



Non-Academic Vocational Education and Training at Germany





Non-Academic Vocational Education and Training in Germany

Structures, Initial Teacher Education for Vocational Schools, Pedagogical Concepts, Research Lines

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Faculty of Sciences of Education

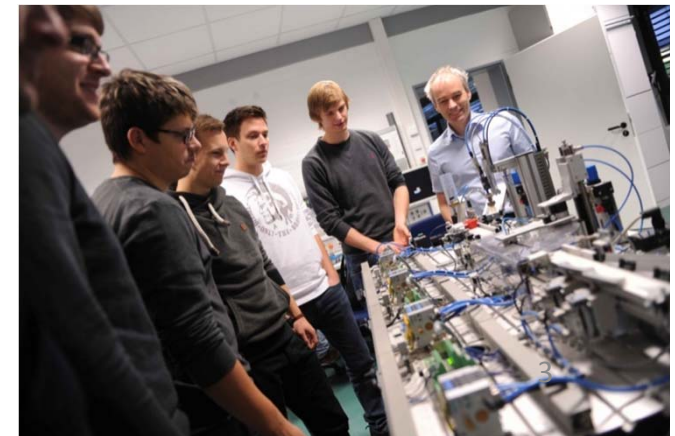


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1 Vocational Education and Training (VET) in Germany



**Selection and Allocation,
Interaction between
Labor Market and VET**

(a) Some General Statements – Selection and Allocation:

- Non-academic VET is part of the general system of selection and allocation of school leavers from the compulsory schools (after compulsory school attendance at the age of 15/16 years) (see e. g. *Konietzka, 2004; Seifried, 2006*) and from there into the labor market (see e.g. *Ebner, 2013*).

Developments in the sector of Higher Education, e.g. the **implementation of the Bologna Process (Bachelor and Master programs)**, have led to significant changes for the access of young people into the non-academic VET.

The attractiveness of the academic study programs has highly increased, above all for graduates from compulsory schools who come from non-academic families („first generation students“)

(see e.g. *Teichler & Wolter, 2004; Banscherus & Pickert, 2013; Wolter, Kamm et al., 2017*).

Consequence:

- The recruitment for apprenticeship training positions in the Dual System which in some segments (e.g. apprenticeship in bankcrafting, in higher form of technics) traditionally have been reserved to a high extend for graduates with university entrance diploma becomes more and more difficult (see e.g. *Bracker, 2016*).

(b) Some General Statements – Interactions between Labor Market and VET (1):

- Very directly, the development of the labor market influences the **quantity of apprenticeship training positions** (see e.g. *Dietrich & Severing, 2008*)
 - and subsequently, the places in the vocational schools required for
 - **full scholastic equivalents** to the apprentice training in the Dual System (e.g. by extensive training in simulated working structures);
 - in the **transitory system** of scholastic VET (for school leavers with non successful learning careers);
 - **preparatory programs to university access** (e. g. Fachoberschule/specialized VET secondary school)
- **Technical developments** (e.g. in IT) very directly lead to changing requirements and subsequently to continuous **changes in the VET-curriculum** (in enterprises as well as in vocational schools) (see e.g. *Mulder & Messmann, 2007*).
- The high increase of complex labor places and their requirements for adequate competencies of the workers, employees and apprentices emphasize the **fluent disposition of basic competences** -
(see e.g. *Eberhard, 2006*; the articles in *Schlicht & Moschner, 2017*)
in the colloquial language, in (complex) text-understanding,
in mathematics, natural sciences and in foreign languages (mainly English).

(b) Some General Statements – Interactions between Labor Market and VET (2):

- Beside the role of basic competencies and of specialized vocational competencies, the **changes in complexity of the working structures** lead to new requirements regarding the **key qualifications** (see e.g. *van Buer, 2012, 54ff.*) and the **working attitudes** like
 - team competencies;
 - complex problem solving competencies a. s. o.;
 - mental resilience.

And these changes lead to an increasing importance of **traditional working attitudes** like

(see e.g. *Stalder & Stricker, 2009*)

- ability to work under pressure (e. g. time pressure)
 - punctuality, cleanliness of the working place a. s. o.
- In VET, there is a high need in **active life long learning attitudes** (see e.g. the articles in *Achtenhagen & Lempert, 2000*)
 - as individual private investments (informal/nonformal further education) as well as
 - as upgrading further education offered by enterprises and companies.

(c) Consequences for *training staff in the enterprises/companies*:

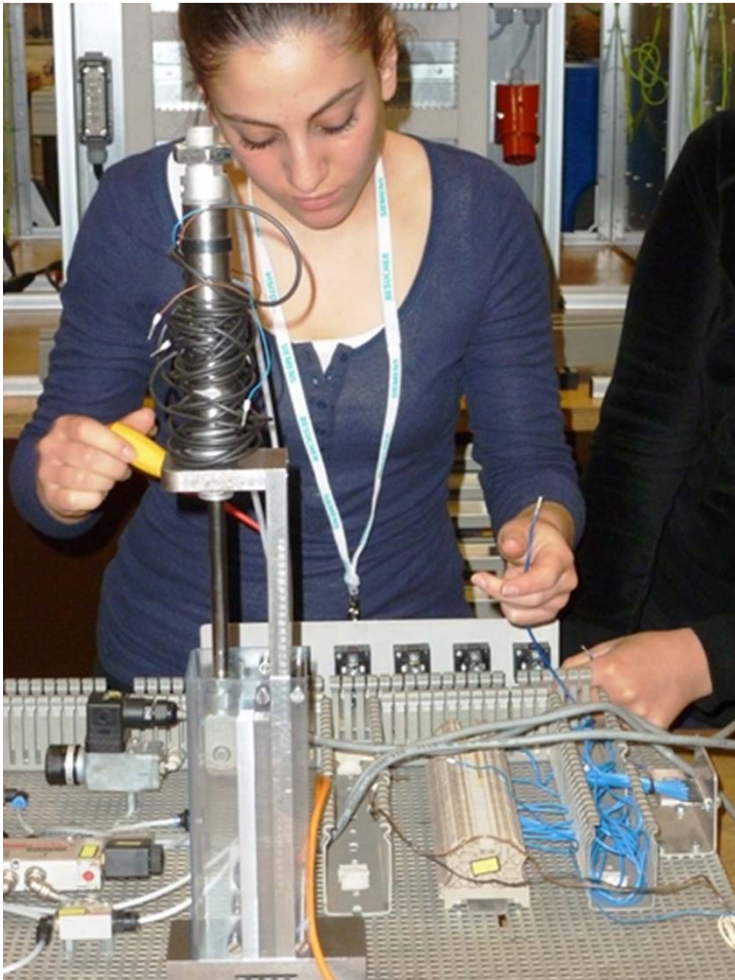
- high **vocational competencies** as well as key qualifications,
 - domain overlapping theoretical knowledge,
 - reflected fluent routines in practical working;
 - meta-cognitive competencies in complex problem solving;
- **pedagogical competencies**, above all in complex training-learning-systems (e. g. in the vocational training departments of big companies);
- high input into life long learning processes,
e.g. in the frame of the traditional **Meister-qualification** (Meisterschulung)

