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**Transdisciplinary Skills**  
-  
**New Perspectives for Old Virtues**  
**between Acquisition of Skills and Profession**

Ladies, Gentlemen!

I begin my short reflections by emphasizing: I feel highly honored that you give me the chance for the following keynote just at the very beginning of your meeting. Before beginning my reflections on this very actual topic I hope you had a wonderful weekend at Berlin. And for the following days, beside all the work you have to do, I hope you can continue to explore the manifold cultural life in Berlin.

„Transdisciplinary Skills -  
New Perspectives for Old Virtues between Acquisition of Skills and Profession“

### **1 Transdisciplinary skills – a very actual debate**

This topic can reclaim increasing topicality in the discussions about how to govern the educational system, how to acquire high professionalism as well as how to stabilize and upgrade the structures of employment and working processes. The topic is relevant not only for employers and policy makers, but also for employee representatives, professional schools and non-governmental providers.

Three introducing examples may characterize the main guide lines of this discussion:

(a) Referring to the complaints of enterprises and companies, in 2008, the chambers in Switzerland organized a survey based on their members (see *Stalder & Stricker* 2009). This standardized short survey shows: The picture of the „good apprentice“ follows a very traditional model with key characteristics as „application“, „conscientiousness“, „punctuality“, „tidiness“, „convenient manners“ a. s. o.

(b) This catalog seems to be very close to the „work virtues“ in the debates of the 60ies and 70ies of the last century. There, in the context of the so-called „Jungarbeiter“, the young untrained workers (see, e. g. *Seubert* 1984), empirical studies identified the recurring key points of this discussion: „readiness to work“, „punctuality“, „cleanliness“, „discipline“ and „respect and manners“ (see, e. g. *Kloas & Stenger* 1979; *Schweikert* 1979).

(c) Furthermore, in 2009, the German Federal Labor Market Authority – die Bundesagentur für Arbeit (*Bundesagentur für Arbeit* 2009) – created a catalog of basic characteristics for trainability – „Ausbildungsreife“. This catalog was only in the first in a longer row of catalogs published by employers and their institutional agencies during the last 20 years. It points out the following main categories in the sense of basic key qualifications –

- „basic knowledge“ in mother language, mathematical understanding a. s. o.,
- „psychological characteristics in achievement and performance“,

- „physical characteristics“,
- „psychological characteristics of working behavior and personality“ as well as „maturity in career choice“ (Berufswahlreife).

But not only in the field of „practice“ related to training, apprenticeship and employment, but also in “theory” – at least in Germany –, there is a reanimated debate in the relevant scientific disciplines. Above all the empirical research about teaching and learning in general as well as in professional schools and research about the vocational education and training in companies and enterprises gains in importance (see, e. g. the contributions in *van Buer & Wagner 2007*). In consequence of the international and national surveys like PISA, TIMSS and other (see, e. g. *OECD 2003; Bos, Bonsen, Baumwert et al. 2008; Klieme, Artelt, Hartig et al. 2010*), during the last 15 years, the studies for national and regional educational monitoring were concentrated on analyzing how well children and young people acquire competencies for efficient learning and knowledge significant for the active participation in social live (see, e. g. *Lehmann, Peek et al. 2000*). In the last years, attention is also increasingly focused on the so-called „old work virtues“ or „work ethics“. More and more, these skills or key qualifications are understood as supporting the learning processes as well as being indispensable for reaching high output-stability in working processes (see, e. g. the contributions in *Arnold & Müller 2006*).

Closing my preliminary remarks: *On the one hand*: The development of transdisciplinary skills in vocational training and employment seems to provide a key focal point for various institutional groups. Given the increasing networking in employment markets and the attempt to create a political consensus regarding conditions for managing this networking in the European Union, the European debate is exerting increasing influence on the conditions in each nation state. These influences are becoming more prevalent, and this is happening against the background of increased pressure on skills profiling (see, e. g., *Baethge, Achtenhagen et al. 2006*). *On the other hand*: The significantly different structures in national labour markets and in employment systems as well as in the vocational training systems, generate different contexts for the discussions about these transdisciplinary skills, about how to value them, and in consequence, how to work out curricular structures integrating the specific competencies and knowledge on the one hand and these transdisciplinary skills on the other. This problem becomes evident in the debates actually running in each country and when looking at the decisions in the fields of regional vocational and educational policy as well as in the field of economic and employment market policy (see, e. g. the contributions in *Brockmann, Clarke & Winch 2011*).

