, 6 = very strong), cooperation between learning locations is rated on average with a 2, while the expected target is assessed on average 2 points higher per aspect (mean value approx. 4). In this study, cooperation between learning locations has been operationalized by means of the following aspects: (1) the implementation of joint projects, (2) the coordination of teaching and training plans, (3) the involvement of industry practitioners in teaching, (4) combined working groups, (5) the exchange of information on the behaviour of apprentices and achievement (6) Training projects with companies in the region (Ebbinghausen, 2009, 43).

The first representative studies of cooperation between learning locations arose at the beginning of the 1990s in cooperation between the BIBB, the University of Dortmund and the Humboldt University in Berlin. Results from these studies are still used as a reference (Euler, 2017; Rauner 2017), as comparable up-to-date studies are scarce or are lacking. Major results of the study are

- that only 8% of the apprentices interviewed (N = 3,300) are of the opinion that the learning locations are closely coordinated with each other in terms of time and content (Autsch et al., 1993; Walden & Brandes, 1995),
- that 68% of the trainers' reasons to get in contact (N = 2,624) and 75% of the teachers' reasons to get in contact (N = 1,622) arose because the apprentices had *learning difficulties*, a further 47% of the trainers' reasons to get in contact and 54% of the teachers' reasons to get in contact where the result of *disciplinary problems* of the apprentices, while only 20% of the trainers' reasons to get in contact and only 9% of the teachers' reasons to get in contact were to provide *coordination of content* (Pätzold, Drees & Thiele, 1993),
- that 26% of the companies surveyed (N = 1500) have no contact at all, 31% have sporadic contact with the vocational school, another 7% co-operate if there are problems and only 35% have continuous cooperation (Berger & Walden, 1995). In a later study, this system is also used for the typology of teachers: According to this 8% of teachers have no contact, 31% have only sporadic contact, 9% cooperate if problems exist and 51% have continuous cooperation (Walden, 1999).

The results of Berger and Walden (1995) fit in with the above studies of the GCCI (2015), according to which 62% of companies do not have a regular and trustworthy exchange of information between the vocational school and the company.

Recent studies further demonstrate that the situation has not improved from the point of view of the apprentices. In the study carried out by Beicht et al. (2009), 11% of the trainees (N = about 6,000 apprentices) specified for example that there is a very strong or strong cooperation between company and school. 32% view the cooperation as rather strong and 57% as rather small, small or absent. On a scale of 1-6 (1 = very strong, 6 = not at all) the mean value is 3.8. Cooperation between learning locations thus gets the worst value of all quality variables recorded (Range: 2.6 to 3.8). A series of studies carried out between 2012 and 2014 came to similarly poor results. Apprentices (N = approx. 4000) were also interviewed. Criticism by apprentices is levelled at the

structural and content-related shortcomings of the cooperation between learning locations (Rauner & Piening, 2015).

There seems to have been not much improvement since the 1990s, on the one hand. On the other hand there are gaps in the data: The most recent differentiated survey of companies are from 2008. It is unclear how companies evaluate cooperation between learning locations today.

## 2    Research Approach

### 2.1   Reference Level and Research question

The linking of school-based and workbased learning can be examined from different perspectives and questions: (1) vertical (linking the different reference levels), (2) horizontal (linking on a reference level), and (3) diagonal (linking within a quadrant).

Taking Kell (1989) into account, Wirth (2013) developed an orientation framework that helps to classify the theoretical and empirical references. This model was changed lightly to draw a clear destinction between the two sides (see Fig. 1).

| Economic system | **Macrosystem** | Societal system |
|---|---|---|
| Including development, structure, culture | | Including development, structure, culture |
| Employment system | **Exosystem** | Educational system |
| Including training plans, training of instructors, tertiarization, Industry 4.0 | | including curricula, training of teachers, academicization, and permeability |
| Company as a system / institution | **Mesosystem** | School as a system / institution |
| including trainers, training plan, training within networks | | including teachers, lesson plans, teaching / learning arrangements |
| Working | **Microsystem** | Learning |
| including workplace, training workshops, company training | | including classroom, workshop, virtual learning rooms |
| **Apprentices** | **Role/person** | **Students** |

Figure 1: Orientation framework (based on Wirth 2013)

With regard to the design and the success of the learning processes at micro level, the levels interact on the one hand. On the other hand, the intensity of the effect on the learning process decreases with increasing distance from the mirco-level. The macro-level has the least influence on the learning process and the learning performance, although this creates necessary conditions to promote cooperation on exo- and meso-levels.