(d) Consequences for *teaching staff in the vocational schools*:

- **vocational competencies / knowledge and experience in working structures** (e. g. 3-years-acquired by apprenticeship; long internship; employment)
- **broad pedagogical competencies** (in education of young adults; didactics and special didactics in VET);
- **broad science based competencies in special vocational domains;**
- **active input in life long learning**
 - dynamic changes in the labor market, working structures, technologies ...

2

**Vocational Training Aptitude,
Employability, Vocational Competencies
and Key Qualifications in German VET**



Central Terms and Concepts

(a) Profession and professional formation – two basic terms ⁽¹⁾:

Despite the increasing relevance of the term „employability“ in the EU-discussion about labor market and access to it, the two terms of **profession** (Beruf) and **professional formation** (Beruflichkeit) play a central role in the German discussion about vocational education and training

(e.g. Reuling, 1998; Lempert, 2006).

- **Profession** (Beruf) acts as a social and economic **term of creating identity** for those who successfully have passed a apprenticed training programs (Ausbildungsberuf).
- On the contrary, **job** means a non-formal frame for employment, whether untrained or trained.

Consequence: In Germany, you are allowed to use e.g. term „bankcraft“ on your business card only *(a)* when you have passed the appropriate apprenticed training, *(b)* when you successly finished this training by the final exam executed by the responsible Chamber and *(c)* when you got the entitlement by this chamber.

In Germany, still nowadays, the profession acts as one of the most relevant creators for the individual biography as well as for the individual self-concept

(e.g. the articles in Kurtz, 2001; Lubecki, 2002; Kurtz, 2005, 89ff.).

(b) Profession and professional formation – two basic terms (2):

→ **Professional formation** (Beruflichkeit) means a zone of mediating between profession, specific structures of the labor market and professional further education and training (see e.g. *Rauner*, 2005, 13).

One base of the agreements arranged there are the definitions of profession, professional families, nucleus professions a.s.o. (e.g. *Bretschneider, Grunwald & Zinke*, 2010).

During the last years, for the German labor market, a running diffusion of the concepts of profession and professional formation has to be noticed. This is true above all in the new technologies, the internet-companies a.s.o. It is carried forward above all by the international concerns (see the articles e.g. in *Voss-Dahm, Mühge, Schmierl & Struck*, 2010).

Nevertheless, in the segments of handcraft working, the two terms – **profession** and **professional formation** – play a very relevant role – looking at the internal structure of the company, looking at the customer care and customer retention, also looking at the general branding of a company.

**(c) Employment on the base of non-/informal training (Erwerbstätigkeit)
vs.
recognized occupation (requiring formal training) (Ausbildungsberuf):**

- **Employment on the base of non-/informal training** means that persons provide contractually fixed performances in their working place *without* the certificate of a recognized formal training (apprenticeship).
- **Recognized occupation which require are a formal training** are bound to the legal contexts of a formal apprenticeship.
Persons at such a working place need the entitlement of a Chamber BBiG, §§42ff.)

(e.g. Bretschneider, Grundwald & Zinke, 2010, 8).

(d) Recognized occupation (requiring formal training) (anerkannter Ausbildungsberuf)

(5 main characteristics):

(Laur-Ernst, 2000, 1)

- It represents a **social, science based construct relevant for the labor market.**
- It has to be understood as a **category of formal regime.**
Within the frame of a institutionally defined process,
each of the actual **326 apprenticeships** is arranged by the social partners
(companies, trade unions, state and science; commissions in Federal Institute
of Vocational Education and Training = Bundesinstitut für Berufsbildung).
- It characterizes a well-defined **combination of specific and institutionalized cluster of working structures** with a specific profile of requirements; these have to be mastered by specific competencies acquired during the apprenticeship training period.
- It represents a **formal qualification frame** with a well-defined time budget, training institutions (mostly company and vocational school) and curriculum.
- It induces special **modalities of examination** and leads to an **entitlement** (issued by a Chamber) which confirms the acquisition of the predefined vocational competencies.

(e) Employability (Beschäftigungsfähigkeit) – definitions and concepts ⁽¹⁾:

The definitions for employability significantly vary along the question of what aspect is placed into the center of discussion:

- (a) characteristics of those who ask for work / person who are employed
- (b) the offers of work and working structures
- (c) the interaction between (a) and (b)

(McQuaid & Lindsay, 2005, 197ff.).

Subsequently, the term of employability should not be translated one to one into the German term of **competence for employment** (Beschäftigungsfähigkeit).

Usually the (anglo-saxonian) concept of **employability** focusses very direct the perspective of the external as well the corporation-internal labor market

(see e.g. Forrier & Sels, 2003, 106; De Vos & de Hauw, 2010, 6).

Subsequently employability has to be understood as a term which is focussed by the requirements of the labor market and which only to a very limited extend also looks onto aspects of (vocational) educational theories (Berufsbildungstheorie).

(e) Employability (Beschäftigungsfähigkeit) – definitions and concepts ⁽²⁾:

Pacelli, Devicienti et al. (2008, 14) describe employability as follows:

„... ability of workers to remain attractive for the labour market in terms of their skills and qualifications, by reacting and anticipating changes in tasks and the work environment, facilitated by the human resources development opportunities offered to them.“

The focus is the „... marketability of individuals‘ cumulative skills“.

Subsequently, the responsibility to offer attractive human capital to the enterprises is put onto the shoulders of the individual even if informal learning at the working place will be understood as part of the concept of employability.

The frame concept of **employability** of *McQuaid & Lindsay (2005)* is built up by three domains of individual characteristics each of which contains a higher number of aptitudes, competencies and skills. These three domains are:

- **individual factors** like employability skills and attributes, health, mobility etc.;
- **personal circumstances** like single parent, age etc.
- **external factors** like working structures, payment etc.