For the residual time I will follow three different lines to elaborate: (a) I will line out the main characteristics of the German discussion, and therein I focus on the very topical debate about the „Ausbildungsreife“ (trainability) of those young people who leave the schools at the end of their compulsory school attendance at the age of about 16 or 17.

Just here, it has to be noted that the German context of this discussion is a very special one. In consequence, it is quite difficult to find a suitable Translation for the term „Ausbildungsreife“ (see, e. g., *Brockmann, Clarke, Winch et al. 2011, 168ff.*). Generally, in the field of vocational education and training, the translation of German terms into

English and vice versa remains particularly challenging. So it is not surprising that the term *Ausbildungsreife* can be translated only with significant semantic losses by the term „trainability“.

(b) I will follow the concept of employability influenced more by the European discussion, not least generated in the context of the European qualification Framework. (c) I will characterize the model of „überfachliche Kompetenzen“ – transdisciplinary skills – which has been generated by *Merki & Grob* (2005).

## 2 Trainability (*Ausbildungsreife*) and transdisciplinary skills – the German debate

As just mentioned, the term „*Ausbildungsreife*“ is deeply integrated into the German model of vocational education and training, essentially characterized by the so-called Dual System. To bring to mind this special German context for you, some spotlights which focus on the bases for generating concepts of „*Ausbildungsreife*“ should be appointed. Two of these spotlights are “Beruf” (profession) and “Beruflichkeit” (professionalism) as key categories for linking the structure of the German system of vocational education and training with the labour market and system of employment (see, e. g. *Reuling* 1998; *Lempert* 2006; *Hanf* 2011; *van Buer & Fehring* 2013). Focusing on the field of transdisciplinary skills, you can find terms like “Arbeits tugenden“ (work ethics), “berufliche Kompetenzen“ (vocational skills), “extrafunktionale Qualifikationen“ (extra-functional skills), “berufliche Handlungsfähigkeit“ (vocational aptitude) a. s. o. The list of terms mentioned in this context might certainly be expanded.

One of the best accredited concepts for defining the term „*Ausbildungsreife*“ – at least in the field of politics – is the „criteria catalog of trainability“ published in 2009 by the German Federal Labor Market Authority (see *Bundesagentur für Arbeit* 2009). It is based on an older concept of the „Lenkungsausschuss des Nationalen Pakts für Ausbildung und Fachkräftenachwuchs“ from 2005 (see *Bundesagentur für Arbeit* 2005). This concept focusses on the categories of

- „*basic competencies and knowledge*“ like reading competency, faculty of speech and expression, basic competence in mathematics and basic knowledge about economic relations;
- „*general intellectual achievement*“; here you find cognitive skills such as concentration aptitude, capacity of reaction, retentivity, creativity, special sense“ a. o. (see *Eberhardt* 2006, 19),
- „*physical and personal resilience*“ like power of endurance, frustration tolerance and coping, skills which focus on the perspective to master an 8-hours-working-day,
- „*social and personal competencies*“ like the just mentioned traditional work ethics, but also self-organization, self-assurance, communication skills, skills for solving conflicts a. s. o.

Generated by a circle of experts from different institutions engaged in labour market and employment, the German Federal Labor Market Authority requires to produce a *standard catalog* for defining “*Ausbildungsreife*” (trainability) by formulating a set of reliable indicators for each category (see *Bundesagentur für Arbeit* 2009, 6f.). Looking at the time given for my key note I can only characterize the central aspects of this concept. It consists of 25 main

categories, each defined by up to 7 indicators ranked according to the significance the experts give to them. For the main category of „basic knowledge and competencies“ you may find references to the relevant literature focusing on the curricular construction in compulsory schools or in the tests elaborated e. g. in the framework of PISA etc. when you follow a literacy-approach (see, e. g. *Baumert & Artelt 2003*). But for the other categories, e. g. for „frustration tolerance“, in the catalog of the German Federal Labor Market Authority, there is no link to the relevant psychological research and construction of test a. s. o. In consequence, the definitions can be characterized as epistemological convictions born from all-day experience. That does not have to be a far-reaching deficit, but the danger is highly visible. The generated categories reflect most of the characteristics just mentioned by the older concept of the Lenkungsausschuss from 2005 (see *Bundesagentur für Arbeit 2005*). To give you an impression about the approach how the categories in the catalog are defined I present you the definition of „Durchhaltevermögen und Frustrationstoleranz“ (power of endurance and frustration tolerance): At the very beginning, it has to be noted, that in psychological research the two terms linked in this category, are handled as two different aptitude or traits which do not correlate too extensively.