The focus of this study is the cooperation of the actors of the companies (trainers) and schools (teachers), who organize and implement the teaching processes. The investigation is thus located on the meso level with horizontal alignment.

The research question is: How do experts for in-company training in companies (such as trainers, instructors, HRM) evaluate cooperation between the two learning locations, company and school, and what measures are considered important to intensify cooperation between the two learning locations?

### 2.2   Survey instrument

Firstly, items for the assessment of the vocational school situation in the region (GCCI, 2015) as well as for cooperation between learning locations were collected on the basis of the studies already carried out (Pätzold, Drees, & Thiele, 1993; Walden & Brandes, 1995; Walden, 1999; Ebbinghausen, 2009). A further source was the recommendation of the Main Committee of the Federal Institute for Vocational Education and Training

(1997). In this recommendation, the ooperation between the two learning locations is also substantiated. In the next step the items were structured. We used a theory-based model of cooperation from the work and organisational psychology (Wehner, Clases, & Bachmann, 2000).

The questionnaire developed was initially discussed with three instructors from companies of differing sizes (<50, 50-250,> 250). At the end of the discussions, the final questionnaire was developed and finally a test for intelligibility was carried out with six instructors. Misleading statements were revised and discussed again with the instructors until all items were considered to be understandable.

## 2.3 Sample

The basic question was which economic sector (agriculture, crafts, industry, services) should be examined. In principle, all sectors are eligible as the Dual System is implemented in all sectors. However, the Dual System has different imprints in the different sectors. The industrial sector shows the greatest proximity to the term Dual System, as coined in the 1960s.[75] Due to this configuration as well as the importance of this sector in Germany, we have decided on a survey in the industrial sector.

## 2.4 Data Collection

The investigation was carried out in the city state of Bremen (one of the 16 states in germany). Even though the results cannot be representative of Germany because of the regional limitation, the data is suitable for establishing a tendency : (1) In a city state the paths are short. This favours the cooperation, which should lead to somewhat better values in comparison to larger states (e.g. the state Lower Saxony). (2) According to a study conducted by the GEI German Economic Institute [Institut der Deutschen Wirtschaft], Bremen is ranked number 1 in the federal rankings in the performance indicator "apprenticeship rates" (GEI, 2016). This placement makes clear that the companies in Bremen have a high level of engagement in vocational training. This is an aspect that favours cooperation, which is why it can be assumed that the results are better compared to other federal states. (3) In Bremen there is neither a separate decree nor a legal regulation on the part of the state government to promote co-operation between learning locations. In the city state of Hamburg[76], only 120 kilometers from Bremen, cooperation between learning locations is enshrined in the Schools Act dated 16th April 1997, most recently amended on 15th September 2016, and therefore institutionalised. This lack of regulation in Bremen is likely to lead to a poorer value compared to those states with appropriate regulations.

The competent office for vocational training in the industrial sector is the Chamber of Industry and Commerce (in Bremen, the Bremen Chamber of Commerce - CCI for Bremen and Bremerhaven). For this reason, we asked for support for the survey and received it.

The survey took place online and anonymously in the first half of the year 2017 using the platform questback. All companies offering dual apprenticeships in Bremen in the industrial sector (N = 2,131) were invited in writing to participate in the survey by the Bremen Chamber of Commerce - CCI for Bremen and Bremerhaven.

The results of the survey are presented at the conference.

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[75] A special case is the care sector. The basic ideas, shared responsibility, balanced obligations and rights as well as equal partnership, are well established in some fields, such as the nursing profession. But, the care sector is regulated by special laws and not by the National Vocational Training Act from 2005. For this reason, we concentrate in this survey not on the care sector.
[76] The third and last city state in germany is Berlin.