(f) Vocational maturity (Ausbildungsreife/-fähigkeit) – definitions and pragmatic concepts ⁽¹⁾:

- Induced by the discussion and the relevant European Commissions of the EU, in Germany too, there is a movement from the German understanding of profession, professionalism etc. in direction of the anglo-saxonian understanding to employability and vocational maturity (see e.g. *van Buer*, 2012, 32f.).
- At one main point this movement can be noticed above all on the political, administrative and educational level: This point is the transit from the compulsory school (at the end of the Secondary I-level) into the system of vocational education and training:
- Nearly 90% of these school leavers want to go into the Dual System, but only 65-70% directly find an apprenticeship place in an enterprise.
- Emphasized by the **employers**, two arguments are central for this problem:
(see e.g. *Eberhard*, 2006; *Ebbinghaus & Loter*, 2010)
 - **lack of basic competencies** (reading, writing, calculation skills, broad knowledge background – and more and more IT competences);
 - **working attitudes** like diligence, punctuality, cleanliness, discipline, resilience ...

(f) Vocational maturity (Ausbildungsreife/-fähigkeit) – definitions and pragmatic concepts (2):

In the German debate about vocational education and training, there is an intensive conjunction between employers, trade unions and representatives of the science based discussion focussing VET – partly institutionalized by the common commissions of the Federal Institute of VET. These commissions have to cope the task to define the curricular and didactical frame of the actually actually 326 apprenticeships.

Based on a Delphi-study, the National Pact for Apprenticeship and Procreation of Qualified Employees has generated a catalogue of five domains, defined by a list of 25 characteristics for **vocational maturity**:

(see Bundesagentur für Arbeit, 2009; for the preceding Delphi-study see Eberhard, 2006)

- **basic knowlledge / competencies** to be acquired in the compulsory schools;
- **psychological dispositions** for ensuring learn and work performances;
- **physical characteristics** like physical resilience;
- psychological attitudes of working behavior and personality ;
- **carreer choice maturity**.

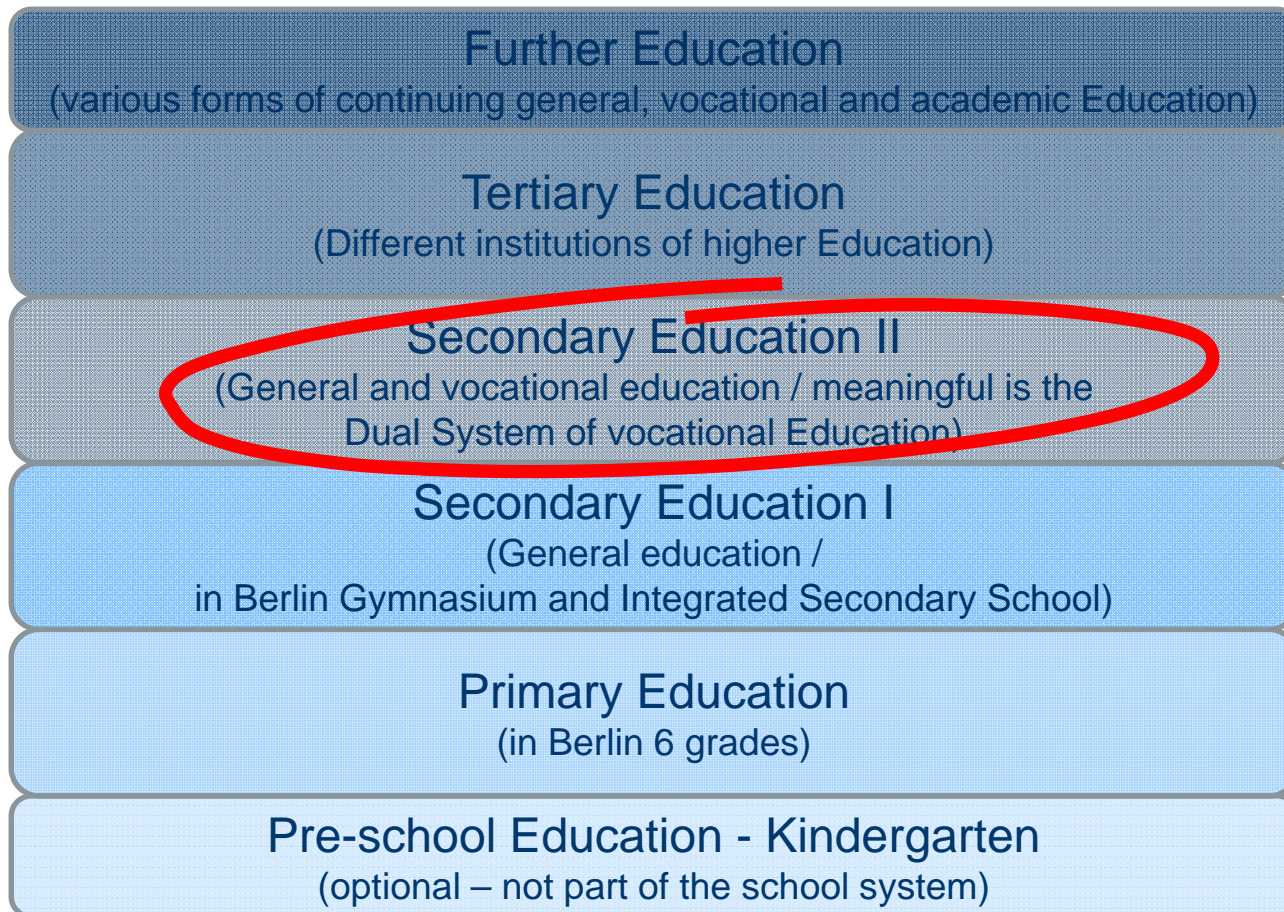


3

**Structure of VET –
Role of Vocational Schools
in the
German VET-System**



Basic structure of German educational system



(for overview and data to the German educational system see
Autorengruppe Bildungsberichterstattung, 2016)

Basic Structure of German Vocational Educational System

(for an overview see *Bundesministerium für Bildung und Forschung, 2017*)

Dual System

51%

- vocational education
- 2/3 company
- 1/3 vocational school

Full-time vocational schools

22%

- full-time vocational education
- 2 - 3 years

Transitional system

27%

- vocational and pre-vocational programmes
- providing basic vocational training
- does not lead to a recognised vocational qualification

Courses which lead to university entrance qualification

- Vocational grammar school, specialised upper secondary school, upper vocational schools

In Germany, the vocational schools usually are school centers, each with **20-40 educational programs** between

- **1-year-programs for weak learners** (with no or only basic school leaving certificate (full-time school) → transitional system;
- **3-years-programs of vocational education** in a specified vocational domain (full-time school /Berufsfachschule; school equivalence to Dual system);
- **3-years-program of vocational education** in a Dual System apprenticeship (part-time school; 2 days per week);
- **full-time programs** leading to full or limited university entrance qualification (Fachoberschule = specialized vocational school; last three years of grammar school = gymnasiale Oberstufe; upper vocational school = Berufsoberschule);
- **further education** → vocational academies (vocational evening classes).