The definition of this category is the following one (*Bundesagentur für Arbeit 2009*, 42f.):

„The young persons are able, even against internal and external resistance and in the case of failures and disappointments, to follow an aim or objective for a manageable space of time“.

For defining this category, you find 5 indicators. The most significant is:

„He or she finishes a task only when he or she has completed it“ (42).

The last two indicators, more in the sense of optional indicators, are (42):

- „He or she is able to identify external difficulties, reversals and burdening events and to develop ideas of solving the problems“.
- „He or she is able to reflect on internal resistance and to master it in a constructive way“.

Main criticisms directed at this catalog are that it follows everyday plausibility and is quite detached from any scientific foundation, above all in education and psychology (see, e. g. *van Buer & Fehring 2013*). Referring to the research to so-called implicit theories of professional actors (see, e. g. *Hofer 1986*), this catalog represents the attempt to standardize the everyday semantics of the term „Ausbildungsreife“ (trainability) as it is used in politics as well as in the business world. It starts from the perspective that the applicant has to cash these demands as a debt to be discharged just at the moment when he or she begins the apprenticeship/training process and that it does not reflect on the interaction between the personality of the young applicant or worker and the training or working conditions (see, e. g. *Dobischat, Kühnlein & Schurgatz 2012*, 75f.).

### **3 Employability and transdisciplinary skills – the European debate**

The European Qualification Framework (EQR) and in consequence the National Qualification Frameworks (NQR) can be understood as one of the most effective pressures for making the

results of educational and training systems in the European Union more and more comparable – as well as any skills acquired by individuals through their work activities (see, e. g. *Gnahn* 2011; für den DQR see. e. g. *Arbeitskreis Deutscher Qualifikationsrahmen* 2011). For generating these frameworks, economic and labor market considerations formed a striking point of departure. They are based on a key conceptual understanding of what is meant, e. g., by „jobs“ and „occupations“, and to a lesser extent by „trades“ (see, e. g., *De Grip, Van Loo & Sanders* 2004). Considerations regarding „Beruf“ and the professions-based organization of the labor market (see, e. g. *Lempert* 2006) did play nearly no role – and they continue not to. The criticism regarding the negotiated categories and their significance is obvious, and also quite sharp, above all from an scientific perspective (see, e.g., *Baethge, Achtenhagen et al.* 2006). So it is not surprising that e. g. the *ITB Working Group* (2008) pointed out that the aim of the EQR to specify areas and cross-professional skills is empirically unsustainable. In consequence, the EQR and the NQRs have to be considered as pure normative based frames which might help to govern the labor market policy. The growing danger becomes obvious that the educational and training systems will be subordinated to the needs and requirements of the employment system (see, e. g. *Heid* 2007). But regardless of all criticism it has to be pointed out that the EQR and in consequence the concept of employability play an increasing role in the European discussions and, step by step, in Germany, too.

The debate on employability has led to a wide range of definitions and ideas (see, e. g., *McQuaid & Lindsay* 2005, 197ff.). *De Vos & De Hauw* (2010, 6) highlight the following consideration: In the concept of employability, the viewpoint of the labor market is usually taken quite strictly, both with regard to the external and to the internal labor market. *Pacelli, Devicienti et al.* (2008, 14) describe employability as follows:

Employability can be understood as the „...ability of workers to remain attractive for the labor 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“.

Overall these consideration lead to the option to optimize the „... marketability of individuals‘ cumulative skills“.

The general focus in the concept of employability is put on abilities, skills, competencies and attitudes – work ethics. These are regarded (a) in horizontal terms – economy, industry and trade – as well as (b) in vertical terms – simple work to complex work structures, as non-specific to the workplace, you could say transdisciplinary. Looking into the European debate, you can find different concepts to open the general ideas of employability to empirical studies and surveys. So the framework of *McQuaid & Lindsay* (2005) points out three areas of characteristics (1) individual factors, (2) individual context and circumstances and (3) external factors. The individual factors are differentiated into 6 subcategories which concentrate on individual characteristics of employability. To give you an example, three of these six subcategories are –

- „essential attributes“ - like basic social skills, honesty and integrity, basic personal presentation, reliability, willingness to work, (understanding of actions and consequences, positive attitude to work, responsibility and self-discipline),

- „skills and competencies“ - like proactivity, diligence, self-motivation, judgement, initiative, (assertiveness, confidence and act autonomously),
- „key transferable skills“ - like reasoning, problem-solving, adaptability, work-process management, team working, (time management, functional mobility, basic IT skills, basic interpersonal and aesthetic customer service skills).