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# Appendix

## INTERNATIONAL VET CONFERENCE

## CROSSING BOUNDARIES IN VOCATIONAL EDUCATION AND TRAINING: SOCIAL DIMENSIONS AND PARTICIPATION

### Wednesday, 16th August 2017

| | |
|---|---|
| 10:00 – 12:00 | PRE-PROGRAM: FREE CITY TOUR (STARTING POINT: MAIN BUILDING OF THE UNIVERSITY OF ROSTOCK) |
| 12:00 – 12:45 | Registration |
| 12:45 - 13:30 | **Welcome Speech** (**Room Aula**, Universitätsplatz 1, 18055 Rostock)<br><br>PROF. WOLFGANG SCHARECK, Rector, University of Rostock<br>KURT SCHANNÉ, Federal State Government of Mecklenburg-Vorpommern (MBWK)<br>PROF. FRANZ KAISER, Head of Institute for Vocational Education, University of Rostock |
| 13:30 -14:15 | **Keynote Speech I** (**Room Aula**, Universitätsplatz 1, 18055 Rostock)<br><br>"LABOUR MARKET OUTCOMES OF NATIONAL QUALIFICATIONS FRAMEWORKS"<br>PROF. STEPHANIE MATSELENG ALLAIS, University of Witwatersrand, South Africa |
| 14:15 -14:45 | Coffee Break |
| 14:45 -16:15 | *Session 1* |

| Communication and conflicts<br><br>Chair: **Philipp Struck**, Room 218 | CBET and qualification framework and their impact<br><br>Chair: **Stefan Wolf**, Room 113 |
|---|---|
| Theme Centered Interaction (TCI) as a structured-methodical approach to develop the reflexivity and formative capacity of VET teacher students in a democratic culture<br>*Kaiser, Franz (GER)* | Competence-Based Education and Training (CBET) in England: A Case Study about the Rise and the Fall of the CBET-Approach in Vocational Education and Training<br>*Gessler, Michael (GER)* |
| Enabling Schools and Enabling and Mindful Teachers and Emotional capital: toward humanistic and democratic societies, well trained and self-confident workers and sustainable development.<br>*Gendron, Benedicte (FR)* | Vocational education for adults – the employers´ perspective<br>*Aeschlimann, Belinda (CH)* |

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|---|---|---|---|
| | Nonviolent communication – a communication concept for social inclusion and self-confident workers in Vocational Education and Training<br>*Dormann, Markus (GER)* | | |
| **16:15 - 16:45** | Coffee Break | | |
| 16:45 – 17:45 | **The Case of Baltic Region – Social Dimension**<br><u>Countries:</u> Germany, Sweden, Estonia, Denmark<br>Panel Discussion<br><br><u>Chair:</u> **Claus Brandt Kristensen** (DK), Room: Aula, main building | | |
| 17:45 - 18:00 | *Conclusion (Michael Gessler & Franz Kaiser)*<br>*End of 1st Day; University of Rostock, Room: Aula, main building* | | |
| at 20:00 | *Informal Dinner* at the Brauhaus „Zum alten Fritz"<br><br>The reservation is named on Franz Kaiser, University of Rostock.<br><u>address:</u> Warnowufer 65, 18057 Rostock | | |

# Thursday, 17th August 2017

| | |
|---|---|
| 9:00 – 9:15 | *Opening of 2nd Day* |
| 9:15 - 10:00 | **Keynote Speech II** (**Room Aula**, Universitätsplatz 1, 18055 Rostock) <br><br> "CROSSING BOUNDARIES: VET, THE LABOUR MARKET AND SOCIAL JUSTICE" <br> PROF. JAMES AVIS, University of Huddersfield, United Kingdom |
| 10:00 – 10:45 | **Keynote Speech III** (**Room Aula**, Universitätsplatz 1, 18055 Rostock) <br><br> "WORK 4.0 – NEW CHALLENGES FOR PARTICIPATION AND QUALIFICATION" <br> PROF. SABINE PFEIFFER, University of Hohenheim, Germany |
| 10:45 - 11:15 | Coffee Break |
| 11:15 - 13:00 | *Session 2* |