Subsequently, the function of a vocational school significantly varies along the structure / type of its vocational and educational programs

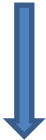
(see e. g. *Kultusministerkonferenz*, 2009; 2014a).

Usually, it is expected, that a teacher is able to teach his/her subject matters in the different programs at different curricular level and levels of cognitive standards.

Federal Minister for Education and Research



Federal Institute for Vocational Education and Training (BIBB)

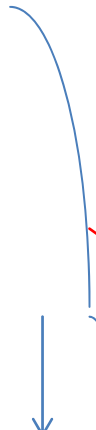


Group of Experts for Defining the Recognized Occupations Requiring Formal Training

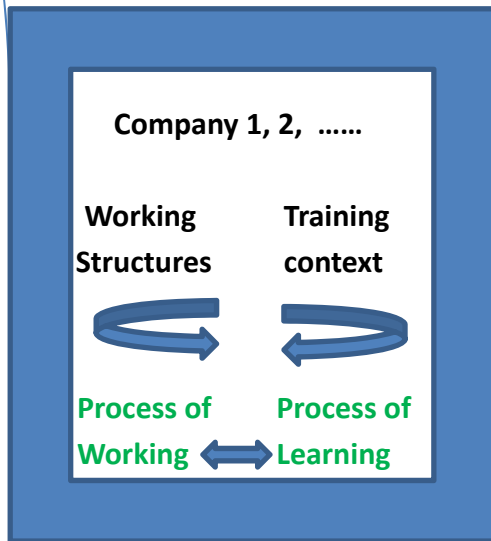


Representatives of the „Market“, Trade Unions Science, Conference of Ministers of Education

M
A
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Regional Chambers



Working Structures – Learning Fields



16 Federal States



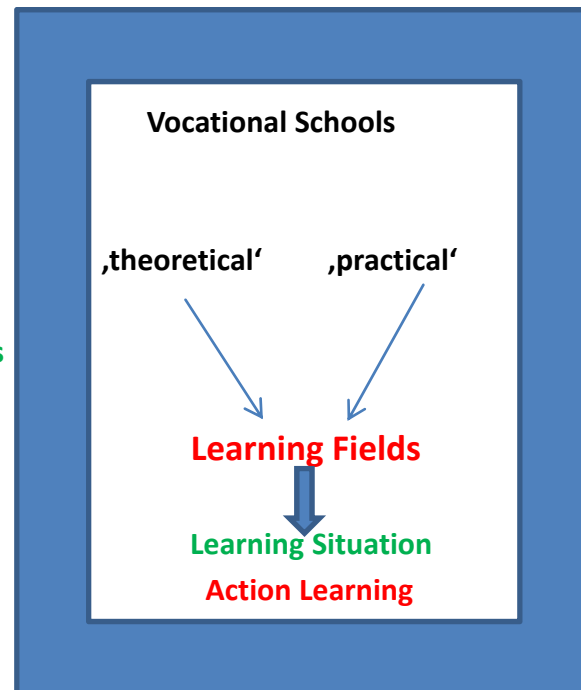
(Ministers of Education and Cultural Affairs)

Standing Conference of the Ministers of Education and Cultural Affairs



Consensual Frames for i. g.

- curricular programs of comprehensive and vocational schools
- pedagogical and didactical concepts
-



(as an overview about governance in the Dual System see e. g. Kuhlee, 2014)



4
Teaching-Learning-Processes
in VET School Instruction
—
Some Notes about
Pedagogical Concepts

Competence as a basic concept for school learning

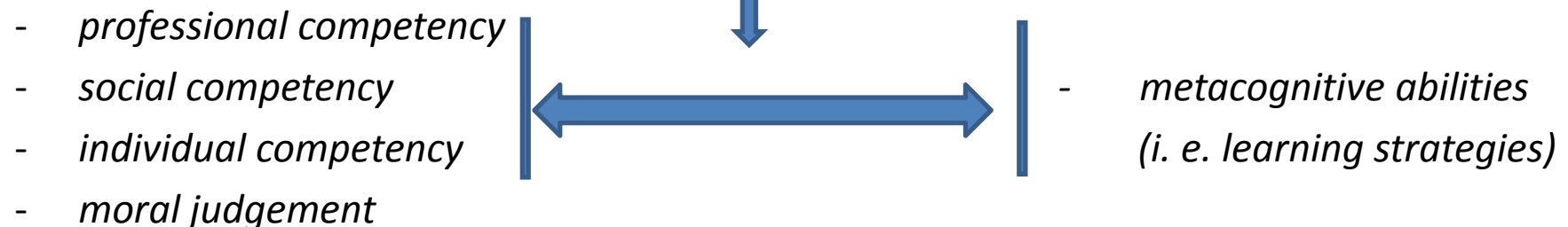
In Germany, the **Standing Commission of the Federal Ministers of Education** (Kultusministerkonferenz) arranges the basic curricular and didactical concepts for the educational system along a model of **competence**. The pedagogical construction of **basic qualification** grounds on this concept. This is valid for this vocational schools, too

(for the general concept of competence and basis educational standards see *Klieme, Avenarius et al.*, 2003; *Kultusministerkonferenz*, 2004; *Kultusministerkonferenz*, 2010);
for the construct of vocational competency see e.g. *Breuer*, 2005).

For the German educational system, **competency** is understood as

the cognitive abilities and skills available or learnable by individuals for solving defined problems. And they are the connected motivational, volitional and social attitudes and abilities to use problem solving in variable situations in a successful and responsible way.