When you look at this concept it can be read as a catalog of characteristics which form the „ideal employee“; this is a person who is ready to adapt his or her individual development widely to the conditions offered by work and work place. And it becomes clear that it has no base in psychological modeling; it is a normative overall framework.

For Germany, there is the empirical study of *Apel & Fertig* (2009) to give an operationalized concept for employability based on a survey by phone of about 2.000 SGB-II- and SGB-III-clients. By factor analysis *Apel & Fertig* (17ff.) identify six main factors which they have evaluated by a second survey of about 4.000 unemployed persons. The six factors are:

- „*search for employment and activities for further education*“ – with the subscales of general activities of search for employment, preparation of self-employment and activities for further education,
- „*motivation*“ – with the subscales of intrinsic and extrinsic motivation,
- „willingness to concessions“ to accept economic losses – with the subscales of willingness to change profession and occupation, openness to regional mobility and openness to accept economic losses,
- „*cognition and self-concept* – with the subscales of well developed basic knowledge and competencies, well developed extrafunctional qualities and work ethics, self-confidence and basic IT-skills,
- „*social conditions*“ – with the subscales of social and familial support, integrated or disintegrated social environment, extended circle of friends, familial conflicts and physical health;
- „*psychological and somatic health*“ – with the subscales of physic pain and psychological problems.

*Apel & Fertig* (2009) can show that this system of indicators leads to stable correlations of in part middle effect-strength to the re-integration of the unemployed persons into the labor market.

#### **4 Überfachliche Kompetenzen – transdisciplinary Skills in the empirically based model of *Merki & Grob* (2005)**

In their empirical study with 25.000 young adults in Switzerland *Merki & Grob* (2005) identify six factors they understand as “überfachliche Kompetenzen” (transdisciplinary skills). These reliable factors are:

- “strategies of learning and working”: This scale includes strategies of planning, transformation-strategies and strategies of elaboration and evaluation processes and results,

- “self-concept and coping burdening emotions”: This scale focusses of self-efficacy, achievement motivation and relative autonomy,
- “political and economic knowledge, ecological knowledge and distance to politics”,
- “attitude towards migrants, social responsibility and gender attitude”,
- “extrinsic motivation for further education”,
- “emotional self-awareness, self- reflection and interpersonal responsibility and creativity”,
- “ability for autonomy and self-regulated learning”,
- “belief into volition”.

There are lots of critics to this model: Beside methodological arguments it seems to be based on a very general understanding of what might be a “good citizen” in a developing civil society, and it does not focus enough on the specific conditions of employment and occupation. But nevertheless, it becomes apparent that the study of *Merki & Grob* features a visible difference to the concepts of the *Bundesagentur für Arbeit* (2009) and those generated in the frame of employability. The main difference is to systematically include reflective abilities and attitudes towards society.

## 5 Conclusion

In the frame of my short keynote it is impossible to discuss in detail the complex field of transdisciplinary skills. In consequence, I have tried to offer you a short view into three different discussion lines: (a) the very German discussion about “Ausbildungsreife” and the skills described in these concepts, (b) the discussion of employability, favored in the European Union, and (c) an example for a model which focusses more on the role of employment and employees as well as the role of training and apprenticeship to society and social responsibility.

Whatever concept you favor, it is obvious that nearly all concepts have the character of political and economic arrangements and agreements and that they are lacking a foundation in empirical research more or less entirely. Most of these concepts have to be understood as normative catalogs of a “good apprentice” or a “good employee” based on everyday experience and historically passed down convictions. Maybe they can be an acceptable starting point, but not more. What they lack, is empirical research and a reflective distance to the conditions of training, occupation and employment which in some of the concepts seem to gain the character of indisputable ‘natural laws’.

Sometimes, it can be helpful to look back at what has been developed decades before and to open it to new findings. When you look at the German discussion, it may be helpful to remember to the concept of “Schlüsselqualifikationen” (key qualifications), developed by *Mertens* (1974): There has been a lot of criticism of the concept. But nevertheless, it has to be stated that *Mertens* linked the economic view on what training and employment require from the apprentice and employee or worker to ideas of “Bildung” – also a very German concept which nearly can’t be translated adequately into other traditions of thinking; possibly, within the Anglo-American tradition it should be translated as the triangle of education, formation and literacy. Just in the middle of the 1970ies *Mertens* argued that it is vital to find a seminal

balance between the requirements of a developing civil society and economics – and to extend research about transdisciplinary skills exactly in this balance. So possibly there is a fair chance to transform the till now widely normative concepts into researched based and empirically tested models.

Thank you for your friendly attention.

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