| Teacher Training <br><br> Chair: **Christof Nägele**, Room 113 | Transfer <br><br> Chair: **Miriam Abiétar López**, Room 114 | Curricular Design <br><br> Chair: **Graham Attwell** , Room 218 |
|---|---|---|
| VET teachers researching and/or drawing upon research: Australian VET teachers crossing the non-reflective to scholarly boundary <br> *Hughes, Lewis (AUS)* | Policy transfer of German TVET evaluation concepts to China: the example of peer review in TVET <br> *Li, Junmin (GER)* | Crossing Boundaries to enhance Sustainability in Construction <br> *Burchert, Joanna, Grobe, Rasmus (GER)* |
| Reconstructing underlying rationalities in TVET teachers' recruitment in the case of Egypt <br> *Eckelt, Marcus (GER), Sobhi, Passant (EGY)* | Exploring the relevance of the dual model in Romanian VET. A policy analysis informed by a qualitative research <br> *Faludi, Christina, Pantea, Maria-Carmen (RO)* | Vocational training: theories and models of comprehension of occupational environments. <br> *Clerici, Matteo (IT)* |
| Actual and essential changes in the work of vocational teachers: the case of Estonia <br> *Sirk, Meidi, Liivik, Reeli (EE)* | Past meets Present – the history of the German Vocational education and training model as a reflection frame to the prospect of the Egyptian model <br> *Wolf, Stefan (GER)* | Individualized professionalism as a happy medium between manpower entrepreneurship and standardized occupationalism in the reflexive modern world <br> *Thole, Christiane (GER)* |
| Competence Development for Vocational High School Teachers: An Indonesia Case <br> *Cholik, M., Rahmadian, R., Samani, M. (ID)* | Institutional persistence and path dependence in VET: the case of Estonia <br> *Loogma, Krista, Ümarik, Meril (EE)* | New vocational training arrangement for general formen in the German construction sector <br> *Deitmer, Ludger, Heinemann Lars (GER)* |

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|---|---|
| 13:00 - 14:30 | Lunch |

| Time | Session |
|---|---|
| 14:30 - 16:00 | **Session 3** |

| Permeability - recognition of competencies | Transfer |
|---|---|
| Chair: **Daniel Alvunger**, Room 218 | Chair: **Stefan Wolf**, Room 113 |
| Transitions from VET to University. Institutional challenges and changes from a neo-institutional perspective<br>*Schmidt, Christian (GER)* | An action research approach to studying apprenticeship in Spain<br>*Attwell, Graham, Garcia, Ana (ES)* |
| New perspectives on VPL – visibility, effectiveness and impact<br>*Haasler, Simone, Laudenbach, Franziska (GER)* | German dual Vocational Education and Training: distinctive elements about its implementation in Peruvian Servicio Nacional de Adiestramiento en Trabajo Industrial (SENATI)<br>*Angles, Enrique (PE)* |
| Legal regulation of the advertising of vocational education services – the role of truth and recognition of advertising criteria<br>*Gedvilienė, Genutė, Vaičiukynienė, Skaistė (LT)* | |

| Time | Session |
|---|---|
| 16:00 – 16:30 | Coffee Break |
| 16:30 – 17:30 | **Session 4** |

| Innovation projects and the role of research | Industry 4.0 | Learning process in school and workplace |
|---|---|---|
| Chair: **Philipp Struck**, Room 113 | Chair: **Benedict Gendron**, Room 114 | Chair: **Joanna Burchert**, Room 218 |
| Innovation projects and programmes in VET<br>*Lamscheck-Nielsen, Regina (DK)* | Industry 4.0 – What's behind the mask?<br>*Saniter, Andreas, Howe, Falk (GER)* | Learning in Variable Clusters – Approaches for Empirical-Based Learning Groups for Student-Oriented Didactics<br>*Götzl, Mathias, Ketschau, Thilo, Jahn, Robert (GER)* |
| Transnational policy and the recognition of vocational knowledge: A device for understanding transformations in policy and practice<br>*Alvunger, Daniel, Johansson, Maria (SE)* | Competence-based VET curriculum reforms in Lithuania: implications for the readiness of VET to the requirements of the 4th industrial revolution<br>*Tütlys, Vidmantas, Gedvilienė, Genutė, Griškevičius, Mečislavas (LT)* | The Formativity of Work-Based Learning<br>*Marcone, Valerio Massimo (IT)* |

| Time | Event |
|---|---|
| 17:30 – 17:45 | *Conclusion (Michael Gessler & Franz Kaiser)*<br>*End of 2nd Day; University of Rostock, Room: Aula, main building* |
| at 19:00 | Boat tour – Rostock city harbour: ferry station |