(Weinert, 2001)

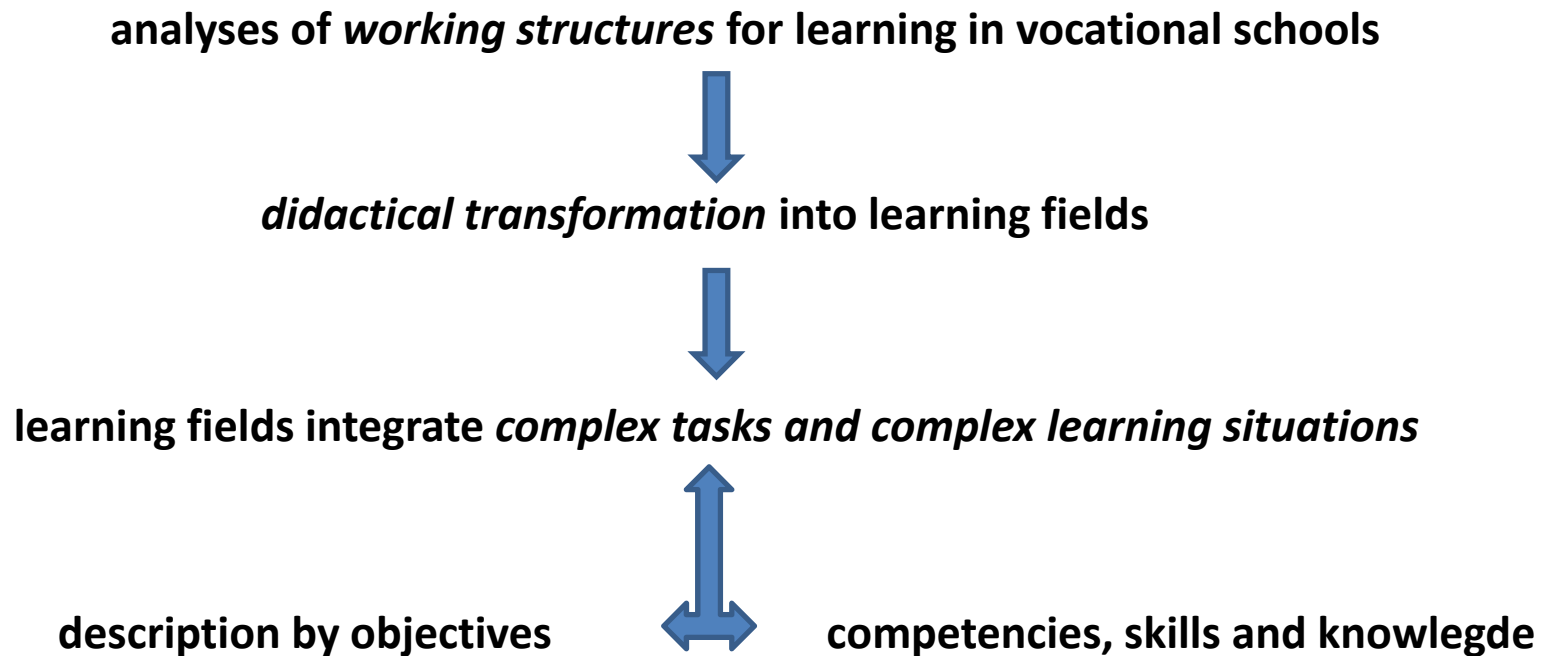


Learning fields as a basic construct for vocational school instruction

Learning fields are pedagogical constructions which are oriented primarily along relevant working structures and situations in companies

(see e.g. *Clement, 2003; Kultusministerkonferenz, 2011/2017;*

the numerous publications about worksheets in learning fields in specific vocational learning segments like *Fischer & Gscheidle, 2014, 2015, for automotive engineering*).



Preliminaries (1):

- Germany is a **Federal State** which consists of 16 Federal States. Regarding the educational system, each of these Federal States can act with **high autonomy**
(to the general constitution of the federal structure of Germany see e.g. *Detterbeck, Rensch & Schieren, 2009*).

- Founded in 1948, the **Standing conference of Ministers of Education** (Kultusministerkonferenz) is the central board in Germany to coordinate the development of the educational system:
 - for the **structural frame** of the educational system as well as for the vocational school sector;

 - for the **curricular frame** in the different school domains/subject matters;

 - for the **general background in didactics, psychological concepts** etc. (e.g. concept of competencies; action-centered teaching concepts ...);

 - for concept of the **final examinations for the school leaving certificates** (for the secondary school/Mittlerer Schulabschluss and for the university-entrance diploma /Abitur);

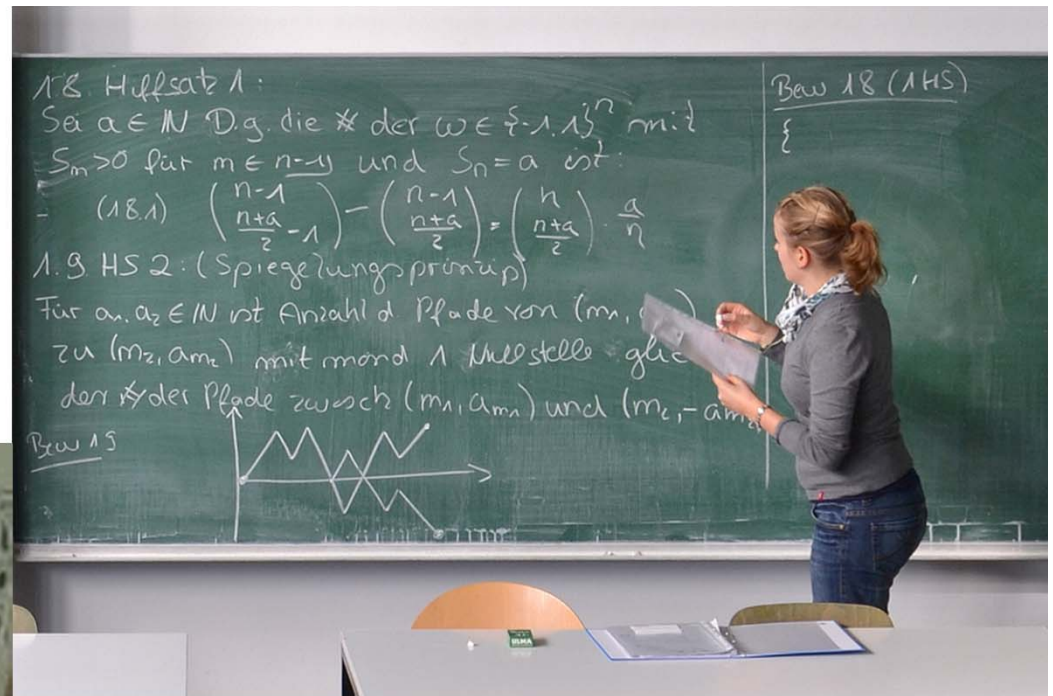
Structure of the expertise generated in March 2012 for the German National Educational Panel Study (NEPS)