# Friday, 18th August 2017

| 9:00 – 9:15 | *Opening of 3rd Day* | | | |
|---|---|---|---|---|
| 9:15 - 10:00 | **Keynote Speech IV** (**Room Aula**, Universitätsplatz 1, 18055 Rostock)<br><br>**"TRANSITION FROM EDUCATIONAL TO PROFESSIONAL CONTEXT - THE CASE OF SWITZERLAND"**<br>PROF. MARKUS NEUENSCHWANDER, University of Applied Sciences and Arts Northwestern Switzerland | | | |
| 10:00 - 10:45 | *Evidence based Research Agenda – European Discussion*<br><br>Chair: **Prof. Dr. Michael Gessler, Dr. Christof Nägele & Prof. Dr. Barbara E. Stalder**, Room: aula, main building | | | |
| 10:45 - 11:15 | Coffee Break | | | |
| 11:15 – 13:00 | *Session 5* | | | |
| | Integration of Youth<br><br>Chair: **Mathias Götzl**, Room 218 | Teacher Training<br><br>Chair: **Thilo Ketschau**, Room 113 | Work orientation in higher Education<br><br>Chair: **Vidmantas Tūtlys**, Room 114 | Cooperation of learning venue<br><br>Chair: **Ludger Deitmer** , Room 217 |
| | The educational role of jobcoach and lifecoach in Work Integration Companies.<br>*Marhuenda, Fernando, Abiétar López, Miriam (ES)* | Networked Shaping – a perspective for international vocational education and for education and training of vocational educators<br>*Eicker, Friedhelm, Fiedler, Kai, Haseloff, Gesine (GER)* | The Employability of Graduate Students: How Critical Thinking is Effectively Taught in Master Courses<br>*Azizi, Nematollah, Rigi, Atefeh, Bazvand, Mahbobeh (IR)* | Working for VET – organizational cooperation practices in the Swiss vocational education and training system<br>*Strebel, Alexandra (CH)* |
| | Teachers Attitude towards Inclusion in Vocational Education<br>*Driebe, Thomas, Götzl, Mathias, Jahn, Robert (GER)* | Mobility in iVET – New tasks for teachers and trainers<br>*Will, Britta (GER)* | Developing post-graduate skills for knowledge co-configuration work<br>*Hayward, Geoff, Kinti, Ioanna (GB)* | Crossing boundaries between classroom and work learning processes through ICT: a systematic Review<br>*Perini, Marco (ITA)* |
| | The lamentation about the bad school leaver' in Germany and England: An analysis of the current and historical discourse between the main players involved in VET<br>*Zenner, Lea (GER)* | Vocational excellence in practices: a case narrative approach<br>*Tyson, Ruhi (SE)* | Academic continuing education encourages individual to face career development and changes - VET at its best?<br>*Kil, Monika, Keser Aschenberger, Filiz (AT)* | Learning outcomes for in-company training: Formulation and Practice<br>*Lamscheck-Nielsen, Regina (DK)* |

| | | | |
|---|---|---|---|
| | The model of knowledge in the career choice process<br>*Struck, Philipp (GER)* | | | The Current Status of Cooperation between Companies and Vocational Schools in the German Dual Apprenticeship System: The Perspective of the Companies<br>*Gessler, Michael (GER)* |
| 13:00 - 13:30 | *Closing & Best Presentation Award (Michael Gessler & Franz Kaiser)*<br>*Wrap-Up*, End of Conference; University of Rostock, Room: Aula, main building | | | |

# List of participation

| Nr. | Surname | First Name | Title | Organisation | Country | E-mail |
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