Preliminary notes

- In the next screen you will find the structure of the main points of the expertise from 2012. This might give you an idea what aspects of VET discussion in Germany (and the German speaking countries) you would find in this paper.
- When the reflections in this paper can be relevant for the development of the unit of excellence, I would integrate the discussion from 2012 on till now and complete the references to the actual situation. I would do this together with two former assistants of mine – *Dr. Jana Rückmann* and *Dr. Kathrin Petzold-Rudolph*. This work would be done above all in July and August 2018 . The whole (actualized) text would be written in German language and would incorporate about 100 pages and might be translated into Spanish. It would be most interesting for the increase of relevance to speak about some relevant research lines in the project before finishing the text.

Table of contents of the expertise

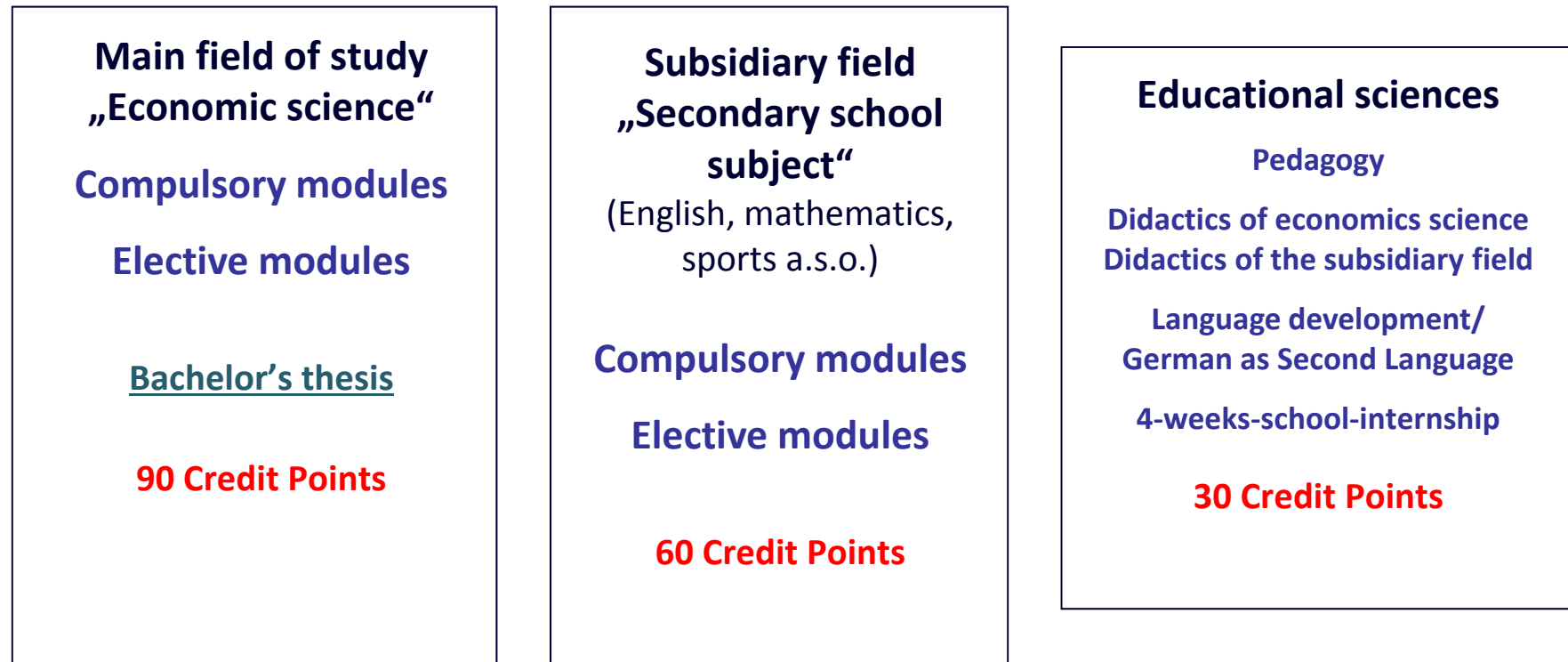
- **1 Introduction: Crossprofessional Competencies at the point of intersection of different discussion lines**
(characteristics of personality / working attitudes, key qualifications, competencies, psychometric tests for “vocational aptitude” and “working attitudes”; structure of the labour market, profession, professionalism, employment; vocational education and training as process and output) *(about 10 pages)*
- **2 Profession, professionalism and apprenticeship, heterogeneity of school leavers and their demand for professional training in the frame of apprenticeship, and structures of the labor market – an outline to the contexts of individual development by vocational education and training and professional work** *(about 20 pages)*
- **3 Discussion lines and constructs in the context of crossprofessional competencies**
(unqualified workers and their lack of working attitudes – a very traditional discussion in Germany; vocational maturity – critical remarks on the capacity of this construct; employability; key qualifications between generic and job specific skills; European Qualification frame as background for national VET discussions; psychometric tests in the field of VET; summarizing discussion about the support of these constructs for defining crossvocational qualifications) *(about 50 pages)*
- **4 Crossvocational qualifications – ways of definition**
(critical comment to competence construct as a boom of self-description for the educational system; problems in defining the contextuality of competencies (in VET); definition of crossprofessional competencies – a four-level-model) *(about 15 pages)*
- **5 Generation of the construct “crossprofessional competencies” in the frame of NEPS** *(about 10 pages)*



5
Initial Teacher Education for
Vocational Schools in Germany
 –
a Short Overview

Initial Teacher Education - Bachelor's Program (6 semesters, 180 Credit Points)
(valid for the Federal State of Berlin)

(see *LBIG*, 2014, Abschnitt 2)



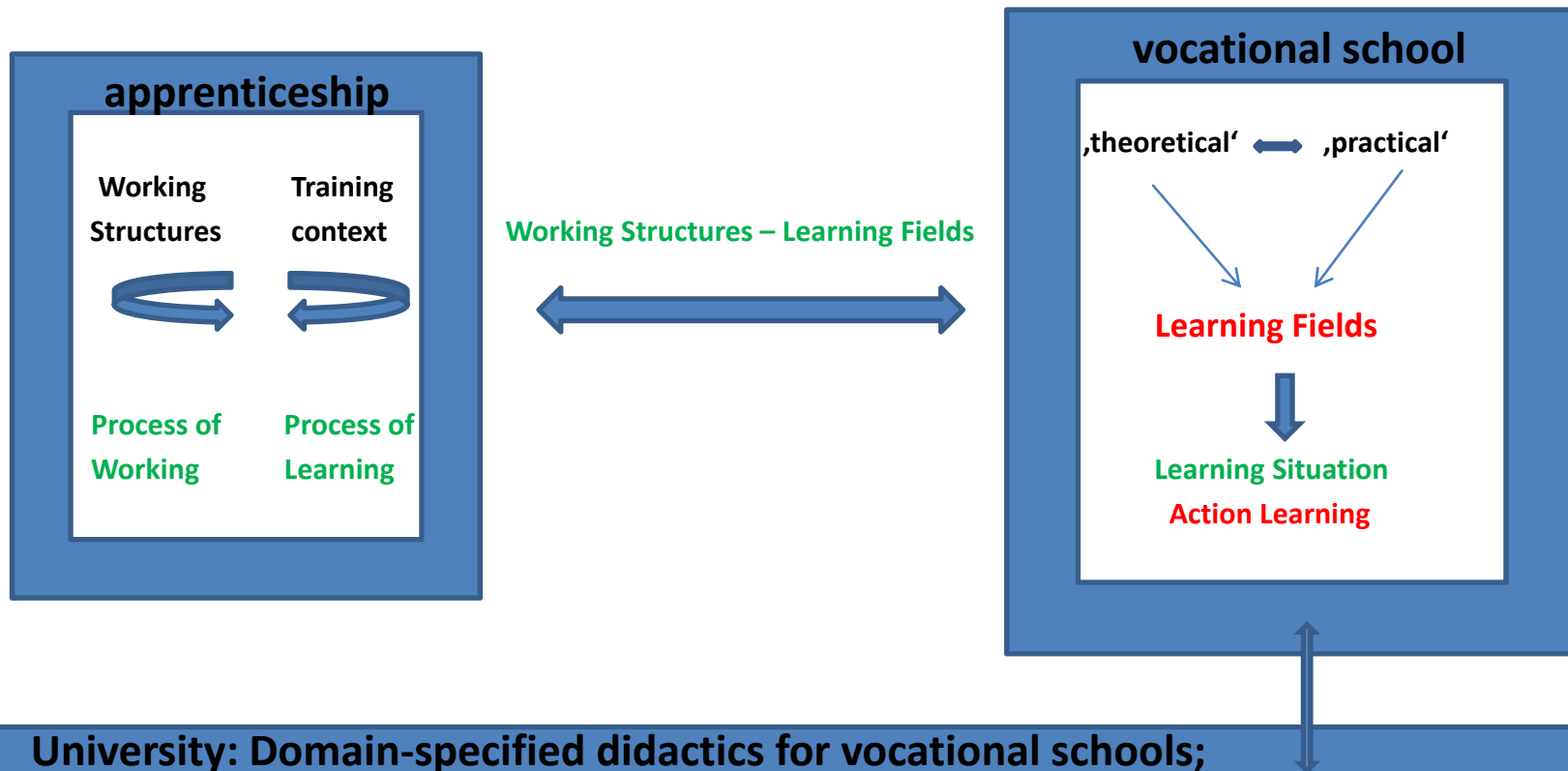
Initial Teacher Education - Master's Program (4 semesters, 120 Credit Points)

Main field of study „Economic science“	Subsidiary field „Secondary School subject“	Educational sciences
Academic knowledge subject discipline 15 Credit Points	Academic knowledge subject discipline 20 Credit Points	Pedagogy 23 Credit Points
Special Didactics 22 Credit Points	Special Didactics 22 Credit Points	Language development 3 Credit Points
Master's thesis 15 Credit Points		

Third Master-semester: practical semester/school internship (three days at school and one day at university)

→ The students have to teach Σ 36 lessons at their own responsibility, but accompanied/guided by a teacher as well as by the university lecturer responsible for the special didactics.

Interaction of pedagogical concepts in apprenticeship, vocational school and Initial teacher education



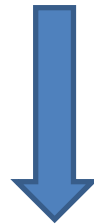
University: Domain-specified didactics for vocational schools;

- Terms and concepts of domain-specified didactics in economics, technics, engineering, agriculture a.s.o
- Models for self-oriented learning, cognitive apprenticeship, action-oriented teaching procedures, complex project management ...
- Concepts for testing complex problem solving in working structures

Pedagogical concepts in university teacher program and in state internship

University: Domain-specified didactics for vocational schools

- Terms and concepts of domain-specified didactics in economics, technics, engineering, agriculture a.s.o
- Models for self-oriented learning, cognitive apprenticeship, action-oriented teaching procedures, complex project management ...
- Concepts for testing complex problem solving in working structures



State Internship (12 months)

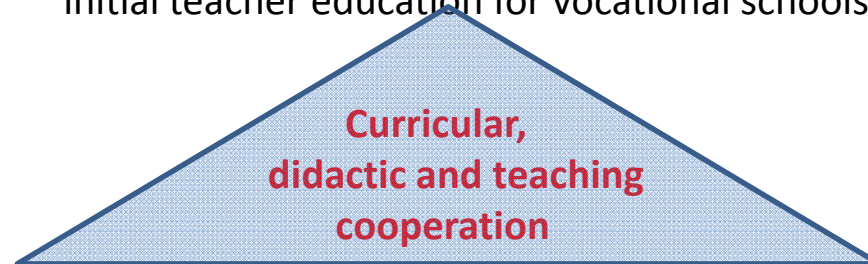
- Experiences in teaching (in 2 subject matters and usually in 2 or 3 different vocational programs), 15-18 hours per week
- Practical versions of domain-specified didactics
- Legal frame of teaching/schooling
- Experiences in administrative aspects of teaching/testing/schooling ...

2016: Σ *teacher at vocational schools in Germany* → 6.229
Annual demand for new teachers at vocational schools: → 1.000-1.200

In vocational schools in Germany work **teachers with three different ,types‘ of training/study background**. They usually generate three overlapping, but nevertheless different modalities of professional identity:

**teachers for the ,theory based‘
vocation domains**

(they have passed an apprenticeship or several years of employment and initial teacher education for vocational schools)

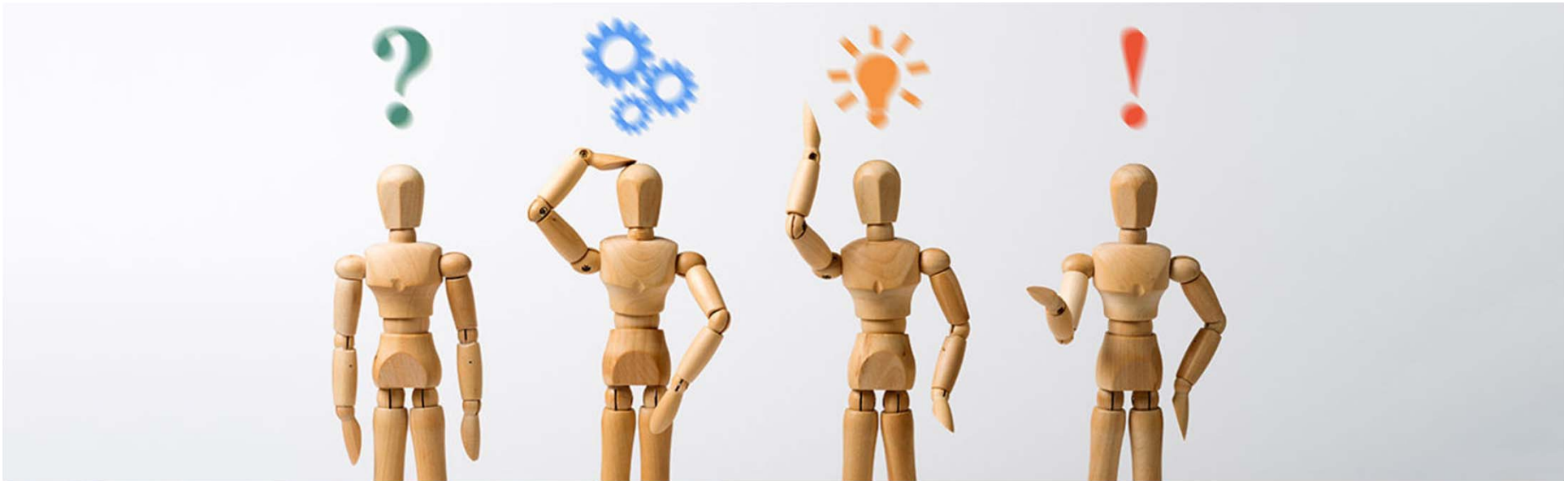


**teachers only for the
compulsory school subject matters**

(no apprenticeship or employment outside school, initial teacher education for 2 compulsory school subject matters)

**teachers for practical
vocational teaching/training**

(apprenticeship, Meister-qualification or equivalent, several years of employment)



6
Research Lines
in VET and
in Initial Teacher Education
for Vocational Schools



Institutionalized Contexts

In Germany, there are about **100 university professorships in pedagogics for VET** which beside duties of teaching in initial teacher education for vocational schools are requested to generate research in VET.

Two central resources for the financial support in research:

- German Research Foundation (Deutsche Forschungsgemeinschaft);
- German Federal Ministry for Education and Research
 - different lines of research support, actually e.g.
 - digitization, quality of university teaching, future of care and care qualification, school-leaving certificate and apprenticeship, integration of university dropouts into VET.

Furthermore, there are some university external institutions which work in the research fields of VET. The most relevant are

- Federal Institute of Vocational Training (BIBB; Bonn);
- Institute for Employment Research (IAB, Institut für Berufs- und Arbeitsmarktforschung, Nürnberg);
- German Institute of Economy → research line in „Education and Family“.

Central research lines in VET ⁽¹⁾

Transit from the compulsory schools into VET into labor market:

- from compulsory school leaving into VET:
 - transit of weak learners into the transitory VET-programs
 - Transit of weak learners from the transitory VET-programs into the Dual System

(see e.g. *Schumann*, 2006; the articles in *Bertelsmann Stiftung*, 2011)

- from VET into the labor market
 - into the different sectors of the labor market,
 - into the low wages sector, into precarious employment

(for an overview on studies about the transit from vocational education into the labor market see *Langenkamp & Linten*, 2017a).

- biographic structures of success in education and access to employment

(see the articles e.g. in *Becker, Grimm, Petersen & Schlauch*, 2013).

Central research lines in VET (2)

- **Weak / unsuccessful Learners leaving the compulsory schools:**

- (non-)successful learning in the transitorial systems

(see e.g. *Schumann, 2006; Badel, 2014*)

- social disadvantage, biographic structures and learning output in VET;

- learners with migration background in VET

(see e. g. *Schittenhelm, 2005; Scherr, Janz & Müller, 2015*)

- learners with refugee background in VET

(as an overview on studies see *Langenkamp & Linten, 2017b*)

Central research lines in VET (3)

- **Input- and Output-Competence in VET:**

- psychometric measurement of competence increase of the VET domains

(for the economic domains in VET see e. g. *Winther, 2010*)

- **Effectivity of Classroom Procedures in Vocational Schools:**

- inclusive education

(see the articles e.g. in *Zoyke & Vollmer, 2016*)

- digitization and learning

(see e.g. *Zierer, 2017*).

Research lines in teacher education (for vocational schools)

- **Teaching quality in university**

(Research line supported by the Federal Ministry of Education and Research)

- **Non-traditional Students / First Generation students**

(most relevant for teacher education for vocational schools
as this career is a very traditional career advancement in Germany)

(see e.g. *Wolter, Kamm, et al. 2017; Dahm, Kamm, Kerst et al., 2018*)

- **Output competences of initial teacher education**

- during initial teacher education

(see the articles e. g. in *Zlatkin-Troitschanskaia, Toepper et al., 2017;*
Zlatkin-Troitschanskaia, Pant, Toepper et al., 2017)

- at the end of initial teacher education and at the end of state internship
(1st state exam)

(see e.g. *Brachem & Schaeper, 2017*)



Thank you for your attention



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4 Teaching-Learning-Processes in VET School Instruction – Some Notes about Didactics ⁽³⁾

Basic structure of a „complete action“ as didactical guide line

